GENDER DIFFERENCE IN THE SOCIAL PROBLEM-SOLVING ABILITY OF
DEPRESSED AND NON-DEPRESSED ADOLESCENTS

by

ERIN E. MOORS

B.A., Dalhousie University, 1994

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS OF THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

Faculty of Education; Department of Educational and Counselling Psychology
and Special Education; School Psychology

We accept this thesis as conforming
to the required standard

The University of British Columbia

May 13, 1999

© Erin E. Moors, 1999
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Educational and Counselling Psychology and Special Education

The University of British Columbia
Vancouver, Canada

Date June 22/99
Abstract

This study examined the relationship of depressive symptomatology and gender with social problem-solving ability in hopes of furthering the understanding of adolescent depression, and how gender and social skills relate to this disorder. It was predicted that non-depressed adolescent females would be better problem-solvers than non-depressed adolescent males, while depressed adolescent females would not differ in their social problem-solving ability from depressed adolescent males. Relevancy of means, accuracy of problem identification, the generation of alternatives, and consequential thinking were the problem-solving processes examined. Research questions were posed concerning possible interactions between gender and level of depression for perceived social problem-solving and problem-solving self-efficacy.

432 adolescents (265 females and 165 males) ages 13 to 20 (M = 15.92) completed a self-report measure of adolescent depressive symptomatology (Reynolds Adolescent Depression Scale; Reynolds, 1987). Those students demonstrating high depressive symptomatology were re-administered the depression measure one to two weeks later, along with two paper and pencil social problem-solving measures; the Social Problem-Solving Interview-Revised (revised from Connolly, 1989a) and the Means Ends Problem Solving Procedure (Platt & Spivack, 1975). Questions concerning perceived social problem-solving and problem-solving self-efficacy were also posed. Students demonstrating low depressive symptomatology were matched with this group and also administered the depressive symptomatology and social problem-solving measures. Students reporting consistent depressive symptomatology on both administrations of the depression measure made up the final group for analyses. The final high depressive symptomatology group included 19 females and 5 males, while the low depressive
symptomatology group included 26 females and 11 males.

There was a significant interaction between the quality of solutions generated and depression and gender. Non-depressed females were more likely to generate more positive solutions than non-depressed males. Depressed males and females did not differ in their quality of solutions. The low internal consistency of the subscale assessing quality of solutions makes results hypothetical. No other significant interactions, between gender and depression, were found for individual problem-solving processes.

A significant main effect for depression was found where depressed participants produced significantly more irrelevant means than non-depressed individuals. No significant gender differences were found for any area of social problem-solving.

There was not a significant interaction between gender and depression in perceived social problem-solving ability or problem-solving self-efficacy. A main effect for depression was found, whereby depressed participants perceived themselves as poorer problem solvers, both prior to and after solving the problem, than non-depressed participants. Results indicating depressed individuals have a lower perception of their problem-solving ability are consistent with cognitive theories of depression (Beck, 1967), suggesting negative self-perceptions are a key area of difficulty in terms of depressed individuals’ social skills. In relation to the other results of the study, perception of skills may be the primary area of the problem-solving process with which depressed individuals have difficulty.
# Table of Contents

Abstract ................................................................. ii

List of Tables ......................................................... viii

List of Figures ......................................................... x

Acknowledgements .................................................... xi

CHAPTER 1 ............................................................... 1

  Introduction ......................................................... 1

    Overview ......................................................... 1

    Social Problem-Solving and Depression ......................... 2

    Gender Issues .................................................... 6

    Purpose of this Study .......................................... 7

    Justification of this Study .................................... 7

    Summary .......................................................... 10

    Primary Study Hypothesis ..................................... 10

    Summary .......................................................... 11

CHAPTER 2 ............................................................... 13

  Literature Review ................................................ 13

    Depression ........................................................ 13

      Definition of Depression ..................................... 13

      Depressive Symptomatology Specific to Adolescents ..... 15

      Prevalence of Adolescent Depression ....................... 16

      Gender Differences in Adolescent Depression ............. 17

      Theories of Depression Related to Social Skill Deficits 19

      Cognitive Theories of Depression .......................... 20

      Behavioral Theories of Depression ........................ 21

      Pluralistic Model of Depression ............................ 24

    Summary .......................................................... 27

    Social Problem-Solving ......................................... 28

      Social Skills .................................................. 29

      Definition of Social Problem-Solving ...................... 29

      Theories of Social-Problem Solving ......................... 30

      Social Information-Processing .............................. 30

      Problem-Solving Process .................................... 32

      Gender Differences and Social Problem-Solving Skills 34

    Summary .......................................................... 36

    Social Problem-Solving and Depression ...................... 37
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Statement of Problem</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Primary Study Hypothesis</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Rationale</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Secondary Research Questions</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Question 1</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Rationale</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Question 2</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Rationale</td>
<td>62</td>
</tr>
<tr>
<td>4</td>
<td>Method</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Participants</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Materials</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Demographic Information</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Reynolds Adolescent Depression Scale</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Means Ends Problem Solving Procedure</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Social Problem-Solving Interview- Revised</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Problem-Solving Self-Efficacy and Perceived Problem-Solving</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>Procedure</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Scoring</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Means-Ends Problem-Solving Procedure</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Social Problem-Solving Interview- Revised</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Problem-Solving Self-Efficacy and Perceived Problem-Solving</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Design</td>
<td>83</td>
</tr>
</tbody>
</table>

Social Problem-Solving and Psychopathology 37
Specificity 39
Summary 40
Social Problem-Solving Ability and Depressed Adults 40
Summary 40
Social Problem-Solving and Depressed Children 43
Summary 47
Social Problem-Solving and Depressed Adolescents 48
Summary 51
Gender Differences in the Social Problem-Solving Skills of Depressed Individuals 52
Perceived Social Problem-Solving Skills and Depression 53
Problem-Solving Self-Efficacy 55
Summary 56
Summary 57
CHAPTER 5  
Results  
Preliminary Analyses  
Descriptive Statistics  
Reliability  
Primary Analyses  
Hypothesis  
Analyses  
Secondary Analyses  
Question 1  
Analyses  
Question 2  
Analyses  

CHAPTER 6  
Discussion  
Discussion of Results  
Social Problem-Solving in Relation to Gender and Level of Depression  
Social Problem-Solving and Depression  
Theories of Depression and Social Problem-Solving  
Social Problem-Solving and Gender  
Perceived Social-Problem Solving in Relation to Gender and Level of Depression  
Social Problem-Solving Self-Efficacy in Relation to Gender and Level of Depression  
Social Skills Training and Depression  
Limitations of this Study  
Participants  
Measures  
Format  
Reliability  
Validity  
Administration  
Scoring  
Statistics  

vi
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengths of this Study</td>
<td>120</td>
</tr>
<tr>
<td>Participants</td>
<td>120</td>
</tr>
<tr>
<td>Measures</td>
<td>121</td>
</tr>
<tr>
<td>Reliability</td>
<td>121</td>
</tr>
<tr>
<td>Method</td>
<td>121</td>
</tr>
<tr>
<td>Future Directions</td>
<td>122</td>
</tr>
<tr>
<td>Summary</td>
<td>123</td>
</tr>
<tr>
<td>References</td>
<td>126</td>
</tr>
<tr>
<td>Appendix A</td>
<td>137</td>
</tr>
<tr>
<td>Appendix B</td>
<td>140</td>
</tr>
<tr>
<td>Appendix C</td>
<td>142</td>
</tr>
<tr>
<td>Appendix D</td>
<td>144</td>
</tr>
<tr>
<td>Appendix E</td>
<td>146</td>
</tr>
<tr>
<td>Appendix F</td>
<td>150</td>
</tr>
<tr>
<td>Appendix G</td>
<td>154</td>
</tr>
</tbody>
</table>
List of Tables

Table 1. Descriptive Characteristics of Participants in the Initial Sample ........................................ 66
Table 2. Descriptive Characteristics of Participants in the Final Sample .................................................. 67
Table 3. Frequencies of Participants Meeting Criteria for Reassessment, and Matched Cases, According to Age, Gender, and Level of Depression ................................................................. 77
Table 4. Frequencies of Participants in Final Sample, According to Age, Gender, and Level of Depression and Mean RADS Scores at Both Assessments ......................................................... 79
Table 5. Summary of Social Problem-Solving Ability Scores achieved on the MEPS and SPSI-R and the Components Which Make up These Scores, Including the Range of Scores . 81
Table 6. Mean Scores and F Values for the Subscales of the MEPS Based on Gender and Level of Depressive Symptomatology .......................................................... 87
Table 7. Mean Scores and F Values for the Subscales of the SPSI-R Based on Gender and Level of Depressive Symptomatology .................................................. 88
Table 8. Mean Scores and F Values for the Perceived Social Self-Efficacy and Perceived Social Problem Solving-Ability Questions Based on Gender and Level of Depression ........ 89
Table 9. Intercorrelations (r) Between RADS, MEPS Subscales, SPSI-R Subscales, Perceived Problem-Solving and Perceived Social Self-Efficacy .................................................. 90
Table 10. Intercorrelations (r) between SPSI-R Subscales, Perceived Problem-Solving and Perceived Social Self-Efficacy .......................................................... 91
Table 11. Comparison of MEPS Mean Scores Between Current Study and Published Study ......................... 92
Table 12. Comparison of Mean SPSI-R Scores Between Current Study and Published Study . 93
Table 13. Internal Consistency ($r_a$) and Inter-Rater Reliability ($r_{icc}$) of the MEPS and SPSI-R

<table>
<thead>
<tr>
<th>Subscales</th>
<th>95</th>
</tr>
</thead>
</table>
List of Figures

Figure 1. Hypothesized interaction between gender and level of depressive symptomatology on social problem-solving ability .................................................. 12

Figure 2. Pluralistic Model of Depression proposed by Nezu ........................................... 25

Figure 3. Social information-processing model ................................................................. 31

Figure 4. Interaction effect between gender and level of depressive symptomatology on the Quality of Solutions Subscale (M) of the SPSI-R ................................................. 97
Acknowledgements

How do you begin to thank people for their unmeasurable support during an almost three year process of completing a Master’s thesis? I do not think a short page of acknowledgements can express the gratitude I have for those whose dedication has helped me achieve my goals.

My thesis advisor is an appropriate place to begin, as Dr. Reynolds’ consistent demand for high quality work created this end product. He challenged me to think further and deeper about issues than I thought possible, and as a result I can take great pride in my accomplishment.

Dr. Porath has been a role model to me over the years, and having her as a second reader was a great honour. Both her’s and my third reader’s (Dr. Baker-Sennett) insightful feedback and comments were greatly appreciated.

A special thank you to Stacey Bablitz, who through many phone calls, meetings, and a significant amount of scoring helped me in determining the inter-rater reliability of the measures used. Her time and commitment were valued.

An all important thank you is deserved of my fellow researcher, classmate, colleague, and most of all friend Diana Misic. It is through her support that I found strength and determination. I am most grateful for the friendship we forged through this process.

To my large and loving family, who always have had faith in me and the fact I would succeed, I thank you for your unwavering support.

A final and large thank you as well as a huge hug go to my husband, Greg. He moved to British Columbia to be with me as I completed my degree; I am sure he did not expect such an involved process. I am thankful beyond measure and am blessed to have had his help, efforts, support, and love through this experience.
Gender Differences in the Social Problem-Solving Ability of Depressed and Non-Depressed Adolescents

CHAPTER 1

Introduction

Overview

Research suggests that children exhibiting depressive symptoms generally have poor social relationships (Bell-Dolan, Reaven, & Peterson, 1993; Puig-Antich et al., 1985), are less liked (Peterson, Mullins, & Ridley-Johnson, 1985), and are more likely to be rejected by peers (Kennedy, Spence & Hensley, 1989) than their non-depressed counterparts. Still, little is known about the social skill deficits that may cause such poor interpersonal relationships for depressed individuals. Poor social problem-solving skills, a component of social skills, has been linked with the stress and poor coping skills in depressed adults (McLean, 1976; Nezu, 1987; Nezu & Ronan, 1985). This suggests social problem-solving is a key component in depressed individuals’ poor social skills.

Research in the area of interpersonal problem-solving and depression has shown contradictory results for adults (Blankstein, Flett & Johnston, 1992; Marx & Schulze, 1991), adolescents and children (Marton, Connolly, Kutcher & Korenblum, 1993). These findings suggest the need for further examination into the role of interpersonal problem-solving in depression, so as to better understand the deficits that may exist.

The majority of studies in the area of depression and social problem-solving have not examined gender differences. However, this is considered an important area of research due to the high prevalence rate of depression in females, which is first evident in adolescence (Hammen
& Rudolph, 1996; Nolen-Hoeksema & Girmus, 1994; Reynolds & Johnston, 1994), and the findings that females are better problem-solvers than males (Caplan, Bennetto, & Weissberg, 1991; Murphy & Ross, 1987; Rubin & Krasnor, 1983). Such findings suggest gender differences may exist in depressives’ problem-solving ability. Because depressed individuals’ social skill deficits are still an area to be understood, examination of gender differences in social problem-solving ability in relation to depression could offer important insight into depression.

**Social Problem-Solving and Depression**

The majority of the literature examining interpersonal social problem-solving skills and depression is primarily adult focused. The adult literature has shown varying results in the area of social problem-solving and depression (Blankstein et al., 1992), focusing on clinical and non-clinical samples.

Gotlib and Asarnow (1979) examined the social problem-solving ability of 58 undergraduate students, who were grouped as: clinically depressed, suffering from high levels of depressive symptomatology, a non-depressed clinical control, or a non-depressed control. Results indicated that both the clinical and high symptomatology group were significantly worse problem solvers than the clinical and non-depressed control groups, generating more irrelevant means to solve problems, non means, no response answers and fewer relevant means, and elaborating these means less on the Means Ends Problem Solving Procedure (MEPS; Platt & Spivack, 1975) (see Appendix A for definitions).

Marx, Williams, and Claridge (1992) reported two studies, the first examined clinically depressed, clinical control and non-depressed adults’ social problem-solving skills. The depressed participants developed fewer relevant means, less effective strategies, generated fewer
alternative solutions and acknowledged fewer potential obstacles than the non-depressed participants. The depressed and clinical control groups were not significantly different; however, the authors acknowledged that the clinical control group had higher depression scores than the nonclinical group, thus possibly affecting results. In the second study, using the same participants, Marx et al. (1992) found that when presented with a personal problem, as opposed to solving a vignette, as in Study 1, the depressed group was less effective in developing effective ideal solutions than both the non-depressed and clinical control groups.

Marx and Schulze (1991) examined social problem-solving in university students exhibiting high levels of depressive symptomatology. As in Gotlib and Asarnow's (1979) study, Marx and Schulze (1991) found that the depressed group generated less effective strategies to solve social problems than the non-depressed group. Further support for the notion that depressed individuals have poor interpersonal problem-solving skills was put forth by Nezu and Ronan (1985). This study examined the perceived social problem-solving ability of 205 undergraduate students. Results indicated that there was a significant correlation between level of depressive symptoms and perceived social problem-solving, with those who perceived themselves as poor social problem solvers exhibiting higher levels of depressive symptoms.

Although the majority of the research has found significant differences in social problem-solving between depressed and non-depressed adults (Gotlib & Asarnow, 1979; Marx et al., 1992; Marx & Schulze, 1991; Nezu & Ronan, 1985) there have been results to the contrary. Doerfler, Mullins, Griffin, Siegel, and Richards (1984) found that depressed and non-depressed women did not differ significantly in their social problem-solving ability. Similarly, Blankstein et al. (1992) found that depressed and non-depressed university students did not differ in their
social problem-solving ability. Mayo and Tanaka-Matsumi (1996) found that depressed and non-depressed undergraduates generated as many effective solutions to social problems but that depressed individuals generated more emotional-focused solutions and fewer problem-focused solutions in comparison to non-depressed individuals. Such inconsistent results in the literature suggests further research is necessary to clarify the role of social problem-solving in depressed individual’s social functioning.

Similar to the adult literature there have been variable results in the research examining the interpersonal problem-solving skills of children. Mullins, Siegel and Hodges (1985) found that depressed children produced more irrelevant means than non-depressed children; however, no difference was found in the number of relevant alternatives generated by the two groups. Sacco and Graves (1984) examined 40 children and found that depressed participants were poorer at considering alternatives, consequences, planning the steps of problem solutions and anticipating obstacles (known as the primary means-ends thought process) than the non-depressed group. Rudolph, Hammen, and Burge (1994) also found that depressed children differed significantly from non-depressed controls, with depressed children choosing significantly fewer socially acceptable strategies and significantly more hostile strategies. Goodman, Gravitt and Kaslow (1995) found that both the effectiveness of a solution and the negative life stress, but not number of alternative solutions, were significantly related to level of depression. Therefore, higher depression scores were related to more negative life stress and less effective alternative solutions.

As with depressed adults, Doerfler et al. (1984) did not find significant differences between depressed children and non-depressed children's social problem-solving ability. On
closer examination of the result, however, it is evident that there is a small but significant correlation ($r = .16, p<.05$) between being a child with high depressive symptomatology and producing more irrelevant means. Mullins et al. (1985) cite this correlation as evidence that depressed children are more likely to generate irrelevant means than non-depressed children. Such a small correlation may reflect statistical significance but does not reflect any practical significance.

Depressed adolescents' social problem-solving ability has received little focus (Joffe, Dobson, Fine, Marriage & Haley, 1990) and the research which has been completed has primarily used clinical samples. Joffe et al. (1990) and Marton et al. (1993) both examined social problem-solving skills of clinically depressed adolescents. Joffe et al. (1990) found no significant differences between the depressed and non-depressed groups on ability to problem solve or type of solution used (e.g., passive). Likewise, Marton et al. (1993) found there were no significant differences in social problem-solving ability or social perspective taking between the depressed group and a clinical and non-clinical control group. Doerfler et al. (1984) using a nonclinical sample, reported non-significant correlations between depression levels and the number of relevant and irrelevant means produced by the adolescents. Siegel and Griffin (1984) cite this relationship between depression and overall social means-ends problem-solving to be non-significant but do report a low, but significant, relationship ($r = -.21, p=.04$) between depression level and the generation of irrelevant means on a dating scenario. Adams and Adams (1991) offer support that adolescents have social problem-solving deficits. Participants exhibiting high levels of depressive symptomatology chose less constructive solutions on several interpersonal scenarios in comparison to adolescents exhibiting low levels of depressive
symptomatology.

Given that depressed individuals exhibit social skill deficits (Hammen & Rudolph, 1996), the research in the area of depressed individuals’ social problem-solving ability has not received enough attention. This is particularly true of the adolescent population (Joffe et al., 1990; Marton et al., 1993), as only a handful of studies in this area have been completed with this population. Moreover, the research that has been completed has not reported consistent findings. Such disagreement across the research may be attributed to differences in samples, methods and analyses completed. Therefore, investigation in this area is necessary to further understand the relationship between social problem-solving and adolescent depression. The current investigation will aid in clarifying this relationship by using multiple methods of assessing social problem-solving ability, using a reasonable number of adolescents exhibiting high and low levels of depressive symptomatology, and using measures designed particularly for use with adolescents. These methods will be discussed in detail in Chapter 4.

Gender Issues

Gender is also an area needing further research when considering depressed adolescents’ social problem-solving ability. That is, are differences in social problem-solving abilities among depressed adolescents specific to males or females? Rudolph et al. (1994) found that boys endorsed more hostile and fewer socially acceptable social problem-solving strategies than girls but there was no significant interaction between depression and gender on the child’s social problem-solving skills. Similarly, Goodman et al. (1995) found no gender effects in depressed children’s ability to social problem-solve. Sacco and Graves (1984) found no significant interaction between childhood depression, gender and perceived social problem-solving skills.
The majority of the studies in the area of depression and social problem-solving do not examine gender differences let alone the interaction between gender and depression, and no studies have focused on the possible gender and depression interaction as a primary research question.

The general depression literature indicates that females report more occurrences of depression than males, with this higher prevalence rate in females being first evident in adolescence (Angold & Rutter, 1992; Hammen & Rudolph, 1996; Nolen-Hoeksema & Girgus, 1994; Petersen, Sarigiani & Kennedy, 1991; Reynolds & Johnston, 1994). The general social problem-solving literature has indicated females to be better problem-solvers than males (Caplan et al., 1991; Murphy & Ross, 1987; Rubin & Krasnor, 1983). However, no study has examined the possible interaction that gender and depression may have on social problem-solving ability as a primary research question. Given the strong support that gender differences exist in each of these domains, this is an area in need of examination.

Purpose of this Study

The purpose of the study is to examine the social problem-solving ability of adolescents exhibiting high levels of depressive symptomatology (depressed) in comparison to those showing low levels (non-depressed). The interaction effect between gender and depression in social problem-solving ability will be examined. Therefore, this study proposes to examine depression and gender in relation to the social problem-solving ability for adolescents.

Justification of this Study

Adolescence is an important age period to study, separate of childhood, as differences in cognitive development between these age periods may generate differences in social ability (Lenhart & Rabiner, 1995). Connolly (1988) suggests that adolescents who are “lonely, socially
rejected or isolates” are at greater risk for adjustment problems, while Lenhart and Rabiner (1995) indicate that adolescent’s social functioning, as related to social adjustment, is an under studied area.

Adolescent depression is an important area of continued research due to the high prevalence rate of this disorder among this population (Fleming, Offord, & Boyle, 1989; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Reynolds, 1992a, 1994a; Whitaker et al., 1990). During adolescence an increase in the prevalence of this disorder is observed (Angold & Rutter, 1992), particularly in females (Angold & Rutter, 1992; Hammen & Rudolph, 1996; Nolen-Hoeksema & Gigrus, 1994; Petersen et al., 1991; Reynolds & Johnston, 1994). Further support for research in this area is that adolescent depression has been shown to predict later life adjustment problems, with depressive episodes in adolescence being a strong predictor of future episodes both in adolescence and later life (Lewinsohn et al., 1993). Therefore, adolescence is a particularly important life period to examine due to the possibilities for early intervention and treatment of the disorder, therefore possibly reducing episodes and adjustment problems throughout later life (Mufson, Moreau, Weissman, & Klerman, 1993).

Although it has been well established that depressed individuals exhibit social skills deficits, little is known about the specific deficits which exist. Further examination of the social problem-solving skills of depressed individuals is necessary due to the inconsistent results across and within adult, adolescent and child populations. Examination of depressed adolescents’ social-problem solving skills, in particular, is warranted due to the limited number of studies completed with this population (Joffe et al., 1990; Marton et al., 1993). Only a few studies have been completed to date which examine this particular area. Methodological and poor sampling
procedures used in the clinical studies lead to concerns of interpretation of results, again suggesting sound research in this area is required.

Few studies in the depressed child, adolescent or adult social problem-solving ability literature have examined possible gender effects, and in particular the possible interaction between gender and depression on social problem-solving ability. The fact that gender differences exist in the areas of social problem-solving ability (Caplan et al., 1991; Murphy & Ross, 1987; Rubin & Krasnor, 1983) and depression (Angold & Rutter, 1992; Hammen & Rudolph, 1996; Nolen-Hoeksema & Gigrus, 1994; Petersen et al., 1991; Reynolds & Johnston, 1994), as individual constructs, suggests gender and depression may interact when examined in combination. Therefore, it is necessary to have research directed particularly towards examining gender differences and possible interactions so as to clarify the role of gender and its relationship with depression and social problem-solving.

Results indicating depressed adolescents have difficulties social problem-solving may lend support to the theories of depression which support social skill deficits in depressed individuals (Beck, 1967; Coyne, 1976a; Lewinsohn, 1974; Nezu, 1987). In particular, such findings would support Nezu’s (1987) pluralistic theory of depression, where social problem-solving ability is considered to be directly related to depression.

