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VICTIMIZATION AND CO-OCCURRING DISORDERS AMONG ADOLESCENTS

by

Bushra Sabri

An Abstract

Of a thesis submitted in partial fulfillment
of the requirements for the Doctor of
Philosophy degree in Social Work
in the Graduate College of
The University of Iowa

May 2011

Thesis Supervisor: Professor Carol Coohey

ABSTRACT

Purpose. The purpose of this study was to evaluate whether severe victimization experiences, and psychological and social resources were shared risk factors for internalizing only, externalizing only, and co-occurring internalizing and externalizing disorders among victimized substance-using adolescents.

Method. Data for this cross-sectional study were obtained from a multisite research project. Adolescents, ages 11–18, participated in a comprehensive screening program for substance abuse at 106 Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Substance Abuse Treatment (CSAT)-funded grantee sites throughout the United States.

Results. Longer duration/frequent victimization, more than one type of victimization, recent victimization, low self-efficacy beliefs and available sources of emotional support were related to co-occurring internalizing and externalizing disorders. Victimization by a trusted person, however, was only related to internalizing disorders.

Conclusion. The findings show that some indicators of severe victimization experiences, psychological and social resources are shared risk factors for internalizing, for externalizing, and for co-occurring internalizing and externalizing problems, thus providing support for the common factors model of co-morbidity. These findings suggest that practitioners in substance abuse treatment must thoroughly assess for severe victimization experiences among adolescents presenting with co-occurring mental health issues. Treatment planning and interventions may focus on helping adolescents cope effectively with their victimization experiences and addressing their MH needs. Particular

emphasis may be placed on enhancing self-efficacy and social skills, so that adolescents may benefit from their available sources of social support.

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Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

Bushra Sabri

has been approved by the Examining Committee
for the thesis requirement for the Doctor of Philosophy
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John Knutson

To

My Parents

Grandparents

and

Amma Akhtar

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represent official positions of the government or individual grantees.

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Particular emphasis may be placed on enhancing self-efficacy and social skills, so that adolescents may benefit from their available sources of social support.

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CHAPTER I

BACKGROUND

The co-occurrence of mental health (MH) disorders among substance-abusing adolescents is often the rule and not the exception (Chan, Dennis, & Funk, 2008). *The co-occurrence of MH disorders* or *comorbidity* is "the presence of more than one diagnosis, whether exclusively psychiatric or both psychiatric and medical (nonpsychiatric)" (Starcevic, 2005; p. 376). "One disorder of each type can be established independent of the other and is not simply a cluster of symptoms resulting from a single disorder" (Center for Substance Abuse Treatment [CSAT], 2005, p. 3). The label *co-occurrence of disorders* or *comorbidity* can be used for the co-occurrence of SA and MH disorders or the co-occurrence of MH disorders.

Substance abuse (SA) commonly co-occurs with mood (major depression, dysthemia, and bipolar) and anxiety disorders (panic attacks, social phobia, Generalized Anxiety Disorder, obsessive-compulsive disorder [OCD], and post-traumatic stress disorder [PTSD]). A Drug and Alcohol Services Information System (2003) report highlighted that nearly 16,000 adolescents of the approximately 78,000 admissions in SA treatment had a co-occurring psychiatric problem (SAMHSA, 2006). The co-occurrence of MH disorders is also associated with frequent substance use. For instance, a study of 192 adolescents in an inpatient psychiatric hospital found that SA was more common among adolescents with both co-occurring conduct disorder and post-traumatic stress disorder than those with a single MH disorder (Evans, Spirito, Celio, Dyl, & Hunt, 2007). Moreover, co-occurring problems were found to be linked to poor treatment response and relapse in the year following SA treatment (Whitten, 2005).

The co-occurrence of SA and MH disorders may affect adolescents' maintenance of post-treatment abstinence from drugs. In a study of 182 adolescents in SA treatment, Rowe, Liddle, Greenbaum, and Henderson (2004) found that adolescents with co-occurring SA and externalizing and internalizing behaviors were more likely to relapse to intake levels by one-year post-treatment than were adolescents with SA only and those with co-occurring SA and externalizing behaviors. They also found severe comorbidity at intake was associated with greater family dysfunction, being female, and younger age than less severe or no comorbidity (Rowe et al., 2004). Thus, adolescents with co-occurring SA and MH disorders may be a particularly challenging special-needs group for SA programs. These adolescents may require specialized treatment and may place additional demands on SA practitioners to consider MH disorders in planning or providing interventions.

Adolescents with co-occurring SA and MH disorders are also likely to enter treatment with less social conformity and more history of engagement in illegal activities than are adolescents with psychopathology only (Hiller, Knight, & Simpson, 1996). Adolescents with co-occurring SA and MH disorders are likely "to have a more chronic course, greater impairment in global functioning, poorer prognosis, and tend to be less responsive to treatment" than adolescents with either SA or MH disorder (Beitchman et al., 2001; p. 422).

Due to multiple problems associated with the co-occurrence of SA and MH disorders, adolescents are less likely to adhere to treatment protocols or fully benefit from SA treatment (Hiller et al., 1996). Adolescents with co-occurring SA and MH disorders, therefore, demand more attention and services compared with adolescents with one type

of disorder (Grella, Joshi, & Hser, 2004). Thus, it is essential to examine factors associated with MH disorders among adolescents in SA treatment settings.

This study, including a sample of adolescents with SA disorders, focuses on the co-occurrence of two types of MH disorders (internalizing and externalizing disorders). *Internalizing disorders* among children and adolescents are considered inner-directed, and the core symptoms are associated with over inhibition, over control, and shy-anxious problems (Achenbach, 1982; Reynolds, 1990). According to Krueger and colleagues (1998), internalizing disorders relate to "withdrawal from the external world" (e.g., anxiety). Individuals with these types of disorders deal with their problems internally. This study includes two types of internalizing disorders: depression and anxiety.

Externalizing disorders are outerdirected or undercontrolled (Reynolds, 1990) and are related to "moving against the world." Individuals with externalizing disorders are "at odds with society" (Krueger et al., 1998, p. 225). These disorders include aggression and delinquency (Yoder et al., 2008). Chan et al. (2008), in their definition of externalizing disorders, included symptoms of conduct disorders. These disorders typically develop in childhood or adolescence, and may persist into adulthood, but tend to decrease with age. An externalizing disorder in this study includes conduct disorder only.

Internalizing and externalizing disorders were selected because internalizing disorders such as depression and anxiety commonly co-occur with externalizing (such as conduct disorder) and substance use disorders (Chan et al., 2008; Crowley & Riggs, 1995; Grilo et al., 1995). Furthermore, adolescents are vulnerable to internalizing and externalizing problems due to their challenging and stressful transitional stage of

development. Therefore, it is important to examine factors that are linked to internalizing and externalizing disorders among adolescents (Ronnlund and Karlson, 2006).

Victimization may be an important factor in explaining internalizing and externalizing disorders among substance using adolescents. Pimlott-Kubiak and Cortina (2003) define *victimization* as an action against an individual with a deliberate intent to harm physically, mentally or emotionally (Child Trends Data Bank, 2007). Other people define victimization as an action in which the perpetrator intentionally or unintentionally threatens, attempts, or inflicts physical (Greene, 2002; Reiss & Ross, 1993; Slovak & Singer, 2002), sexual, or emotional harm to the victim. As this study does not have data on intention of the perpetrator, victimization in this study is defined as an action that may be intentional or unintentional.

Adolescents comprise a substantial proportion of victims of violence in the United States. Although the trend in victimization from 1993 to 2004 shows an overall decline (Finkelhor & Jones, 2006), 12–19-year-olds are still twice as likely as adults to be victims of violent crimes. In 2002, researchers found higher victimization rates for adolescents than for any other age group (Whiteman et al., 2005). The National Survey of Adolescents (1995), which interviewed 4,023 adolescents ages 12–17 also found their victimization rates to be extremely high. Among the types of victimization assessed, witnessing violence (39.4%) was the most common, followed by physical assault (17.4%) and sexual assault (8.1%; Fairbank, 2008; Kilpatrick, Saunders, & Smith, 2003). What is striking about these results is that victimization rates were high even though crimes against adolescents were less likely to be reported to law enforcement agencies than were crimes against adults (Finkelhor & Ormrod, 1999; Wordes & Nunez, 2002).

Underreporting of crimes against adolescents occur due to

- the preference of reporting crimes against adolescents to authorities other than law enforcement (for example, school authorities may deal with crimes occurring in school instead of reporting them to the police);
- prevalent cultural constructs that violence against adolescents is more normal and less crime-like;
- the disproportionate involvement of adolescent offenders in crimes against adolescents; and
- mistrust of the law enforcement system (for example, a belief that the offenses may not be considered serious or adolescents will be mistreated or further traumatized in the juvenile justice system may relate to underreporting; Finkelhor & Ormrod, 2001).

Thus, due to under-reporting, adolescents may be at an even higher risk of victimization than the statistics indicate.

Research shows victimization and co-occurring MH disorders are widely prevalent among adolescents in SA treatment. The National Study of Adolescents (1995), an analysis of the relation between victimization, SA, and MH issues among adolescents, reported victims had high rates of co-occurring PTSD and substance abuse or dependence problems. Kilpatrick and colleagues (2003), in a structured telephone interview of 4,023 adolescents, discovered physical, sexual assault, witnessed violence was more consistently and strongly related to a co-occurring diagnosis (co-occurring PTSD and major depressive episode, co-occurring PTSD and substance abuse or dependence, and co-occurring major depressive episode and substance abuse or dependence) than with a

non–co-occurring diagnosis (either PTSD or depression, or substance abuse or dependence). The findings related to the association of victimization with co-morbidity were significant even after controlling for demographic variables and familial substance abuse issues.

In a study of 15,224 adolescents in SA treatment, 63% reported being victimized. Of those, 45% of the adolescents reported severe victimization and five or more major problems in life domains, including substance abuse disorders, psychiatric disorders, violence, and involvement in illegal activities; and 66% reported co-occurring MH disorders (Dennis, 2008). As noted above, a large number of adolescents in SA treatment report severe victimization histories. Although victimization and co-occurring MH problems are widespread among substance-abusing adolescents, service providers do not routinely screen for victimization, or its severity, and mediating influences that can be targeted to develop effective service plans for this group.

Researchers, too, have not investigated the relation between severity of victimization and co-occurring MH problems among adolescents who met criteria for substance abuse or dependence, focusing instead on adults. Researchers have examined the effect of type of victimization, like physical or sexual abuse, on co-occurrence of psychiatric disorders among adults, such as PTSD, depression, and anxiety. They have studied only a limited range of factors that reduce the risk for psychiatric co-morbidity among adults, such as social competence, verbal intelligence, family cohesion, and peer relationships.

Moreover, one finds a dearth of research on the effect of severity of victimization on co-occurring MH problems among substance-using adolescents and the role of

psychological and social resources as intervening factors in the relation between victimization and co-occurring problems. These factors may play a critical role in the number and type of co-occurring disorder (COD) symptoms among adolescents. Understanding the relationship, therefore, among severity of victimization, psychological and social resources, and these disorders among adolescents in SA treatment is crucial. Understanding how these factors relate to co-occurring MH symptoms may improve victimized adolescents' response to treatment.

Research on SA and MH problems and victimization among adolescents often focuses on the importance of specific types of victimizations-sexual abuse or physical abuse, for example. In this study, however, experiencing more than one type of victimization and other indicators of severity are viewed as more important than the type of victimization for understanding co-occurrence of MH disorders (COD-MH) among substance-using adolescents. Based on Higgin's (2004) research, severity may have a greater effect than victimization type in explaining the relation between victimization and co-occurring MH disorders among substance-using adolescents. In a cluster analysis of data on adult survivors of abuse, Higgins (2004) found that the best cluster solution grouped victims according to their severity (i.e., high, medium, and low levels of severity of maltreatment clusters) rather than their experiences of separate types of abuse (sexual, physical, psychological, neglect, and witnessing violence). Individuals in the high maltreatment cluster had significantly poorer adjustment problems than those in the medium and low clusters (Higgins, 2004).

The indicators of severity in this study include frequency or duration of victimization, victimization by trusted perpetrators, multiple types of victimization

experiences, and recency. Factors associated with these experiences (e.g., helplessness, hopelessness, betrayal of trust, humiliation, guilt, shame) may place adolescents at risk for both internalizing and externalizing problems. Frequent victimization, for long duration, by trusted perpetrators and multiple types of victimization experiences are characteristics of unsafe and unhealthy social environment, and likely to be detrimental to normal and healthy development. Unadressed victimization, may lead to maladaptive coping tendencies and mental and behavioral problems. Some adolescents may cope by internalizing, while other adolescents may cope by externalizing their feelings.

Other indicators of severity of victimization may also result in the same negative outcomes (e.g., internalizing problems and externalizing problems) regardless of victimization types. However, research shows mixed findings. Only one study examined the severity of physical and the severity of sexual abuse among 187 psychiatric patient adolescents. Naar-King, Silvern, Ryan, and Sebring (2002) found varying effects for victimization type. Severity (e.g., abuse resulting in injuries requiring hospital treatment) and duration of physical abuse was related to elevated symptoms of internalizing disorders, while duration and severity of sexual abuse did not predict variations in internalizing symptoms independent of other characteristics and concomitant abuse (Naar-King, Silvern, Ryan, & Sebring, 2002). However, in other studies that only examined one type of victimization, the findings are mixed. For example, characteristics of severe sexual abuse (such as longer duration of abuse) were associated with poor mental health outcomes (Davis, Combs-Lane, & Jackson, 2002). Thus, longer duration of victimization may pose a risk for poor mental health.

It also seems likely that adolescents who experience multiple types of victimization will be more likely to experience poor mental health. For instance, in the study by Naar-King et al. (2002), adolescents who experienced two types of maltreatment (physical and sexual abuse) were more likely to have elevated symptoms of poor MH than adolescents with a single type of victimization experience. Despite the paucity of research in this area, it is anticipated that multiple victimization, and other indicators of severity will be associated with internalizing problems co-occurring with externalizing problems.