This study will help further the understanding of adolescent depression, and the relationship social skill deficits have to this disorder. In particular, this study will offer insight into the problem-solving deficits depressed adolescents may have, highlighting the specific areas of the problem-solving process where these difficulties exist, and whether depressed males and females exhibit different deficits or levels of deficit. If results determine that depressed
individuals have social problem-solving deficits it can be concluded that poor interpersonal relationships/social skills/problem-solving skills are not merely due to behavioral or enactment problems in depressed adolescents, but reflect difficulties at a cognitive processing level. Differences in problem-solving deficits between depressed males and females will add to the growing understanding of gender differences in depression.

Summary

Adolescent depression is considered an area requiring continued study due to the possible developmental differences, the increase in prevalence rates during this age period, the increase in prevalence among females at this age, the fact that depression in this age group is a predictor of later depressive episodes and adjustment problems, and the importance for early intervention or treatment of this disorder. This population is considered understudied, particularly in the area of interpersonal relationships. This study is further justified by the lack of research into depressed adolescent’s social problem-solving ability, the limited examination of gender effects in social-problem solving ability in this group, and the inconsistent results across the literature in this area. Therefore, this study will offer insight into the specific problem-solving deficits depressed adolescents may be experiencing and if these deficits differ across males and females. Such an understanding of social skill deficits in depressed adolescents could lead to better interventions in terms of social skills for these individuals.

Primary Study Hypothesis

Based on the premise that there will be a significant main effect in social problem-solving ability for level of depressive symptomatology and gender, the following hypothesis is put forth:
There will be a significant interaction in social problem-solving ability between gender and depressed and non-depressed adolescents (See Figure 1).

Specifically, non-depressed adolescent females will be better problem-solvers than non-depressed adolescent males, while depressed adolescent females will not differ in their social problem-solving ability from depressed adolescent males. The specific domains of social problem-solving ability which will be examined include: relevancy of means, accuracy of problem identification, the generation of alternatives, and consequential thinking. These domains are discussed further in a later section. Secondary research questions will be discussed in Chapter 3.

Summary

Little is known about the nature of the social skills deficits which cause poor interpersonal relationships for depressed individuals. Social problem-solving, being linked with social skills, is therefore a viable area to assess for social skills deficits. The relationship between social skill deficits and depressed adolescents has received minimal attention in the research (Marton et al., 1993), with studies examining social problem-solving skills in this population being limited (Joffe et al., 1990). The research across adult, child and adolescent populations has shown inconsistent results and has not examined possible gender effects thoroughly. Given the inconsistencies and methodological problems in the current research, there is a clear need for further research to determine if adolescents with high levels of depressive symptomatology have deficits in their social problem-solving ability and if gender is related to these problem-solving deficits.
Figure 1. Hypothesized interaction between gender and level of depressive symptomatology on social problem-solving ability.
CHAPTER 2

Literature Review

Depression

Within the last twenty years depression has become recognized as a leading mental health problem among children and adolescents (Hammen & Rudolph, 1996; Reynolds, 1992a, 1994b; Reynolds & Johnston, 1994). Previously, depression was considered not to exist in these populations or was viewed as a part of the developmental process (Hammen & Rudolph, 1996; Reynolds & Johnston, 1994). Still others hypothesized that depression was masked by externalizing symptoms such as behavior problems or somatic complaints (Hammen & Rudolph, 1996). Finally, others proposed there to be no difference between child, adolescent and adult depression. An influx of recent research in this area has led to a greater understanding of this disorder and the differences that exist between child, adolescent and adult depression. However, continued examination of adolescent depression is justified as evidence indicates a high prevalence rate for this disorder in both the general and clinical population (Fleming et al., 1989; Lewinsohn et al., 1993; Reynolds, 1994a, b; Whitaker et al., 1990).

Definition of Depression

As an internalizing disorder, the symptoms of depression have the most effect on the individual suffering from the disorder, as opposed to externalizing disorders which cause distress to those in the disordered individual's environment (Reynolds, 1992b, 1994b). Because depression is an internalizing disorder a large number of cases of depression go unnoticed and/or untreated.

The term 'depression' can take on different meanings. Depression can be considered a
symptom, a syndrome or a disorder (Hammen & Rudolph, 1996; Merrell, 1994). Depression as a symptom refers to a mood or state of being, such as feeling sad or down. It is normal for everyone to feel sad or “depressed” at some point in their life. Such feelings represent depression as a symptom. Feelings of depression or sadness are necessary but not sufficient to diagnose clinical levels of depression. As a syndrome, depression presents itself as a grouping of symptoms that co-exist. Depressive symptoms and syndrome are part of a depressive disorder. However, to be considered a disorder the symptoms and syndrome must be present for a specified length of time and cause dysfunction to the individual (Merrell, 1994). Thus, there are specific boundaries and criteria that need to be met for depression to be considered a disorder (Hammen & Rudolph, 1996).

The Diagnostic Statistical Manual (DSM-IV; American Psychiatric Association, 1994) and the International Classification of Diseases (ICD-10; World Health Organization, 1993), are the primary sources used to clinically diagnose an individual with an affective disorder, including major depression. The DSM-IV, however, is more widely used. Symptoms associated with depression fall into four main areas; affective, cognitive, motivational and somatic/vegetative. Symptoms in the affective domain may include dysphoria, anhedonia, crying or tearfulness, irritability or excessive anger, anxiety, and detachment from feelings. Symptoms considered more cognitive in nature include self-deprecation, loss of self-esteem and self-worth, feelings of guilt, self-blame, suicidal ideation, pessimism, hopelessness, a decreased ability to concentrate, difficulty making decisions, and being easily distracted. Linked with the cognitive symptoms are the motivational symptoms of decreased academic performance, social withdrawal, and loss of interest. Somatic/vegetative symptoms may include such things as fatigue, lack of energy,
insomnia or hypersomnia, a change in appetite or weight, psychomotor retardation or agitation (Hammen & Rudolph, 1996).

The areas of dysfunction exhibited by depressed individuals cover a broad range, including cognitive difficulties (as discussed previously), as well as family and interpersonal difficulties. Family problems for children and adolescents often take the form of poor relations with parents, while interpersonal difficulties include peer rejection, withdrawal from social life, and decreased social competence (Hammen & Rudolph, 1996). Social problem-solving, being a sub-component of social competence (Tisdelle & St. Lawrence, 1986), whereby it facilitates and maintains social competence (D'Zurilla & Nezu, 1982), may also be an area of dysfunction in depressed individuals.

Depressive Symptomatology Specific to Adolescents

Depression in childhood and adolescence is presently diagnosed using the same criteria as used for adults, as many studies have shown there to be limited differences in symptoms between these age groups (Mitchell, McCauley, Burke, & Moss, 1988; Ryan et al., 1987). Yet there are several symptoms of adolescent depression, as a disorder, that differ from that of child and adult depression. In particular, children and adolescents have been shown to have a higher level of irritability than adults, whereby adults exhibit dysphoric moods more often (Hammen & Rudolph, 1996). Hypersomnia, feelings of hopelessness, anhedonia, weight change and suicide are present more often in depressed adolescents than depressed children, while children experience more or higher levels of psychomotor agitation, phobias, hallucinations, separation anxiety, depressed appearance and somatic complaints than adolescents (Ryan et al., 1987). The higher level of somatic complaints has been attributed to children exaggerating their symptoms.
Developmental trends are evident in several of these depressive symptoms. Symptoms such as anhedonia, psychomotor retardation, feelings of hopelessness, delusions and higher levels of symptomatology being present in the morning all increase with age, while somatic complaints, low self-esteem and hallucinations decrease with age (Carlson & Kashani, 1988).

It is important to investigate adolescent depression separate of child and adult depression, as significant differences may exist in the disorder across the life-span. In consideration of the present study there may be differences in social skills, and therefore social problem-solving ability, across age-periods. Therefore, findings based on depressed adult or child populations should not be assumed applicable to depressed adolescents.

**Prevalence of Adolescent Depression**

Reported prevalence rates for adolescent depression vary across the research, but are high enough to suggest depression is a prevalent mental health issue among youngsters. This and the increase in the prevalence rates of depression between childhood and adolescence (Angold & Rutter, 1992) continue to motivate investigation into the disorder. Whitaker et al. (1990), in their examination of the prevalence of various psychiatric problems among youth in grades nine through twelve (N=5596), reported the lifetime prevalence rate of major depressive disorders among youth to be 4.0%. Lewinsohn et al. (1993) report a somewhat lower prevalence rate of 2.8% for major depression in adolescents in grades nine through twelve, with lifetime prevalence rates ranging between 18.5 to 24.0% (n=1,710 and 1,508, respectively) at initial testing and a one-year follow-up. An Ontario study of mental health (Fleming et al., 1989) reported the prevalence of depression among Ontario adolescents, aged twelve to sixteen, to range from 1.8% to 7.8% for those with high and moderate diagnostic certainty, respectively. The above reported
prevalence rates are fairly consistent with the suggested prevalence rate of 3 to 5% for major depression in the general population of adolescents cited by Reynolds (1994b), as assessed using structured interviews.

**Gender Differences in Adolescent Depression**

Research indicates that adult females are twice as likely to suffer from depression as adult males (Nolen-Hoeksema & Girdus, 1994). The discrepancy between prevalence rates for males and females is first observed in adolescence (Hammen & Rudolph, 1996; Nolen-Hoeksema & Girdus, 1994; Reynolds & Johnston, 1994). Nolen-Hoeksema and Girdus (1994), in their review article on gender differences in depressed adolescents, report that females between the ages of thirteen and fourteen begin to exhibit higher prevalence rates of depression and at age fifteen are twice as likely to be depressed than males. Whitaker et al. (1990) reported, in an examination of students in grade nine through twelve (n=356), that females were significantly more likely to suffer from major depression than males, with prevalence rates being 4.5% for females and 2.9% for males. Similarly, Angold and Rutter (1992), in their examination of eight to sixteen years old in- and out- psychiatric patients (not including schizophrenic or pervasive developmental disordered individuals; N=3519), found that females were twice as likely to be depressed than males by the age of sixteen, with this discrepancy being evident by age thirteen.

Prior to adolescence the rates of depression for both males and females are similar (Angold & Rutter, 1992; Fleming et al., 1989; Lewinsohn et al., 1993; Nolen-Hoeksema & Girdus, 1994). Although some studies have provided support for pre-adolescent males to be more often depressed than pre-adolescent females (Nolen-Hoeksema & Girdus, 1994), this finding is not consistent nor prominent in the literature.
There have been several theories on why females suffer more from depressive symptoms than males after mid-adolescence. Biological changes have been investigated as a possible reason for such gender differences, as the hormonal and body changes females experience may be a leading cause for their heightened depressive symptoms. Research has not supported this theory, as pubertal status has not had a significant effect, alone, on levels of depression (Angold & Rutter, 1992; Fleming et al., 1989; Nolen-Hoeksema & Girgus, 1994).

Nolen-Hoeksema and Girgus (1994) hypothesize that the higher depression rate in adolescent females can be accounted for by the interaction between gender-related risk factors and the challenges adolescents face. Nolen-Hoeksema and Girgus (1994) suggested that adolescent females may be predisposed to risk factors, such as being less assertive in their coping styles than males, thus making life changes more challenging. Second, adolescent females possibly have to deal with more social and biological changes than males (Nolen-Hoeksema & Girgus, 1994). Therefore, it is not biological changes alone which account for the gender differences in prevalence rates in adolescence, but possibly the combination of biological changes and gender-related risk factors.

Petersen et al. (1991) completed a cohort-sequential longitudinal study examining the amount and type of changes adolescents experience. In particular the study examined the effect of family change, early onset of puberty, and the simultaneous timing of school transition and puberty on the development of depression. Gender differences, as well as coping style, and parent and peer support were examined. The authors assessed 335 students in grades six through eight and a follow-up on 169 students was completed in grade twelve. Results indicated that early puberty, as well as the simultaneous changes of school and puberty were risk factors for the
development of depression. Females were reported to be more likely to experience early puberty or school transition at the same time as reaching puberty, therefore causing a higher rate of depression in females by grade twelve. As well, students with positive coping skills and good parent-child relationships were less at risk for developing depression.

Because gender differences observed in the prevalence rates of depression are first evident in adolescence, continued examination of the factors that could relate to such gender differences is important. Although Petersen et al. (1991) have supported such factors as developmental differences and coping strategies between the genders as possible risk factors for developing depression, there is a need for continued examination into other possible factors related to depression that differ between the genders.

Theories of Depression Related to Social Skill Deficits

There are many theories on the cause and maintenance of clinical depression and depressive symptoms, with three theories being regularly cited in the literature related to depression and interpersonal relationships. These are Beck’s (1967) cognitive theory of depression, Lewinsohn’s (1974) interpersonal behavioral theory and Coyne’s (1976a) interactional theory of depression. Nezu (1987) has proposed a pluralistic model of depression where interpersonal problem-solving is suggested to mediate the relationship between stress and depression. This theory encompasses Beck’s (1967), Lewinsohn’s (1974) and Coyne’s (1976a) theory within its model. These theories offer explanations as to why depressed persons suffer from social skill deficits, and in turn offer insight into possible social competence deficits and therefore social problem-solving deficits.
Cognitive Theories of Depression

Beck (1967) proposed that depression is the result of three types of thought patterns: systematic biases and cognitive errors, negative cognitive schemata, and negative perceptions of oneself, the world and the future. Beck (1967) suggests that depressed individuals are predisposed to such negative thought patterns with triggers, such as stress, resulting in depressive symptomatology.

Negative schemata are described in the literature as stable negative thought patterns that cause the individual to process or interpret information as negative and therefore maintain self-critical attitudes and beliefs. These negative schemata drive the negative views the depressed individual maintains of themselves, including limited feelings of self-worth and an underestimation of their ability. These maladaptive schema affect one’s view of the world and their future, with the individual interpreting life events in a negative manner, as well as maintaining negative expectations for their future and feelings of hopelessness. These negative views of the self, world and future are known as the cognitive triad (Beck, 1967).

The third thought process considered to be a driving factor of depression is the systematic reasoning errors. Beck (1967) and Beck, Rush, Shaw, and Emery (1979) describe six types of automatic errors depressed individuals maintain as part of their thought process. The errors are as follows: arbitrary inferences, selective abstraction, personalization, over generalization, magnification or minimization, and absolute or dichotomous thinking. All these error types lead to the misinterpretation of situations in one’s environment. Systematic biases, negative schemata and negative perceptions of oneself, the world and the future could all affect an individual’s ability to act in a socially competent manner, and thus affect one’s social problem-solving ability.
Behavioral Theories of Depression

Opposed to cognitive theories of depression, which suggest that self-esteem, negativism and guilt are a few of the primary causal factors in depression, behavioral theories of depression see these factors as products or outcomes of the depressive or dysphoric state (Lewinsohn, 1974). One of the most prominent theories of depression that relates to the understanding of depressed individuals' poor social skills is the behavioral or interpersonal theory proposed by Lewinsohn (1974). The premise of Lewinsohn's (1974) theory is that depressed individuals experience a lower rate of response contingent positive reinforcement than non-depressed persons due to their poor social skills. This low rate of positive reinforcement elicits dysphoria and other depressive symptoms.

Lewinsohn (1974) defines social skills as the “ability to emit behaviors that are positively reinforced by others” (p. 171). Evidence supporting that depressed individuals have poor social skills which could cause a lack of positive reinforcement is offered by Lewinsohn’s (1974) summary of his early research. Depressed individuals were found to take part in interpersonal behaviors approximately half of the time that non-depressed individuals did, and were shown to reinforce others less often and be slower at reinforcing others. Such behavior might cause others to lose interest in interacting with the depressed individual, thus limiting their opportunity to receive positive reinforcement. Lastly, depressed individuals have less reciprocal relationships than non-depressed individuals; however, it is unclear whether the lack of reciprocity is from the depressed individual or from others.

Kaslow, Brown, and Mee (1994) summarized the cyclical nature of this theory suggesting
poor social skills lead to a lack of reinforcement, which exacerbates depressive symptoms, which lead to withdrawal from social situations, in turn reinforcing poor social skills, and so on. Social problem-solving, being a component of social skills, may in fact be linked to this cycle, whereby social problem-solving deficits cause the poor social behavior linked to the lack of positive reinforcement.

An extension of the ‘typical’ behavioral theory proposed by Lewinsohn (1974) is presented by Coyne (1976a). Known as the interactional or transactional theory of depression, this theory opposes other behavioral theories that suggest that the depressed individuals are unable to take in and interpret the feedback given from others. Coyne’s (1976a) theory is premised on the fact that individuals live in an interactive and ever changing environment, whereby the depressed individuals’ symptoms cause them to act in such a manner that others withdraw their social support. Depressed individuals are aware that they have lost social support and in turn become more depressed (Coyne, 1976a, b). Therefore the relationship between the depressive symptoms and the reaction of others becomes cyclical or interactional, whereby one drives the other. This theory suggests that it is not social skills deficits alone that maintain depressive states in individuals, but possible social skills deficits (which could include social problem-solving deficits) coupled with the reaction of others to the depressed individuals, the depressed individual’s interpretations of these actions (Coyne, 1976a, b) and the depressed individual’s possible inability to overcome the feelings and actuality of rejection (Coyne, 1976b).

Coyne (1976a) proposes that as the depressed individuals interact with others they elicit rejection by producing negative affect in these individuals. However the ‘others’ continue to verbally reassure the depressed individual of their support and care. The depressed individual
acknowledges a discrepancy between the verbal support and the negative affect of the others and thus exhibits more symptoms. As this cycle continues the 'others' reduce their feelings of guilt for being critical and rejecting the individual by offering verbal reassurance. The depressed individual questions the legitimacy of this support but also realizes they receive verbal support through expressing depressive symptoms and therefore continues to exhibit such symptoms at an increasing level. Therefore, the fear of rejection and the knowledge of rejection forces the depressed individual to have more symptoms, thus ensuring more verbal reinforcement and continued rejection from others (Coyne, 1976a).

Coyne (1976b) completed a study that lent some support to this interactional theory of depression. Fifteen female undergraduates exhibiting high depressive symptomatology and 15 exhibiting low levels of symptomatology were included in the study. Each depressed participant was paired with a non-depressed participant for a phone-call. Post conversation mood, willingness to talk another time, and perception of one's phone partner was assessed. As well, the phone conversation was scored on activity (time spent engaged in conversation), other-self ratio (amount of time talking about oneself as opposed to partner), number of approval responses, number of hope statements, and genuineness. Depressed participants were shown to elicit negative affect in their phone partners. As well, depressed individuals were more rejected than non-depressed individuals.

Coyne (1976a) and Beck's (1967) theories share similarities in that both theories discuss the loss of social reinforcement coupled with the disruption of peer relationships which act as mediators to the "development and maintenance" of depression (Sacco & Graves, 1984). This similarity can be extended to include Lewinsohn's (1974) theory.
Pluralistic Model of Depression

Nezu (1987) suggests a different view of social problem-solving as related to depression which integrates several of the other theories of depression, making it a “meta-model” of depression. The theory proposes a bi-directional causality, whereby a reciprocal relationship between social problem-solving, stress and depression exists. Figure 2 illustrates the model, showing possible paths that can lead one to experience depressive symptomatology. For example, negative life events lead to stress. Although an effective problem-solver may experience limited or no depressive symptoms due to this stress, an ineffective problem-solver will likely experience some form of depressive symptomatology. This individual then perceives and/ or actually experiences negative consequences due to their ineffective solution, which in turn exacerbates their problems and thus increases the likelihood for them to experience future negative events. Such continued exposure to negative life events most likely will decrease the individual’s perceived and/ or actual positive reinforcement for their efforts, thus affecting their motivation to engage in future problem-solving (Nezu, 1987).

An important part of this theory is the consideration of individual differences. This model proposes that, due to individual differences, those who have ineffective problem-solving skills may experience deficits at different stages of the problem-solving process. Each stage requires the implementation of various cognitive and behavioral processes. Difficulties at any stage of the process may, therefore, be related to such deficits as discussed in the theories of depression presented above (i.e., Beck, 1967; Coyne, 1976a; Lewinsohn, 1974). The problem-solving process and its relationship to these theories of depression will be discussed in detail in a later section.
Figure 2. Pluralistic Model of Depression proposed by Nezu (Nezu, 1987, p. 130).
There have been several studies supporting this model of depression (Nezu, 1987). In particular there has been evidence that those who perceive themselves as effective problem-solvers and experience high levels of stress exhibit lower levels of depression in comparison to who perceive themselves as ineffective problem-solvers under the same level of stress (Nezu, Nezu, Saraydarian, Kalmar, & Ronan, 1986). Nezu et al. (1986) reported the amount of variance in predicting depression scores, above that explained by stress, is increased three fold when perceived problem-solving and the interaction between perceived problem-solving and stress are included in analysis. Nezu and Ronan (1985, 1988) found a significant interaction between social problem-solving and life stress. The authors concluded such a significant interaction offers support to the hypothesis that stress-related depression is moderated by one’s effectiveness in social problem-solving. It is important to note that one of these studies examined perceived social problem-solving ability and the other actual social problem-solving ability.

Recent literature also supports this theory. Goodman et al. (1995) examined social problem-solving as a mediator between level of stress and depressive symptomatology. The authors found that children who were ineffective problem-solvers and experienced high levels of stress due to negative life events reported higher rates of depressive symptomatology than children who were effective problem solvers but suffered high levels of stress due to negative life events. Regression analysis revealed that 73% of the variance in self-reported depression scores was accounted for by negative life stress and the interaction of effectiveness of alternative solutions and negative life stress. Such evidence provides strong support for Nezu’s (1987) pluralistic theory of depression.
Summary

Depression being a prevalent mental health issue, causing affective, cognitive, motivational, somatic/vegetative and interpersonal dysfunction, determines the need for continued investigation into this disorder. Interpersonal difficulties, in particular, often include peer rejection, withdrawal from social life, as well as decreased social competence (Hammen & Rudolph, 1996), suggesting social problem-solving to be a likely area of dysfunction in depressed individuals.

Theory supports social skills as an area of deficiency in depressed individuals. Beck (1967) proposed depression to be the result of several negative thought patterns to which depressed individuals are predisposed. These negative thought patterns, coupled with triggers such as stress, produce depressive symptomatology. It is clear that such thought patterns could affect one's ability to interact competently in social situations.

Lewinsohn (1974) proposed factors such as social skills deficits cause a low rate of positive reinforcement, which produces depressive symptoms. Depressive symptoms in turn exacerbate the poor social skills, causing a cycle of depressive symptoms and a lack of social reinforcement. Similarly, Coyne (1976a) suggests that it is not social skill deficits alone which maintain the depressive state, but possible skill deficits coupled with the reaction of others to the depressed individual, the depressed individual's interpretation of these actions and the depressed individual's possible inability to overcome the feeling and actuality of rejection. Social problem-solving being a component of social competence is clearly linked to these theories of depression.

Nezu (1987) combined these cognitive and behavioral theories to form a pluralistic theory of depression whereby a reciprocal relationship is proposed to exist between social problem-
solving and depression, being moderated by such factors as social skill deficits, cognitive distortions, and negative attributional styles. Therefore, this theory also supports the presence of social problem-solving deficits in depressed individuals.

Adolescent depression, separate from adult and childhood depression, is important to examine due not only to differences in the disorder across the life span but also to the high prevalence rate of this disorder in adolescence, the emergence of significant gender differences in prevalence rates at this age, and the risk for later adjustment problems or further depressive episodes.