Adolescents with severe victimization experiences may be further harmed by victimization if they lack adequate positive coping skills, or if their capacity to cope with victimization has been eroded due to inadequate resources. Severely victimized adolescents may be protected from harm, however, if their capacity to cope has been enhanced due to resources such as positive self-appraisals (e.g., self-efficacy beliefs) and social support.

Resources refer to factors that may improve adolescents' ability to manage stressful life events and affect coping efforts, and are associated with better outcomes. They may include cognitive, social, emotional, spiritual, and physical components (Marting & Hammer, 2004). For instance, social support, optimism, mastery, and self-esteem are considered to be coping resources (Taylor & Stanton, 2007). In this study, resources include psychological resources, such as self-efficacy beliefs, and social resources, such as perceived and received social support.

Research Questions

The primary purpose of this study is to evaluate whether severe victimization experiences, psychological and social resources are shared risk factors for co-occurring MH disorders (internalizing and externalizing) among substance-using adolescents using the common factors model. Specifically, this study answers two major research questions using data from adolescents who came to a substance abuse treatment program and participated in a comprehensive assessment process:

RQ 1: Is severity of victimization a common risk factor for COD-MH disorders among victimized substance-using adolescents?

RQ 2: Are psychological and social resources common risk factors for COD-MH among victimized substance-using adolescents?

The Common Factor Model of Comorbidity and Hypotheses

The *common factor model* of comorbidity is a useful approach in explaining the relation between severity of victimization, psychological and social resources, and MH or COD-MH among substance-using adolescents. According to this model, a common factor can cause symptoms for two different types of disorders (Krueger & Markon, 2006). For example, research shows that family history (e.g., parental psychopathology, parental substance use and genetic factors), individual personality variables (e.g. risk-taking, and impulsive behavior), environmental factors (e.g., low socio-economic status), and traumatic life events (e.g., sexual abuse) are associated with both MH and SA disorders among adolescents (Hawkins, 2009). Furthermore, individual factors such as coping strategies, emotional intelligence and environmental factors such as chronic life stressors and stressful life events are shared risk factors for internalizing and

externalizing problems among adolescents (Compas, Oroson, & Grant, 1993; Elze, 2002; Masten, Best, & Garmezy, 1990).

Researchers have found that victimization and level of resources are common factors that can increase both COD-MH and co-occurring SA and MH disorders among adolescents. Internalizing and externalizing may co-occur due to shared risk factors, such as victimization, or overlapping risk factors acting via different pathways (Gjone & Stevenson, 2004). Although researchers have found that victimization is related to poorer MH, the present study draws on the common factor model of comorbidity to examine the relation between victimization and the co-occurrence of disorders by examining indicators of severity of victimization in greater depth.

Drawing from the common factor model of co-morbidity, this research will examine whether severity of victimization and resources are shared risk factors for internalizing, externalizing, or internalizing and externalizing disorders among substance-using adolescents. It is predicted that adolescents with more severe victimization experiences and fewer psychological and social resources will be more likely to have internalizing, externalizing or both internalizing and externalizing problems than adolescents who have not experienced severe victimization and who have more psychological and social resources.

The proposed model to be tested in this research emphasizes the importance of key psychological and social resources necessary for understanding the relation between severity of victimization and COD-MH among substance-using victimized adolescents (see Table 1; page 15). *Resources* in this study refer to social resources (types of people available for emotional support, problem-solving social support, and support received to

deal with victimization issues) and psychological resources (global self-efficacy beliefs and self-efficacy related to substance use).

The hypotheses include six COD-MH "outcomes:"

- Comorbidity of internalizing and externalizing problems (versus an internalizing-only problem).
- Comorbidity of internalizing and externalizing problems (versus an externalizing-only problem.
- Comorbidity of internalizing and externalizing problems (versus neither internalizing nor externalizing problems).
- An internalizing only problem (versus neither internalizing nor externalizing problems).
- An externalizing only problem (versus neither internalizing nor externalizing problems).
- An internalizing-only problem (versus an externalizing-only problem)

Using the common factor model of comorbidity, several hypotheses are proposed:

H1. Adolescents with severe victimization experiences (longer duration or more frequent victimization, multiple types of victimization, recent victimization, and victimization by trusted perpetrators) are more likely to exhibit a COD-MH problem than they are to exhibit an externalizing-only, an internalizing-only, or neither internalizing nor externalizing problems.

H2. The indicators of severity of victimization that predict an internalizing-only problem will also predict an externalizing-only problem.

H3. a) Adolescents with severe victimization experiences are more likely to

exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

b). Adolescents with severe victimization experiences are more likely to exhibit an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

H4. Adolescents with fewer psychological and social resources are more likely to exhibit a COD-MH problem than they are to exhibit an internalizing-only, an externalizing-only, or neither an internalizing nor an externalizing problem.

H5. The psychological and social resources that predict an internalizing-only problem will also predict an externalizing-only problem.

H6. a) Adolescents with fewer psychological and social resources are more likely to exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

b). Adolescents with fewer psychological and social resources are more likely to exhibit an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

A secondary purpose of the study is to evaluate the potential mediating effect of psychological and social resources on the relation between severity of victimization and co-occurring MH disorders among adolescents. A study of mediators (psychological and social resources) in examining the relation between predictors, such as victimization, and outcomes, such as COD-MH, provides a more in-depth understanding of the relation between predictors and outcomes than does examining direct effects alone. “Mediators

establish ‘how’ or ‘why’ one variable relates to an outcome variable” (Frazier, Tix, & Barron, 2004, p.116). Thus the third research question of the study is: what factors explain the relation between severity of victimization and COD-MH among substance using adolescents? Specifically, this research tests whether psychological (self-efficacy beliefs) and social resources (perceived and received social support) explain the relation between severity of victimization and COD-MH among victimized substance-using adolescents.

The mediation hypothesis in this research relies on the social network/social support theory and self-efficacy theories. Drawing from the social network/support theory, it is assumed that social support will reduce or eliminate the relation between severe victimization experiences and negative MH outcomes. In addition, drawing from self-efficacy theories, it is expected that self-efficacy beliefs will also reduce or eliminate the relation between victimization experiences and COD-MH problems among substance-using adolescents. Thus, it is hypothesized that psychological and social resources will mediate the relation between severity of victimization and a COD-MH problem. These relationships and theories will be discussed in more detail in Chapter 2. For the conceptual model, see Table 1 on the following page.

Table 1. Conceptual Model

Direct Effects	**Direct and Mediating Effects**	**Dependent Variables**
Control Variables	***Psychological Resources***	***Comparison Groups***
Age	Self-efficacy: Global	Neither internalizing or externalizing problems
Gender	Self-efficacy: Substance abuse	Internalizing-only problem
Ethnicity		Externalizing-only problem
Family structure	***Social Resources***	Both internalizing and externalizing problems
Stressors	Types of people available for emotional support	
Severity of substance misuse	Available problem-solving support	
Indicators of Severity of Victimization	Received social support	
Multiple types of victimization		
Longer duration or frequent victimization		
Victimization by trusted perpetrators		
Recency		

Implications for Theory, Research and Practice

This study has several implications for theory, research, and practice:

Theoretical and Research Implications

The study may contribute to the theory and research on severity of victimization and COD-MH among substance-using adolescents. It may contribute to theory by providing support for the common factors model—our understanding of the complex problem of indicators of severity of victimization as common risk factors for internalizing and externalizing problems (COD-MH) among substance-using adolescents. For victimization research, the study may identify indicators of severity of victimization, such as frequency or duration, that may be related to the risk for co-occurring disorder symptoms and the protective factors (resources, for example) that can reduce this risk. For research on co-occurrence of MH disorders among substance-using adolescents, the study may establish severity of victimization and psychological and social resources as common factors related to co-occurring disorders among adolescents, thus providing support for the common factors model of comorbidity.

Practice Implications

Support for the common factors model would suggest that severity of victimization as a shared risk factor may increase the risk for MH problems such as COD-MH among substance using adolescents, which is often associated with greater impairment in social functioning and less responsiveness to treatment (Beitchman et al., 2001). Victimized adolescents with co-occurring disorders are therefore likely to pose additional challenges for practitioners in SA treatment settings.

If the findings support a strong effect of severity of victimization on COD-MH, this study may highlight the need to address severity of victimization in treating clients in SA treatment with co-occurring disorders. Addressing their issues may require collaborative efforts among substance abuse professionals, victim service providers, and mental health professionals. An association of severe victimization with COD-MH symptoms among substance-using adolescents would support the need for a thorough assessment of multiple dimensions of victimization to identify high- risk and multiple-problem clients. Early and proactive intervention to address victimization could then be planned and implemented to address COD-MH symptoms or to prevent re-occurrence of future victimization. Practitioners would be better prepared to work with clients with victimization histories and MH and COD-MH in SA treatment.

This research may also highlight the potential critical role of psychological and social resources in the relation between severe victimization experiences and COD-MH among substance-using adolescents. Identifying types of resources related to positive MH and behavioral functioning among victimized adolescents would highlight the need to emphasize these resources in practice. Practitioners then may be better able to develop targeted interventions to address the unique needs of substance-using clients who have experienced severe victimization.

Addressing victimization in treating substance-using adolescents with MH disorders may entail

- developing safety plans for adolescents at risk of repeat victimization;
- making appropriate referrals to victim service providers, and educating them about resources in the community;

- enhancing positive coping skills to manage stress related to victimization; and
- basing interventions on enhancing self-efficacy beliefs (psychological resources), and helping adolescents mobilize social support networks (social resources).

Thus, the study may highlight the need to develop comprehensive and coordinated programs that address the full range of needs of these adolescents to effectively cope with their victimization experiences.

Chapter 2 will review the literature on the adverse effects of severity of victimization. The first section will discuss the relation between victimization and negative MH outcomes. As the study sample includes substance using adolescents, this section will highlight general problem of victimization among substance using adolescents. In addition, this section will cover approaches to defining victimization in the literature, and the relation between severity of victimization and MH. The section on psychological and social resources present a review of literature on the definitions of resources and potentially mediating role of psychological and social resources in the relation between victimization and MH disorders. The review of empirical literature will be followed by a summary of gaps in existing research and a statement on whether research currently supports the proposed conceptual model. The final section will review the research questions and hypotheses. Chapter 3 includes the methods, Chapter 4 includes the results, and Chapter 5 includes the discussion and conclusion.

CHAPTER-II

REVIEW OF LITERATURE

This dissertation research examines the relation between severity of victimization and co-occurring MH disorders (COD-MH) among substance-using adolescents. Furthermore, it examines whether psychological and social resources reduce the effects of severity of victimization on COD-MH disorders among the studied adolescents. To clarify the potential contribution of the dissertation research and to summarize the relevant empirical literature, the studies are presented in the following sections:

- Victimization experiences. This section covers (a) general problem of victimization among substance using adolescents, (b) approaches to defining victimization in the literature and the dissertation research, and (c) the relation between severity of victimization and MH problems.
- Psychological and social resources. This section provides an argument for the critical role of resources in coping with stress associated with victimization and minimizing the effect of victimization stress on the development of poor outcomes.
- Sociodemographic characteristics and stressors. This section provides a rationale for including sociodemographic characteristics and stressors as control variables in the dissertation research.

The review of literature is followed by a summary of the empirical literature.

Victimization Experiences

General Problem of Victimization Among Substance-Using Adolescents

Researchers describing the relation between victimization experiences and SA speculate substance misuse may

- precede victimization,
- develop soon after the victimization or
- emerge as a delayed reaction to stresses induced by victimization (National Victims Assistance Academy [NVAA], 2000).

For example, adolescents may start using substances to cope with or temporarily escape from their problems or painful emotions associated with their victimization (Harrison, Fulkerson, & Beebe, 1997). Moreover, use of substances may place adolescents at risk for repeat victimization.

Adolescents may use substances in dangerous situations, placing them at risk of becoming victims of violence such as rape, or they may get involved in violent confrontations to obtain drugs. While cautioning against viewing substance use or abuse by victims as a "reason" for their victimization, NVAA (2000) stressed "both victimization and substance abuse carry weighty societal stigmas, and when the stigma of victimization is combined with the stigma of substance abuse, victims can fall prey to a 'double-edged sword'(p. 1)." NVAA argues, therefore, that substance use as a cause of victimization experiences is erroneous and can be potentially harmful for the victim. Substance abuse and victimization needs to be considered as correlational rather than causal (NVAA, 2000).

Researchers consistently have linked type of victimization—such as community violence, child maltreatment, sexual abuse, and physical abuse—to substance misuse. For

example, community violence victimization has been linked with the use of cigarettes, alcohol, marijuana, and hard drugs (Vermeiren, Ruchkin, Leckman, Deboutte, & Schwab-Stone, 2003). Maltreatment in adolescence (Smith, Ireland, & Thornberry, 2005), particularly physical/emotional abuse (Hodson, Newcomb, Locke, & Goodyear, 2006) and sexual abuse (Singer, Song, & Ochberg, 1994), has been linked to substance use —in some cases, multiple types of substances, such as cigarettes, marijuana, alcohol, and hard drugs.

Some types of victimization experiences may be more strongly related to SA than other types. In a study of 2,468 adolescents, researchers discovered all forms of victimization (sexual, physical, and co-occurrence of both types) were related to frequency of substance use, but physical abuse alone had a stronger relation to substance use than did sexual abuse or both physical abuse and sexual abuse (Perez, 2000). Other studies support for the adverse influence of physical abuse on substance abuse or dependence in adolescence after other risk factors, such as parental psychopathology and belonging to single-parent families, were controlled (Kaplan et al., 1998).

Multiple types of victimization may have a stronger association with use of multiple substances among children and adolescents than a single type of victimization. Harrison et al. (1997) examined the effects of multiple types of victimizations (physical and sexual abuse) on SA, using the Minnesota Student Survey, which included 122,824 students in grades 6, 9, and 12. Students who were victims of abuse (physical, sexual, or both) reported the highest rates of use of multiple substances when compared with nonvictims. The highest rates of SA were found among those who reported both physical and sexual abuse. Although the researchers focused on two types of victimization, similar

relationships may be found when a broader range of co-occurring types of victimizations are considered.

Approaches to Defining Severity in the Literature

Authors have defined severity of victimization in different ways. According to Titus, Dennis, White, Scott, and Funk (2003), *severity* included those characteristics of victimization, noted in the literature, as heightening the trauma of victimization experiences. They called these characteristics *traumagenic,* as they were related to increased trauma, which, if unresolved, could result in subsequent MH and behavioral problems in adolescence and adulthood.

Researchers have assessed severity using different measures. For example, severity of physical abuse often is determined based upon the level of injury involved, the extent of physical harm, or the need for hospital care. Severity of sexual abuse often is assessed based on the level of physical contact and coercion involved, with forced intercourse being the most severe form. Severity of emotional abuse is determined based on factors such as holding unreasonable expectations from the child, ridiculing and blaming the child, threatening or actually attempting to commit suicide in front of the child, abandoning the child, exposing the child to violence, or placing the child in confinement (Barnett et al., 1993).

The National Survey of Child and Adolescent Well-Being (NSCAW) operationalized *severity* based on the degree of physical harm for physical abuse and the degree of penetration for sexual abuse. Merrill, Guimond, Thomse, and Milner (2003) created a severity index of sexual abuse by combining characteristics of abuse that have been associated with severe outcomes, such as penetration, use of force or threats, father

or stepfather as perpetrator, more than one perpetrator involved, and experiences of more than five incidents. Kallstrom-Fuqua, Weston, and Marshall (2004) in their operational definition of *severity* of victimization included characteristics such as level of force, number of perpetrators, relationship to perpetrator, and age at first sexual assault.

Other researchers have used perception of seriousness as a measure of severity. For example, Barnett, Manly, and Cicchetti (1993) defined *severity of victimization* as "the relative seriousness of the act with regard to the potential negative psychological impact that a caregiver's act may have on the child's socio-emotional development" (p.53). However, severity of victimization includes both physical and psychological harm. Typically it is assessed based on the degree of actual or potential harm (Dubowitz, Black, Starr, & Zuravin, 1993).

Individual or group differences, however, such as demographics and types of professionals conducting the assessment, can affect perceptions of seriousness of abuse and whether abuse is related to potential negative outcomes. For example, Giovannoni and Becerra (1979) examined four groups of professionals—lawyers, social workers, police, and pediatricians—in Los Angeles and found profession, gender, and child-rearing experiences as significant factors related to perceptions of seriousness of consequences of specific acts of maltreatment.

Garrette and Rossi (1978), in their study of 301 adults in Los Angeles, found respondents who ranked incidents as less serious were likely to be male, white, and educated with higher occupational prestige, and to have more children. Those who considered the incidents as highly serious tended to be female, married, and/or Protestant or Catholic.

Due to varying perceptions of seriousness, victimization at the same level of severity may be considered less severe in some groups versus others. For instance, supervision and protection of children and failure to fulfill parental responsibilities were rated more serious by African Americans than by the other ethnic groups. Physical injury, sexual abuse and drug or alcohol abuse were rated more serious for Hispanics than for the other groups.

Who the victims of abuse are can influence one's perception of seriousness. For example, victimization involving older children is generally viewed as less serious than that involving younger children (Garrett & Rossi, 1978). Such factors must be considered when evaluating victimization severity. This brief review shows that researchers have proposed and used various operational definitions of *severity.* Severity of victimization has been operationalized based on individual judgments or differences in subjective perceptions of severity. Thus, current literature lacks a standardized definition of severity of victimization. This study examines those indicators of severity that have empirical support for poor MH outcomes.

This study focuses on duration and frequency of victimization, victimization by trusted perpetrators, experience of multiple types of victimization, and recency of victimization as indicators of severity of victimization. These indicators of severity were selected because the study is based on a secondary analysis of substance abuse assessment data and these were the best available variables in the dataset to examine severity of victimization. It is hypothesized that these indicators of severity will increase the likelihood of MH disorders and COD-MH among substance-using adolescents.

Relation Between Severity of Victimization and Mental Health

Research has convincingly demonstrated that exposure to violence has a deleterious effect on MH (Menard, 2002; Silver, Arsenault, Langley, Caspi, & Moffitt, 2005). The effects are noted in terms of general psychological distress as well as specific psychological disorders such as PTSD, depression, and anxiety (Berthold, 2000; Buckner, Bassuk, & Beardslee, 2004; Clear, Vincent, & Harris, 2006; Fitzpatrick, Piko, Wright, & LaGory, 2005; Gatz et al., 2005; Herrero, Estevez, & Musitu, 2006; Kaplan et al., 1998). Adolescent victims are twice as likely to experience PTSD and three times more likely to be serious violent offenders than are adolescents who are not victims (Menard, 2002).

The next subsections report results from studies that examine the relation between indicators of severity of victimization and MH problems.

Duration and frequency of victimization experiences may have a deleterious effect on MH. Some researchers have examined the combined effect of duration and frequency or did not include them together in the analysis due to a high correlation between these characteristics (e.g., Browne & Finkelhor, 1986; Wolfe et al., 1994). Although some research did not find support for the negative effect of duration and frequency on MH (Brown & Finkelhor, 1986; Williamson, 2009), other studies (e.g., Danielson, Arellano, Kilpatrick, Saunder, & Resnick, 2005; Kaysen, Rosen, Bowman, & Resick, 2010) have found a positive relation between duration and/or frequency and MH disorder or co-occurring MH and SA disorders. For example, Danielson et al. (2005) found that a single incident of victimization was related to Type-I PTSD, and more chronic victimization was related to Type-II PTSD. Type-II PTSD had more negative symptoms than the former category.

Frequent victimization has been found to occur often among adults with co-occurring SA and MH disorder symptoms (Sells, Rowe, Fisk, & Davidson, 2003). Wolfe et al. (1994) found that children who met the criteria for PTSD symptoms were more likely to have been abused for more than a year or for a longer time than non-PTSD children. Frequency did not differentiate between the PTSD and non-PTSD groups, however. A study comparing adolescents psychiatric patients who had been sexually abused, physically abused, or both sexually and physically abused, found that duration of violence and severity of physical acts increased internalizing symptoms (depression and anxiety) among physically abused adolescents (Naar-King, Silvern, Ryan, & Sebring, 2002). Thus, research shows substance-using adolescents with frequent and longer duration experiences of victimization are more likely to have COD-MH symptoms than are other adolescents.

Victimization by trusted perpetrators. Some theorists have provided explanations for the relation between indicators of severity of victimization, such as victimization by someone close, and negative MH outcomes. For instance, Finkelhor and Browne (1985), in their traumagenic model argued that feelings of betrayal in a trusting relationship have a greater potential to make the experience harmful and lead to more adverse outcomes than in a non-trusting relationship. Betrayal occurs when victims realize their trusting relationships caused them harm or they were treated with disregard by someone who did not believe them when they disclosed the abuse. Victims are therefore likely to lack understanding of the level of control they have over their lives. Moreover, betrayal distorts victims' self-concept and world views.

Other researchers have examined the relation between victimization by trusted perpetrators and have produced mixed results. For instance, some research shows closeness of relationship to the perpetrator may not relate to trauma symptoms (Boney-McCoy, & Finkelhor, 1995). Zink, Klesges, Stevens, and Decker (2009), in their study of sexually abused adult victims, reported when the perpetrator was a stranger, the victim experienced more trauma symptoms than if the perpetrator had a close relationship with the victim, such as a friend, cousin, parent, or step-parent. Conversely, other literature suggests victimization by trusted people may be associated with poorer outcomes than victimization by strangers (e.g., Kaplow & Widom, 2007; Leary, Springer, Negel, Ansell, & Evans, 1998). Danielson and colleagues (2005), in their research on adolescents, reported the perpetrator being a relative—were related to severe negative symptoms, such as restlessness, sleep problems, problems with appetite, and feelings of guilt.

The level of trust and the emotional bond with the perpetrator appears to be a more potent predictor of negative outcomes than the type of relationship. Feinauer (1989) explored differences in psychological distress among 311 women who had been victimized in childhood by a relative, friend, or stranger. Victimization by a trusted person who was known to them had the most ravaging psychological effects on these women. The emotional bond with the perpetrator, and the betrayal of trust, appeared to be the decisive factor in predicting psychological distress when compared with the familial relationship with the perpetrator. Among adolescents, victimization experiences at the hands of a trusted person likely will result in feelings of betrayal and other hurtful emotions and developing internalizing symptoms (Leary et al., 1998). No research was found that related the feelings of betrayal to increased externalizing symptoms. However,

victimization by perpetrators not well known to the victim has been related to increased externalizing problems among adolescents (Lawyer, Ruggiero, Resnick, Kilpatrick, & Saunders, 2006).

Multiple types of victimization experiences. Finkelhor, Ormrod, and Turner (2007) and other researchers have tested the negative effect of multiple types of victimization on mental, behavioral, and physical health of children and adolescents. Finkelhor et al. (2007) define multiple types of victimization (or *poly-victimization*) as four or more different types occurring during separate incidents in one year. Poly-victims were found to be at higher risk for subsequent poly-victimization (Hart, 2007); were more likely to show more negative outcomes (Finkelhor et al., 2007), such as co-occurrence of SA and MH disorders than are non-poly victims; and may differ from non-poly victims in their psychological and social coping resources and outcomes.

Adolescents who experience multiple types of victimizations may show a greater number of, and more severe, negative outcomes than do adolescents who experience only one type of victimization (Finkelhor et al., 2007). For instance, in a study of fifth graders, (Holt, Finkelhor, & Kantor, 2007), students with multiple types of victimization experiences reported more psychological distress than did students who had experienced single types of violence.

Danielson et al., (2005) established that adolescents who experienced both physical and sexual abuse exhibited more depressive symptoms than did adolescents who were not abused or were victims of physical abuse only. Finkelhor et al.(2007), found that victims who experienced more types of victimization reported more trauma symptoms than did victims who experienced the same type of victimization repeatedly.

Multiple types of victimization, both within and across victimization types, are associated with poorer MH, including externalizing (Herrenkohl & Herrenkohl, 2007) and internalizing disorder (Bolger & Patterson, 2001) symptoms. Ackard and Neumark-Sztainer (2003) discovered multiple subtypes of sexual victimization were associated with problems related to eating disorders, suicidal thoughts and attempts, lower self-esteem, and poorer emotional well-being.

Herrenkohl and Herrenkohl (2007) in an examination of 457 adolescents from child protective services, Head Start centers, and child care programs, concluded that multiple types of victimization experiences, such as physical and sexual abuse, neglect, and exposure to domestic violence, were associated with internalizing (somatic complaints, anxiety, and depression) and externalizing behavioral problems (aggression and delinquency), even after controlling for gender; stressors such as family conflict, parental problems, and external family constraints; and family socioeconomic status.

The research shows that multiple types of victimization may have a greater impact on the physical, mental, or behavioral health of adolescents than does a single type of victimization. Moreover, as research shows, multiple types of victimization were associated with higher comorbidity rates (Ackard & Neumark-Sztainer, 2003; Herrenkohl & Herrenkohl, 2007; Langeland, Draijer, & Brink, 2004). Thus, it is anticipated that multiple types of victimization will have a negative effect on MH and will increase the likelihood of COD-MH symptoms among substance-using adolescents.

Recency of victimization. The literature is unclear whether victimization at certain stages of development leads to more negative outcomes than does victimization occurring at other stages. According to some researchers, the earlier the onset of abuse,

the less likely the child is able to achieve important developmental milestones (self-regulation, for example), which, in turn, may lead to MH problems (Cicchetti, 1989; Kaplow & Widom, 2007). Richmond (2009), however, in a longitudinal study of women found victimization experiences in adolescence had a stronger effect on MH than did victimization in childhood.

Based on Kaplow and Widow's (2007) research, early onset of abuse may relate to internalizing disorders, whereas late onset may associate with externalizing disorders. Kaplow and Widom (2007), in their longitudinal study of court-substantiated cases of abused children, reported that earlier onset of abuse was related to internalizing symptoms (depression and anxiety) in adulthood, while controlling for race, gender, and age. Victimization that had a later onset was associated with externalizing problems in adulthood.

Similarly, Perron et al. (2008) in a study of African American adolescents in an inner-city substance-abuse treatment program found recency of victimization was positively and significantly related to externalizing disorder symptoms (conduct disorder and involvement in illegal activities). Recency of victimization, therefore, may be an important factor in explaining COD-MH symptoms among substance-using adolescents. However, it is unclear whether recency of victimization will be related to both internalizing and externalizing problems.

Summary. Severity of victimization has been under-studied among adolescents, and most research has focused on child and adult, not adolescent, populations (Naar-King et al., 2002). Making strong predictions, therefore, about the relation between severity of victimization and COD-MH among substance-using adolescents is difficult.

Nevertheless, severity of victimization is likely to play an important role in understanding variability in MH among substance-using adolescents and will be tested in this study.

Psychological and Social Resources

Testing the effect of severity of victimization on general well-being without considering individual and environmental factors, such as resources, in victims' lives (Waldrop & Resick, 2004) may not provide an adequate understanding of MH. Victims' functioning may be influenced by individual resources, such as self-efficacy beliefs, and contextual resources, such as social support, that may affect the relation between their victimization experiences and their MH. Spaccarelli's model provides a useful framework to explain the influence of multiple individual and environmental characteristics on COD-MH symptoms among substance-using adolescents. Spaccarelli (1994) argued the impact of victimization must be conceived as a function of personal and environmental characteristics instead of only victimization-related characteristics. He proposed, therefore, an integrated model to study outcomes of victimization that included multiple factors, such as victimization experiences, personal (e.g., age and sex), and social resources (e.g., social support) (Spaccarelli, 1994; Trembley, Hebert, & Piche, 1999).

In this study, therefore, it is assumed that several personal and social resources in adolescents' ecological contexts—such as ethnic minority group, age, gender, single-parent family status, nonvictimization stressors, severity of substance misuse, severe victimization experiences, low self-efficacy beliefs, and inadequate social support—are potential risk factors for COD-MH problems among substance-using adolescents.