**Social Problem-Solving**

Evidence supporting the link between social adjustment and social information-processing has been well documented in the children's literature. However, there has been little examination of such a relationship in adolescent populations (Crick & Dodge, 1994; Lenhart & Rabiner, 1995). Examination of the social-cognitive functioning of adolescents is considered important as development may affect both social adjustment and adolescents' social information processing (Crick & Dodge, 1994). Connolly (1988) suggests that adolescents who are “lonely, socially rejected or isolates” are at greater risk for adjustment problems. Connolly, (1989a, p. 395) also indicates “social impairment is symptomatic of many adolescent psychiatric disorders”. Social problem-solving as a component of social information-processing (Lenhart & Rabiner, 1995) is a useful construct to examine when researching the social functioning of adolescents. Discussion of social problem-solving and theories related to such processing are presented below.
Social Skills

Social skills may be defined as the “discrete behaviors that lead children to solve social tasks or achieve social success” (Rubin, Bukowski & Parker, 1996, p.21). Rubin et al. (1996) suggest that social success and positive interactions are developed by having appropriate social skills and social competence. Factors necessary to be considered socially competent include being able to meet the “needs” and “goals” of oneself through the use of appropriate and effective behavior (Rubin et al., 1996). Changes in the social skills needed over time, various situations and environments suggest the list of possible “discrete” social skills needed for positive social relationships may be endless (Rubin et al., 1996). Ten skills Rubin et al. (1996) consider necessary for such success include: understanding others’ feelings, thoughts and motives; being flexible during interactions; being attentive to others during interaction; recognizing consequences of social actions; exhibiting appropriate moral judgement; having clarity of communication (verbal and non-verbal) and expressing oneself appropriately, inhibiting negative behaviors and acting in a truly kind or altruistic manner; and interpreting information about the situation and those involved. It is evident that several of these skills cross over into the social problem-solving domain.

Definition of Social Problem-Solving

Nezu (1987) defines social problem-solving as "the cognitive-behavioral process by which individuals identify or discover effective strategies of coping with problematic situations encountered in daily living" (p. 121). An important aspect of defining social problem-solving is the recognition of its close link to social competence. Literature in the area of social skills suggests social problem-solving skills are a sub-component of social competence (Tisdelle & St.
Lawrence, 1986), whereby it facilitates and maintains social competence (D’Zurilla & Nezu, 1982). Thus social problem-solving skills clearly contribute to an individual’s prosocial skills. The social problem-solving literature suggests there is a set of skills that are employed to successfully solve problems. However there is debate over the composition of this skill set; therefore several differing models of social problem-solving have emerged. Two of these models are presented below.

Theories of Social-Problem Solving

Social Information-Processing

A general social information-processing model, which is applied in the social literature to the social problem-solving process, was proposed by Crick and Dodge (1994). This reformulation of Dodge’s (1986) earlier model explains children’s social adjustment in terms of a six-step model (see Figure 3) and emphasizes the constant reflection on social schema, social knowledge, and past experiences at each stage known as the “data base” of the process, thus forming a reciprocal relationship between the data base and each stage of processing. The model proposes a cyclical method of processing that allows for simultaneous/ non-linear processing (which is similar to general cognitive processing models), as opposed to sequential processing, as was suggested in Dodge’s (1986) previous model. The child progresses through the encoding of internal and external cues, interprets these cues through the evaluation of past goal attainment and past performance, self and other evaluations, as well as causal and intent attributions (inferences concerning others’ perspectives). The child proceeds to clarify the goal of the situation and generates possible responses. At stage five the “best” response is chosen and then performed at stage six. Dodge and Feldman (1990) suggest that children who have
Figure 3. Social information-processing model (Crick & Dodge, 1994, p. 76).
difficulties in such processing, at any step, may have difficulty with peer relations, both in acting competent and in being viewed as such by peers. This offers evidence to suggest that poor peer relations in depressed persons may be related to problems in social problem-solving.

**Problem-Solving Process**

Specific processing models related to the social problem-solving process have been developed by Spivack and Shure (1974) and previously by D’Zurilla and Goldfried (1971), who identified five steps that an individual likely proceeds through when following the problem-solving process. A revised model of this social problem-solving process has been proposed by D’Zurilla and Nezu (1982). This five step process includes: problem orientation, problem definition and formulation, generation of alternatives, decision making and solution implementation and verification. These steps are not linear but instead are fluid, with problem-solving involving a continual interaction between these steps. This study will assume this model as the theoretical problem-solving process adolescents follow.

Problem Orientation is the identification and realization that a problem exists. With this is the need to accept that problems are a part of everyday living. Another component is the ability to think through the problem and not act impulsively with a rash or automatic decision. D’Zurilla and Nezu (1982) suggest the most important aspect of this stage is the belief that the problem is solvable, that is, the individual views him/herself as capable of solving the problem. Viewing oneself as a capable problem solver (positive social self-efficacy), might be an area deficient in many depressed individuals if considering Beck’s (1967) theory of depression. Due to the individual’s negative schemata and negative perception of themselves, a solution to a problem may seem unattainable.
Problem Definition and Formulation is the assessment of the problem and goal setting of how to achieve a reasonable and achievable solution. D'Zurilla and Nezu (1982) indicate this to be the most important step in the problem-solving process; however it is also considered the most challenging. To assess the problem properly it is important to decide what is problematic about the situation. Then the individual must attain and sort all information concerning the problem, distinguishing the important from the irrelevant and facts from hypotheses. Difficulty can arise when the problem definition is based on inaccurate information. D'Zurilla and Nezu (1982) title this a pseudo-problem, because one may end up solving the wrong problem and in fact creating further problems.

In the Generation of Alternatives stage the problem solver generates as many solutions as possible. D'Zurilla and Nezu (1982) have concluded that “brainstorming” solutions allows for more solutions, therefore allowing for superior solutions to be available. It is necessary at this stage to brainstorm all possible solutions prior to judging their worth, otherwise it may impede the brainstorming process. A likely transition from this stage is to the Decision Making step. This allows the problem solver to choose the best solution that is considered the most effective from the “brainstorming”. To be considered effective the solution needs to be assumed capable of achieving the desired outcome while maximizing positive outcomes and limiting negative ones. This is determined by weighing the present and future effects on the self and others.

The Solution Implementation and Verification stage is the implementation of the solution and the evaluation of its effect on the situation and on others. Comparison of the desired and actual outcome is necessary. If successful the individual is rewarded either socially or by themselves. Such reward reinforces the solution but also the perceived control of the situation,
which is necessary in the first stage (Problem Orientation) in future problem-solving situations. If the desired goal is not achieved the problem and solution are re-evaluated and alterations are made. Depressed individuals may experience difficulties at this stage, according to Beck (1967), Coyne (1976a) and Lewinsohn’s (1974) theories, because depressed persons are thought to misinterpret the social reinforcement they receive for successfully solving problems, which in turn exacerbates their perceived lack of control in the situation and ones to follow (D’Zurilla & Nezu, 1982).

Gender Differences and Social Problem-Solving Skills

Gender differences in youngsters’ social problem-solving ability have not been extensively examined in the literature (Murphy & Ross, 1987). Crick and Dodge (1994) highlight this point concluding that “relatively little research has addressed adequately the relations among gender, social information processing, and social adjustment” (p. 92). Research that has been completed suggests clear gender differences in the amount and type of solutions generated. In Caplan et al.’s (1991) examination of sixth and seventh graders’ social problem-solving knowledge, females generated significantly more effective solutions at initial prompts, when presented with an obstacle, and across all other solutions. Murphy and Ross (1987), in their examination of the social problem-solving knowledge of adolescents aged fifteen to nineteen, found a significant main effect for gender, with females scoring higher on the MEPS (Means Ends Problem Solving Procedure; Platt & Spivack, 1975), indicating more effective solutions.

Gender differences in the type of solutions generated have also been examined in the literature. Rubin and Krasnor (1983), in their examination of preschool and kindergarten
childrens' social problem-solving knowledge, found that females generated more alternative solutions than males. Research also suggests that in child samples, males generate more physically aggressive solutions than females (Caplan et al., 1991; Rubin & Krasnor, 1983), while females generate more cooperative solutions than males (Caplan et al., 1991). Crick and Dodge (1994) suggest such problem-solving behavior to be normative, with females being more “interpersonally orientated,” that is, “more prosocial, cooperative and more concerned about social disapproval” (p.92) than males, who are more “instrumentally orientated,” being “more concerned about controlling external events, more physically aggressive, and more dominating towards peers” (p.92). Such gender differences suggest a possible developmental difference between males and females in their knowledge of social problem-solving solutions (Murphy & Ross, 1987). Another possible explanation for such differences between the genders is that females, in general, are more advanced in their knowledge of interpersonal skills (Murphy & Ross, 1987).

Due to the limited research on gender differences in the social problem-solving ability of adolescents, it is important to examine possible gender effects when researching social problem-solving knowledge of depressed adolescents. Current findings that females are better problem-solvers are contrary to what would be anticipated, given the literature on depression. Females are more often depressed than males. Therefore, if social problem-solving is affected by level of depression, females would be expected to be worse problem-solvers than males. Examination of gender differences may offer further clarification as to whether females are more effective problem-solvers than males and allow for research into a possible interaction effect of gender and depression.
Summary

Social problem-solving is directly related to social skills (Tisdelle & St. Lawrence, 1986), whereby social problem-solving facilitates and maintains an individual’s social competence (D’Zurilla & Nezu, 1982). Theories related to social problem-solving suggest this process to be fluid and non-linear, involving many stages. Crick and Dodge (1994) propose a cyclical model of simultaneous processing whereby the child encodes and interprets cues, clarify goals, generates responses, and performs the response chosen to be best. Similarly, D’Zurilla and Nezu (1982) proposed a problem-solving process consisting of five steps (problem orientation, problem definition and formulation, generation of alternatives, decision making and solution implementation and verification). Dodge and Feldman (1990) suggest that children who have difficulties at any stage of such processing models may experience difficulties in peer relationships. Deficits experienced may include a lack of competence and being viewed as incompetent by peers. Therefore, social skill deficits in depressed individuals may be, in part, accounted for by deficits in the problem-solving process. The theories of depression previously discussed offer support that depressed individuals have difficulties in implementing the problem-solving process.

Nezu’s (1987) pluralistic model of depression suggests that depressed individuals may have difficulties at various stages of the problem-solving process, due to the reciprocal relationship between depression, social problem-solving and stress. Similarly, Beck’s (1967) cognitive theory of depression suggests that due to negative schemata depressed individuals may not see themselves as capable problem-solvers, which is a necessary component to achieving a successful resolution. As well, Beck (1967), Coyne (1976a) and Lewinsohn (1974) all support
the notion that, even if successful in solving a problem, the depressed person’s misinterpretation of social reinforcement will lead to further depressive symptoms and exacerbate the depressed individual’s feelings of limited control over the situation. Although theory supports the notion that social skill deficits in depressed individuals are due to difficulties in the social problem-solving process, the lack of research into depressed individuals social problem-solving ability makes strong conclusions impossible. Therefore, research in this area is important.

Although gender differences in social problem-solving have not been extensively examined, evidence suggests that females are more successful in social problem-solving than males, with females generating more alternative solutions (Rubin & Krasnor, 1983), more effective solutions (Caplan et al., 1991; Murphy & Ross, 1987), and more cooperative solutions (Caplan et al., 1991). Such findings are contrary to what would be anticipated, given the literature on depression. Females are more often depressed than males. If social problem-solving is affected by level of depression, females would be expected to be poorer problem-solvers than males.

Social Problem-Solving and Depression

Social Problem-Solving and Psychopathology

Platt and Spivack’s (1972) study comparing the problem-solving “cognition” of adult psychiatric patients to non-psychiatric controls has become a landmark in the literature on social problem-solving ability and depression. Results indicated that psychiatric inpatients, no matter their diagnosis, had poorer means-ends thinking, produced significantly fewer enumerations, and had a significantly lower relevancy ratio (the total number of relevant means divided by the sum of the total number of relevant means, irrelevant means, and no means) than the control group.
The groups did not differ in their ability to recognize obstacles within the problem or in their ability to discern the time factor needed to reasonably solve the problems.

Platt, Spivack, Altman, Altman, and Peizer (1974) furthered Platt and Spivack’s (1972) study by examining problem-solving ability of adolescent psychiatric patients (n=32) in comparison to non-psychiatric high school controls (n=53). The psychiatric group produced significantly more ineffective and irrelevant means than the controls when given social means-ends problems or when required to generate alternative solutions. On both emotional (the individual’s ability to deal with negative affective states, e.g., anxiety or depression) and social problems, the psychiatric group generated fewer solutions and were less able than the control group to view the problem from the various scenario characters’ perspectives. The two groups did not differ in their sensitivity to the problems, causal thinking, consequential thinking, or their emotional means-ends.

Siegel, Platt, and Peizer (1976) examined the social problem-solving ability in adolescent and adult psychiatric patients in comparison to non-psychiatric controls. These researchers furthered previous studies by examining the link between intelligence (IQ), social problem-solving and emotional problem-solving. IQ was significantly related to emotional and social problem-solving ability for adults but only to emotional problem-solving for adolescents. Using IQ as a covariate, both adult and adolescent psychiatric patients had significantly poorer social problem-solving skills than the normal controls; however there was no difference between groups in emotional problem-solving. The authors suggest that emotional problem-solving may require a greater ability to abstract, thus explaining its relationship to IQ. Social problem-solving, on the other hand, requires more objective knowledge, as society dictates what solutions
and behaviors are acceptable.

**Specificity**

Results indicate psychiatric patients to have social problem-solving deficits (Platt & Spivack, 1972; Platt et al., 1974; Siegel et al., 1976). However, these studies have led to controversy over the specificity of social problem-solving deficits in depressed individuals. Haley (1985) examined the social skills and perceived social ability of 30 females (10 clinically depressed, 10 psychiatric controls, and 10 non-depressed non-psychiatric controls) using a role-play method. Haley (1985) found that social skill deficits were not specific to depression alone, but typical of psychopathology in general. However, depressed individuals perceived their recent and optimal behavior as significantly worse than either the psychiatric controls or the non-psychiatric controls. Haaga, Fine, Roscow Terrill, Stewart, and Beck (1995) concluded that both depression (non-clinical) and anxiety are related to problem-solving deficits, indicating problem-solving deficits are not specific to depression. It is important to note that the deficits were found solely in the problem orientation stage and not in problem-solving skills themselves. These findings are not consistent with the majority of the research literature (to be discussed below), which suggests that depressed individuals have difficulty across several stages of the problem-solving process.

Marx et al. (1992) also concluded that both clinically depressed and anxiety disordered adults experience problem-solving deficits. This study included 20 participants with major depression, 17 anxiety disordered clinical controls, and 20 non-depressed controls. Both the depressed and anxiety disordered participants generated significantly more irrelevant means, less effective strategies, and fewer alternate solutions, and recognized fewer obstacles than the non-
clinical controls. However, the depressed individuals were significantly worse at developing effective strategies than either the anxiety disordered or the non-clinical control group. The authors concluded that although both groups exhibit problem-solving deficits, the deficits exist at different stages of the problem-solving process. As in Marx et al.'s (1992) study, Rudolph et al. (1994) concluded that both anxiety disordered and depressed individuals have difficulties with social problem-solving skills, but that having depressive symptoms was a significant predictor of more hostile and less sociable strategies, while having anxiety symptoms was a significant predictor of less hostile strategies. As with Marx et al. (1992) this suggests that deficits in social problem-solving are not specific to depression but that the deficits experienced are different from those anxiety disordered individuals experience.

Summary

Although there is conflicting evidence as to whether social problem-solving deficits are specific to depression, evidence suggests that those suffering from a psychopathology, including depression, will suffer from social problem-solving deficits (Haley, 1985; Haaga et al., 1995; Marx et al., 1992). There is a need for continued investigation into this area, as the literature also suggests that within the problem-solving process depressed individuals may have deficits which differ from other pathologies. Continued research may highlight the differences among these deficits more clearly.

Social Problem-Solving Ability and Depressed Adults

As in most research examining depression, the majority of research in the area of depressed individuals' social problem-solving ability focuses on adults. Given the limited research in the area of social problem-solving ability and depressed adolescents, it is useful, and
necessary, to examine the results in the adult literature. In general, results of studies examining social problem-solving skills suggest that depressed adults do have deficits in their social problem-solving ability. Evidence for such deficits has been found in both clinical and high symptomatology groups.

Gotlib and Asarnow's (1979) examination of undergraduates suffering from clinical depression (n=10) versus high levels of symptomatology (n=20) (compared to clinical; n=8, and nonclinical control groups; n=20) is one of the most widely cited studies in the area of depression and social problem-solving. It has been given much consideration in the literature as it is one of the first studies which specifically investigates social problem-solving skills and depression. As well, the study makes useful comparisons of clinical and nonclinical populations, and examines both impersonal and interpersonal problem-solving. Furthermore, the study includes analysis of specific aspects of the social problem-solving process, thus offering insight into depressed individuals' specific social problem-solving deficits. However, it is important to note that the only measure reportedly used to assess the clinically depressed group was a self-report measure of depression, more useful in indicating level of depressive symptomatology. As well, the same cutoff score for this measure was used for the high symptomatology group and the "clinical" group. Therefore interpreting results in terms of a clinical population is unwarranted.

Results indicated that the "clinical" group in comparison to the clinical control group and high level symptomatology group in comparison to the low symptomatology group generated fewer relevant means, more irrelevant means, no means and no-response answers and elaborated less on their generated means. As well, both groups of depressed adults achieved lower relevancy scores in comparison to their counterparts. These results were confirmed by the
significant correlation between higher scores on the self-report depression measure and lower scores on the social problem-solving measure. That is, those with higher scores on the depression measure had fewer relevant means, fewer enumerations, a lower percentage of enumerated means, more irrelevant means, no means, no response answers and a lower relevancy score.

Nezu and Ronan (1985) furthered Gotlib and Asarnow’s (1979) study in their examination of the relationship between life stress, level of depression and perceived social problem-solving in 205 undergraduates. Results revealed social problem-solving to have a significant direct effect on ones level of depressive symptomatology. The poorer one’s perceived social problem-solving, the higher their level of depressive symptomatology. Nezu and Ronan’s (1985) study is a useful addition to the literature in this area as it examines a much larger sample than investigated by Gotlib and Asarnow’s (1979) and clearly uses a non-clinical population.

Similar findings were revealed in Marx and Schulze’s (1991) study of social problem-solving ability in 40 university students experiencing high versus low depressive symptomatology. In seven of eight problem scenarios presented, those exhibiting high depressive symptomatology produced more ineffective strategies (e.g., offering no solution or having no intention of doing anything) than the non-depressed group. Marx and Schulze (1991) used specific cutoff scores to determine the high and low level of depressive symptomatology groups, excluding those scoring in the mid-range from analysis. Such group divisions were not clearly included in either Gotlib and Asarnow’s (1979) or Nezu and Ronan’s (1985) studies. Excluding those scoring in the mid-range allows for a clearer comparison and more valid analysis between those suffering from depressive symptomatology and the ‘normal’ population.
Similar to Marx and Schulze (1991), Marx et al. (1992), as discussed in a previous section, found that clinically depressed adults have a significant problem-solving deficit. Depressed and anxiety disordered participants generated significantly more irrelevant means, less effective strategies, fewer alternative solutions and recognized fewer obstacles than the nonclinical controls. The depressed group was significantly worse than the clinical control group in developing effective strategies only. In a second study, Marx et al. (1992) examined depressed adults' problem-solving ability in real-life problems (participants’ own interpersonal problem). The depressed and clinical control group exhibited less effective actual solutions to real-life interpersonal problems than the non-clinical control group. However, the depressed group was less able to generate effective ideal solutions to these problems than either the clinical or non-clinical control group. The authors conclude that although both clinical groups suffered from problem-solving deficits it is possible that these deficits exist in different parts of the problem-solving process.

Although several studies’ results differ from the above findings, that depressed adults exhibit significant social problem-solving deficits, these studies have various methodological problems which limit the generalizability of their results. Doerfler et al.’s (1984) study is one of the most cited studies that has provided evidence suggesting that depressed adults do not have social problem-solving deficits. Doerfler et al. (1984) found that thirteen depressed women did not differ significantly from fifteen non-depressed women in their generation of means, no means/irrelevant means, number of obstacles, or elaborations of means. Of importance to recognize is the small sample used in this study and the fact that no male subjects were examined. Because females are considered better problem solvers (Caplan et al., 1991; Murphy
& Ross, 1987), in general, results may not be generalizable to depressed males.

Zenmore and Dell (1983) found that although depression proneness, or one's "tendency to become depressed," was significantly negatively correlated with the number of relevant means generated, number of enumerations, and relevancy ratio, and was positively correlated with the number of no means on the MEPS, level of depression was not significantly related to these factors. Based on these results, the authors suggest that poor social problem-solving skills are an antecedent to depression but do not co-exist with depression. The method of assessing depression proneness is questionable, with the participants being asked to rate how often, how long, and how deeply depressed they become in comparison to others. Such a subjective measure may not adequately reveal an individual's tendency to become depressed.

Blankstein et al. (1992) used the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and a revised version of the MEPS to examine the social problem-solving ability of 36 university students experiencing high and low depressive symptoms. Contrary to many of the other studies completed in this area, Blankstein et al. (1992) found that depressed and non-depressed students did not differ in their interpersonal, intrapersonal or emotional problem-solving ability. However, depressed adults were more likely to generate means with negative outcomes. This study used a disproportionate number of female participants. As discussed above, a limited male sample limits the generalizability of the results and the validity of the conclusions because females have been shown to be better problem solvers than males (Caplan et al., 1991; Murphy & Ross, 1987).

Mayo and Tanaka-Matsumi's (1996) study of 13 depressed and 15 non-depressed adults' social problem-solving skills offers results that only partially differ with the literature in this area.
Depressed adults generated as many effective solutions as non-depressed adults. However, the depressed adults generated more emotion-focused (e.g., "emotional discharge, seeking emotional support and bolstering morale") and fewer problem-focused solutions (e.g., "information seeking, taking specific actions") than the non-depressed adults. Social problem-solving was assessed using an informal think aloud method; therefore there were no psychometrics presented for this method, making it unclear whether this is a valid measure of social problem-solving ability. Secondly, the sample was fairly limited and, as in Doerfler et al. (1984) and Blankstein et al. (1992), the study included an over-representation of females in the dysphoric group, thus limiting the generalizability and validity of the findings.

Summary

Results indicate depressed adults have significant deficits in their social problem-solving skills. In particular the research suggest difficulties in the areas of generating alternative means, relevant means, irrelevant means, no means, no-response answers, elaboration of means (Gotlib & Asarnow, 1979) and developing effective means on means-ends problems (Marx & Schulze, 1991; Marx et al., 1992). Several studies which report results contrary to these findings have methodological problems, including poor sample distribution. Therefore results of these studies have limited generalizability.

Social Problem-Solving and Depressed Children

The results across studies examining depressed childrens' social problem-solving ability are fairly consistent, suggesting that children experiencing high levels of depression have difficulty successfully problem-solving in social situations. Sacco and Graves (1984) examined the social problem-solving ability of 40 children aged nine through eleven (taken from a pool of
350 students), with 20 students exhibiting high levels of depressive symptomatology and 20 showing low levels. Results indicated that the depressed children performed significantly poorer than the non-depressed children on primary means-ends problem-solving. Primary means-ends problem-solving is the cognitive process of moving from a desired goal to the implementation or resolution of the problem. Therefore, consideration of alternative solutions, consequences of solutions, and anticipation of obstacles are all involved in this process. Similarly, Rudolph et al. (1994) investigated the social problem-solving ability of non-clinically depressed children. Of the initial 161 participants, 61 students were included in the low symptomatology group and 57 were included in the high symptomatology group. Depressed children performed significantly worse than non-depressed children on all aspects of a conflict negotiation task including, conflict-negotiation competence ("persistence in problem-solving efforts, positive assertiveness, positive conflict management, and general social competence"), affect regulation, dyadic quality ("conflict or friction between peers, collaboration, problem-solving competence of the dyad, and mutuality/ reciprocity"), and the peer’s reaction to their partner.