Resources are assets that can be used to manage stressful events (Taylor & Stanton, 2007) and, in this study, are classified into two categories: psychological and social. Psychological coping resources include positive self-perception or self-esteem, whereas social coping resources include social support (Cohen & Willis, 1985; Macmillan, 2001; Taylor & Stanton, 2007; Zielinski & Bradshaw, 2006). Although psychological resources drive coping behaviors based on individual efforts only, social resources, such as social support or services available in the community, drive coping behaviors by involving others. Both categories are important for coping with life stressors and may play an important role in protecting victims from the adverse effects of victimization stress on COD outcomes. Resources such as efficacy beliefs (Mosher & Prelow, 2007) and social support (Holt & Espelage, 2005) have been found to reduce negative symptoms (such as anxiety and depression) among victimized adolescents. The following sections provide a theoretical explanation for the relevance of these resources in mental and behavioral health functioning of adolescents.

The importance of resources has been explained in the transactional model of stress appraisal and coping. According to this model, coping and adaptation are influenced by the subjective assessment of the self (psychological), the stressor, and the social environment (social) (Shewchuk, Elliott, MacNair-Semands, & Harkins, 1999). These subjective assessments in the form of psychological resources may act as mediators in the relation between stress and distress (Yap & Devilly, 2004). Social resources such as social support may help adolescents perceive stressful situations, such as victimization, as less threatening (Lazarus's theory), and may enhance or sustain their

self-esteem and thus empower them to activate their counter-harm resources (Schradle & Dougher, 1985).

The present study does not directly test cognitive factors related to perceptions or appraisals of victimization stress or appraisals in relation to dealing with victimization stress. These appraisals are discussed, however, to elaborate on the mechanisms through which victimization experiences may affect psychological and social resources. The appraisals or cognitive factors that help explain the relationships hypothesized in the model for this study are described below.

Appraisal of victimization. Folkman, Schaefer, and Lazarus (1979) proposed that cognitive processes, such as self-efficacy beliefs, are mediators of stress and coping. Folkman and Lazarus (1988) later explained the choice of a coping strategy depended on the appraisal or interpretation of a stressor. In *primary appraisal*, cognitions focus on the significance of a stressful situation for the individual; in *secondary appraisal*, cognitions focus on available resources for dealing with stress (Bouchard, Guillemett, & Landry-Leger, 2004; Chang, 1998). If the stressor is perceived or appraised as threatening or uncontrollable, it can heighten negative emotions and may result in a negative unproductive coping response (Macy, 2007), such as social withdrawal, immobilization, or impaired social competence (Garbarinio, Dubrow, Kostelny, & Pardo, 1992). These responses are related to negative psychological and physical adjustment (Roesch et al., 2002).

The stress caused by victimization can negatively affect self-efficacy beliefs, which in turn may impact adjustment. If victimization experiences are perceived as

controllable or as challenges, adolescents may focus on problem-solving, looking at available options or resources. This may result in a coping response such as seeking help.

Appraisal of self. Other theories focus on the assumption that cognitive processes, such as dysfunctional or negative beliefs individuals hold about themselves, inhibits their abilities to cope with life stressors (Muller & Lemieux, 2000). Self-appraisals, defined as perceived self-worth and the ability to recognize and capitalize on one's strengths, may influence coping responses. Adolescents with positive self-appraisals, such as self-efficacy, as a psychological resource are likely to believe they are capable of making positive changes if they take active steps to reduce stress.

In the literature on self-appraisals, victimization experiences appear to influence self-efficacy. Research shows that victimization may alter self-efficacious beliefs and activate negative self-images (Macmillan, 2001). Macmillan (2001) used a cognitive phenomenological perspective to understand the effect of victimization experiences on adolescents, explaining how experiences of victimization may alter people's assumptions about themselves and the outside world as a safe place. The cognitive phenomenological perspective suggests "individuals react to the environment as they perceive it" (Frydenberg, 1997, p. 4). Thus, perceptions are important in understanding reactions to stressful events. Hoglund and Leadbeater (2007) discovered that adolescents who were victimized by their peers held negative cognitions about their peers, which in turn affected their ability to regulate feelings of depression, anxiety, or anger. Cognitive factors such as appraisals, attributions, self-efficacy, and general perceptions of stressors directly and indirectly (via various coping methods) influence mental and physical health outcomes (Roesch , Weiner, & Vaughn, 2002).

The stress and coping theoretical argument applies across types of stressors and may include severe victimization experiences. At least two studies have shown that psychological (e.g., self-efficacy) and social resources (e.g., social support) mediate the effect of victimization experiences on mental health (e.g., depression and PTSD) (Hershberger & D'Augello, 1995; Vranceanu, Hobfall, & Johnson, 2007). However, these studies have only focused on type of victimization. This research addresses this gap by examining the mediating effects of these resources on the relation between severity of victimization and MH.

Psychological Resources

Psychological resources in the present study include global self-efficacy beliefs and self-efficacy to resist pressure related to substance use. The role of self-efficacy beliefs as psychological resources, and their influence on MH and behavioral problems, can be explained by cognitive behavioral theories. Cognitive behavioral theories are based on the assumption that cognitive activity affects human behavior, and that cognitive, behavioral, and affective systems are interdependent (Dobson & Dozois, 2001). *Cognitions* refer to mental activities such as thinking, conceiving, and reasoning (Reber, 1985). Negative cognitions related to poor self-image, pessimism, and learned helplessness. *Affects* relate to emotional reactions that may be inappropriate to the situation (Reber, 1985), such as anger. *Behaviors* may relate to actions such as aggression or substance misuse.

Adolescents with lower self-efficacy beliefs may irrationally evaluate their abilities to take positive steps toward optimal MH or behavioral functioning. *Self-efficacy* refers to individuals' perceptions of their competence or ability to perform tasks well (Pajares,

2001), or, according to Bandura's social cognitive theory (1986), self-efficacy is the level of confidence individuals have in their ability to perform positive behaviors (Walsh & Foshee, 1998), or motivation to act in the face of difficulties (Bandura et al., 1999). Self-efficacy beliefs are different from personal competence beliefs, because self-efficacy is contextual or specific to particular tasks and situations (Pajares, 1997).

Self-efficacy beliefs are also different from *self-esteem*—an individual's feeling or judgment of self-worth, which is influenced by his or her perceptions or evaluation of self-worth by people in the environment or success or failure in endeavors (Pajares & Schunk, 2001). According to Bandura and colleagues (1999), "a sense of personal sense of personal efficacy is the foundation of human agency. Unless people believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of difficulties (p. 258–259)." High self-efficacy beliefs should relate to lower likelihood of MH disorder symptoms and COD-MH among victimized substance-using adolescents. In this study, *self-efficacy* refers to adolescents' perceptions of global competence as well as confidence in their ability to remain abstinent from drug use and is categorized under psychological resources.

According to Macmillan, during the process of victimization, victims experience interactions in which they are unable to prevent being attacked, assaulted, or threatened. Such experiences may affect their perception of self-efficacy, and they may develop negative self-images. Thus, individuals' identities of self are threatened (Macmillan, 2001). For example, ongoing abuse may develop learned helplessness or hopelessness and internalized negative self-perceptions.

Adolescents who are self-efficacious or who have an internal locus of control are characterized by higher motivation (Rotter, 1966). Although lower self-efficacy may relate to hopelessness, stronger efficaciousness may influence motivation toward positive change (Pajares, 1997) and the use of positive coping strategies (Taylor & Stanton, 2007). According to Pajares (1997), "the higher the sense of efficacy, the greater the effort, persistence, and resilience" (p. 4). Self-efficacy beliefs, therefore, may play a crucial role in explaining MH and COD-MH symptoms among substance-using adolescents with severe victimization experiences.

Social Resources

Social resources in this study include perceived and received support. The focus is on three types of social support:

- the types of people available for emotional support,
- available problem-solving support, and
- received support to deal with victimization issues.

Social support often is defined as the experience that "one is loved and cared for by others, esteemed and valued, and part of a social network of mutual assistance and obligations" (Wills, 1991; Taylor & Stanton, 2007, p. 381). *Perceived social support* is a "generalized experience of being supported from the social environment and the general perception of availability of supporting persons and actions" (Laireiter & Baumann, 1992, p. 37).

Types of people available for emotional support refers to multiple sources of perceived social support, which include the number of people in social roles available to provide emotional support or network resources. Network resources provide needed

support and help to individuals in social network (Laireiter & Baumann, 1992, p. 36). *Emotional support* is the "extent to which personal relationships are perceived as close, confiding, and satisfying by the respondent" (Slavin, 1990, p. 409). In this study, available emotional support includes availability of someone in whom the adolescent could confide to talk about needs, feelings, or emotions.

Available problem-solving support refers to tangible support, which includes helping someone manage a problem or deal with the issue at hand (Scott, 2010). Problem-solving support also refers to "offering advice as well as providing information about problem situations and problem-focused feedback to an individual about his or her coping efforts" (Schradle & Dougher, 1985, p. 645). In this study, this form of support includes someone whom the adolescent felt could help him or her figure out how to cope with their problems.

Received social support refers to "real interactions between people who exchange support" (Laireiter & Baumann, 1992, p. 36). In this study, received support is help received to deal specifically with victimization experiences.

Social resources (such as number of types of people available for emotional support, available problem-solving social support, and received support to deal with victimization issues) may reduce the likelihood of MH disorders among substance-using adolescents. Social resources or social support from family and friends influence adolescents' abilities and actions to cope with stress and, therefore, reduce the negative effects of victimization. Researchers use social support theory to explain the significance of social support on health and well-being and base their studies on moderation and mediation hypotheses. Cohen and Willis (1985) main effect buffering models are widely

used in the literature. The main effect model proposes social support is associated with positive well-being, regardless of stress. The buffering model proposes social support is related to positive well-being, but only for people under stress (DeKeseredy, 1988).

Researchers arguing for the mediating effect of social support consider it as a critical factor that may intervene between victimization experiences and negative outcomes by facilitating healthy behaviors or providing solutions to problems (Tremblay et al., 1999). Although victimization may damage self-efficacy (Macmillan, 2001), according to self-affirmation theory, affirming alternative sources of self-identity through relationships may protect the perceived integrity and worth of the self (Sherman & Cohen, 2006). Through others, victims engage in activities that remind them of who they are or their role in society, which may facilitate better coping with the stress of victimization.

Boswell (1969) noted individuals mobilize their social support networks at the time of crisis or stress. These supportive relationships provide resources to deal with stressors and thus contribute to their health and well-being (Yarcheski & Mahon, 1999). Victimized adolescents who are strongly connected to their support systems, therefore, are likely to receive positive evaluations and recognition of their strengths, which may reduce their risk for MH disorders.

Types of social support have been associated with positive outcomes. Among all forms of support, emotional support is most strongly linked with mental health outcomes and is the type of support victims need to cope with a variety of stressors (Slavin, & Rainer, 1990). In a study of seventh and eighth graders, Rueger, Malecki, and Demaray (2010) found significant associations of all sources of social support (parent, teacher,

classmate, close friend, and school) with depression, anxiety, self-esteem, and academic adjustment. Parental support was found to be the most robust predictor of psychological and academic adjustment for the studied adolescents. The researchers emphasized the importance of studying the combined effect of sources of social support.

Support may especially be beneficial in the early stages of victimization experiences. Chronic exposure to stressful events may erode victims' perceptions of the available social support systems. Thus, when stressors accumulate and become chronic, they may have an adverse effect on the victims (Yap & Devilly, 2004). Victims also may be negatively affected if they seek social support but are declined. Aldwin and Yancura (2004) suggested that seeking social support may be associated with poorer outcomes if individuals face negative reactions from those from whom they seek the support. Factors such as being ostracized by close family members, however, or being blamed for victimization are considered negative aspects of social networks (Kaniasty & Norris, 1992). Victimization experiences may relate to social stigma and other problems that may reduce social support. This in turn may relate to poor MH and behavioral functioning. Lower social support has been found to be associated positively with internalizing/externalizing symptoms (Bal, Crombez, Bourdeaudhuij, & Oost, 2009).

In addition, adolescents with stressful severe victimization experiences may face challenges in accessing or maintaining social support systems due to their poor interpersonal skills. High levels of stress and resultant low functioning is associated with difficulty in handling interpersonal interactions or sustaining helpful resources (Osborne & Rhodes, 2001).

Muller and Lemieux (2000), in their reciprocal effects model of social support, noted:

> Social support is beneficial to individuals who are at high risk to the extent that such persons are active relationship seekers. Those who have the psychological preparedness to accept intimacy, and who have the capacity to form a secure attachment should be more able to accept and utilize social supports. (p. 884)

Severity of victimization may erode adolescents' capacity to benefit from their social support systems. Social resources in the form of social support, therefore, may not have a significant influence on the impact of severe victimization experiences on poor outcomes. In this study, however, it is hypothesized that social support will reduce or eliminate (i.e., mediate) the relation between severity of victimization and MH and COD-MH among substance-using adolescents.

Effect of Demographic Characteristics, Stressors, and Severity of Substance Misuse on Mental Health

This study includes demographic characteristics, such as gender, age, race/ethnicity, and family structure, and stressors as controls, since they are related to both internalizing and externalizing symptoms, and their effects have typically been controlled in other research (see Bowen & Bowen, 1999; Cuevas, Finkelhor, Ormrod, & Turner, 2009; Finkelhor, Ormrod, & Turner, 2007).

Gender

Males and females may differ in their experiences of victimization. For example, Titus, Dennis, White, Scott, and Funk (2003) found that among adolescents entering SA

treatment, females had more severe victimization experiences (duration, frequency, and a family member or trusted source as perpetrator) than did males.

Moreover, many other studies have found significant gender differences in the development of internalizing and externalizing symptoms among victimized adolescents. Although most literature suggests males tend to exhibit more externalizing symptoms in comparison with females (Wall, Barth, & the National Survey of Child and Adolescent Well-being [NSCAW] Research Group, 2005) the studies are mixed. For instance, in a study of adolescents, aged 11–15 years, from the child welfare system, females reported more aggression and delinquency than did males, even after controlling for demographic variables, victimization type, and child and family risk factors (Wall et al., 2005).

Conversely, Darves-Bornoz, Choquet, Ledoux, Gasquet, and Manfredi (1998) in a study of sexual abuse victims, reported girls were affected by internalizing symptoms, such as nightmares, multiple somatic complaints, and mood disorders, and boys frequently exhibited externalizing symptoms, such as running away or violence. Thus gender differences need to be controlled among substance-using victimized adolescents.

Age

Age is a significant factor in the literature on victimization and MH. For example, younger adolescents entering SA treatment have been found to have higher comorbidity rates (Rowe et al., 2004). Severe victimization experiences also may vary among different age groups. For instance, older adolescents may have experienced more types of victimization due to more opportunity than younger adolescents. Finkelhor et al. (2007) found multiple types of victimization experiences increased with age, from 14% among 6–9-year-olds, to 22% for the 10–13-year-olds to 24% for the 14–17-year-olds.

Age, therefore, must be controlled for in a study on substance-using adolescents with victimization histories.

Race/Ethnicity

Research on victimization and MH has observed race and ethnic differences. Turner, Finkelhor, and Ormrod (2006), for example, found victimization to be more prevalent among ethnic minority groups. Ethnic minority groups also may differ in their unique experiences of victimization as well as MH symptoms. In a study, African Americans were more likely to be abused by an immediate family member than were non-African Americans; Latinos were more prone to abuse by an extended family member than were non-Latinos (Moisan, Sanders-Phillips, & Moisan, 1997). In another study, Hispanics reported more problems with internalizing, externalizing, and comorbidity than African Americans, who were more likely to report externalizing behaviors (McLaughlin, Hilt, & Nolen-Hoeksema, 2007).

Findings on race and ethnic differences in the literature are not uniform, however. Although research on victimization and MH symptoms has reported significant racial/ethnic differences (e.g., Shaw, Lewis Loeb, Rosado, & Rodriguez, 2001; Turner et al., 2006), other studies suggest factors such as low socioeconomic status are better predictors of victimization and negative MH symptoms than race/ethnicity (Herrenkohl et al, 2000; Wall et al., 2005). Because some literature suggests a relation between race/ethnicity, victimization experiences, and MH, race/ethnicity is controlled for in examining the relation between severity of victimization and MH/COD-MH among adolescents.

Family Structure

Family structure may have an influence on the severe nature of victimization as well as on MH status. For instance, children with multiple types of victimization experiences have been found to come from single-parent or stepparent families (Turner, Finkelhor, & Ormrod, 2007). In addition, studies have found children from single-parent families are at a greater risk for externalizing behavior problems than are children from other types of families (Tanaka, 2005). In a longitudinal study of 1,274 adolescents and young adults ages 12–24, , adolescents from post-divorce families reported more internalizing and externalizing behavior problems than did those from intact families (Vandervalk, Spruijt, DeGoede, Maas, & Meeus, 2005). Family structure is therefore controlled in examining the relation between severe victimization experiences and MH/COD-MH among substance-using adolescents.

Number of Stressors

Nonvictimization stressors increase the risk for poor mental and behavioral health among victimized adolescents. Stressors can be antecedents to as well as consequences of victimization experiences (Turner et al., 2006). “In either case,” they continue, “level of non-victimization adversity must also be considered if we are to capture the cumulative impact of stress and disentangle the effects of victimization from other stressful contexts (p. 15).”

Experiences of multiple traumatic events and adversities before age 18 have been found to be the most significant predictor of initial onset of both MH and SA disorders (Turner et al., 2006; Turner & Lloyd, 1995). In a six-year prospective longitudinal study, Kim and colleagues (2003) discovered stressful life events, such as financial crises, death

of a parent, or getting into trouble with classmates at school, significantly and positively influenced both externalizing (delinquency) and internalizing behaviors (depression and anxiety). Thus, stressors need to be controlled for when examining MH disorder symptoms among victimized substance-using adolescents.

Severity of Substance Misuse

Severity of substance misuse is significantly associated with victimization experiences (Titus et al., 2003) and both internalizing and externalizing symptoms. Chan et al. (2008) reported comorbidity of internalizing and externalizing problems among adolescents entering SA treatment was associated with severe SA problems. Having a diagnosis of substance dependence was associated with higher rates of each co-occurring problem. Other research shows tolerance and withdrawal from substance use may lead to MH problems (Saha, Chou, & Grant, 2006). Adolescents with severe problems with substance misuse, therefore, are likely to have COD-MH symptoms.

Research Gaps and Contribution of Dissertation Research

The association of severity of victimization with COD symptoms among substance-using adolescents is a relatively neglected area of study. Most research on the effect of severity of victimization has focused either on MH or on SA. Studies on the effect of victimization on COD have focused mostly on adult samples, particularly women. At least three gaps exist in research on the relation between indicators of severity of victimization and CODs among adolescents.

- The effect of severity of victimization concentrated primarily on the co-occurrence of **certain types of psychiatric comorbidity**, with PTSD as the

primary focus. The focus has not been on the comorbidity of internalizing and externalizing disorders.

- Except for the type of victimization, the effect of **severity of victimization** has not been a focal point in researching COD-MH symptoms among substance-using adolescents.
- Most studies are purely descriptive in discussing COD symptoms, with little or no attention to **mediating factors** influencing COD-MH among adolescents with severe victimization experiences.

This study will add to COD research by examining the influence of severity of victimization and psychological and social resources on two specific types of MH disorders among substance-abusing adolescents: **internalizing and externalizing**. It will also add to the victimization literature by examining the negative effects of several different indicators of severity of victimization, not just one type of victimization, psychological and social resources on internalizing and externalizing behaviors.

Despite a large number of studies examining the effects of victimization on several outcomes, the literature is still unclear on how various **dimensions of victimization severity** affect CODs among adolescents. For instance, the literature does not adequately account for the effects of multiple types of victimizations (Finkelhor, Ormrod, Turner, & Hamby, 2005) on psychological and social coping resources and COD-MHs. Some researchers have examined the effect of multiple types of victimizations, but they focused on MH only (Finkelhor et al., 2007) and the risk and protective factors (such as age, race, injury, and life threat) that differentiated multiply victimized from singly victimized adolescents (Stevens, Ruggiero, Kilpatrick, Resnick, &

Saunders, 2005). The effect of indicators of severity of victimization, such as duration on MH, has been studied mostly among children or adults. This study will examine the influence of indicators of severity of victimization on COD-MH, which has not been examined in previous research.

Some victimization researchers have acknowledged recently the need to study the effects of **mediators** in the relation between severe victimization experiences and outcomes such as SA and MH. For instance, Buckner et al. (2004) noted that although research has established the relation between victimization and MH, not much has been done on mediating processes through which victimization affects MH. According to the researchers, a study of mediating mechanisms is crucial for the development of theory. Researchers have examined the role of mediators in the victimization-outcome relationship by focusing on specific outcomes, such as conduct disorder or depression, or specific types of victimizations, such as peer victimization. The present study will fill this gap by examining the effect of mediators on the relation between severe victimization experiences and COD-MH symptoms.

Additionally, no research was found that studied the effect of psychological and social resources on COD symptoms among victimized adolescents. The effect of **social resources** on the stress-coping relationship among adolescents is also an area that warrants attention. Compas et al. (2001) expressed the importance of social context in relation to coping in their review of coping literature:

> The need to better understand individual-differences factors that can influence coping is balanced by the need to pay closer attention to the social context in which children encounter and try to cope with stress. This

> includes both the broad social and economic contexts in which children live and the characteristics of stressful events and conditions with which they are coping (p. 122).

This study will contribute to this area of research by taking into account available social support using an ethnically diverse sample of substance-using adolescents from multiple sites across the United States.

No study was found that specifically evaluated the role of **psychological resources**, such as self-efficacy beliefs, on the relation between severity of victimization and COD-MH among substance-using adolescents. Researchers have focused either on other types of coping or only on social support as a resource.

To address these gaps in the literature, this study will test the following research hypotheses:

RQ 1: What is the relation between severity of victimization, and COD-MH among victimized substance-using adolescents?

H1: Adolescents with severe victimization experiences (longer duration or more frequent victimization, multiple types of victimization, recent victimization, victimization by trusted perpetrators) are more likely to exhibit a COD-MH problem than they are to exhibit an externalizing-only, an internalizing-only, or neither an internalizing nor an externalizing problem.

H2: The indicators of severity of victimization that predict an internalizing-only problem will also predict an externalizing-only problem.

H3: a) Adolescents with severe victimization experiences are more likely to

exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

b). Adolescents with severe victimization experiences are more likely to exhibit an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

RQ 2: What is the relation between psychological and social resources and COD-MH among victimized substance-using adolescents?

H4: Adolescents with fewer psychological and social resources are more likely to exhibit a COD-MH problem than they are to exhibit an internalizing-only, an externalizing-only, or neither an internalizing nor an externalizing problem.

H5: The psychological and social resources that predict an internalizing-only problem will also predict an externalizing-only problem.

H6: a) Adolescents with fewer psychological and social resources are more likely to exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

b) Adolescents with fewer psychological and social resources are more likely to exhibit an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

RQ3. Which factors explain the relation between severity of victimization and COD-MH among victimized substance-using adolescents? Specifically, do psychological (self-efficacy beliefs) and social resources (perceived and

received social support) mediate the effect of severity of victimization on COD-MH among victimized substance-using adolescents?

H7: Psychological and social resources will mediate the relation between severity of victimization experience and a COD-MH problem.

CHAPTER III

METHOD

This chapter will cover the methods used to test the proposed conceptual model described in Chapter 1. The first section will cover the research design; the second, the sampling and sampling procedure; and the third, data collection. The fourth section will provide an overview of the study instrument and measures used to test the hypotheses. The final section will describe the data analysis plan.

Research Design

This quantitative study is based on a secondary analysis of multisite data. These data were collected as part of SAMHSA/CSAT- funded grants at multiple sites. A pooled dataset was obtained from the GAIN Coordinating Center operated by Chestnut Health Systems (CHS). CHS receives data from these sites, and GCC does quality assurance. GCC prepares the dataset for redistribution to other sites and data analysts (Gain Coordinating Center [GCC], 2008). This study used a nonexperimental cross-sectional research design and included only the intake data.

Sampling Procedure

The study used a nonprobability purposive sampling procedure to select adolescents at 106 CSAT-funded SA treatment sites across the United States. The selected adolescents were assessed at treatment entry. This assessment was used for admission to SA treatment. The CSAT grantee projects and the number of sites in which these projects were implemented included:

- Effective Adolescent Treatment grants (37 sites),
- Strengthening Communities for Youth (11 sites),

- Adolescent Residential Treatment (17 sites),
- Young Offender Re-entry Program (14 sites),
- Assertive Adolescent Family Treatment (15 sites),
- Targeted Capacity Expansion grants (9 sites), and
- Drug Court (14 sites). Only those sites that served adolescents and agreed to share their data for secondary analysis were included in my study (see Table 2).

Description of the CSAT Projects

Effective Adolescent Treatment (EAT). The purpose of the EAT project "was to encourage agencies, particularly those in areas with unmet substance abuse treatment needs, to adopt or expand their use of a treatment protocol that combined two types of therapy: Motivational Enhancement Therapy and 5 session Cognitive Behavior Therapy (MET/CBT5)" (Adolescent Program Support Site, 2007, p. 7). The project included 37 sites in Arizona, Arkansas, California, Colorado, Connecticut, Florida, Maine, Maryland, Massachusetts, Michigan, Missouri, New Jersey, New Mexico, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Washington DC, and Washington State.

Strengthening Communities for Youth (SCY). SCY assisted communities to strengthen SA identification, referral, and intervention systems for adolescents. Grantee sites included Alabama, California, Connecticut, Illinois, Iowa, Kentucky, Missouri, New Mexico, New York, and Ohio (CSAT Adolescent Substance Abuse Treatment, 2007).

Adolescent Residential Treatment (ART). The purpose of ART was "to develop residential and continuing-care treatment programs specifically for youth ages 21 and under, including aftercare services to keep youth engaged with treatment and prevent

relapse" (Adolescent Program Support Site, 2007, p. 5). The 17 sites under this project were located in Alaska, Arizona, California, Colorado, Florida, Hawaii, Iowa, Maryland, New York, Oregon, Pennsylvania, Texas, Utah, and Virginia.

Young Offender Re-entry Program (YORP). The purpose of YORP was "to successfully reintegrate sentenced substance-abusing juveniles and young adult offenders into their families and communities after incarceration by providing treatment and other services while ensuring safety for the family and community" (Adolescent Program Support Site, 2007, p. 10). The 14 YORP grantee sites were located in: Arizona, California, Colorado, Florida, Georgia, Massachusetts, Ohio, Texas, Texas, Washington DC, Wisconsin, and Wyoming .

Targeted Capacity Expansion (TAC). The TAC project "was designed to address gaps in treatment capacity by supporting rapid and strategic responses to demands for alcohol and drug treatment services and innovative solutions to unmet needs in communities with serious, emerging substance abuse problems" (Adolescent Program Support Site, 2007, p. 12). The TAC/HIV study "was designed to enhance and expand substance abuse treatment and outreach and pretreatment services in conjunction with HIV/AIDS services in African American, Latino/Hispanic, and other racial or ethnic communities highly affected by the twin epidemics of substance abuse and HIV/AIDS" (p. 12). The TAC grantee sites were located in: Arizona, California, Florida, Maryland, Oregon, Texas, and Virginia.

Drug Court (DC). The DC project was "designed to provide funds for treatment providers and the courts to provide alcohol and other drug abuse assessment, treatment, assessment, case management, and program coordination to those in need of

such services" (Adolescent Program Support Site, 2007, p. 14). The 14 sites under this project were located in Alabama, California, Florida, Texas, Massachusetts, Michigan, Pennsylvania, and Wyoming.

Assertive Adolescent Family Treatment (AAFT). The purpose of AAFT was "to explore assertive community and family interventions for adolescents with substance abuse problems" (Adolescent Program Support Site, 2007, p. 15). The 15 AAFT grantee sites were located in: Arizona, Arkansas, California, Florida, Massachusetts, Tennessee, Texas, and West Virginia.