Mullins et al. (1985) in their study of 134 children aged 9-12 years found that non-clinically depressed children generated significantly more irrelevant means to social situations than non-depressed children. However, no significant relationship was determined between depression and the total number of relevant alternatives or relevant means generated. The significance of the correlation between depression and the total number of irrelevant means generated in social situations ($r=.16$, $p<.05$) is statistically significant but small when considering practical significance. Therefore, the results should be interpreted with caution. Doerfler et al. (1984) generated the same conclusions from these results.
A recent study reported by Goodman et al. (1995) examined social problem-solving as a mediator between stress and depressive symptomatology (as suggested in Nezu’s, 1987, pluralistic theory of depression), in 50 participants, aged eight to twelve years. Although the number of alternative solutions generated was not significantly correlated with level of depression, the effectiveness of these solutions and negative life events were each negatively correlated with depression ($r = -.51, p<.001; r = -.58, p<.001$, respectively). Therefore, when controlling for level of stress, participants who generated ineffective solutions reported significantly higher levels of depressive symptomatology than those who generated effective solutions. Regression analysis revealed that 33% of the variance in the depression scores was accounted for by negative life stress and 55% was accounted for when effectiveness of solutions was added to the model. In fact, 73% of the variance in self-reported depression was accounted for by negative life stress and the interaction of effectiveness of alternative solutions and negative life stress (effectiveness of solutions alone was not a significant predictor of depression in this final model). Therefore, children who were effective problem-solvers and experienced high levels of stress due to negative life events reported higher rates of depressive symptomatology than participants who were effective problem solvers but suffered lower levels of stress due to negative life events. These results offer further support to the interactional model proposed by Nezu (1987), suggesting that social problem-solving and negative life stress together are significant predictors of depression.

Summary

The results in the area of depressed children’s social problem-solving skills are not as consistent as the adult literature in this area. However, the above research suggests that
depressed children do have social problem-solving difficulties. The aspect of the problem-solving process where these deficits exist remains unknown primarily due to the limited studies in this area using child populations. The limited number of studies using child samples makes it difficult to draw clear conclusions and even more difficult to draw comparisons between the child, adolescent and adult literature.

Social Problem-Solving and Depressed Adolescents

Studies examining depressed adolescents’ social problem-solving skills are limited in number (Joffe et al., 1990), with “links between interpersonal behavior deficits and depression in adolescence” receiving little attention (Marton et al., 1993). Several studies have specifically examined depressed adolescents’ social problem-solving, with three of these studies examining clinically depressed populations. Joffe et al. (1990) compared the social problem-solving skills of depressed, conduct-disordered and normal adolescents. Participants were 27 adolescents (nine per group) aged thirteen through seventeen. Diagnosis of conduct disorders and depression were based on the DSM-III criteria. Severity of depression was assessed using the Child Depression Inventory (CDI; Kovacs, 1979). Social problem-solving was measured using both the MEPS and the Social Problem-Solving Interview (SPSI; Connolly, 1989a). The SPSI examines the generated solutions and perceived outcome of these solutions as well as distinguishing the type of solution as either aggressive, active-positive or passive. Joffe et al. (1990) suggest this measure allows for a more detailed analysis than the MEPS. Results revealed that the conduct-disordered adolescents produced significantly fewer relevant means and “perceived” significantly fewer obstacles on the MEPS than the depressed and control group. The only significant effect found when analyzing the responses on the SPSI was that the conduct
disordered adolescents employed significantly fewer assertive solutions than the depressed adolescents and control group. It is important to note that on both the MEPS and the SPSI no significant differences were found between the depressed and non-depressed control group. Although a useful study, being one of the few focusing on the area of adolescent depression and social problem-solving skills, there are concerns with the methods used. The researchers used a limited sample size, including only nine participants in each group for analysis. With such a low sample size the conclusions must be interpreted with caution.

Marton et al. (1993) also studied the social problem-solving, social understanding and social self-evaluation of clinically depressed adolescents (n=38), psychiatric controls (n=31) and non-psychiatric controls (n=34). Depression was assessed using the Kiddie-SADS (K-SADS; Puig-Antich & Chambers, 1978) and the Hamilton Depression Rating Scale (Hamilton, 1960). Social problem-solving was measured using the SPSI and self-perceived competence was assessed using the Adolescent Self-Perception Profile (Harter, 1988). Results indicated that although the depressed adolescents had a significantly lower self-concept than either of the control groups, there were no significant differences between the depressed and control groups in terms of their social problem-solving skills. The authors conclude that in fact it is the depressed adolescents’ negative self-concept that impedes successful social relationships and not social problem-solving or their ability to perspective take. Such conclusions concur with Beck’s (1967) cognitive theory of depression.

Marton et al.’s (1993) sampling procedure could lead to an ineffective examination of group differences. If a participant were classified as emotionally or behaviorally disordered on the K-SADS and achieved a 16 on the Hamilton (cutoff score is 17) the participant was included
in the psychiatric control group, even though they are experiencing high levels of depressive symptomatology, just not high enough to be included in the depressed group. A more useful examination would be to have participants in the psychiatric control group who scored at the lower end of the Hamilton. This would require screening a larger sample and thus choosing, for example, those who scored in the lowest and highest third on the Hamilton.

Siegel and Griffin's (1984) study of 99 twelve to eighteen year olds examined the relationship between stressful life events, attributional style and social problem-solving in non-clinically depressed adolescents. No significant correlations were evident between social means-ends thinking and depression. However, a small but significant relationship ($r = .21, p=.004$) between depression and the generation of irrelevant means was revealed on the dating problem situation. However, the generation of irrelevant means on the dating scenario accounted for only 4% of the variance in depression. Siegel and Griffin (1984) concluded that depressed adolescents are aware of successful social problem-solving solutions but do not implement these strategies in real life situations. Doerfler et al. (1984), based on the same data as Siegel and Griffin (1984) reported no significant differences in the depressed and non-depressed groups ability to generate relevant means, and irrelevant means on both social and emotional problems.

Adams and Adams (1991) offer support that depressed adolescents have social problem-solving deficits. The authors examined the relationship between negative life events, problem solutions and level of depressive symptomatology in 135 tenth graders who completed the Reynolds Adolescent Depression Scale (RADS; Reynolds, 1987) and the Problem Solving Alternative Scale (PSAS; Adams & Adams, 1991). The PSAS required adolescents to rate their likelihood of using eleven possible solutions to various interpersonal problems including parental
break up, loss of a friend, and a drop in grades. Results indicate that adolescents with high levels of depressive symptomatology choose negative solutions to their interpersonal problems more often than adolescents with low levels of depressive symptomatology. Participants with high levels of depressive symptomatology rated “get loaded on drugs/ alcohol” more often across the three problems than the low symptomatology group. On the loss of friend scenario, which is particularly related to social problem-solving, depressed adolescents rated less constructive solutions such as staying away from others, as well as turning to drug and alcohol intoxication significantly more often than their non-depressed counterparts. Similar trends of choosing less constructive choices were exhibited on the parental breakup and the drop in grades scenarios.

Adams and Adams (1996) completed a similar study to Adams and Adams (1991) but examined 80 adolescent psychiatric patients (41 were exhibiting high levels of depressive symptomatology and 39 were exhibiting low levels). Adams and Adams’ (1996) study lends support to the results of Adams and Adams’ (1991) finding that adolescent psychiatric patients experiencing high levels of depressive symptomatology also interpret life events more negatively and choose negative solutions to problems more often than non-depressed adolescents.

Summary

Given the limited amount of research into depressed adolescents’ social problem-solving skills there is a need for controlled and detailed research in this area. Research with this population is particularly necessary due to the lack of research, methodological problems, and poor sampling procedures used in several of the current studies. Results in the adult and child literature would suggest that social problem-solving deficits do exist in adolescents. However, adolescence being a separate developmental period, unique both in the social domain and in the
manifestation of depression, it is necessary to confirm this using an adolescent sample.

Gender Differences in the Social Problem-Solving Skills of Depressed Individuals

As in the general area of social problem-solving, there has been little research into the gender differences of depressed individuals’ performance on social problem-solving tasks. Given the clear distinction between the prevalence of depression between the genders, as well as gender differences in problem-solving ability in general, it is quite possible gender differences do exist in depressed individuals for interpersonal problem-solving ability. However, the few studies that do examine or analyze possible gender effects do not reveal an interaction between depression level and gender on problem-solving ability. Rudolph et al. (1994) found no significant interaction between depression and gender in terms of the child’s social problem-solving skills but did find that boys chose significantly more hostile and fewer socially acceptable social problem-solving strategies than girls. Similar to this finding, Sacco and Graves (1984) found that there was not a significant interaction between gender and perceived interpersonal problem-solving skills for depression level, nor a significant main effect of gender. As well, Goodman et al. (1995) found no gender differences in depressed children’s ability to social problem-solve. No studies have examined, as a primary research objective, the possible interactional effect that gender and depression level may have on social problem-solving ability.

Given the paucity of research examining gender differences in depressed individuals’ social problem-solving ability, it is necessary to examine these possible differences in depth. As the current research in each area separately suggests substantial gender differences do exist, an interaction between gender and depression for social problem-solving ability is a reasonable outcome to examine.
Perceived Social Problem-Solving Skills and Depression

Social problem-solving can be studied from several perspectives, including knowledge of problem-solving, actual enactment of problem-solving behavior and self-report of problem-solving abilities. Negative self-perceptions of social problem-solving skills can be viewed as a deficit in the social problem-solving process. It is important, according to D’Zurilla and Nezu (1982), as part of the Problem Orientation stage, for the problem solver to believe they are capable of solving problems. The research suggests that depressed individuals have a low self-perception of their problem-solving abilities (Flett & Johnston, 1992; Mayo & Tanaka-Matsumi, 1996; Nezu, 1986; Sacco & Graves, 1984; Sadowski & Kelley, 1993). Therefore depressed individuals do have some level of social problem-solving deficit, present at the Problem Orientation stage of the process. Such negative self-appraisals concur with Beck’s (1967) cognitive theory of depression where depressed individuals have negative schema leading to negative views of oneself.

Nezu (1986) examined perceived problem-solving in 268 undergraduates. Participants who reported high levels of depressive symptomatology reported themselves to be less confident in their problem-solving ability, to have less self-control of the situation and be less active and systematic in problem-solving than those reporting low levels of depression. Furthermore, one’s confidence in their problem-solving, their approach versus avoidance style, and their feelings of control in problem situations, accounted for 51% of the variance in depression scores. Such results suggest these factors to be significant predictors of self-reported depression. Similar findings were found in a second study which followed the same procedure but examined the
perceived problem-solving ability of a clinical population, using 25 participants (Nezu, 1986). Mayo and Tanaka-Matsumi (1996) found that depressed individuals perceived their social problem-solving ability as significantly worse than non-depressed individuals even though the depressed and non-depressed individuals generated the same number of effective solutions.

Further investigations into perceived social problem-solving skills have been completed using child and adolescent populations. These studies also conclude that depressed youngsters have poor perceptions of their social problem-solving skills (Sacco & Graves, 1984; Sadowski & Kelley, 1993). Sacco and Graves (1984) found that depressed children rated themselves poorer than non-depressed participants on questions related to their satisfaction with their problem-solving performance, and how they felt their performance compared to their peers. The groups did not differ on their evaluation of their own performances.

Sadowski and Kelley (1993) compared the perceived social problem-solving skills of 30 adolescent suicide attempters to 30 psychiatric and 30 non-psychiatric controls, aged 12 to 18 years. Perceived social problem-solving was assessed using the Social Problem-Solving Inventory (D'Zurilla & Nezu, 1990). Results indicated that those who attempted suicide reported having poorer social problem-solving skills and poorer problem orientation as well as having more difficulty generating alternative solutions to problems than either the psychiatric and non-psychiatric control groups. Although the above results were specific to suicide attempters, both the attempters and the psychiatric controls reported poorer decision making skills than the non-psychiatric controls. This study is important to the area of adolescent depression as depression is a common mental health problem among suicidal adolescents (Reynolds & Mazza, 1994).

Results which oppose the notion that depressed individuals suffer from deficits in their
perceived problem-solving ability are put forth by Priester and Clum (1993). This longitudinal examination of freshmen's self-perceived problem-solving skills found no significant direct relationship between perceived problem-solving and depression, hopelessness or suicidal ideation. The authors suggest that these results may oppose those of other studies because perceived problem-solving was entered into the regression analysis second, after pretest levels of the three dependent measures was entered, thus placing a " stricter statistical demand" on the problem-solving variable. It is important to note that a significant interaction between stress and one's confidence in problem-solving did predict depression (higher stress levels and low confidence predicted increase in depression as well as hopelessness and suicidal ideation).

Two of the studies discussed in this section have examined possible interactions in perceived social problem-solving ability between gender and depression. Sacco and Graves (1984) found no significant main effect of gender or interaction effect of gender and depression for children's perceived social problem-solving. Nezu (1986) reported similar findings but with adult populations. Research examining such interaction effects in an adolescent sample would be useful.

**Problem-Solving Self-Efficacy**

Although considered a separate construct, social self-efficacy is related to one's perception of their social skills being defined as, "an individual's judgements about how well -that is efficiently and effectively- he/she will deal with specific situations in future time" (McFarlane, Bellissimo, Norman, & Lange, 1994, p. 604). Connolly (1989b) suggests there is little known about the social self-efficacy of adolescents due to the under examination of adolescent social competence. Connolly's (1989b) research suggests that adolescent females
have a higher social self-efficacy than adolescent males, including when both genders are emotionally disturbed. However, those adolescents experiencing emotional disorders have been shown to have lower social self-efficacy than non-disordered adolescents (Connolly, 1989b).

McFarlane et al. (1994) indicate self-efficacy to be a “central construct” in depression from the cognitive-behavioral standpoint, due to perceptions of limited control (low self-efficacy) which may cause the development of depressive symptoms. McFarlane et al. (1994) examined the roles of social stress, social self-efficacy and social support in depression in a sample of 648 adolescents (338 males and 310 females) taking grade ten non-university preparation courses from eleven different high schools. Depression and the social factors were assessed twice during the school year, at a sixth month interval. Self-efficacy was assessed using the Adolescent Social Self-Efficacy Scale (A-SSE; Connolly, 1989b). Results indicated significant group differences. Those who were depressed at both times had the lowest social self-efficacy scores, and those who were depressed at time one and not at time two exhibited the next lowest social self-efficacy scores. The participants who were non-depressed at both times had the highest social self-efficacy scores, while those who were depressed at time two, but not at time one, had the next highest social self-efficacy scores. Such findings suggest social self-efficacy to be related significantly to depression. Of interest is if similar results would be found when examining problem-solving self-efficacy in depressed adolescents, as opposed to the more general social self-efficacy.

Summary

Although social problem-solving deficits are not specific to depression, there is evidence that depressed individuals suffer from different deficits in the problem-solving process than those
suffering from other pathologies. Research supports that depressed individuals of all ages perceive themselves as poor problem-solvers. However, social problem-solving treatment programs have shown mixed results in terms of success in treating depression and the research examining the social problem-solving ability of depressed individuals has not shown consistent results.

Results indicate depressed adults have significant deficits in their social problem-solving skills. Specifically, deficits have been shown in the areas of generating alternative solutions, relevant means, irrelevant means, no means, no-response answers, elaborating means (Gotlib & Asarnow, 1979) and developing effective means for social problems (Marx & Schulze, 1991; Marx et al., 1992). Although not as conclusive due to the limited number of studies, evidence also supports social problem-solving deficits in depressed children. Only a limited number of studies have researched the area of depressed adolescents’ social problem-solving. Conflicting evidence in results suggests there is a need for further research in this area examining this developmental period.

Gender differences in depressed individuals’ social problem-solving ability have been given little attention in the literature. The studies that have been completed suggest gender and depression do not interact to have a combined effect on social problem-solving ability. Given the research in the area of depression and social problem-solving suggests gender differences do exist for each construct, there is a need for further examination to determine if there is an interaction effect of depression and gender on social problem-solving ability.

Summary

Depression is recognized as a leading mental health problem among adolescents.
Adolescent depression is an important area of continued study, due to possible differences in the disorder at this age period, the high prevalence of the disorder in adolescents and the emergence of gender differences in prevalence rates at this age. Depression is reflected in dysfunction in cognitive, affective, motivational, somatic/vegetative and interpersonal domains. Interpersonal difficulties include peer rejection, withdrawal from social life, and decreased social competence. Social problem-solving is directly related to social skills, as it regulates an individual’s social competence. Theories related to social problem-solving suggest that individuals who have difficulty at any stage of the social problem-solving process may have difficulty with peer relationships. Theories of depression suggest that depressed individuals may have difficulties at various stages of the social problem-solving process.

The literature indicates depressed individuals perceive themselves as poorer social problem-solvers. However, the results examining the actual social problem-solving ability of depressed individuals have not been as consistent. Results indicate depressed adults to have significant deficits in their social problem-solving skills. The child depression literature has not presented such a consistent picture of social problem-solving deficits. This may be due to the limited amount of research in this area. The research completed in the area of depressed adolescents’ social problem-solving has also been limited. Conflicting results and methodological problems suggests a need for further research to examine social problem-solving in this unique developmental period.

Evidence supports that females are more successful at social problem-solving than males. Likewise, adolescent females are more likely to be depressed than adolescent males. However, there has been little examination into possible gender differences in depressed individuals’ social
problem-solving skills, particularly with adolescent populations. Given a gender and depression interaction has not been examined as a primary research objective, this is an area of needed research.
CHAPTER 3

Statement of Problem

Adolescence is considered an important, but understudied, period of development to examine in terms of social ability, due to the developmental differences present between this population, children and adults (Lenhart & Rabiner, 1995). Research into adolescent depression, in particular, is essential due to the increase in prevalence in this disorder during this age-period (Angold & Rutter, 1992).

Although research has established that depressed individuals suffer from social skill deficits, there is still little understanding concerning the specific social skills deficits. Social problem-solving, being a component of social competence, has been given some support as an area of deficiency in depressed individuals. Examination of the social problem-solving ability of adolescents is important due to the limited number of studies completed in this area with this population (Joffe et al., 1990; Marton et al., 1993).

The examination of possible gender effects and the interaction of depression and gender on social problem-solving ability are also warranted. The significantly higher prevalence rate of depression in females, which is first evident in early adolescence (Hammen & Rudolph, 1996, Nolen-Hoeksema & Girgus, 1994; Reynolds & Johnston, 1994) and the significantly better problem-solving ability of females, in general (Caplan et al., 1991; Murphy & Ross, 1987; Rubin & Krasnor, 1983; Rudolph et al., 1994) suggest an interactional effect of depression and gender may exist. Therefore, this study will examine the effects of depression and gender on depressed adolescents’ social problem-solving ability.

This study will help further the understanding of adolescent depression, and the
relationships social skill deficits have to this disorder. In particular, this study will offer insight into the problem-solving deficits depressed adolescents may have, highlighting the specific areas of the problem-solving process where these difficulties exist, and whether depressed males and females exhibit different deficits. If results determine that depressed individuals have social problem-solving deficits, it can be concluded that poor interpersonal relationships, social skills and problem-solving skills are not merely due to behavioral or enactment problems in depressed adolescents, but reflect difficulties at a cognitive processing level. Differences in problem-solving deficits between depressed males and females will add to the growing understanding of gender differences in depression.

Primary Study Hypothesis

Based on the premise that there will be a significant main effect in social problem-solving ability for level of depressive symptomatology and gender, the following hypothesis is put forth:

There will be a significant interaction in social problem-solving ability between gender and depressed and non-depressed adolescents (See Figure 1).

Specifically, non-depressed adolescent females will be better problem-solvers than non-depressed adolescent males, while depressed adolescent females will not differ in their social problem-solving ability from depressed adolescent males. The specific domains of social problem-solving ability which will be examined include: relevancy of means (relevancy means, irrelevant means, no-means), accuracy of problem identification, the generation of alternatives (number of solutions, solution quality, quality of best solution), and consequential thinking (number of consequences, quality of consequences, quality of most likely consequence). These domains are discussed further in the scoring section of Chapter 4.
Rationale

It is well established that adolescent females over the age of thirteen/fourteen exhibit higher prevalence rates of depression and depressive symptomatology than males (Angold & Rutter, 1992; Hammen & Rudolph, 1996; Nolen-Hoeksema & Girgus, 1994; Petersen et al., 1991; Reynolds & Johnston, 1994; Whitaker et al., 1990). Females have also been shown to be significantly better problem-solvers than males (Caplan et al., 1991; Murphy & Ross, 1987; Rubin & Krasnor, 1983; Rudolph et al., 1994). Rudolph et al. (1994) concluded that females endorse more socially acceptable strategies and fewer hostile solutions than males. Other studies have supported these findings that females generate fewer hostile solutions than males (Caplan et al., 1991; Rubin & Krasnor, 1983). Similarly, females have been shown to generate significantly more effective solutions (Caplan et al., 1991; Murphy & Ross, 1987), more alternative solutions (Rubin & Krasnor, 1983) and more cooperative solutions than males (Caplan et al., 1991).

Adams and Adams (1991) and Siegel and Griffin (1984) provide support that depressed adolescents have social problem-solving deficits. Similarly, depressed adults, both clinical and non-clinical samples, have been shown to have significant deficits in their social problem-solving ability (Gotlib & Asarnow, 1979; Marx & Schulze, 1991; Marx et al., 1992; Nezu & Ronan, 1985). Similar results have been found in depressed children (Goodman et al., 1995; Mullins et al., 1985; Rudolph et al., 1994; Sacco & Graves, 1984) suggesting that depressed children also have social problem-solving deficits.

Research examining the combined effect of gender and depression on social problem-solving ability has been limited. Studies which have been completed in this area have found no interactions between these variables (Goodman et al., 1995; Rudolph et al., 1994; Sacco &
Graves, 1984), but none have been completed with an adolescent population, and no study has examined a possible gender by depression interaction as a primary research question.

Secondary Research Questions

**Question 1**

Based on the assumption there will be significant main effects for both gender and depression for perceived problem-solving effectiveness the following question is put forth:

Is there a significant interaction between level of depression and gender in adolescents' perception of problem-solving effectiveness?

**Rationale**

Research suggests depressed individuals have lower perceived problem-solving ability (Flett & Johnston, 1992; Mayo & Tanaka-Matsumi, 1996; Nezu, 1986; Sacco & Graves, 1984; Sadowski & Kelley, 1993) than non-depressed individuals. Studies examining the interaction in perceived social problem-solving between gender and depression, using child and adult samples, have not found significant results (Nezu, 1986; Sacco & Graves, 1984). However, examination of such an interaction using an adolescent population would be useful.

**Question 2**

Based on the assumption there will be a significant main effect of gender and depression on problem-solving self-efficacy the following question is put forth:

Is there a significant interaction between level of depression and gender in problem-solving self-efficacy in adolescents?