The study procedures at each of these sites were approved by their local institutional review boards. A common standardized assessment procedure at intake, three, six and twelve months follow-up were used at grantee sites, and de-identified data were shared under the auspices of a HIPAA-compliant data-sharing agreement. The present study, however, used only the intake data.

Table 2: CSAT Projects and Number of sites

CSAT Grants	*Years*	*Number of Sites*	*Valid N*
Effective Adolescent Treatment (EAT)	2003–2006	37	5,935
Strengthening Communities for Youth (SCY)	2001–2006	11	2,550
Adolescent Residential Treatment (ART)	2002–2005	17	1,779
Young Offenders Re-entry Program (YORP)	2004–2007	14	1,008
Targeted Capacity Expansion (TCE)	2003–2006	9	684
Drug Court (DC)	2005–2008	14	680
Assertive Adolescent Family Treatment (AAFT)	2006–2011	15	358
Total			**12,996**

Selection Criteria

The original sample included 12,996 substance-using adolescents who were referred to substance abuse assessment by a variety of sources: employers, schools, lawyers, courts, juvenile justice systems, housing or community agencies, churches, close friends, families, or departments of children and family services. Most adolescents were required to come for assessment by court, probation, parole, or criminal justice systems (53%), followed by families (38%).

The selection criteria for this study included:

1. Adolescents age 11–18 years (*n*=12,064).
2. Adolescents who reported any type of lifetime victimization (physical, sexual, or emotional abuse) (*n*=7,324). Nonvictims were excluded.

3. Adolescents who reported use of substances and met criteria for abuse or dependence in the past year (*n* =7,094 in the victim sample). Nonusers were excluded.
4. Adolescents who had complete data on all variables used in the dissertation research. This selection was necessary because most programs did not collect data for several key variables, such a global self-efficacy and social support, used in the dissertation research. Information on which sites did not collect these data was not available.

Using these criteria, and excluding missing data, the final sample was reduced from 12,996 to 2,066 adolescents.

Data Collection Procedures

As discussed in the previous section, data for this study came from seven CSAT-funded projects with sites across the United States. The source of data was a comprehensive assessment interview with adolescents. This interview used the Global Appraisal of Individual Need–Intake version (GAIN-I), a standardized instrument package. Based on the results of this assessment interview, adolescents were recommended for drug treatment. This study used data collected through the interview using Version 5 of the GAIN-I. CHS staff trained and certified local trainers on the use of GAIN at . the sites licensed to use the instrument. These local trainers then trained and provided ongoing supervision to their agencies' staff or field interviewers, who were responsible for GAIN assessment.

Instrument

GAIN-I, Version 5.4.0 is a standardized assessment instrument administered for research purposes and to support clinical decision-making for diagnosis, placement, treatment planning, and service use. It has eight sections covering background information, substance abuse, physical health, risk behaviors, mental health, environment, legal information, and vocational information, and includes more than 1,500 questions and 100 scales. GAIN's measures have been validated with collateral reports, urine tests, follow-up methods, and treatment records (Dennis et al., 2003b; Dennis, Ives, White, & Muck, 2008; Garner, Godley, & Funk, 2008).

GAIN-I includes well-established measures with psychometric properties (internal consistency, test-retest reliability, and validity) examined in previous studies. Information in the GAIN-Administration Guide (2007), support the reliability and validity of the core scales for adolescents. The alpha internal consistency reliability estimates for the core substance abuse and mental health dimensional scales are 0.90 or higher (Dennis, Chan, & Funk, 2006). On subscales of substance abuse and mental health scales, Substance Abuse Disorder Scale, General Victimization Scale, General Conflict Tactic Scale, and others, the Cronbach's alpha internal consistency reliability coefficients ranged from 0.69 to 0.92 (GAIN-Administration Guide, 2007). Test-retest reliabilities of GAIN-I measures are to be more than r=0.70 for the days of substance use and symptom counts, r=0.85–0.95 for the core scales, and 0.70–0.90 for the core subscales (Dennis, 1999; Dennis, Titus, Diamond et al,. 2002; Dennis, Titus, White et al., 2003; Titus et al., 2003).

Among the validity studies, adolescents' self-reports (*n*=143) have been found to be consistent with collateral reports and onsite urine testing (*kappa*=0.53to 0.69) (Godley, Godley, Dennis, Funk, & Passetti, 2002; GAIN-Administration Guide, 2007). A cross-validation study of600 parents who reported their adolescents' internal and external distress and symptoms of conduct disorders on the GAIN-I with the Child Behavior Checklist reported similar scales had correlation of 0.60; unrelated scales had correlations of 0.0–0.40 (Dennis, Titus, Diamond et al., 2002; GAIN-Administration Guide, 2007). Titus, Dennis, White, Scott, and Funk (2003) provided evidence for the construct validity of the General Victimization Index by demonstrating its relationship to frequency and recency of victimization, and more severe types of victimization, such as sexual assault. Psychometric information for each of the variables in this study follows.

Variables

GAIN-I measures comprise both classic scales and summative indices. Scales consist of internally consistent manifest indicators combined to estimate a latent trait and have high inter-item correlations (Cronbach's alphas > 0.70). As long as GAIN elicits three or more valid answers, the scale is computed from the average of the valid items. Summative indices are a linear combination of different types of manifest indicators thatneed not be internally consistent. The scores of these indices are computed by summing overall items, which requires valid answers to all the items. If the index has a missing item, the score is not created and is set to 'system missing' (Ives, Funk, & Christian, 2003; Funk, Ives, and Dennis, 2007). See Appendix A for a summary of the GAIN-I Scales, Appendix II for description of items, and www.chestnut.org/LI/gain/index.html#supporting%20psychometrics,%20scales,%20and

%20crosswalks for a more detailed description, including psychometric information. Gain's summative indices have been found to be both reliable and predictive across populations varying by gender, race, geography, age, clinical subgroups (such as injection drug users and co-occurring mental disorders) and levels of care (GAIN-Administration Guide, 2007).

The description of the measures is derived from previous published research using GAIN-I and the CHS website. Internal consistency estimates come from Dennis, Dwaud-Noursi, Muck, McDermeit, and Ives (2003) and the CHS website. I used the following variables and scales from GAIN-I.

Dependent Variable

The study's dependent variable is a categorical measure of MH with four categories: internalizing only, externalizing only, comorbidity of internalizing and externalizing disorders, and no internalizing or externalizing disorders. Adolescents who met criteria for depression and anxiety but not conduct disorder were categorized as having internalizing disorder only. Adolescents who met criteria for conduct disorder but not depression and anxiety were categorized as externalizing disorder only group. Those who met criteria for both internalizing and externalizing disorders were assigned to the COD-MH group, and those who did not meet criteria for either of these disorders were assigned to the no internalizing or externalizing disorder group.

The categorical dependent variable was created using the Major Depressive Disorder Index, the Generalized Anxiety Disorder Index, and the Conduct Disorder Scale.

Internalizing Disorder

Internalizing disorder symptoms were measured using the following indices:

The Major Depressive Disorder Index (MDDI, Past Year; 12 items is based on a count of past-year DSM-IV symptoms of depression (feeling very trapped, lonely, sad, blue, depressed, or hopeless about the future; losing interest or pleasure in work, school, friends, sex, or other things one cared about). Adolescents met the criteria of Major Depressive Disorder if they endorsed five or more symptom on the MDDI and one of the required three symptoms on the measure.

The Generalized Anxiety Disorder Index (GADI, Past year; 9 items) is a count of past-year DSM-IV symptoms of anxiety disorders. Adolescents met the criteria of Generalized Anxiety Disorder if they endorsed more than two symptoms on the GADI and two required symptoms on the Anxiety/Fear Scale (feeling very anxious, nervous tense, scared, panicked, or like something bad was going to happen; being unable to control, or having difficulty controlling, one's worries).

Externalizing Disorder

Externalizing disorders were measured using the Conduct Disorder Scale (CDS, Past Year; 15 items, alpha=0.82). The CDS is based on a count of past-year DSM-IV symptoms of conduct disorder (having been a bully or threatening other people, starting fights with other people, having been physically cruel to animals), with higher scores indicating greater delinquency, and three or more endorsed items suggesting conduct disorder.

Independent Variables

Severity of Victimization

Severity of victimization were measured using items from the General Victimization Scale (GVS; 15 items, alpha=0.82), part of the environment and living-situation domain of the GAIN-I. Several items from the GVS were used to measure indicators of severity of victimization. The first section focuses on the occurrence of lifetime traumatic events (physical abuse with or without use of a weapon, and sexual and emotional abuse). Adolescents who endorsed at least one type of victimization completed items in the second section of the scale. This section focuses on characteristics of the abuse experience that makes the experience more traumatic (Titus et al., 2003).

This research examined the following indicators of severity of victimization:

Multiple types of victimizations. Items from the first section of the GVS were used to assess three types of victimizations experienced: physical abuse with or without a weapon, sexual abuse, and emotional abuse. A categorical variable was created to classify adolescents into two categories: those with more than one type of victimization, and those with a single type of victimization. Adolescents who endorsed two or three types of victimization were multiply victimized and assigned the value of 1 (multiple type of victimization=1, single type=0).

Duration/frequency. This item used yes/no responses for duration and frequency: “Did any of the previous things” (physical abuse with or without use of a weapon, sexual or emotional abuse) “happen several times or over a long period of time?” (Yes=1, No=0)

Victimization by trusted perpetrators. Victimization by trusted perpetrators was measured using the following yes/no item from the GVS: “Did any of the previous things” (victimization) “happen where one or more of the people involved were a family member, close family friend, professional, or someone else you had trusted?” (Yes=1, No=0)

Recency of victimization. Recency was measured using an item from the GVS that focused on the last time the adolescent was attacked or abused, using a scale of 0–6, where 0=never victimized, 1= victimized 13 or more months before, 2=victimized 4–12 months before, 3=victimization that occurred 1–3 months before, 4=victimization that happened 1–4 weeks before, 5=victimization that occurred 3–7 days before, and 6 =victimized within the past 2 days. This variable was dichotomized, with a value of 1 assigned to adolescents who were victimized within the last year (recently victimized=1, victimized more than a year before=0).

Mediators

Variables tested for direct and mediating effects included psychological and social resources. *Resources* refer to factors that may improve individuals’ ability to manage stressful life events and are associated with better outcomes. The types of resources examined in this study included: global self-efficacy beliefs, self-efficacy related to resisting pressure for drug use, number of types of people available for emotional support, available problem-solving social support, and received support to deal with victimization issues.

Psychological resources comprised two types of self-efficacy:

Global self-efficacy relates to adolescents' reported strengths in general life domains, such as school, work, family, close friends, sports, exercise, and music. These beliefs were measured using the Strength Self-Efficacy Index (10-item, alpha not applicable). Example item: "During the past 12 months, which of the following areas do you consider to be your strengths—Doing well at school or training?" Higher scores indicate areas of strengths (theoretical range=0–10).

Self-efficacy related to substance use, or the confidence or belief in one's ability to abstain from drugs, was measured using the Self-Efficacy Scale (5 items, alpha=0.71). It is based on the number of places adolescents believe they could avoid thinking about or actually using substances. Example item: "Do you currently think you could avoid using alcohol or drugs at work or school?" Higher scores are related to the increased confidence in their abilities to resist relapse in multiple settings (theoretical range=0–5).

Social resources, or social support, involve using other people to help solve problems (Gonzales, 2001). Social support is a "significant coping resource…defined as the perception or experience that one is loved and cared for by others, esteemed and valued, and part of a social network of mutual assistance and obligations" (Taylor & Stanton, 2007, p. 381; Wills, 1991). The following types of social support resources were examined:

Types of people available for emotional support. This variable was measured using items from the General Social Support Index (GSSI), a nine-item summative index (alpha=not applicable) based on the number of sources of social support reported by adolescents in the past year. These sources include professionals, family, friends, peers, or work colleagues. Example item: "During the past 12 months, did you have the

following kinds of social support—A professional counselor or other health provider to talk to?”Higher scores indicate a greater number of people available for emotional support (theoretical range=0–6).

Available problem-solving support was measured using the following dichotomous yes/no item from the GSSI: “During the past 12 months, did you have the following kind of social support? —Someone you felt could help you figure out how to cope with any problems you were having or might have” (Yes=1, No=0).

Received social support was examined using a dichotomous item from the GVS: “Have you received help to deal with these” [victimization] “problems?” (Yes=1, No=0)

Covariates

Demographic Variables

The following sociodemographic variables were examined from sections of the GAIN-I: gender, race/ethnicity, age, and family structure. Gender was measured using a dichotomous item in the GAIN-I (male=0, female=1). Family structure was also measured using a dichotomous variable (single-parent family=1, other types of families=0. Ethnicity included dummy-coded variables: African Americans, Hispanics, and other races. *Caucasian* was the reference group. Age was measured using a continuous variable.

Number of Sources of Stress

This variable was measured using the Other Sources of Stress Index, a nine- item summative index based on the number of sources of environmental (nonrelational) stress, such as transportation problems, discrimination in the community, or threat of losing a job. Example item: “During the past 12 months, have you been under stress because of

the following other kinds of demands on you: discrimination in community, work, school, or transportation; interruption, or loss of housing, job, school, or transportation." Higher values on the scale are associated with a greater variety of environmental stressors (Theoretical range: 0–9).

Severity of Substance- Misuse

Severity of substance-misuse in this study includes general use of substances and the DSM-IV criteria for abuse and dependence.

Substance abuse is defined as a "maladaptive pattern of substance abuse manifested by recurrent and significant adverse consequences related to the repeated use of substances (American Psychiatric Association, 2000, p. 198; Center for Substance Abuse Treatment [CSAT], 2006; p. 1). Abuse may include repeated failure to fulfill life responsibilities; legal, social and interpersonal problems; and use of substances in dangerous situations (CSAT, 2006).

Substance dependence is defined as "a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems" (APA, 2000, p. 192; CSAT, 2006, p. 1). The dependence symptoms cover substance-abuse symptoms as well as additional symptoms, such as tolerance resulting in need for more substances, obsession with securing and using substances, and persistent use despite developing serious physical and psychological symptoms (CSAT, 2006).

The Substance Severity Measure (Past Year, SSMY) was used to measure abuse and dependence. It measures severity of substance misuse on a scale of 1–5 (1=no use, 2=substance use, 3=substance abuse, 4=substance dependence, and 5=substance

dependence with physiological symptoms). Adolescents with no use were excluded from this study. The variable was dummy coded using four categories: use, substance abuse, substance dependence without physiological symptoms (tolerance and withdrawal), and substance dependence with physiological symptoms, with users as a reference group.

The Substance Abuse Index-Past Year and the Substance Dependence Scale-Past Year from GAIN-I were used to create the substance severity measure.. The Substance Abuse Index-Past Year (SAI, alpha=0.70) is based on the four DSM-IV symptoms of substance abuse in the past year (for example, you kept using alcohol or drugs even though you knew it was keeping you from meeting your responsibilities at work, school, or home). The Substance Dependence Scale-Past Year (SDS, alpha=0.83) is based on the count of seven DSM-IV symptoms of substance dependence in the past year (for example, you were unable to cut down or stop using alcohol or drugs, needed more alcohol or drugs to get high, had withdrawal problems such as shaking hands and throwing up).Three lifetime symptom of dependence plus one in the period are used to diagnose substance dependence.

Using the DSM-IV criteria, adolescents with fewer than three symptoms on SDS and more than one symptom on SAI were assigned to the substance-abuse group. Those with more than three symptoms on SDS were assigned to the substance-dependence group without physiological symptoms. Adolescents who scored greater than 3 on SDS, including symptoms of withdrawal, were assigned to the group with dependence with physiological symptoms.

Data Analysis Procedures

Data were inspected for missing values using the Statistical Package for the Social Sciences (SPSS) 17.0. A complete case analysis procedure for missing values was used because the sample size was large enough. In other words, only those adolescents were included who had complete information on all variables used in the study. Missingness can be problematic if data have inadequate statistical power to detect the effects of interest (Schlomer, Bauman, & Card, 2010).

Fewer than 1% of the respondents had missing data on the independent variables and the outcome variable. More data were missing on some mediator variables because these measures were not part of the core GAIN-I and were not administered at all sites. Furthermore, multinomial logistic regression analysis procedure, used in this, study requires that the minimum ratio of valid cases to independent variables be at least 20 to 1 (Schwab, 2002). After removing missing data, the ratio of valid cases (2,066) to independent variables (18) was 114.78, which was greater than the preferred ratio; therefore, the condition of preferred ratio of cases to independent variables was satisfied.

Univariate Analysis

The analysis proceeded as follows. For dichotomous and nominal demographic (gender, race/ethnicity and single parent family status) and other control variables (stressors, substance abuse and dependence), hypothesized mediators (problem-solving social support and received social support), and independent variables (indicators of severity of victimization), percentages are reported, along with the number of cases in each category. For continuously scored variables (age, stressors, self-efficacy related to substance use, global self-efficacy, and number of people available for emotional

support), means and standard deviations are reported as measures of central tendency and variability, respectively (see Table 3).

Bivariate Analysis

Using the *chi-square* test of association, statistically significant differences in dichotomously scored variables (demographic characteristics, substance abuse, substance dependence, severity of victimization, problem-solving social support, and help received to deal with victimization issues) for internalizing only, externalizing only, neither internalizing nor externalizing problem groups, and co-occurring internalizing and externalizing (COD-MH) problems groups were evaluated. A one-way between-subject Analysis of Variance (ANOVA) procedure was used to compare the mean scores on continuous variables (stressors, number of types of people available for emotional support, global self-efficacy, and self-efficacy related to substance use) for adolescents with internalizing only, externalizing only, COD-MH, and neither internalizing nor externalizing problem. Further, for overall tests that were significant, post-hoc tests were calculated to examine which groups were significantly different from each other. Bonferroni post-hoc was used for ANOVA analysis. For chi-square post-hoc tests, statistically significant standard residuals (difference between the observed and expected frequencies) were examined in each cell. The signs of the standardized residuals were used to determine whether the cell was under or over represented in the actual sample. For example, a negative value of standardized residuals indicated that there were fewer adolescents in the category than were expected. Furthermore, group differences were examined by testing the statistical significance of chi-square for each dichotomous

independent and dependent variable in a two-by-two table. The bi-variate results are presented in Table 3.

In addition, *Pearson product–moment correlation* coefficients were computed to examine the associations between continuous variables (stressors, age, self-efficacy beliefs related to substance use, global self-efficacy beliefs, and number of sources of available emotional support) (Table 4). The *phi correlation coefficients* were computed as measures of association between the dichotomously scored variables (i.e., demographic characteristics, substance abuse, substance dependence, indicators of severity of victimization, problem-solving social support, help received to deal with victimization issues, and MH problems). Furthermore, I computed the *point biserial correlation* coefficients to examine the relationship between the dichotomously scored and the continuously scored variables, testing the resulting correlation coefficients for statistical significance. For all significance tests, I used an alpha level of $p<.01$ and presented the results in Table 4. I computed these correlation coefficients to check for multicollinearity between the variables.

Multivariate Analysis

A multinomial logistic regression analysis was conducted to examine the relationship between the dependent variable and severity of victimization, psychological and social resources. Multinomial logistic regression is used when the categorical dependent variable has more than two categories. It is an extension of binary logistic regression and involves simultaneous estimation of binary logits for all possible comparisons among the categories for dependent variables (Long, 1997). The categories can be ordered or unordered (e.g., nominal), with one category of the dependent variable

used as a reference group. The coefficients for all other dependent variable categories are used to describe how the predictor variables are related to the probability of being in that group versus the reference group. The predictors can be both categorical and continuous (Petrucci, 2009).This procedure does not make any assumptions of normality, homogeneity of variance, and linearity between independent and dependent variables (Garson, 2010).

Multinomial logistic regression uses a maximum likelihood estimation that involves an iterative process to produce the parameter estimates that make the "observed data most likely" (Long 1997, p. 25). Model fit and goodness of fit are assessed using the likelihood ratio test, pearson chi-square, and deviance statistics. For assessment of model fit, the -2 log likelihood is computed for the intercept-only model and the final model with all the predictor variables. The difference in -2 log likelihoods between the two models results in a chi-square value, which, if significant at $p<0.05$, suggests the model is a well-fitting model, and the final model is significantly different from the intercept-only model. Pearson chi-square and deviance statistics are used to assess the goodness of fit of the model (Petrucci, 2009).

The likelihood ratio tests present the improvement in the model fit with each addition of the predictor variables and therefore requires a statistical significance of $p<.05$. The classification table provides an assessment of the model's prediction accuracy. It includes the percentages of cases that were predicted accurately for each category of the dependent variable (Petrucci, 2009).

Researchers present results of multinomial logistic regression in terms of odd ratios and predicted probabilities, which are measures of chance. The odd ratios can be

used to explain how a particular independent variable increases or decreases the likelihood of dependent variable. These are effect-size measures comparing the relative odds of a risk/protective factor for two groups of individuals. While the odds are the number of times of occurrence of an event divided by total number of times of non-occurrence, the odds ratio is the ratio of the odds of an event in one group divided by the odds in another group.

> If the odds ratio equals 1, the probability or odds of observing a phenomenon is the same in each group. Odds ratio above 1 suggest a higher probability of observing a phenomenon in the stated group; below 1 suggests a lower probability with the higher or lower odds or risk being equal to the ratio minus one (DeRigne & Porterfield, 2010, p. 635).

To assess the strength of association between one type of MH problem versus the other (two dichotomous data points), I calculated odds ratios. Odd ratios were used to evaluate the direct and indirect effects. The results are presented in Tables 6–11. The tables include regression coefficients (betas), standard errors, Wald Statistics (*W*), odd ratios (*OR*) and confidence intervals (*CI*). I used odd ratios (OR) to calculate the percentage reduction in the strength of relationship using the formula OR (simple model)-OR(mediated model)/OR (simple model)-1)*100 (Chartier, Walker, & Naimark, 2009).

In further analysis, predicted probabilities were calculated to relate characteristics of adolescents with their probability of being in COD-MH or MH problems group. The probability is a chance that the event has occurred. It is a ratio of number of times the event occurred divided by the number of times it could have occurred. The predicted probability of being in a category of interest for cases with specified values of the

independent variables involves “choosing a specific value of each independent variable, multiplying it by the appropriate coefficient, summing the products and the constant, and exponentiating the sum to obtain the numerator which is then divided by the result of 1 plus the numerator” (Roncek, 1991; p. 514). The predicted probabilities can be used to profile individuals with certain characteristics and relate these characteristics to the predicted probability of being in any of the outcome categories such as COD-MH group or MH group.

Tables 12 and 13 report the predicted probability of each category of outcome (COD-MH problems, an internalizing-only problem, an externalizing-only problem, and neither internalizing nor externalizing problem) for adolescents with selected characteristics. First, the predicted probability of outcomes for adolescents using mean and mode values of explanatory variables was examined. Then the outcome probabilities for adolescents with specific types of victimization experiences were studied, versus those without these experiences, while keeping mean and mode values unchanged on other variables. Next, the probabilities of each category of outcome for adolescents with all types of abuse characteristics were examined, versus those without any of these experiences, with constant mean and mode values on other variables. Finally, the focus was on the outcome probabilities for adolescents with all types of abuse characteristics, drawing a comparison between those with low psychological and social resources and those with high psychological and social resources. The mean and mode values on all other explanatory variables, again, remained unchanged.

In this study, the dependent variable included four nominal categories, namely: an internalizing-only problem, an externalizing-only problem, both internalizing and

externalizing (COD-MH) problems, and neither internalizing nor externalizing problem. A reference group was chosen to draw comparisons using these categories of dependent variables. Each predictor variable in the model had six comparisons:

- In three comparisons, adolescents with COD-MH were compared with adolescents with an internalizing-only problem, an externalizing-only problem, and neither internalizing nor externalizing problem.
- In two comparisons, adolescents with an internalizing-only problem were compared with those with an externalizing-only problem and those with neither internalizing nor externalizing problem.
- Adolescents with an externalizing-only problem were compared with adolescents with neither internalizing nor externalizing problem.

Thus, in the first three regressions, the neither internalizing nor externalizing problem group was the reference group. In the next two regressions, the internalizing-only problem group was selected as the reference group. In the third regression, the reference group was the externalizing-only problem group. The comparisons of interest were then selected to present the study findings.

A block-entry regression procedure in SPSS was used to conduct this analysis. This method is preferred over data-driven methods, (such as step-wise backward elimination or forward entry), which employs a statistical criterion to decide the order of entry of variables. Data-driven methods may inflate the risk of Type-I error. Variables with sample correlations that overestimate their true population correlations are more likely to be included in the statistical methods of variable entry.

In the block entry procedure, a series of regression analyses are conducted with blocks selected by the researcher based on some theoretical rationale. The order of entry is justified based on time precedence of the predictors and/or the roles the predictor variables play in the theory. The researcher includes the control or competing explanatory variables in the early steps and includes the preferred predictors most needed for the relevant research in later steps. The blocks of variables are then added to the model, and the predictive usefulness of the blocks is assessed by asking how much the *R*-square for the regression model increased in the step when a block of predictor variables were added to the model (Warner, 2008).

Logistic regression, however, does not have an equivalent statistic to R-square; therefore the ordinary least squares regression approach to goodness of fit does not apply. The estimates used in logistic regression are maximum likelihood estimates arrived at through an iterative process and are not calculated to minimize variance as in the ordinary least squares regression procedure (Bruin, 2006).

Some researchers use pseudo R-square statistics in logistic regression to assess model fit by determining the effect size of the model. These statistics are typically much lower than the R-square statistics in linear regression (Petrucci, 2009). We cannot interpret pseudo R-squares independently or compare them across datasets, but they are valid and useful in evaluating multiple models predicting the same dependent variable using the same dataset. In other words, a pseudo R-square is only meaningful when it is compared with another pseudo R-square using the same data and predicting the same dependent variable. In this case, the higher pseudo R-square indicates which model better predicts the dependent variable (Bruin, 2006).

An improvement in model fit can also be assessed with the likelihood ratio tests. A likelihood ratio or chi-square difference test is used to analyze the difference between a full model and any nested model that is a subset of the full model. Chi-square represents the difference in likelihood ratios (-2LL) for the two models, and degrees of freedom represent the difference in degrees of freedom for the two models. If the computed value results in a chi-square value equal to or greater than the critical value of chi-square in a table for the given degrees of freedom, the models are considered significantly different from each other. A significant difference indicates the variables not included in the nested model are significant in predicting the dependent variables. Thus, in block entry logistic regression, the data are modelled with covariates only and with both independent and covariates. If the chi-square difference is not significant, one can conclude the independent variables have no effect after controlling for the effects of the covariates (Garson, 2010).

This study used a block entry multinomial logistic regression to test the hypothesis that severe experiences of victimization are associated with MH problems and COD-MH after controlling for demographic variables, stressors, and severity of substance misuse. The hierarchy consisted of three blocks:

- The first block incorporated control variables that included demographic variables, (gender, age, race/ethnicity, single parent family status); severity of substance misuse; and stressors.
- The four indicators of severity of victimization (duration/frequency, victimization by trusted perpetrators, multiple types of victimization, and recency of victimization) were added in the second block to evaluate their

unique contribution to the MH and COD-MH outcomes after controlling for the demographic variables, severity of substance misuse, and nonvictimization stressors.

- Psychological and social resources were added in the third block to evaluate their effect after controlling for victimization and control variables.

To account for the Type 1 error risk (i.e., inappropriate rejection of true hypotheses)for the large number of statistical tests being run and multiple hypotheses being tested, a more stringent alpha level (0.01) was chosen for analyses.

The mediation analysis tested the hypothesis that the relationship between severity of victimization and COD-MH is mediated by psychological and social resources. According to Baron and Kenny (1986), a mediator explains how or why an independent variable affects the outcome. In mediation, when the presumed mediator is added to the model, it results in either the domination of the independent variable by the mediator (total mediation), or the co-domination by the independent and the mediator variable (partial mediation). Total mediation occurs when the independent variable has no effect on the outcome variable, controlling for the effect of the mediator. Partial mediation occurs when the relationship between the independent and outcome variable is significantly reduced (Baron & Kenny, 1986; Kraemer, Stice, Kazdin, Offord, & Kupfer, 2001).