**Rationale**

Adolescent females have been shown to have a higher level of social self-efficacy than
adolescent males, in both the general population and with emotionally disordered adolescents (Connolly, 1989b). Emotionally disordered adolescents have been shown to have lower levels of social self-efficacy than non-disordered adolescents (Connolly, 1989b). Likewise, depressed adolescents have been shown to have lower levels of social self-efficacy than non-depressed adolescents (McFarlane et al., 1994). Therefore, it is useful to examine differences in self-efficacy for problem-solving across gender and depression levels.
CHAPTER 4

Method

Participants

Participants were 61 students from four high schools and included 26 females and 11 males in the low depressive symptomatology group, and 19 females and 5 males in the high depressive symptomatology group. Participants were drawn from a larger sample of 432 secondary students attending grades eight through twelve in the Lower Mainland of British Columbia. The larger sample included 265 females and 165 males (N = 432) and ranged in age from 13 to 20 with a mean age of 16.91 years. 265 females and 165 males participated (two did not report their sex). Table 1 reports the descriptive statistics for this initial sample, while Table 2 describes the descriptive characteristics of the final sample used in this study.

Written parental permission was required for all participants unless they were of legal age. Consent from participants was also required. The participants were from the regular school classroom. Adolescents with intellectual deficiencies or learning disabilities were not included in the sample.

To encourage the return of permission forms, students who returned completed permission forms (accepting or declining participation) were entered into a contest to win one of two gift certificates for $50.00 each to a music store. Approximately 1200 consents were handed out to students. 582 were returned, with 453 consenting to participate. 87 were returned unsigned and 42 did not consent to participate. Therefore the total return rate of consents was approximately 49%. Of returned forms the consent rate was 78%.
### Table 1
**Descriptive Characteristics of Participants in the Initial Sample**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>432</td>
<td>165</td>
<td>265</td>
<td>( \chi^2(1) = 23.26, p &lt; .001 )</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>15.92</td>
<td>15.92</td>
<td>15.91</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.42</td>
<td>1.49</td>
<td>1.37</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>13 - 20</td>
<td>13 - 20</td>
<td>13 - 20</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10.50</td>
<td>10.45</td>
<td>10.53</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>1.15</td>
<td>1.21</td>
<td>1.12</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>8 - 12</td>
<td>8 - 12</td>
<td>9 - 12</td>
<td></td>
</tr>
<tr>
<td>Ethnicity (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>55.8</td>
<td>58.0</td>
<td>54.4</td>
<td>( \chi^2(6) = 5.01, p = ns. )</td>
</tr>
<tr>
<td>East Indian</td>
<td>23.8</td>
<td>24.7</td>
<td>23.4</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>0.8</td>
<td>0.0</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>2.5</td>
<td>3.3</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>9.3</td>
<td>8.7</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>Pacific Islands</td>
<td>5.8</td>
<td>4.0</td>
<td>6.9</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2.3</td>
<td>1.3</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Reynolds Adolescent Depression Scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>59.10</td>
<td>55.38</td>
<td>61.38</td>
<td>( t(419) = -4.57, p &lt; .001 )</td>
</tr>
<tr>
<td>SD</td>
<td>13.38</td>
<td>13.06</td>
<td>13.09</td>
<td></td>
</tr>
<tr>
<td>% above cutoff</td>
<td>9.7</td>
<td>5.6</td>
<td>12.3</td>
<td>( \chi^2(1) = 12.90, p &lt; .001 )</td>
</tr>
</tbody>
</table>
Table 2
Descriptive Characteristics of Participants in the Final Sample

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>61</td>
<td>16</td>
<td>45</td>
<td>$\chi^2(1) = 13.79, p = &lt; .001$</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>16.44</td>
<td>17.00</td>
<td>16.24</td>
<td>$t(59) = 1.82, p = ns.$</td>
</tr>
<tr>
<td>SD</td>
<td>1.46</td>
<td>1.16</td>
<td>1.51</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>14 - 20</td>
<td>14 - 18</td>
<td>14 - 20</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10.98</td>
<td>11.63</td>
<td>10.76</td>
<td>$t(59) = 3.18, p = &lt; .01$</td>
</tr>
<tr>
<td>SD</td>
<td>1.01</td>
<td>0.89</td>
<td>0.96</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>9 - 12</td>
<td>9 - 12</td>
<td>9 - 12</td>
<td></td>
</tr>
<tr>
<td>Ethnicity (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>43.9</td>
<td>31.3</td>
<td>48.8</td>
<td>$\chi^2(5) = 4.01, p = ns.$</td>
</tr>
<tr>
<td>East Indian</td>
<td>31.6</td>
<td>37.5</td>
<td>29.3</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>8.8</td>
<td>12.5</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>10.5</td>
<td>18.8</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>Pacific Islands</td>
<td>1.8</td>
<td>0.0</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>3.5</td>
<td>0.0</td>
<td>4.9</td>
<td></td>
</tr>
<tr>
<td>Reynolds Adolescent Depression Scale (Time 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>60.31</td>
<td>57.38</td>
<td>61.36</td>
<td>$t(59) = -0.76, p = ns.$</td>
</tr>
<tr>
<td>SD</td>
<td>17.82</td>
<td>15.30</td>
<td>18.68</td>
<td></td>
</tr>
<tr>
<td>% above cutoff</td>
<td>39.34</td>
<td>31.25</td>
<td>42.22</td>
<td>$\chi^2(1) = 8.17, p &lt; .01$</td>
</tr>
</tbody>
</table>
Materials

The data collected were part of a larger study using multiple measures. Only those measures relevant to this study will be discussed in this section.

Demographic Information (Appendix B)

An information sheet was used to obtain data on the age, grade, race and gender of the student. These data were used to describe characteristics of the sample and as a basis for group (gender) selection.

Reynolds Adolescent Depression Scale (Appendix C)

The Reynolds Adolescent Depression Scale (RADS; Reynolds, 1987) is a 30-item self-report measure which assesses current levels of depressive symptomatology in adolescents aged thirteen to eighteen. This screening measure uses a four-point Likert scale ("almost never", "hardly ever", "sometimes", or "most of the time") and can be individually or group administered. The higher the score on the RADS the higher the level of depressive symptomatology. A score of 77 or above is indicative of a level of depressive symptomatology associated with clinical levels of depression.

The standardization sample included 2,460 adolescents, grades seven though twelve (aged 12 to 18 years), in the US. The manual details the demographic information for the standardization sample, suggesting the sample included representative numbers in terms of race, gender, age and socio-economic level.

Strong evidence is given in the RADS manual to support the reliability and validity of the measure. In terms of reliability, the RADS reports an internal consistency of .92. The author cites several other studies offering support for this high internal consistency. Other support for
the reliability of the measure includes a strong split-half reliability coefficient ($r = .91$). A test-retest reliability coefficient of .80 was found when 104 adolescents, grades ten and eleven, were re-administered the RADS after a period of six weeks. In a second study when 415 adolescents, grades nine through twelve, were re-administered the RADS, after a three month period, a test-retest reliability coefficient of .79 was found.

The manual details strong evidence supporting the validity of the RADS, in the form of content, criterion-related, construct, and clinical validity. For example, concurrent validity, a means of supporting criterion-related validity, was demonstrated in a study comparing the responses of 111 adolescents, grades ten and eleven, on the RADS and the Hamilton Depression Rating Scale, revealing a correlation coefficient of .83. Similarly, construct validity was demonstrated through the satisfactory correlations of the RADS with other self-report depression measures (convergent validity).

**Means Ends Problem Solving Procedure (Appendix D)**

The Means Ends Problem Solving Procedure (MEPS; Platt & Spivack, 1975) assesses an individual's ability to generate the steps necessary to solve a problem, beginning at the stage the problem is identified (Spivack, Shure, & Platt, 1981). The MEPS presents the adolescent with a series of story stems; each details a problematic situation for a target character and presents the successful resolution of the problem. The student is required to complete the middle of the story by presenting possible events that could have occurred between the initial problem and the resolution, to achieve the final goal. The MEPS includes both male and female forms and can be self-administered or administered by an examiner. The manual suggests all ten items may be demanding for youngsters to complete, and therefore suggests only administering three to four
stories to this population. The present study employed three stories (see Appendix D).

The MEPS can be scored for number of relevant means, obstacles, enumerations of means, time, irrelevant means, no-means responses (see Appendix A for definition of terms), and story content. The present research scored responses for the number of (a) relevant means, (b) irrelevant means, and (c) no-means, combining the scores for these factors to achieve a relevancy score (the total number of relevant means divided by the sum of the total number of relevant means, irrelevant means, and no means). This score provided a ratio describing the number of relevant steps taken towards achieving the specified goal in comparison to the total number of steps taken. Therefore the relevancy ratio assessed the adolescents’ ability to effectively solve a problem in a step by step fashion. Scoring for the ratio is discussed in detail in a later section.

Relevant means, irrelevant means, and no-means were chosen for investigation as they are, according to Spivack, Platt, and Shure (1976), the most commonly examined factors in the literature, therefore allowing for easier comparison of results. Studies discussed previously, in the literature review, which examine at least one of these factors include: Gotlib and Asarnow (1979), Joffe et al. (1990), Marx et al. (1992), Mullins et al. (1985), Siegel and Griffin (1984), Zenmore and Dell (1983). Spivack et al. (1976) indicated enumerations to be closely related to number of relevant means, suggesting there is too much overlap in the constructs to assess both. As well, examinations of obstacles and awareness of time “seem to be measuring qualities of thought not necessarily related to adjustment” (Spivack et al.; 1976, pp. 87-88) and therefore were not included in scoring criteria for the current investigation.

The psychometrics of the MEPS have not been well established in the literature (Butler & Meichenbaum, 1981; Tisdelle & St. Lawrence, 1986), despite the wide use of this measure
throughout the literature on social problem-solving. Norms are based on a limited number of
males and females who are unrepresentative of the general population, including norms for
groups such as penitentiary inmates and psychiatric patients. Internal consistency coefficients
range from .82 to .84 for males and .80 to .82 for females. However, these reliability tests were
conducted on psychiatric patients, therefore not establishing the measure’s reliability in the
general population. Test-retest reliability is poor and again is based on a sample not reflective of
the general population. For example, 11 college males, with a mean age of 19.7 years, showed a
test re-test reliability of .64 when re-administered the MEPS after five weeks (the measure was
self-administered).

The manual discusses several studies supporting the validity of the measure, including
construct, content, and criterion-related validity. Evidence of construct validity was presented
through a number of studies in which people expected to be poorer problem solvers due to poor
levels of adjustment were differentiated from successful problem-solvers. For example, Platt and
Spivack (1972) and Platt et al. (1974) found that psychiatric patients (adult and adolescent,
respectively) achieved significantly lower scores on the MEPS than non-psychiatric controls.
Further evidence of construct validity for the MEPS is presented in Joffe et al.’s (1990) study.
Joffe et al. (1994) found that conduct disordered adolescents produced significantly fewer
relevant means and fewer obstacles on the MEPS than depressed adolescents and normal controls
and generated fewer assertive solutions on another measure of social problem-solving, the SPSI.
No correlations between these two measures were reported. Content validity was demonstrated
through factor analysis, whereby all the MEPS stories load onto a single factor, suggesting that
each story measures the same type of thinking.
Although evidence supporting the reliability and validity of the MEPS is limited, this measure has been widely used throughout the research examining social problem-solving, particularly in studies examining psychopathology. Therefore the MEPS was administered in this study to allow for comparisons across the literature. However, due to the limited psychometrics of this measure a second measure of social problem-solving was used to support the results found using the MEPS.

**Social Problem-Solving Interview- Revised (Appendix E)**

The Social Problem-Solving Interview (SPSI; Connolly, 1989a; 1992) assesses social problem-solving in adolescents. The current study made several revisions to the original SPSI. The changes made included; 1) adding two new scenarios, 2) making the measure a paper and pencil task, 3) group administering the measure, 4) not using photographs, and 5) offering feedback on problem identification.

As originally developed, five problem scenarios dealing with peers (e.g. being laughed at by one’s peers) are presented using black and white photographs as aides. The current study did not use the photographs and added two new scenarios for a total of seven. The black and white photographs were not used as they were confusing and often did not correspond with the scenario correctly. Adding new scenarios allowed for a greater sampling of problem-solving skills across situations. The SPSI is usually presented orally, on a one-on-one basis; however this study presented small groups, of approximately five adolescents, with this measure in a group administered fashion, using paper and pencil. These changes were made to allow the measure to be completed by many participants in a short amount of time. Both the SPSI and SPSI-R use separate sets of scenarios for males and females, differing in the gender of the characters in the
scenarios, only. The changes described above are discussed in detail below.

The adolescent was asked to: (a) describe the problem, (b) generate alternative solutions, (c) select the best solution, (d) describe possible consequences (e) and choose which consequence was most likely to happen. These tasks assessed the accuracy of problem identification, the generation of alternatives and one’s understanding of consequences. Specifically, accuracy was assessed by the description given of the problem. Solution generation was assessed in terms of total number of generated solutions, and whether these solutions and the best solution were: (a) positive-passive, (b) positive-active, (c) solved by another person, or (d) violent or vague. Finally, understanding of consequences was assessed by the number of consequences given and whether the consequence thought to most likely occur was positive or negative. The two new scenarios (scenario 6 and 7) are presented in Appendix E. One describes a situation where an adolescent is asked to a movie and is stood-up and the second presents a problem where a student loses a friend’s compact disc player.

Instead of orally correcting the adolescent if they described the problem incorrectly, which is the usual procedure, all participants were given written feedback describing the correct problem prior to them continuing with the remaining questions for that specific problem. Specifically, the student was presented with the scenario and asked to define the problem in the scenario. When they completed this task, a new page was presented on which the scenario was re-presented along with a correct interpretation of the problem. The student was then required to complete the remaining SPSI-R questions. A detailed description of the scoring procedure for this measure is presented in the scoring section of this chapter. The processes assessed by the SPSI/SPSI-R closely follow D’Zurilla and Nezu’s (1982) model of problem-solving, assessing
the problem definition, generation of alternatives, decision making and solution verification stages.

Reliability and validity data for the original SPSI is limited. Inter-rater reliability has been shown to range between .81 to .94 (Joffe et al., 1990). Joffe et al.’s (1990) study offered some evidence of construct validity for the SPSI. Conduct disordered adolescents produced significantly fewer positive solutions on the SPSI than depressed adolescents and normal controls and generated fewer relevant means and fewer obstacles on another social problem-solving measure, the MEPS. No correlations between these two measures were reported. The SPSI was created for use with adolescent populations. Although this measure has not been widely used, two of the primary studies examining the problem-solving ability of clinically depressed adolescents (Joffe et al., 1990; Marton et al., 1993) have employed it. This measure is considered a useful addition to this study; as Joffe et al. (1990) suggest this measure offers a more detailed analysis of social problem-solving ability than the MEPS. As well, the use of multiple measures was used to help confirm or validate the results for what may be considered a “fuzzy” construct.

**Problem-Solving Self-Efficacy and Perceived Problem-Solving (Appendix E)**

Two additional questions concerning the problem-solving self-efficacy of the adolescent and one assessing their perceived problem-solving effectiveness were added to the SPSI-R. The social problem-solving self-efficacy question was, “If you had this problem, how well do you think you would be able to solve it?”. This question was presented before and after (pre and post) the problem identification portion of the SPSI-R. The question was asked twice to determine whether having feedback on problem identification affected the participant’s level of
self-efficacy. The perceived social problem-solving effectiveness question was presented after the Quality of Best Solution question on the SPSI-R asking, "How effective will this solution be?".

The three questions were presented in the form of a six point Likert-type scale, with a score of one being considered low problem-solving perceived effectiveness/self-efficacy and a score of six being considered high. Further scoring information on these questions will be discussed in the scoring section of this chapter. Any future reference to the SPSI-R in terms of administration procedure includes the perceived problem-solving effectiveness and problem-solving self-efficacy as questions.

Procedure

Permission was given by three lower mainland school districts to conduct the study within their districts. The Research Director or Assistant Superintendent within each district approached various schools to achieve a list of interested schools. This resulted in the participation of 4 schools across the three districts. Within each district, meetings were held to discuss the purpose and procedure of the study with the secondary school administrators and/or school counselors. Times to administer the study materials were decided upon at the convenience of the schools. The researcher and an assistant also met with teachers interested in participating in the study, at the respective schools, to outline the study.

The researcher and an assistant met with each class individually to hand out consent forms and explain the project. The consent form detailed the purpose of the study and described what was required of participants (see Appendix F). Written parental consent was required for participation unless the participant was of legal age. Consent was also required from the student
participants.

On the day materials were administered, the participants were given a brief description of the study and what they were required to do by their classroom teachers, the researcher or assistant (see Appendix G). It was explained that participation in the study was voluntary, and participation or lack thereof would not effect their academic standing. Students who did not wish to participate, or for whom parental permission was not obtained were given regular classroom work to complete. The classroom teacher, researcher or assistant handed out a packet containing the demographic sheet, the RADS and other questionnaires not part of the present analysis, for the participants to complete (\(N=432\)). The package of materials took 30 to 45 minutes to complete. The classroom teacher was present throughout the assessment period.

Based on the RADS scores from this administration, 26 females and 10 males experiencing high levels of depressive symptomatology (those who scored 77 or more on the first administration of the RADS) were matched for sex, age, and in most cases grade, to 27 females and 11 males experiencing low levels of depressive symptomatology (those who scored 61 or less on the first administration of the RADS). These groups were targeted for administration of the social problem-solving measures (MEPS, SPSI-R). Frequencies, according to age, for the high symptomatology group and matched cases are presented in Table 3. The mean scores achieved by these groups for the first administration of the RADS (Time 1) are also presented in Table 3.

One week to two weeks after the initial assessment, the 74 participants were assessed in small groups of approximately five or six students using the RADS, the MEPS and SPSI-R. The small group assessments were conducted by the primary researcher and a research assistant.
Table 3

Frequencies of Participants Meeting Criteria for Reassessment, and Matched Cases, According to Age, Gender, and Level of Depression

| Age | Male | | | Female | | | | | | | |
|-----|------|---|---|------|---|---|---|---|---|
|     | Non-depressed (n = 11) | Depressed (n = 10) | Non-depressed (n = 27) | Depressed (n = 26) | Total n |
| 14  | 1    | 1  | 3  | 3    | 8  |
| 15  | 0    | 1  | 6  | 6    | 13 |
| 16  | 1    | 1  | 7  | 6    | 15 |
| 17  | 4    | 3  | 6  | 6    | 19 |
| 18  | 5    | 4  | 5  | 3    | 17 |
| 20  | 0    | 0  | 0  | 2    | 2  |

RADS Time 1

|                | Male | | | Female | | | | | | | |
|----------------|------|---|---|------|---|---|---|---|---|
|                | M    | 49.55 | 84.20 | 51.15 | 83.85 |
|                | SD   | 7.79  | 6.36  | 7.59  | 6.62  |
Packages containing the RADS, MEPS and SPSI-R were handed out and the students were given direction for how to complete the measures. The RADS was re-administered to achieve a measure of the students' current level of depressive symptomatology. These students were then asked to complete the MEPS and SPSI-R. It took approximately forty to fifty minutes to complete these measures.

Three participants had declined participation, and 3 were absent (1 depressed male, 1 depressed female and 1 non-depressed female, in each case). These participants are not included in the frequencies documented in Table 3. Three of the depressed students who did participate (2 males and 1 female) had invalid responses on the first administration of the RADS and therefore were not included in the data analysis, but were however included in calculating the reliability of the MEPS and SPSI-R. These participants are included in the frequencies documented in Table 3. Those in the high symptomatology group who did not score above a 70 on the second assessment of the RADS were excluded from the data analysis. This included 3 males and 6 females. Those in the low symptomatology group that scored above a 60 on the second assessment of the RADS were excluded from data analysis. This applied to 1 participant (female). Therefore, 26 females and 11 males were included in analysis for the low depressive symptomatology group, while 19 females and 5 males were included in analysis for the high depressive symptomatology group. The mean age of these 61 participants was 16.44, with the mean grade being 10.96 (grade ranged from 9 to 12). Frequencies, according to age, for the final sample are presented in Table 4. This table also provides the means scores achieved on the RADS for the first and second administrations (Time 1 and Time 2) by the final sample.

Confidentiality was maintained in both testing sessions by having no names appear on
Table 4

Frequencies of Participants in Final Sample, According to Age, Gender, and Level of Depression and Mean RADS Scores at Both Assessments

<table>
<thead>
<tr>
<th>Age</th>
<th>Male Non-depressed (n = 11)</th>
<th>Male Depressed (n = 5)</th>
<th>Female Non-depressed (n = 26)</th>
<th>Female Depressed (n = 19)</th>
<th>Total n</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>1</td>
<td></td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>17</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>M 17.09</td>
<td>16.80</td>
<td>16.12</td>
<td>16.42</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD 1.16</td>
<td>0.98</td>
<td>1.28</td>
<td>1.73</td>
<td></td>
</tr>
</tbody>
</table>

RADS (Time 1)

| M   | 49.55                        | 85.60                   | 51.08                         | 83.42                     |
| SD  | 7.79                         | 4.67                    | 7.74                          | 6.58                      |

RADS (Time 2)

| M   | 48.45                        | 77.00                   | 47.15                         | 80.79                     |
| SD  | 7.85                         | 4.85                    | 7.83                          | 8.82                      |
the test materials. Each package had an identification number and a place for the adolescent's name on the first page (identification sheet). The second page had the identification number at the top. After filling out their names, the students tore the identification page off and handed it to the teacher or researcher. These identification sheets remained with the school's counsellor throughout the research and were destroyed when the analysis of the data was completed. This master list allowed for adolescents with high levels of depressive symptomatology to be targeted for reassessment and possible treatment by the school district. The researcher notified the school of students who achieved scores at a clinical level on the RADS. The identification sheets were also used to target students for reassessment in this study. The researcher reported the identification numbers of students who were to be reassessed and the counsellor ensured those students met with the researcher for a small group (reassessment) session.

**Scoring**

The scoring of the MEPS and SPSI-R was completed by the researcher and an assistant with graduate training in assessment. Inter-rater reliability was calculated, using an interclass correlation coefficient (Bartko, 1966), for 40% of the completed measures. Table 5 lists the subscales for the MEPS and SPSI-R that were examined in this study, and the range of scores possible for these scales. The scoring methods for each of these tests is discussed in detail below.

**Means-Ends Problem-Solving Procedure**

The MEPS was scored on the number of: (a) relevant means, (b) irrelevant means, and (c) no-means responses to achieve an overall relevancy ratio (total number of relevant means divided by the sum of the total number of relevant means, irrelevant means and no-means). A score of
Table 5

Summary of Social Problem-Solving Ability Scores achieved on the MEPS and SPSI-R and the Components Which Make up These Scores, Including the Range of Scores

<table>
<thead>
<tr>
<th>Measure</th>
<th>Title of Score</th>
<th>Components</th>
<th>Possible Range</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEPS</td>
<td>Relevancy ratio&lt;sup&gt;a&lt;/sup&gt;</td>
<td>number of relevant means</td>
<td>0 - 1.00</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>number of irrelevant means</td>
<td>0 - n&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>number of no means</td>
<td>0 - 3</td>
<td></td>
</tr>
<tr>
<td>SPSI-R</td>
<td>Accuracy of problem identification</td>
<td>accuracy of problem identification</td>
<td>0 - 14</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Generation of alternatives</td>
<td>number of solutions</td>
<td>0 - n</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>solution quality</td>
<td>0 - 21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consequential thinking</td>
<td>quality of best solution</td>
<td>0 - 21</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>number of consequences</td>
<td>0 - n</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>quality of consequences</td>
<td>0 - 14</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>quality of most likely consequence</td>
<td>0 - 14</td>
<td></td>
</tr>
</tbody>
</table>

Note. <sup>a</sup> relevancy ratio is the number of relevant means/ the sum of the total number of relevant means, irrelevant means and no-means. <sup>b</sup>n equals any number.
one was given for *each* effective step listed that enabled the target character to reach the stated resolution and/or if the target character overcame an obstacle which was preventing the attainment of this resolution (relevant means). A score of one was given for irrelevant mean, that is, if a response was not effective within the story context, and if the first step or foundation to the solution was left out (even if the rest were effective). A score of irrelevant means can not be given if any relevant mean is presented. A score of one was given for no-mean responses, which were those that failed to provide the steps necessary to reach the resolution. Examples of no-mean responses included a lack of sufficient detail of how the goal was reached, a response which was a repetition of the presented story, if the response was merely a value judgement of the situation or outcome, and if the outcome was described as being achieved by an accident or a "miracle." These scores were totaled across the three presented scenarios and presented as a relevancy score. Only participants with complete data for all three scenarios were included in the analyses \( (n = 57) \), as a number of participants were unable to complete all the measures within the allotted time.

**Social Problem-Solving Interview- Revised**

The SPSI-R was scored for three aspects of problem-solving: (a) accuracy of problem identification, (b) generation of alternatives (number of solutions, solution quality, and quality of best solution) and (c) consequential thinking (number of consequences, quality of consequences, and quality of most likely consequence). Each scenario was scored for each component listed in the brackets above. Accuracy of problem identification was scored as a 0, 1, or 2 point response. A zero score was given when the problem was interpreted inaccurately or when no response was given. A one point score was given for answers reflecting the *action* of the scenario only (e.g.
“kids making fun of the guy”), while a two point score was given for answers reflecting the action of the problem as well as recognizing the feelings the main character could be experiencing (e.g. “make fun of the guy and he feels bad”). Number of solutions and number of consequences were scored by giving one point for each “qualitatively” different solution or consequence. Consequences included the thoughts, attitudes and feelings of others. Solution quality and quality of the best solution were scored as a 0, 1, 2, or 3 point response. A zero was given if the solution was verbally or physically violent, unclear or inappropriate. A score of one was given if the solution was passive and allowed the main character to avoid “active confrontation”. A score of two was achieved if the solution was positive, where the main character tried to achieve a solution directly. A score of three was given if a third person was relied upon for the resolution of the problem. Quality of consequences and quality of the most likely consequence were scored as either a 1 or 2 point response. A score of one indicated that a negative outcome was described for the main character, while a score of two was given if the outcome was positive. Quality of consequences and quality of most likely consequence were not scored if no consequences were given. Some students missed or did not answer questions on the SPSI-R. Missing data for the SPSI-R, although limited, was scored as 0.

Problem-Solving Self-Efficacy and Perceived Problem-Solving

Problem-solving efficacy and perceived problem-solving were scored according to the six-point Likert-type scale, with a score of one being considered low problem-solving perceived effectiveness/ self-efficacy and a score of six being considered high. The range of scores for each of the problem-solving efficacy questions (pre and post) and the perceived problem-solving questions was 1 to 6.
Design

This study was a 2 (high versus low level depressive symptomatology) x 2 (gender) between groups design. The groups were selected from the initial pool of 432 participants, based on their initial RADS scores. Those who scored above a 77 were included in the high symptomatology group, while those who scored below 61 were matched with the high group on sex, age and in most cases grade. 27 females and 11 males experiencing low levels of depressive symptomatology and 26 females and 10 males experiencing high levels of depressive symptomatology were assessed on problem-solving ability. Analyses were conducted on those exhibiting consistent RADS scores at both the initial assessment (Time 1) and the small group (Time 2) assessment. Those scoring high on the RADS for both assessments (at or above a 77 at Time 1 and at or above a 70 at Time 2) were included in the high depressive symptomatology group and those scoring low on the RADS for both assessments (at or below a 61 at Time 1 and at or below 60 at Time 2) were included in the non-depressed group. Therefore, 26 females and 11 males were included in analysis for the low depressive symptomatology group, while 19 females and 5 males were included analysis for the high depressive symptomatology group.

Data Analysis

Preliminary Analyses

Descriptive Statistics

Descriptive information (gender, age and grade) of the initial and study sample were reported in means and ranges (see Chapter 4's Table 1 and Table 2). Means and standard deviations for the scores achieved on the RADS, the MEPS and the SPSI-R were calculated for the overall sample (RADS scores only; see Table 1), the low depressive symptomatology group,
and the high depressive symptomatology group.

Other Analyses

Using Cronbach coefficient alpha (Cronbach, 1951), internal consistency reliabilities for the subscales of the MEPS and SPSI-R were determined. Inter-rater reliability was analyzed, based on an interclass correlation coefficient (Bartko, 1966), for 40% of the completed measures.

Primary Analyses

Two multivariate analyses of variance (MANOVA) were conducted with depression level (high/low) and gender as the independent variables and each of the subscales of the MEPS and SPSI-R as outcome measures or dependent variables. Of interest from these analyses were interaction effects between gender and depression on the social problem-solving process (subscales of the MEPS, SPSI-R), as well as any main effects of depression and/or gender for these dependent variables. An alpha level of .05 was used for these analyses. T-tests were conducted to examine planned contrasts for significant interactions.

Secondary Analyses

Two-way analyses of variances (ANOVA) were conducted with depression and gender as the two independent variables and perceived problem-solving and the two problem-solving self-efficacy questions as the respective dependent variables. Because these analyses represent separate questions an alpha level of 0.05 was used in all calculations.
CHAPTER 5

Results

Preliminary Analyses

Descriptive Statistics

The mean for the first administration of the RADS (N=423; M = 59.10, SD = 13.38) is similar to that achieved during the standardization of the measure (M = 60.18, SD = 14.29) (Reynolds, 1987). Means and standard deviations for both administrations of the RADS (Time 1 and Time 2) for the four groups (non-depressed males, depressed males, non-depressed females and depressed females) are presented in Table 4. The time between administrations ranged from one to two weeks. Mean scores achieved by these four groups on the MEPS, SPSI-R, perceived social self-efficacy questions and the perceived social problem-solving questions are presented in Tables 6 through 8, respectively. Correlation matrices examining the relationship between the following variables; the RADS (Time 1 and Time 2), MEPS subscales, SPSI subscales, perceived social problem-solving, and perceived social self-efficacy (pre and post) are presented in Tables 9 and 10. The correlation between the pre and post assessment of perceived self-efficacy was high (r = 0.96). Self-efficacy (pre and post) also correlated significantly with perceived problem-solving (r = 0.74 and r = 0.75, respectively). Self-efficacy scores did not differ between pre and post (t(65) = 0.48, p = ns.). A comparison of the means achieved on the MEPS and SPSI-R subscales between this study and past published research is presented in Tables 11 and 12, respectively. Comparing Joffe et al.’s (1990) results to the current study shows means are within one standard deviation (Table 11); however, the standard deviations vary greatly in relation to the
<table>
<thead>
<tr>
<th>MEPS Subscale</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-depressed (n = 6)</td>
<td>Depressed (n = 4)</td>
</tr>
<tr>
<td>Relevant Means</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>5.17</td>
<td>6.00</td>
</tr>
<tr>
<td>SD</td>
<td>3.82</td>
<td>5.72</td>
</tr>
<tr>
<td>Irrelevant Means</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>SD</td>
<td>0.00</td>
<td>0.58</td>
</tr>
<tr>
<td>No Means</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>SD</td>
<td>1.05</td>
<td>1.15</td>
</tr>
<tr>
<td>Relevancy Ratio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>0.66</td>
<td>0.62</td>
</tr>
<tr>
<td>SD</td>
<td>0.36</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Note: df = 1, 44.  
**p < .01.
Table 7
Mean Scores and F Values for the Subscales of the SPSI-R Based on Gender and Level of Depressive Symptomatology

<table>
<thead>
<tr>
<th>SPSI-R Subscale</th>
<th>Male</th>
<th>Female</th>
<th>Gender</th>
<th>Depression</th>
<th>Depression x Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-depressed (n = 11)</td>
<td>Depressed (n = 5)</td>
<td>Non-depressed (n = 26)</td>
<td>Depressed (n = 19)</td>
<td>F = 3.69</td>
</tr>
<tr>
<td>Problem Identification</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>8.45</td>
<td>8.40</td>
<td>10.16</td>
<td>10.15</td>
<td>F = 3.69</td>
</tr>
<tr>
<td>SD</td>
<td>2.77</td>
<td>3.13</td>
<td>3.02</td>
<td>2.89</td>
<td>F = 3.69</td>
</tr>
<tr>
<td>Number of Solutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>16.00</td>
<td>16.20</td>
<td>17.38</td>
<td>17.95</td>
<td>F = 1.61</td>
</tr>
<tr>
<td>SD</td>
<td>3.90</td>
<td>3.56</td>
<td>4.18</td>
<td>3.87</td>
<td>F = 1.61</td>
</tr>
<tr>
<td>Quality of Solutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>12.64</td>
<td>14.20</td>
<td>14.62</td>
<td>13.58</td>
<td>F = 1.07</td>
</tr>
<tr>
<td>SD</td>
<td>3.23</td>
<td>1.48</td>
<td>1.68</td>
<td>2.01</td>
<td>F = 1.07</td>
</tr>
<tr>
<td>Quality of Best Solution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>14.45</td>
<td>16.00</td>
<td>16.46</td>
<td>14.89</td>
<td>F = 0.29</td>
</tr>
<tr>
<td>SD</td>
<td>3.91</td>
<td>2.24</td>
<td>2.10</td>
<td>2.69</td>
<td>F = 0.29</td>
</tr>
<tr>
<td>Number of Consequences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>13.55</td>
<td>12.20</td>
<td>14.38</td>
<td>14.74</td>
<td>F = 1.45</td>
</tr>
<tr>
<td>SD</td>
<td>4.06</td>
<td>2.59</td>
<td>4.21</td>
<td>5.48</td>
<td>F = 1.45</td>
</tr>
<tr>
<td>Quality of Consequences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>10.64</td>
<td>10.00</td>
<td>11.04</td>
<td>10.37</td>
<td>F = 0.22</td>
</tr>
<tr>
<td>SD</td>
<td>2.73</td>
<td>3.08</td>
<td>2.47</td>
<td>2.75</td>
<td>F = 0.22</td>
</tr>
<tr>
<td>Quality of Best Consequence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>11.18</td>
<td>9.80</td>
<td>11.69</td>
<td>10.42</td>
<td>F = 0.40</td>
</tr>
<tr>
<td>SD</td>
<td>2.68</td>
<td>2.28</td>
<td>2.24</td>
<td>3.76</td>
<td>F = 0.40</td>
</tr>
</tbody>
</table>

Note. df=1,57.
*p=.05.
Table 8
Mean Scores* and F Values for the Perceived Social Self-Efficacy and Perceived Social Problem Solving-Ability Questions Based on Gender and Level of Depression

<table>
<thead>
<tr>
<th>Measure</th>
<th>Male</th>
<th>Female</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-depressed</td>
<td>Depressed</td>
<td>Non-depressed</td>
<td>Depressed</td>
<td>Gender</td>
<td>Depression</td>
<td>Depression x Gender</td>
</tr>
<tr>
<td>Social Self-Efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>11</td>
<td>5</td>
<td>25</td>
<td>19</td>
<td></td>
<td>F = 0.77</td>
<td>F = 11.93***</td>
</tr>
<tr>
<td>M</td>
<td>26.90</td>
<td>21.20</td>
<td>27.32</td>
<td>23.26</td>
<td></td>
<td></td>
<td>F = 0.15</td>
</tr>
<tr>
<td>SD</td>
<td>3.53</td>
<td>5.50</td>
<td>4.81</td>
<td>4.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 2*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>10</td>
<td>5</td>
<td>23</td>
<td>19</td>
<td></td>
<td>F = 0.15</td>
<td>F = 8.10**</td>
</tr>
<tr>
<td>M</td>
<td>26.80</td>
<td>22.00</td>
<td>26.78</td>
<td>23.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>3.52</td>
<td>4.74</td>
<td>5.20</td>
<td>4.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Problem-Solving*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>10</td>
<td>5</td>
<td>25</td>
<td>19</td>
<td></td>
<td>F = 1.87</td>
<td>F = 7.77**</td>
</tr>
<tr>
<td>M</td>
<td>27.80</td>
<td>23.20</td>
<td>28.32</td>
<td>26.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>2.70</td>
<td>2.77</td>
<td>4.15</td>
<td>4.35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. *M and SD are based on 7 scenarios. bdf = 1,56. cdf = 1,53. ddf = 1,55. 
*p=.05. **p<.01. ***p<.001.
Table 9

Intercorrelations (r) Between RADS, MEPS Subscales, SPSI-R Subscales, Perceived Problem-Solving and Perceived Social Self-Efficacy

<table>
<thead>
<tr>
<th></th>
<th>RADS</th>
<th>MEPS Means</th>
<th>Relevancy Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time1</td>
<td>Time2</td>
<td>Relevant</td>
</tr>
<tr>
<td>RADS Time 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RADS Time 2</td>
<td>0.84**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEPS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevant Means</td>
<td>-0.17</td>
<td>-0.21</td>
<td>0.44**</td>
</tr>
<tr>
<td>Irrelevant Means</td>
<td>0.32*</td>
<td>0.40**</td>
<td>-0.41**</td>
</tr>
<tr>
<td>No Means</td>
<td>0.05</td>
<td>0.03</td>
<td>-0.81**</td>
</tr>
<tr>
<td>Relevancy Ratio</td>
<td>-0.16</td>
<td>-0.20</td>
<td>0.87**</td>
</tr>
<tr>
<td>SPSI-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem Identification</td>
<td>-0.06</td>
<td>-0.07</td>
<td>0.44**</td>
</tr>
<tr>
<td>Number of Solutions</td>
<td>0.02</td>
<td>0.07</td>
<td>0.16</td>
</tr>
<tr>
<td>Quality of Solutions</td>
<td>-0.01</td>
<td>-0.05</td>
<td>-0.11</td>
</tr>
<tr>
<td>Best Solution</td>
<td>-0.00</td>
<td>-0.09</td>
<td>-0.16</td>
</tr>
<tr>
<td>Number of Consequences</td>
<td>0.04</td>
<td>0.04</td>
<td>0.16</td>
</tr>
<tr>
<td>Quality of Consequences</td>
<td>-0.09</td>
<td>-0.05</td>
<td>0.27*</td>
</tr>
<tr>
<td>Best Consequences</td>
<td>-0.12</td>
<td>-0.11</td>
<td>0.15</td>
</tr>
<tr>
<td>Perceived</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem-Solving</td>
<td>-0.32**</td>
<td>-0.35**</td>
<td>0.22</td>
</tr>
<tr>
<td>Self-Efficacy Pre</td>
<td>-0.44**</td>
<td>-0.51**</td>
<td>0.22</td>
</tr>
<tr>
<td>Self-Efficacy Post</td>
<td>-0.40**</td>
<td>-0.47**</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Note: *p<.05. **p<.01.
Table 10
Intercorrelations (r) between SPSI-R Subscales, Perceived Problem-Solving and Perceived Social Self-Efficacy

| SPSI-R          | Problem Identification | Solution | Consequence
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Quality</td>
<td>Quality of Best</td>
</tr>
<tr>
<td><strong>Problem Identification</strong></td>
<td>0.33**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Solutions</td>
<td>0.06</td>
<td>-0.14</td>
<td></td>
</tr>
<tr>
<td>Quality of Solutions</td>
<td>0.17</td>
<td>0.30*</td>
<td>0.43**</td>
</tr>
<tr>
<td>Quality of Best Solution</td>
<td>0.33**</td>
<td>0.73**</td>
<td>-0.15</td>
</tr>
<tr>
<td>Number of Consequences</td>
<td>0.25*</td>
<td>0.15</td>
<td>0.03</td>
</tr>
<tr>
<td>Quality of Consequences</td>
<td>0.22</td>
<td>0.26*</td>
<td>0.07</td>
</tr>
<tr>
<td>Quality of Likely Consequence</td>
<td>0.21</td>
<td>0.07</td>
<td>0.00</td>
</tr>
<tr>
<td>Perceived Problem-Solving</td>
<td>0.14</td>
<td>0.06</td>
<td>0.00</td>
</tr>
<tr>
<td>Self-Efficacy Pre</td>
<td>0.15</td>
<td>0.10</td>
<td>0.02</td>
</tr>
<tr>
<td>Self-Efficacy Post</td>
<td>0.15</td>
<td>0.10</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Note. *p<.05. **p<.01.
Table 11
Comparison of MEPS Mean Scores Between Current Study and Published Study

<table>
<thead>
<tr>
<th></th>
<th>Current Study&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Joffe et al. (1990)&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-depressed (n = 27)</td>
<td>Depressed (n = 21)</td>
</tr>
<tr>
<td>Relevant Means</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.96</td>
<td>1.49</td>
</tr>
<tr>
<td>SD</td>
<td>1.10</td>
<td>1.23</td>
</tr>
<tr>
<td>Irrelevant Means</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>0.01</td>
<td>0.14</td>
</tr>
<tr>
<td>SD</td>
<td>0.06</td>
<td>0.20</td>
</tr>
<tr>
<td>No Means</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>0.35</td>
<td>0.38</td>
</tr>
<tr>
<td>SD</td>
<td>0.31</td>
<td>0.35</td>
</tr>
</tbody>
</table>

Note. <sup>a</sup> mean of 3 scenarios. <sup>b</sup> mean of 5 scenarios.
Table 12

Comparison of Mean SPSI-R Scores Between Current Study and Published Study

<table>
<thead>
<tr>
<th></th>
<th>Current Study&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Marton et al. (1993)&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-depressed</td>
<td>Depressed</td>
</tr>
<tr>
<td>(n = 37)</td>
<td>(n = 24)</td>
<td>(n = 34)</td>
</tr>
<tr>
<td>Accuracy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>SD</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Best Solutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>SD</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Best Consequence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>SD</td>
<td>0.4</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Note. <sup>a</sup> mean of 7 scenarios. <sup>b</sup> mean of five scenarios.
means. Psychometric issues may account for this and will be discussed in Chapter 6. Similar means were found between the SPSI-R and the SPSI (Marton et al. 1993), with most means being within or close to one standard deviation (Table 12).

Reliability

Internal consistencies for the subscales of the MEPS and SPSI-R were calculated using Cronbach coefficient alpha (Cronbach, 1951). As Table 13 indicates, the coefficients ranged from 0.07 to 0.33 for the MEPS and 0.32 to 0.82 for the SPSI-R. Inter rater reliabilities were also calculated for the subscales of these measures (see Table 13), using Bartko’s (1966) intraclass coefficient. Inter-rater reliability coefficients for the MEPS ranged from 0.18 to 0.74, while the SPSI-R coefficients were more consistent ranging from 0.86 to 0.97. Internal consistencies for the questions assessing perceived social self-efficacy (pre and post) and perceived social problem-solving ability were also calculated using Cronbach coefficient alpha. Coefficients ranged from 0.83 to 0.85.

Primary Analyses

Hypothesis

Based on the premise that there would be a significant main effect in social problem-solving ability for level of depressive symptomatology and gender, the following hypothesis was put forth:

There will be a significant interaction in social problem-solving ability between gender and depressed and non-depressed adolescents.

Analyses

To determine if a significant interaction was present, two-way MANOVAs were
<table>
<thead>
<tr>
<th>Measure</th>
<th>Subscale</th>
<th>n</th>
<th>$r_a$</th>
<th>n</th>
<th>$r_{icc}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEPS</td>
<td>Relevant Means</td>
<td>60</td>
<td>.33</td>
<td>26</td>
<td>.74</td>
</tr>
<tr>
<td></td>
<td>Irrelevant Means</td>
<td></td>
<td>.07</td>
<td></td>
<td>.18</td>
</tr>
<tr>
<td></td>
<td>No Means</td>
<td></td>
<td>.25</td>
<td></td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>Relevancy Ratio</td>
<td></td>
<td>.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPSI-R</td>
<td>Problem Identification</td>
<td>74</td>
<td>.80</td>
<td>30</td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td>Number of Solutions</td>
<td></td>
<td>.77</td>
<td></td>
<td>.96</td>
</tr>
<tr>
<td></td>
<td>Quality of Solutions</td>
<td></td>
<td>.41</td>
<td></td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td>Quality of Best Solution</td>
<td></td>
<td>.32</td>
<td></td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>Number of Consequences</td>
<td></td>
<td>.82</td>
<td></td>
<td>.93</td>
</tr>
<tr>
<td></td>
<td>Quality of Consequences</td>
<td></td>
<td>.76</td>
<td></td>
<td>.86</td>
</tr>
<tr>
<td></td>
<td>Quality of Best Consequence</td>
<td></td>
<td>.76</td>
<td></td>
<td>.95</td>
</tr>
</tbody>
</table>
calculated, with gender and level of depression being the independent variables and the subscales of the MEPS and SPSI-R being the dependent variables for each analysis, respectively. There was no significant interaction of gender and level of depression on either the MEPS or SPSI-R ($F(4, 41) = 0.68, p= ns., F(7, 51) = 0.80, p= ns.$, respectively). Univariate analyses revealed there were no significant interactions between gender and level of depression for any of the subscales of the MEPS, individually. Quality of Solutions was the only subscale of the SPSI-R where gender and depression interacted significantly. Table 6 presents $F$ values from the univariate analyses with the MEPS subscales as the dependent variables. Table 7 reports $F$ values from the univariate analyses with the SPSI-R subscales as dependent variables. A planned comparison, examining non-depressed females in comparison to non-depressed males, revealed a significant difference in the quality of solutions produced ($t(35) = -2.36, p < .05$), with non-depressed females producing significantly better solutions (see Figure 4). There was no significant difference between depressed females and depressed males for the quality of solutions generated ($t(22) = 0.64, p = ns.$).

MANOVAs examining the main effect of depression, for the MEPS subscales combined and the SPSI-R subscales combined, were non-significant ($F(4, 41) = 0.90, p = ns.$ and $F(7, 51) = 0.42, p = ns.$, respectively). Similarly, MANOVAs examining the main effect of gender, for the subscales of the MEPS combined and the subscales of the SPSI-R combined, were non-significant ($F(4, 41) = 2.01, p = ns.$ and $F(7, 51) = 0.78, p = ns.$, respectively).

There were no significant main effects for relevant means, irrelevant means, no means or the relevancy ratio for the MEPS based on sex. There was a significant main effect of irrelevant means based on level of depression, but not for relevant means, no means or the relevancy ratio.
Figure 4. Interaction effect between gender and level of depressive symptomatology on the Quality of Solutions Subscale (M) of the SPSI-R.
Table 6 reports the \( F \) values from these analyses. The depressed group produced significantly more irrelevant means than the non-depressed group. The practical significance of this will be discussed in Chapter 6. Main effects were nonsignificant for problem identification, number of solutions, quality of solutions, quality of best solution, number of consequences, quality of consequences or quality of best consequence for either sex or level of depression on the SPSI-R. Table 7 reports the \( F \) values for the subscales of the SPSI-R based on level of depression and gender, separately.

**Secondary Analyses**

**Question 1**

Based on the assumption there will be significant main effects for both gender and depression for perceived problem-solving effectiveness (perceptions of performance after solving a problem) the following question was put forth:

**Is there a significant interaction between level of depression and gender in adolescents' perception of their problem-solving effectiveness?**

**Analyses**

The results of a two-way ANOVA, with level of depression and gender being the independent variables and perceived problem-solving effectiveness as the dependent variable is shown in Table 8. As shown in Table 8, the interaction between gender and level of depression for perceived problem-solving effectiveness was not significant. The main effect for gender was nonsignificant, but there was a significant main effect for level of depression. Those with high levels of depressive symptomatology had significantly lower perceived problem-solving effectiveness (see Table 8).
Question 2

Based on the assumption there will be a significant main effect of gender and depression on problem-solving self-efficacy (perceptions of problem-solving skills prior to solving a problem) the following question was put forth:

**Is there a significant interaction between level of depression and gender in problem-solving self-efficacy in adolescents?**

Analyses

The results of two two-way ANOVAs, with each assessment of problem-solving self-efficacy (pre and post) as the dependent variable, respectively, and level of depression and gender as the independent variables is shown in Table 8. As shown in Table 8, the interaction between gender and depression for the pre and post assessment of problem-solving self-efficacy was not significant. There was a significant main effect for level of depression for both the pre and post assessment of problem-solving self-efficacy, but the main effect for sex was non-significant. Depressed individuals reported significantly less problem-solving self-efficacy than non-depressed individuals (see Table 8).
CHAPTER 6
Discussion

Research has supported the claim that depressed adolescents suffer from social problem solving deficits (Adams & Adams, 1991; Siegel & Griffin, 1984), but the literature in this area is considered limited (Joffe et al., 1990; Marton et al., 1993). This study proposed to examine the joint relationship of depressive symptomatology and gender with social problem-solving ability in hopes of furthering the understanding of adolescent depression, and how gender and social skills relate to this disorder. Results suggest that, in general, social problem-solving ability does not differ between depressed and non-depressed adolescents, or between male and female adolescents, or when depression and gender are considered together. Results indicate depressed adolescents have a lower perception of their problem-solving ability than non-depressed adolescents. Poor perceived problem-solving may be a factor associated with depressed adolescent’s poor social relationships. Results are discussed in detail below, with current findings being presented in relation to past findings, as well as to theories of depression and social problem-solving.

Discussion of Results

Social Problem-Solving in Relation to Gender and Level of Depression

It was predicted that there would be a significant interaction in social problem-solving ability between gender and level of depression. Specifically, non-depressed adolescent females were predicted to be better problem-solvers than non-depressed adolescent males, while depressed adolescent females and males were predicted not differ in their social problem-solving ability. The specific domains of social problem-solving of interest, as assessed using the MEPS
and SPSI-R, included: relevancy of means (relevant means, irrelevant means, no-means), accuracy of problem identification, the generation of alternatives (number of solutions, solution quality, and quality of what the student chose to be the best solution), and consequential thinking (number of consequences to the best solutions, quality of these consequences, and quality of what consequence the student chose as most likely to occur). Contrary to the hypothesis, the results indicate that level of depression and gender together did not significantly relate to social-problem solving ability when examined together as a complete process. This is consistent with findings in the child depression literature (Rudolph et al., 1994). As discussed, no studies have examined this interaction in adult or adolescent populations.

A possible explanation of why a significant interaction was not present is that assessing problem-solving ability may not target areas of difficulty or differences between these groups. That is, it may be that all four groups were equally capable of cognitively generating ideas of how to solve problems, but differ in their ability to put these ideas into action in actual social situations. As this study assessed contrived paper and pencil social situations, an evaluation of behavior in actual social situations was not achieved. Therefore, this study confirms the thought processes of males and females, whether depressed or non-depressed, do not differ. Future research into the actual behavior of these groups might be beneficial in understanding gender differences in depressed individuals’ problem-solving behavior.

Examination of the individual processes or subscales of the MEPS and SPSI-R and their relationship to level of depression and gender (ANOVA), did reveal level of depression and gender, in combination, are related to a specific problem-solving process; Quality of Solutions on the SPSI-R. It is important to note that the internal consistency of the Quality of Solutions
subscale was less than adequate ($r_a = .49$). The limited reliability of this subscale makes results based on it unreliable and purely hypothetical. Quality of Solutions required the student to generate as many solutions as possible to a scenario and the solutions were rated for their quality and averaged based on the number of solutions generated. Quality was assessed in four ways; 1) positive and active, where the student confronted and dealt with the problem, 2) positive but passive, where the student avoided confrontation, 3) a third person solved the problem, and 4) a violent or vague solution was provided.

As predicted, non-depressed females had significantly better solutions to social problems than non-depressed males, while depressed males and females did not differ in their solution quality (see Figure 4). This suggests that all groups were able to generate solutions (nonsignificant results for Number of Solutions) but the generated solutions differed in quality. It may be possible that non-depressed females were more likely to generate positive solutions than non-depressed males and/or non-depressed males were likely to generate more passive solutions than non-depressed females. However, it is likely that non-depressed males generated more aggressive solutions (violent/vague) than non-depressed females, as males generally are more aggressive in their problem-solving solutions than females (Caplan et al., 1991; Rubin & Krasnor, 1983; Rudolph et al., 1994).

Although not significant, the relationship between gender, level of depression and social problem-solving ability in the area of Quality of Best Solution neared significance ($p = .07$). As with the Quality of Solutions subscale, the Quality of Best Solution had weak internal consistency ($r_a = .32$), therefore results discussed based on this subscale must be viewed as hypothetical. Quality of Best Solution assesses the quality of the solution the student chose as
the best solution to the problem. The trend, whereby non-depressed females chose best solutions that were more positive or active than non-depressed males, was consistent with results for the Quality of Solutions subscale.

Considering non-depressed females tended to generate more effective solutions (Quality of Solutions and Quality of Best Solution) than non-depressed males, questions are raised as to why their consequences to these solutions were not significantly more positive than non-depressed males. One explanation is that the SPSI-R only asks for consequences to be generated for the solution chosen as the best one by the student. Thus, it may be that non-depressed females have a more accurate understanding of the consequences of their solutions than non-depressed males. Another possibility is that females have a poorer outlook of the consequences of their actions and may view their solutions as poor, even when the solutions are good. The latter is more consistent with females generally having lower self-concept in adolescence than males (Nielsen, 1991).

Although not significant, there was a trend showing that non-depressed females also generated better solutions than depressed females \( (p = .07) \) and the quality of the solution the non-depressed females chose as their best solution were significantly better than depressed females \( (t(43) = 2.20, p < .05) \). If non-depressed females generated better solutions than depressed females, it is fitting that the solutions they chose as the best would be higher quality.

Results indicated no significant difference between depressed and non-depressed male participants in their quality of solutions and their chosen best solution, even though means appear to be different. In examining the scores male participants achieved on the Quality of Solutions subscale, it was noted that a few non-depressed males demonstrated lower quality solutions. One
participant had lower scores on several of the other aspects of problem-solving. Maybe this adolescent's social problem-solving difficulties were not related to depression. As the male sample was small, a few participants with scores that deviate, such as this, have a greater effect on results than if a larger male sample had been examined. Given that depressed and non-depressed females differed in solution quality, it may be that a significant main effect of depression on Quality of Solutions and Quality of Best Solutions would have been demonstrated with a larger male population.

Social Problem-Solving and Depression

Adams and Adams (1991) and Siegel and Griffin (1984) found that depressed adolescents have social problem-solving deficits. This is consistent with studies examining depressed adults and children (Goodman et al., 1995; Gotlib & Asarnow, 1979; Kennedy et al., 1989; Marx & Schulze, 1991; Marx et al., 1992; Mullins et al., 1985; Nezu & Ronan, 1985; Rudolph et al., 1994; Sacco & Graves, 1984).

The hypothesis for this study was posed based on the assumption there would be significant main effects of depression and gender for the areas of social problem-solving examined. In contradiction to much of the literature in social problem-solving, where depression and gender individually are related to various aspects of social problem-solving, the only significant main effect in this study was for depression, on the number of irrelevant means generated on the MEPS. That is, depressed participants, both male and female, produced significantly more irrelevant means than non-depressed individuals. This suggests that depressed and non-depressed participants produced a similar number of relevant steps and had similar relevancy ratios, but the depressed group used more irrelevant means when solving problems. As
well, depressed individuals were able to identify a problem and generate solutions and consequences to solutions as well as non-depressed individuals.

Although the statistical power of the analysis indicating depressed adolescents produce more irrelevant means than the non-depressed group is acceptable (power = 0.78), this result is reported with caution. The internal consistency of irrelevant means was 0.07, while the inter-rater reliability was 0.17. Concern is also raised around the scoring of irrelevant means; a score is given only if no relevant means are present or the foundation or initial part of the story is missing. Depressed individuals would have had to generate more relevant solutions on some problems and none on others for the groups not to differ on relevant means as well as irrelevant means. Of interest would be to investigate how many ineffective solutions depressed individuals were generating for the scenarios on which they had generated relevant means. It is expected that the depressed individuals were generating more irrelevant means on these problems as well.

Mullins et al. (1985), using the MEPS, found similar findings to the current study’s results, whereby depressed children produced significantly more irrelevant means to social situations than non-depressed children and found no significant relationship between depression and the number of relevant means generated. No means and the relevancy ratio were not examined in Mullins et al. (1985). Of interest is that the relationship between irrelevant means and depression was weak (r = .16, p < .05) with only 2% of the variance in depression scores being accounted for by irrelevant means (Mullins et al., 1985).

Marx et al. (1992) also found that clinically depressed participants (adult) generated significantly more irrelevant means, but found that the depressed participants generated less effective strategies, fewer alternative solutions and recognized fewer obstacles than the
nonclinical samples. As measured using the SPSI-R (number of solutions and quality of solutions), the current study found no significant relationship between effectiveness of strategies or number of solutions generated. Obstacles were not assessed in the current study.

Gotlib and Asarnow (1979) found that both clinical and nonclinically depressed adults generated more irrelevant means in comparison to counterpart controls, and similar to Marx et al. (1992) the depressed adults also had fewer relevant means, fewer enumerations, a lower percentage of enumerated means, more no means, no response answers and a lower relevancy score.

Zenmore and Dell’s (1983) study lends support to the current findings, showing no relationship between adult depression and performance on the MEPS for relevant means, no means, and the relevancy ratio. Irrelevant means were not assessed.

Both Siegel and Griffin (1984) and Joffe et al. (1990) completed studies with adolescents, using the MEPS. Siegel and Griffin (1984) found a small but significant relationship between irrelevant means and depression on one scenario. As only 4% of the variance in depression was accounted for by this relationship the authors did not feel this finding held practical significance. No other aspect of the MEPS was significantly related to depression. This is similar to Mullins et al. (1985), who examined children, and Joffe et al. (1990), who examined clinically depressed adolescents. Both concluded that depression did not significantly relate to the performance on the MEPS. Current results are consistent with these findings.

Both Joffe et al. (1990) and Marton et al. (1993) examined social problem-solving in depressed adolescents using the SPSI. Neither found a significant relationship between the problem-solving process and depression. It is important to note that both studies used clinically
depressed samples and had methodological problems, such as limited sample size and poor sampling procedure. Even so, the current study’s results are consistent with the findings of these studies, with depression not being significantly related to problem identification, generation of alternatives and consequential thinking, as assessed using the SPSI-R.

Results of the current study are supported by Blankstein et al.’s (1992) and Mayo and Tanaka-Matsumi’s (1996) findings in adult samples. Blankstein et al. (1992) found no relationship between depression and interpersonal problem-solving ability, while Mayo and Tanaka-Matsumi (1996) found no differences in the generation of effective solutions.

Lack of significant results in the current study suggests that other factors than social problem-solving ability may account for the poor social skills in depressed adolescents. For example, social support and social withdrawal have both been linked to depression (Hammen & Rudolph, 1996; McFarlane et al., 1994) and, therefore, may be related to their poor social skills. Likewise, social problem-solving may not be related to depression but to another pathology comorbid with depression, such as anxiety. As anxiety is present in different degrees in depressed individuals, social problem-solving may not be problematic for all depressed individuals. Studies have supported that social problem-solving difficulties are related to areas of pathology other than depression (Haaga et al., 1995; Marx et al., 1992; Rudolph et al., 1994) and psychopathology in general (Haley, 1985; Platt & Spivack, 1972; Platt et al. 1974; Siegel et al., 1976).

Stress and coping may be other areas important to continue to investigate in order to better understand the relationship between depression and problem-solving skills. Stress has been shown to be linked to social problem-solving and depression (Goodman et al., 1995; Nezu

Similarly, coping styles have been shown to be related to depression (McLean, 1976; Nezu, 1987; Petersen et al., 1991).

**Theories of Depression and Social Problem-Solving**

In the literature review (Chapter 2) several theories of depression and social problem-solving were presented. The current study followed, in particular, the theory of social problem-solving presented by D’Zurilla and Nezu (1982). However, the results found in this study also offer some reflection on several of the depression theories discussed.

It is difficult to offer insight or support to Lewinsohn (1974) and Coyne’s (1976a) behavioral theories of depression, as these two theories are based on the reciprocal nature of social behavior. As previously discussed, this study required students to generate ideas around a presented scenario and did not look at actual interactions between individuals. Therefore, the students’ responses and interpretations to verbal and physical social cues from others were not examined. Coyne (1976a), in particular, supported that the reaction of others to social interactions and the interpretation of social cues by the depressed individual are important in the development and maintenance of depressive symptomatology. Thus, how depressed individuals interpret the interaction may be an important area where the problem-solving process breaks down.

D’Zurilla and Nezu’s (1982) five step problem-solving theory also supports social interaction as an important part of the problem-solving process, particularly in the Solution Implementation and Verification stage. The Solution Implementation/ Verification stage is when the individual compares the outcome of the solution to that desired. If there is a match,
reinforcement from themselves or others occurs and in turn supports positive perceptions of problem-solving ability. Although the SPSI-R closely follows D'Zurilla and Nezu's (1982) model, it does not allow for verification of solutions because it is a self-report measure and, therefore, does not assess actual interactions.

The Pluralistic Theory of depression (Nezu, 1987) suggests that due to the reciprocal relationship between depression, problem-solving, and stress, depressed individuals will demonstrate difficulties in different areas of the problem-solving process. Individuals having different problem-solving difficulties is one explanation for why depression was not significantly related to any one specific social problem-solving area in the current study.

Social Problem-Solving and Gender

Past research using a variety of ages (child, adolescent, or adult), indicates females are significantly better problem solvers than males in both the amount and type of solutions provided (Caplan et al., 1991; Murphy & Ross, 1987; Rubin & Krasnor, 1983; Rudolph et al., 1994). However, Sacco and Graves (1984) and Goodman et al. (1995) found no significant relationship between gender and social problem-solving. The results of the current study are in agreement with Sacco and Graves (1984) and Goodman et al. (1995), suggesting that gender does not relate to one's ability to social problem-solve. This also suggests that females, although considered more "prosocial" (Crick & Dodge, 1994) do not demonstrate any different social problem-solving ability than males. It is difficult to make generalizations about any findings related to gender and this study, due to the limited number of male participants. It is important to note that Sacco and Graves (1984) and Goodman et al. (1995) examined gender differences in children's problem-solving, unlike Murphy and Ross (1987) who examined adolescents. But the later
study, unlike the former ones, did not examine depression.

When comparing means, a trend of gender differences ($p = .06$) was noted in participants' ability to identify a problem (Problem Identification) on the SPSI-R. Problem Identification was scored as a 0, 1, or 2. A 0 was awarded if no answer was given or an inaccurate interpretation of the problem was provided. A score of 1 was given if merely the event in the scenario was indicated, while a score of two was awarded if a participant was able to identify the event and also identify the feelings of the main character. Females tended to be more accurate in their understanding of the interpersonal situations. It is possible that females more often define the event and emotions around the event than males. This is consistent with females being more “interpersonally orientated” (Crick & Dodge, 1994, p. 92) or advanced in interpersonal skills than males (Murphy & Ross, 1987). That is, females possibly look at social situations on a deeper level than males, who are more likely interpret only the action or event, than necessarily linking it to an internal emotion.

Each time a scenario was presented the student was asked to identify the problem. Then a description of the event and emotion linked to it was provided to them. This form of teaching could have cued students to the appropriate type of response desired (event and emotion). Looking at the results, it appears that males, in general, did not pick up on this cue as the majority of males continued to define only the action of the problem on most scenarios. Also notable is that the event of the problem was more obvious than the emotional state of the character, as the action was presented in the scenario itself, again supporting that females thought about the problems on a deeper level.

Even though there were tendencies for males and females to differ on Problem
Identification, no other areas of problem-solving assessed differed in terms of gender. In terms of the subscales of the SPSI-R, the lack of gender differences may be due to the teaching at the Problem Identification stage of this measure. That is, once the correct problem or issue was given, the groups proceeded on equal footing and provided similar responses. However, if the teaching had not occurred, females may have performed better throughout the remaining questions, having had a better understanding of the problem initially. A misinterpretation or limited understanding of the problem may have negatively influenced the remaining answers the males provided, with solutions not being problem focused. This may account for differences between the current study and past research, whereby past studies have shown adolescent females produce more effective (relevant) solutions than males (Murphy & Ross, 1987).

Another aspect of gender differences that would be interesting to investigate would be the different responses generated depending on the sex of the person the social interaction takes place with. Rubin and Krasnor (1983) found that females used more prosocial strategies when interacting with boys in comparison to girls interacting with girls, boys interacting with boys, and boys interacting with girls. Important gender differences may exist in the problem-solving process depending on the sex of the interaction partner. The current study only examined problem-solving in relation to interactions with the same sex. Furthermore, it may be important to look at who they are interacting with. That is, are interactions superior when the person is a close friend or family member as opposed to an acquaintance or stranger. Important gender differences and possibly differences in depressed versus non-depressed individuals may exist in such specific relationships and gender interactions.
Perceived Social-Problem Solving in Relation to Gender and Level of Depression

As a secondary analysis, this study examined a possible significant interaction between gender and level of depression for perceived social problem-solving effectiveness. Results indicated that gender and depression, together, did not relate to perceived problem-solving effectiveness. These findings are consistent with past research examining children's (Sacco & Graves, 1984) and adults' (Nezu, 1986) perceptions of their problem-solving ability.

Males and females did not differ in their perceptions of their problem-solving skills; however depressed and non-depressed adolescents did differ in these perceptions. Depressed participants reported themselves to be less effective problem solvers. These findings are consistent with the majority of past research in the area of perceived problem-solving and depression (Flett & Johnston, 1992; Mayo & Tanaka-Matsumi, 1996; Nezu, 1986; Sacco & Graves, 1984).

Results of this study suggest that depression is not related to identifying a problem and generating solutions and outcomes but is related to adolescents perceive themselves as problem-solvers. Thus, it may be concluded that depressed adolescents do not differ in their problem-solving ability from non-depressed adolescents but do differ in how they perceive their ability and actions in solving interpersonal problems. Depressed individuals having low perceptions of their problem-solving ability is consistent with several cognitive symptoms associated with depression, including self-depreciation, low self-esteem, and pessimism (Hammen & Rudolph, 1996).

Marton et al. (1993) completed a similar study, examining both problem-solving ability and perceived problem-solving in depressed adolescents, that supports the current study’s
findings. As previously discussed, Marton et al. (1993) found no relationship between cognitive ability to solve interpersonal problems (assessed using the SPSI) but did find a significant relationship between perception of ability to solve social problems. Depressed adolescents viewed themselves as poorer problem solvers than non-depressed adolescents. The authors concluded that social skill deficits in adolescents are not related to an inability in the problem solving process or a lack of understanding of social interactions but are related to "cognitive social skill deficits... in the area of attributions and self-appraisal" (p. 743).

Social Problem-Solving Self-Efficacy in Relation to Gender and Level of Depression

In addition to examining perceptions of problem-solving ability, an examination of problem-solving self-efficacy and its relationship to gender and depression was completed. Similar to the findings for perceived problem-solving, gender and depression together were not significantly related to problem-solving self-efficacy. This finding was consistent both when students 1) were asked how well they thought they would solve this problem after initially deciding what was wrong in the situation and 2) after being given feedback on the true or actual problem in the scenario.

Gender alone was not related to perceived self-efficacy. This is in contrast to Connolly (1989b), where adolescent females were found to have a higher level of social self-efficacy than males, in both "normals" and emotionally disturbed populations. Support for Connolly's (1989b) findings may have been found, if an increased number of male participants had been included in the current study.

In the current study, depression did significantly relate to social problem-solving self-efficacy, both after generating their own understanding of the problem in the presented scenarios
on the SPSI-R, and after being given an accurate description of the problem. Depressed
participants had a significantly lower view of their ability to solve problems than non-depressed
participants. According to D'Zurilla and Nezu's (1982) theory of the problem solving process,
this indicates that depressed individuals have a deficit in the Problem Orientation stage of
problem-solving process. That is, depressed individuals are able to identify the problem,
generate solutions, and recognize consequences but lack an important part of being a successful
problem-solver- viewing themselves as a successful problem-solver. Perception of problem-
solving ability may affect social relationships with others and account for social difficulties in
depressed individuals. Likewise, poor perceptions of ability to solve a problem may lead to
social withdrawal and avoidance of social interactions because depressed individuals feel the
interactions will not be successful.

Findings suggest that both prior to and after solving problems (self-efficacy and perceived
problem-solving), even when the problem is clearly defined for the adolescent, depressed
individuals have limited confidence in their ability to problem-solve. These findings are
consistent with McFarlane et al.'s (1994) findings that depression is significantly related to self-
efficacy. McFarlane et al. (1994) also used adolescent participants, but did not examine gender
relationships or look specifically at social self-efficacy. Similarly, Connolly (1989b) found that
low self-efficacy was strongly related to internalizing symptoms.

The fact that depressed individuals had lower perceptions of their problem-solving ability
(prior to and after solving a problem) fits with cognitive symptoms such as low self-esteem,
which are associated with a depressive disorder. It also lends support to Beck's (1967) cognitive
theory of depression, where depressed individuals demonstrate a systematic reasoning error of
perceiving themselves negatively. This is considered a negative schemata which would lead a depressed individual to underestimate their ability in comparison to non-depressed individuals.

It is well established that social difficulties such as social withdrawal occur in depressed individuals. If it is not due to problem-solving related issues there are still questions about what causes this withdrawal. Is it purely their low self-esteem or poor interpretation of how they will or did function in a social situation? It is more likely that a combination of limited self-esteem and misinterpretation of social situations along with other symptoms of depression including: a) cognitive symptoms such as hopelessness, feelings of guilt, self-blame, self-depreciation, and difficulty making decisions, b) somatic symptoms such as lack of energy, c) affective symptoms such as irritability, anger, and anxiety, and d) motivational difficulties (Hammen & Rudolph, 1996) cause social problems for depressed individuals.

**Social Skills Training and Depression**

Studies have shown mixed results in terms of the effectiveness of social skills training, in the area of social problem-solving, as a treatment for adolescent depression (Fine, Forth, Gilbert & Haley, 1991; Mufson et al., 1993). Current results support that social skills training may not be the best course of therapy for depressed individuals to improve social skills as depressed individuals seem to have the cognitive skills to problem-solve effectively. Results suggest depressed individuals' most salient problem-solving difficulty is their perception of their ability to be effective problem-solvers. Thus, cognitive therapy in relation to perceptions of themselves, including their social ability and their social problem-solving skills may be a more beneficial area to target in helping to improve the social skills of depressed individuals.
Limitations of this Study

Although several limitations have been mentioned in previous parts of the discussion, these and several others will be discussed in detail in this section.

Participants

Although the consent rate of returned forms was 78%, the return rate of consents distributed was only 49%. A low return rate for an adolescent population can be expected because the student becomes primarily responsible for remembering to have their parents sign the consent form and bring it back. As well, not returning a form is a passive form of denying participation. However, a low return rate of consents can limit the sample in terms of its representativeness.

The unequal group sizes, and particularly the small number of male participants, are limitations, making comparisons across groups and generalizations difficult. The small final sample is a primary concern in terms of statistical power. Having a low small group sample reduces the power of the analyses conducted. To increase the small group sample size, a larger initial sample would be necessary to attain more initially (Time 1) depressed participants.

The grouping of participants into the categories of depressed and non-depressed was problematic due to the small final sample. A cutoff score of 77 on the RADS is considered to be associated with clinical levels of depression (Reynolds, 1987), and was used to define high depressive symptomatology during the initial assessment (Time 1) of the RADS. However, due to the limited number of participants, a cutoff score of 70 was used on the second administration of the RADS (Time 2); otherwise the number of participants in the depressed small groups would have been even lower than achieved. 12 participants (3 male and 9 female) in the high depressed
group scored between 70 and 77 at Time 2. Although still considered to have high depressive symptomatology, those scoring between 70 and 77 did not demonstrate consistent scores above the recommended cutoff.

**Measures**

The limitations of the measures used also makes drawing conclusions and making generalizations from findings difficult.

**Format**

D'Zurilla and Nezu's (1982) problem-solving theory, on which this study is modelled, is considered fluid and a person is thought to move from step to step in no set order. The SPSI-R, which is similar in stages to this theory, asks questions and presents the problem-solving process in a very set order. Although the fluid thought process may be occurring within the problem-solver, this type of non-linear thinking is not assessed by the SPSI-R.

**Reliability**

The SPSI-R showed high inter-rater reliability but two subscales had low internal consistency (see Table 13). In past the original SPSI had unreported psychometrics. Further investigation into this new measure (SPSI-R) would be beneficial in increasing its utility. As mentioned previously, Quality of Solutions had the second lowest internal consistency ($r_a = .41$) on the SPSI-R. Gender and depression, together, were related to Quality of Solutions, therefore the previous discussion based on these results is speculative.

The MEPS demonstrated poor psychometrics with internal consistencies reaching as low as .07 (see Table). The relevancy ratio, although only moderately internally consistent was the most reliable measure on the scale ($r_a = .70$). Inter-rater reliability was also questionable on the
irrelevant means subscale \( r_{icc} = .18 \). Findings indicated that depressed adolescents produced significantly more irrelevant means, but due to the irrelevant mean subscale’s poor internal consistency and weak inter-rater reliability, the results should be interpreted with great caution. Inter-rater reliabilities on the relevant means and non means subscales were in the 0.70 range.

Given low internal consistencies, particularly on the MEPS, and on the Quality of Solutions and Quality of Best Solution subscales on the SPSI-R \( r_s = .41 \) and \( r_s = .32 \), respectively, it is questionable whether either of these measures (MEPS and SPSI-R) appropriately measured the aspects of social problem-solving assessed in this study. Thus, the validity of the measures comes into question and results based on these measures must be interpreted with caution and considered hypothetical.

**Validity**

In examining construct validity, correlations between subscales on MEPS and SPSI-R would be expected to be high if the measures actually measured what they purported to measure. Furthermore, the relationship between the subscales on the individual scales would be expected to be significantly correlated if the subtests relate to the general problem-solving process. As Table 10 describes, correlations between the subtests on the SPSI-R are generally weak. The correlations between the subscales on the MEPS, detailed in Table 9, are predictable due to the scoring methods of the measure, whereby a no score on Relevant Means provides a score on Irrelevant or No Means. Correlations between scales are weak (see Table 9). For example, the Relevant Means subtest on the MEPS in comparison to the Number of Solutions and the Quality of Solutions subtests on the SPSI-R assess a similar aspect of the social problem-solving process; the generation of alternatives. The correlations between these subscales are not significant and
are weak at best, suggesting these measures may not assess the problem-solving process of generating alternatives. As the internal consistency of the Number of Solutions subtest ($r_a = .77$) is considered moderate and the Relevant Means ($r_a = .33$) subtest weak, conclusions about validity, by relating these measures, may not accurately reflect the validity on the Number of Solutions subtest. That is, a measure has to be reliable to be valid. Future research comparing the SPSI-R to other psychometrically sound problem-solving measures may be useful.

**Administration**

Another concern in relation to the measures was the length of time it took students to complete the tasks. In particular, the MEPS took students a varying amount of time to complete, with some students not being able to finish items, others writing only limited content, and others writing extensive stories. Motor control and written expression could interfere with performance on this measure, unlike the SPSI-R which is more of a point form format. Also, fatigue was a concern, given the long administration time; forty-five minutes was too long a period to have students writing. These factors are particularly important to consider when examining depressed individuals as their psychomotor speed is often retarded (Hammen & Rudolph, 1996). Future research in this area, using these measures, should reduce the number of SPSI-R scenarios administered, or not administer the MEPS, so as to reduce administration time.

**Scoring**

The scoring guidelines for irrelevant means on the MEPS are problematic. To achieve an irrelevant mean score one must have provided no relevant means and provide a step which is ineffective, or not provide the foundation of the story. If either of these requirements is fulfilled a score of 1 is given. If any relevant means are present a score of 0 is given for irrelevant means.
As the scores are dichotomous (0 or 1) an understanding of how many irrelevant means are generated by a participant is not provided. Therefore, it still remains of interest how many irrelevant means each of the 4 groups generated and if this differed across groups.

**Statistics**

Analyses examining the primary hypothesis should have been ended after the MANOVA was completed, as it was nonsignificant. However, analyses were continued looking at univariate interactions and significant main effects. Such examination lessens the power of the study, making it more exploratory research as opposed to hypothesis driven. In fact, results (significant or otherwise) from the separate ANOVAs examining each subscale of social problem-solving in comparison to each gender and depression, may be due only to chance. That is, a total of 21 analyses were examined with an alpha of .05. Proper analyses would have divided the alpha by 21 to account for the analyses, therefore requiring a p value of <.005 and, thus, the result that adolescent depression is negatively related to social self-efficacy would be the only significant result in this study.

**Strengths of this Study**

Although the limitations of this study appear extensive, there are many strengths worth noting. Beyond being a new area of investigation, in terms of furthering the understanding of adolescent depression, social problem-solving and gender differences, this study employed strong methods.

**Participants**

Both the initial and final samples are considered representative of a typical population found in the Lower Mainland of British Columbia, with an appropriate range of age and
Measures

Reliability

Concern for the reliability of the measures used have been raised; however, two problem-solving measures were used to ensure a broad sampling of social problem-solving skills. The MEPS was also employed as a second measure to allow for comparison with past research. Although the MEPS demonstrated poor psychometrics, in this study, the SPSI-R showed high inter-rater reliability, ranging from .86 to .97 (see Table 13). The low internal consistencies for the Quality of Solutions and Quality of Best Solutions subscales have to be taken into consideration when discussing the SPSI-R (see Table 13). However, some subscales had adequate internal consistency. The Problem Identification and Number of Consequences subscales had internal consistencies above .80 and the Number of Solutions, Quality of Consequences, and Quality of Most Likely Consequences subscales had internal consistencies equal to or greater than .76. As well, the questions concerning social problem-solving self-efficacy and perceived social problem-solving had internal consistencies ranging between 0.83 and 0.85. The latter is particularly important in supporting the legitimacy of findings for depression being significantly related to social problem-solving self-efficacy and perceived social problem-solving. Another strength, although somewhat round about, is that weak reliability (internal consistency and inter-rater) of the MEPS suggests this is not a useful measure of social problem-solving.

Method

Most studies completed in the past administered the depression measure and the problem-
solving measure at the same time. This study had students complete a depression measure twice, one to two weeks after an initial testing. This allowed for a more reliable assessment of whether a student was possibly having a bad day or had stable depressive symptomatology. As well, it is important to note that the measure used to assess depression was developed for adolescents in particular. As prevalence and symptomatology differ between depressed adolescent and child or adult populations, it was important to use a measure designed and normed particularly on this group.

Also important to this study was the combined examination of both the perceived and the actual ability of social problem-solving. Having the student generate ideas around problem-solving, as well as having them offer opinions on their performance offers insight into multiple aspects of social problem-solving, allowing for comparison across type of task (perceived versus actual) and to determine where deficits exist or do not exist.

**Future Directions**

There are many areas upon which to expand and improve the current study. Of initial interest would be to further assess the reliability and the validity of the SPSI-R. This may include item analysis and examining the format. In terms of format, it may be useful to explore whether pencil and paper methods produce similar number and types of answers in comparison to the interview method (SPSI), where the student can be probed for more solutions and consequences. The psychometrics of each in such a comparison would be of interest.

In relation to the current study, a larger initial sample from which to draw would be beneficial in achieving large enough small groups to allow for greater comparisons and stronger conclusions. Using clinical populations might be interesting as depression scores would be
consistently high enough to gather a large enough sample to achieve meaningful comparisons. This would allow for further investigation into any specific deficits and allow these to be targeted in non-clinical samples.

Stress and depression being related to social problem-solving skills has been given support in the literature (Goodman et al., 1995; Nezu & Ronan, 1985, 1988). Stress may be an important mediating variable which links depression and social problem-solving. This may be an interesting area to continue exploring in future research.

Of particular interest would be to compare the social problem-solving ability of depressed versus non-depressed students to their actual behaviour. This would be an extensive undertaking but valuable comparisons could be made. As well, further investigation into the perceived problem-solving of students would be beneficial, including how others perceive depressed in comparison to non-depressed problem-solving skills and if depressed individuals perceive themselves differently than non-depressed individuals in actual social situations, as opposed to contrived situations presented in this study.

Summary

Results suggest that social problem-solving ability is not related to depression and gender, together or individually. Although low internal consistencies of several measures makes drawing conclusions difficult, results suggest that problem-solving ability may not be the area of difficulty related to social skill problems and depression and gender. Lack of significant differences may instead be due to difficulty acting on their cognitive problem-solving skills. Several theories of depression support the idea that social interactions are related to depressive symptomatology (Coyne, 1976a; Lewinsohn, 1974). As well, other areas such as social withdrawal or social
support may be the mediating factor between social skill difficulties and gender and depression. Further study into these areas could clarify these issues.

Gender and depression, together, were significantly related to the quality of solutions generated, with non-depressed females being more likely to generate more positive solutions than non-depressed males. Depressed males and females did not differ in the quality of solutions they generated. Relating this finding to past research, it may be that males produce more aggressive solutions than females (Rubin & Krasnor, 1983; Rudolph et al., 1994).

Gender on its own was not related to social problem-solving skills; however depression was related to the number of irrelevant means generated, with depressed individuals producing more irrelevant means than non-depressed individuals. Past research also showed a significant relationship between irrelevant means and depression but the relationship between these factors was considered weak (Mullins et al, 1985; Siegel & Griffin, 1984).

Results related to perceived social-problem solving and social self-efficacy are the most noteworthy as the measures assessing these areas were reliable. Significant results support that depressed individuals had significantly lower views of their problem-solving ability and their social self-efficacy than non-depressed individuals. Fitting with Beck’s (1967) cognitive theory of depression, it appears that depressed individuals perceive their social ability negatively. In relation to the other results of the study, whereby depression and gender were not related to social problem-solving ability, it may be that perception of ability is the only area of difficulty for depressed individuals. Given the various symptomatology associated with depression it is felt that negative feelings about oneself are one of many depressive symptoms related to social skill problems in these individuals. Other symptoms may include, for example, irritability,
motivational issues and lack of energy.
References


Mayo, V., & Tanaka-Matsumi, J. (1996). Think aloud statements and solutions of


Sacco, W. P., & Graves, D. J. (1984). Childhood depression, interpersonal problem-solving,


Appendix A
Definitions

**Effective means:** “sequential instrumental acts given by the subject that enable the story protagonist to reach the stated goal, or to overcome obstacles” (Platt et al., 1974) (p.789).

**Enumerations:** “additional details concerning a particular step in the story” (Platt & Spivack, 1975) (p.25).

**Ineffective means:** “ineffective story directed responses” (Spivack et al., 1976) (p.87). A response which “(a) failed to specify in sufficient detail how the goal was reached, (b) simply repeated or paraphrased part of the story, or (c) made a value judgement on some aspect of the story” (Platt et al., 1974) (p.790).

**Irrelevant means:** “some action on the part of the hero that was instrumental in reaching not the stated goal but some other goal.” (Platt et al., 1974) (p.790)

**Means:** “individual steps in problem-solving” (Spivack, Platt, & Shure, 1976) (p. 85)

**Means-ends problem-solving:** “the individual’s ability to orient himself to, and conceptualize means of moving towards a goal.” (Platt & Spivack, 1975) (p.1)

**No-means:** the steps necessary to reach the goal are not provided (Platt & Spivack, 1975).

**No-response:** no response given.

**Obstacles:** “events, situations, and so on, which might prevent the hero from reaching the goal” (Spivack et al., 1976) (p. 86).

**Relevant means:** discrete steps “effective in enabling the hero of the story to reach the resolution stage or to overcome an obstacle preventing the hero from reaching the goal in the story” (Platt & Spivack, 1975) (p.21).
**Relevancy score (relevancy ratio):** the total number of relevant means divided by the sum of the total number of relevant means, irrelevant means, and no means (Platt and Spivack, 1972).

**Time:** "indication of the passage of a specific amount of time during the steps taken to reach the goal" (Spivack et al., 1976) (p.86).
Appendix B
Student Information Form

This packet of questionnaires is to find out how students are feeling and any problems that may be going on in their lives. You will also be asked some questions about how you have been feeling lately. There are no right or wrong answers. Please complete the questions below and then answer the questions on the attached sheets. Answer all the questions the best that you can. **Do Not Put Your Name Anywhere On These Pages.**

Sex: □ Male □ Female

Grade: □ 8 □ 9 □ 10 □ 11 □ 12

Age: □ 12 □ 13 □ 14 □ 15 □ 16 □ 17 □ 18 □ 19 □ 20

Race/Ethnicity: 

Who do you live with (check one)?

□ Mother and Father □ Mother and Stepfather □ Foster Family
□ Mother only □ Father and Stepmother □ Other Relatives
□ Father only □ Other: (please specify):

Mother's Occupation (Job): 

Father's Occupation (Job): 

Do you think you are (check one):

Very popular with other kids □ Somewhat popular with other kids □ Not very popular with other kids □ Very unpopular with other kids

During the week, how often do you hang out with friends after school (check one)?

More than 4 times a week □ Between 2 and 4 times a week □ About once a week □ Almost never

Has anything bad happened to you in the past year (check one)? □ Yes □ No

If yes, please explain: 

If not, please explain: 

...
Appendix C
Directions

Listed below are some sentences about how you feel. Read each sentence and decide how often you feel this way. Decide if you feel this way: almost never, hardly ever, sometimes, or most of the time. Check the box under the answer that best describes how you really feel. Remember, there are no right or wrong answers. Just choose the answer that tells how you usually feel.

<table>
<thead>
<tr>
<th></th>
<th>ALMOST NEVER</th>
<th>HARDLY EVER</th>
<th>SOMETIMES</th>
<th>MOST OF THE TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel happy.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. I worry about school.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. I feel lonely.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. I feel my parents don't like me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. I feel important.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. I feel like hiding from people.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. I feel sad.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. I feel like crying.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. I feel that no one cares about me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. I feel like having fun with other students.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11. I feel sick.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12. I feel loved.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13. I feel like running away.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>15. I feel that other students don't like me.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>16. I feel upset.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>17. I feel life is unfair.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>18. I feel tired.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>19. I feel I am bad.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>20. I feel I am no good.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>21. I feel sorry for myself.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>22. I feel mad about things.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>23. I feel like talking to other students.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>24. I have trouble sleeping.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>25. I feel like having fun.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>26. I feel worried.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>27. I get stomachaches.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>28. I feel bored.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>29. I like eating meals.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>30. I feel like nothing I do helps any more.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Appendix D
In this procedure we are interested in your imagination. You are to make up some stories. For each story you will be given the beginning of the story and how the story ends. Your job is to make up a story that connects the beginning that is given to you with the ending given to you. In other words, you will make up the middle of the story.

Write at least one paragraph for each story.

H. loved his girlfriend very much, but they had many arguments. One day she left him. H. wanted things to be better. The story ends with everything fine between him and his girlfriend. You begin the story with his girlfriend leaving him after an argument.

John notices that his friends seemed to be avoiding him. John wanted to have friends and be liked. The story ends when John’s friends like him again. You begin where he first notices his friends avoiding him.

Mr. C. had just moved in that day and didn’t know anyone. Mr. C. wanted to have friends in the neighborhood. The story ends with Mr. C. having many good friends and feeling at home in the neighborhood. You begin the story with Mr. C. in his room immediately after arriving in the neighborhood.
Situation 1: Everyone is sitting in drama class, and the teacher tells them to choose a partner. Doug is without a partner.

1. What is the problem in this situation?

2. How well do you think you would be able to solve this problem (circle one)?

<table>
<thead>
<tr>
<th>Couldn’t solve problem</th>
<th>Poor solution</th>
<th>Okay solution</th>
<th>Good solution</th>
<th>Great solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Situation 1:** Everyone is sitting in drama class, and the teacher tells them to choose a partner. Doug is without a partner.

**The problem in this situation is:** Doug feels bad because he doesn’t have a partner.

3. How well do you think you would be able to solve this problem (circle one)?

<table>
<thead>
<tr>
<th>Couldn’t solve</th>
<th>Poor solution</th>
<th>Okay solution</th>
<th>Good solution</th>
<th>Great solution</th>
</tr>
</thead>
</table>

4. There are several ways to deal with this problem. Write as many as you can think of.

5. Which one of these solutions that you have just mentioned would be the best way?

6. How effective will this solution be (circle one)?

<table>
<thead>
<tr>
<th>Will make problem worse</th>
<th>Not effective</th>
<th>Somewhat effective</th>
<th>Effective</th>
<th>Very effective</th>
</tr>
</thead>
</table>

7. If he did this, there are several things that could happen. Write as many as you can think of.

8. What is most likely to happen?
Situation 2: There are a group of kids eating lunch together at a table. Mike comes in with his lunch on a tray and notices that one of the kids has his feet up on the only free chair.

Situation 3: The geography teacher announces that there is a test tomorrow and the class should study their notes. Jim doesn’t have any notes.

Situation 4: There are a group of kids standing together in the hallway and talking. John walks down the hall towards them. When they notice him, they start to laugh and point at him.

Situation 5: Phil is talking with two of his friends, and one of them has a bag of popcorn on his knee. Phil reaches over for his friend’s popcorn, and breaks the bag and spills some.

Situation 6: A group of kids were going to a movie and invited John. John waited outside the movie theatre but the kids never showed up.

Situation 7: Bill borrowed his classmate’s compact disc and left it in his bookbag. The next day he couldn’t find it.
Appendix F
Informed Consent Form

Exposure to Violence in Adolescents: Relationship to Psychological Distress and Social Problem-Solving

Dear Parent or Guardian:

We are writing to ask permission for your youngster to take part in a research project that is being conducted at your child's school. The general focus of this study is to examine the potential negative effects that community exposure to violence may have on young people. This project is directed by Dr. William Reynolds, who is Professor of Educational Psychology and Special Education at the University of British Columbia, with Ms. Diana Misic and Ms. Erin Moors, graduate students at UBC also collaborating on this study as part of their masters thesis projects.

Purpose:

The purpose of this study is to examine: (a) the extent and nature of violence exposure among adolescents in the Lower Mainland of BC and (b) the relationship between exposure to violence and psychological distress and social problem-solving ability in adolescents. Violence has become a major concern in many communities and the potential impact of exposure to violence has been shown to be a factor in the mental health of adolescents. Few studies of exposure to violence have been conducted in Canada, and there is limited information on the scope of the problem in the Lower Mainland. The current study will report on the extent to which youth are exposed to violence at school and in the community and the potential effects that this exposure may have on their mental health. In addition, we will be studying the degree to which distress in some youngsters may interfere with their social problem solving ability.

What is involved?

We plan on assessing the majority of students in the school. Youngsters who are participating in the study will be asked to fill out a set of questionnaires that will take about 45 minutes to complete and will be done in the classroom during class time. All of the questionnaires have previously been used in research or general use with adolescents in school settings and there have been no ill effects from answering the questions. The questionnaires will assess the extent to which your youngster has been exposed to violence at school and in the community, as well as what type of hassles and events are going on in your youngster's life. In addition, several questionnaires will inquire as to mental health outcomes including posttraumatic stress and anxiety, suicidal thoughts, and depression. Most youngsters find the questionnaires interesting.

A group of students will be asked to complete several of the original set of questionnaires and measures of social problem solving approximately one week later. The second session will be conducted in small groups of about 5 or 6 students and take about 30 minutes. Students who do not wish to participate will be doing class work.
Please complete the section below the dotted line and return the form to school with your child. Keep the top section for your records. Thank you.

Consent:

I understand that my child’s participation in this study is entirely voluntary and that I as well as my youngster may refuse to participate or withdraw from the study at any time without jeopardy.

I have received a copy of this consent form for my own records.

I give consent / I do not give consent (please circle one) for my son or daughter to participate in this study.

I would like more information before giving my permission for my child to participate in this study. Please call me at _________________.

Parent or Guardian’s Name __________________________ (please print)
Parent or Guardian’s signature ______________________ Date ______________
Son or Daughter’s name ___________________________ (please print)

Please send this form back to school with your son or daughter within the next three days. Thank you!
STEP ONE: HAND OUT QUESTIONNAIRES
Say:
"Because we want to keep your answers private, please put your name on the first page, tear it off and pass it forward."

(NOTE TO TEACHER: wait until this is complete and put ID sheets in provided envelope. Make sure students do not switch packets with another student.)

STEP TWO: ADMINISTRATION
Say:
"You may begin now."

ANSWERING STUDENT QUESTIONS:
(NOTE TO TEACHER: When a student asks a question about any particular item that is confusing to them, you should avoid providing your own interpretation to them. Instead, you should attempt to simply reread the question for them directing it to the individual student (e.g., "What would you say to me if I said"--READ QUESTION). You should encourage students to interpret questions for themselves, however, if there is a particular word that is troubling them--help them out with a definition or ask the other facilitator. Please note any issues that arise on a piece of paper.)

COMPLETION:
As students finish up, collect their questionnaires and extra pencils. At the end of the period collect all questionnaires, even those not finished. Unused questionnaires should be placed in the provided envelope. We will be by to pick the materials up.
INSTRUCTIONS FOR ADMINISTERING QUESTIONNAIRES
Adolescent’s Exposure to Violence: Relationship to Psychological Distress

Sequence of Events:

Add any students who have returned their permission slips today to the list of participants.
Note absent students who were supposed to participate on the bottom of the participant sheet
(this should be returned with the questionnaires).
Have those students not participating begin other activities.
Have students clear off their desks and move their desks apart if they are too close.
Make sure each student has a pencil to use to complete the questionnaires (extras in envelope).

Introduction to students:

Say:
“Today you will be taking part in a research project about adolescents. The purpose of this study
is to better understand how teenagers feel about themselves and their communities. Before you
start to fill out the questionnaires, there are a few things you need to know:

1. In order to complete the questionnaire, you should have a pencil.

2. The instructions tell you how to mark your answers.

3. There are no right or wrong answers- respond to the questionnaire as it applies to you.

4. Please do not skip any questions.

5. If you make a mistake, erase cleanly and make the correction.

6. Please do not talk while completing the questionnaire. If you have any questions, just
raise your hand.

7. When you have finished, turn your questionnaire over and sit quietly. Do not talk or
disrupt other students. I will collect the questionnaires when everyone is finished.

8. If at any time you choose not to continue, let me know.”

(NOTE TO TEACHER: IF STUDENTS DECLINE PARTICIPATION COLLECT THEIR
QUESTION BOOKLET, AND PLACE A LARGE X ON THE FRONT PAGE.)