CHAPTER IV

RESULTS

In the following sections, the results of the univariate, bivariate, and multivariate analyses are presented. Each hypothesis is restated followed by a discussion of whether there is support for the study hypotheses.

Univariate Results

Table 3 presents the characteristics of the sample. The sample was comprised 69.2% males (*n*=1,429) and 30.8% females (*n*=637), with a mean age of 15.6. Most of the sample was nonwhite (53.5%, *n*=1,106); 46.5% were white (*n*=960). The largest minority group was African American, (17.8%, *n*=368) followed by Hispanic (14.1%, *n*=291). Around 4% of the sample was Native American (*n*=78), 0.7% was Asian (*n*=15), and 17.2% mixed and other races (*n*=354). Because of their small sample sizes, Native Americans and Asians were combined into the category "Other Races."

Among these victimized adolescents (*n*=2,066), 60.3% (*n*=1,246) of adolescents reported experiences of physical abuse with a gun, knife, or other weapon; 49.9% (*n*=1,031) reported physical abuse by striking or beating; 10% (*n*=207) reported sexual abuse; and 45.7% (*n*=944) of adolescents reported experiences of emotional abuse. Among indicators of severity of victimization, 22.6% (*n*=467) of the adolescents reported multiple types of victimization, 50.6% (*n*=1,045) were frequently victimized or for a long duration, 44.6% (*n*=921) were victimized by someone they trusted, and 58.1% (*n*=1,201) were victimized within the last year.

Most adolescents in the sample had a diagnosis of substance dependence (47.3%, *n*=977). Adolescents with substance dependence–only diagnoses (*n*=94, 4.5%) were

combined with those who had a diagnosis of substance dependence with physiological symptoms (*n*=883, 42.7%) because adolescents with substance dependence only represented a small proportion of cases. Thirty-five percent of adolescents (*n*=724) had a diagnosis of substance abuse. Substance users (those without abuse or dependence diagnoses) comprised the smallest proportion of the sample (17.7%, *n*=365). Most adolescents (32.5%, *n*=672) reported comorbidity of internalizing and externalizing problems, followed by adolescents with an externalizing-only problem (23.9%, *n*=494) and adolescents with an internalizing-only problem (11.2%, *n*=232).

Bivariate Results

Chi-square and ANOVA analyses are conducted to examine differences in demographic characteristics, victimization experiences, severity of substance misuse, stressors, psychological and social resources among adolescents with neither internalizing nor externalizing problem, an internalizing-only problem, an externalizing-only problem, and COD-MH problems (see Table 3). Significant gender differences were found in MH disorder symptoms (χ=308.39, *df*=3, *p*<.05). Females were more likely to have an internalizing-only problem (17.1%, *n*=109) and COD-MH problems (50.2%, *n*=320) than males. However, family structure was not significantly related to internalizing-only, externalizing-only and COD-MH problems.

While minority status was not significantly related to an internalizing-only or an externalizing-only problem, it was significantly related to COD-MH problems in the sample (χ^2(1, 2066)=24.67, *p*=<.001); for Hispanics (χ^2(1, 2066)=6.34, *p*=<.05; for African Americans, χ^2(1, 2066)=43.44, *p*=<.001 and for other minority races χ^2(1,

2066)=5.00, p=<.05). 26.1 percent of Hispanic adolescents and 17.9% of African American adolescents had COD-MH problems.

Substance abuse and dependence diagnoses were significantly associated with an internalizing-only problem, an externalizing-only problem and COD-MH problems. Almost 30% of adolescents with substance abuse diagnoses had an externalizing-only problem (χ^2(1, 2066)=14.305, p=<.001) and 19.1% had COD-MH problems(χ^2(1, 2066)=92.09, p=<.001). However, only a small percentage of adolescents with substance abuse diagnosis had an internalizing-only problem (8.7%, χ^2(1, 2066)=7.14, p=<.01).

A large percentage of adolescents with substance dependence had COD-MH problems (49.1%; χ^2(1, 2066)=232.82, p=<.001). Substance dependence was also significantly related to adolescents having an externalizing-only problem (20.2%; χ^2(1, 2066)=14.305, p=<.001) and an internalizing-only problem (13.1%; χ^2(1, 2066)=6.515, p=<.05). Substance abuse may be associated with an increased risk for an externalizing-only problem and substance dependence may place adolescents at risk for COD-MH problems.

Examining the relationship between stressors and MH problems, a one-way ANOVA indicated significant differences in mean scores on stressors across type of MH problems (F(3, 2062)=75.9, p<.01). The Bonferroni post-hoc analysis revealed that adolescents with different types of MH problems significantly differed from each other on the number of stressors with the highest mean scores on the number of stressors among adolescents with COD-MH problems. The indicators of severity of victimization (i.e., frequent/long duration victimization, victimization by trusted perpetrators and multiple types of victimization) were found to be significantly associated with COD-MH-

problems; for frequent/long duration victimization, $\chi^2(1, 2066)=63.89$, $p=<.001$; for victimization by trusted perpetrators, $\chi^2(1, 2066)=60.65$, $p=<.001$; for multiple types of victimization, $\chi^2(1, 2066)=89.97$, $p=<.001$ and for recent victimization, $\chi^2(1, 2066)=44.85$, $p=<.001$. 50.1 percent of adolescents with multiple types of victimization experiences had COD-MH problems (50.1%), while 49.9% did not. Among adolescents with other severe abuse experiences, 41.5% of adolescents victimized by trusted perpetrators and 40.7% of those who were frequently victimized or for a long duration had COD-MH problems.

Among social resources, no significant relationship was found between available problem-solving support or received support for victimization issues and COD-MH/MH problems. However, mean scores on types of people available for emotional support significantly differed among adolescents with different types of MH problems (F (3, 2062)=22.23, $p<.01$). The post-hoc analysis revealed that the mean scores on the number of available emotional support systems of adolescents with COD-MH problems, with an internalizing-only problem and with an externalizing-only problem significantly differed from adolescents with neither internalizing nor externalizing problems, with the groups of adolescents with COD-MH problems having the highest mean scores on the number of types of people available for emotional support.

Regarding psychological resources, a one-way ANOVA indicated significant differences in mean scores on global self-efficacy beliefs ($F(3, 2062)=9.29$, $p<.01$) and self-efficacy related to substance use ($F(3, 2062)=64.19$, $p<.01$) across type of MH problems. While Bonferroni post-hoc comparison did not differentiate between groups on global self-efficacy, the significantly lowest self-efficacy scores were found among

adolescents with COD-MH problems when compared to the other groups (See Table 3). Inter-correlations among the variables used in this research were computed and presented in Table 4. Correlations were computed to check for multi-collinearity between the variables.

Multivariate Results

The results of the multinomial logistic regression analyses are in Tables 5–13. They include the findings for Models 1–3. I tested for the improvement in model fit across the three regression models by calculating the differences in likelihood ratios and degrees of freedom for the three models. Model 2 was compared to Model 1, then Model 3 was compared to Model 2. The difference in likelihood ratios between Models 2 and 1 (χ^2 =1289, *df*=12, p<.01) and between Models 3 and 2 (χ^2 =322, *df*=15, p<.01) resulted in a significant chi-square value, indicating the models were significantly different from each other, and the variables added were significant in predicting the dependent variables. Comparing the pseudo-R^2 values (Cox and Snell, Nagelkerke, and McFadden) across the three models, Model 3 resulted in an improved value for pseudo-R^2, indicating Model 3 was the best among the three models in predicting MH and COD-MH problems (See Table 5).

Effects for the Control Variables

This section begins with the results for the effects of the control variables on MH and COD-MH problems. The findings are discussed for the final model with all variables included. The results for the control variables are presented followed by the results for the study hypotheses.

Age

Younger adolescents were more likely to have a COD-MH problem (versus an internalizing-only problem) than older adolescents. Every year increase in age significantly decreased the odds of adolescents having COD-MH problems (versus an internalizing-only problem) by a factor of 0.75 (25%). In addition, younger adolescents were also more likely to have an externalizing-only problem (versus neither internalizing nor externalizing problems) than older adolescents. One year increase in age was associated with a 14% decrease (OR=0.86) in the odds of adolescents reporting an externalizing-only problem (versus neither internalizing nor externalizing problem).

Conversely, with one year increase in age, the odds of an internalizing-only problem (versus neither internalizing nor externalizing problem) increased by 1.21 (21%). Additionally, the odds of an internalizing-only problem (versus an externalizing-only problem) increased by a factor of 1.41. Thus, younger age appeared to be a risk factor for COD-MH and an externalizing-only problem in the sample. Older adolescents were at higher risk for an internalizing-only problem than were younger adolescents.

Gender

Male adolescents were less likely to have COD-MH problems (versus neither internalizing nor externalizing problem) than females. If the adolescent was male, the odds he would have a COD-MH problem (versus neither internalizing nor externalizing problem) decreased by a factor of 0.39 (61%). Additionally, if the adolescent was male, the odds he would have a COD-MH problem (versus an externalizing-only problem) decreased by 71% (OR=0.29). Male adolescents were also less likely than female adolescents to report an internalizing-only problem. If the adolescent was male, the odds

that he would have an internalizing-only problem (versus externalizing-only problem) decreased by 73% (OR=0.27). Furthermore, if the adolescent was male, the odds that he would have internalizing-only problem (versus neither internalizing nor externalizing problem) decreased by a factor of 0.34 (66%). Female adolescents, therefore, appeared to be at higher risk for COD-MH and an internalizing-only problem than male adolescents.

Race/ethnicity

African American adolescents were more likely to have an externalizing-only problem than other ethnic groups. If the adolescent was an African American, the odds that he or she would belong to a COD-MH group (versus an externalizing-only problem group) decreased by 43% (OR=0.57). In addition, if the adolescent as African American race, the odds that he or she had a COD-MH problem (versus neither internalizing nor externalizing problem) decreased by 48% (OR=0.52). Among the MH problems, African American adolescents appeared to be at a higher risk for an externalizing-only problem than for COD-MH problems.

Hispanic adolescents were more likely to have an internalizing-only problem than other groups. If the adolescent was a Hispanic, the odds that he or she would have a COD-MH problem (versus internalizing-only problem) decreased by 47% (OR=0.53). Thus, compared to other racial/ethnic groups, Hispanic adolescents were at higher risk for an internalizing-only problem than for COD-MH problems.

Family structure

In the multivariate model, single parent family status was not found to be significantly related to any of the mental health comparisons (internalizing-only, externalizing-only, COD-MH or neither internalizing nor externalizing problem).

Severity of substance misuse

Adolescents with a substance dependence diagnosis were more likely to have COD-MH problems than those who did not have dependence diagnosis. If the adolescent had a substance dependence diagnosis, the odds that he or she had a COD-MH problem (versus internalizing-only problem) increased by 134% (OR=2.34). Additionally, if the adolescent had a substance dependence diagnosis, the odds that he or she had a COD-MH problem (versus externalizing-only problem) increased by a factor of 2.76 (176%). Furthermore, if the adolescent had substance-dependence, the odds that he or she had COD-MH problem (versus neither internalizing nor externalizing problem multiplied by 6.78 (578%).These findings suggest substance dependence was significantly related to the co-morbidity in the sample.

Substance dependence was also significantly related to internalizing-only and to externalizing-only problem (versus neither internalizing nor externalizing problem). If the adolescent had a substance dependence diagnosis, the odds he or she would have an internalizing-only problem (versus neither internalizing nor externalizing problem) increased by a factor of 2.90 (190%). In addition, if the adolescent had substance dependence, the odds that he or she would have an externalizing-only problem (versus neither internalizing nor externalizing problem) multiplied by 2.46 (146%).

Adolescents with substance abuse diagnosis were more likely to have an externalizing-only problem (versus neither internalizing nor externalizing problem) than adolescents with no abuse diagnosis. If the adolescent had a substance abuse diagnosis, the odds that he or she would have an externalizing-only problem (versus neither internalizing nor externalizing problem) increased by 59% (OR=1.59).

Number of stressors

Adolescents with large number of stressors were more likely to have COD-MH problems (versus neither internalizing nor externalizing or an externalizing-only problem) than those with fewer stressors. If there was one unit increase in the number of stressors experienced, the odds that the adolescent had a COD-MH problem (versus neither internalizing nor externalizing) increased by 52% (OR=1.52), holding all other variables constant. Furthermore, if there was a one unit increase in the number of stressors, the odds that the adolescent had a COD-MH problem (versus an externalizing-only problem) increased by 29% (OR=1.29).

Adolescents with large number of stressors were also more likely to have an internalizing-only problem (versus neither internalizing nor externalizing problem and versus an externalizing-only problem) than those with fewer stressors. If there was one unit increase in the number of stressors experienced by adolescents, the odds that the adolescent had an internalizing-only problem (versus neither internalizing nor externalizing problem) increased by a factor of 1.38 (38%). Furthermore, for each additional stressor, the odds that adolescents had an internalizing-only problem (versus an externalizing-only problem increased by 17% (OR=1.17).

The number of stressors also increased the risk for an externalizing-only problem among adolescents. If there was a one unit increase in the number of stressors, the odds that adolescents had an externalizing-only problem (versus neither internalizing nor externalizing problem) increased by 18% (OR=1.18 times).

Conclusion

In the multivariate analysis, some of the control variables significantly increased the odds of COD-MH, internalizing-only, and an externalizing-only problem among victimized adolescents. Victimized adolescents with substance dependence and more stressors were at higher risk for COD-MH problems (versus neither internalizing nor externalizing problem and versus an externalizing-only problem). Compared with male victims, female victims appeared to be at greater risk for COD-MH problems than an externalizing-only problem and neither internalizing nor externalizing problem. Family structure was not significantly related to COD-MH and MH problems. However, race/ethnicity emerged as a significant predictor of externalizing and internalizing problems. While African American adolescents were at greater risk for an externalizing-only problem (versus COD-MH problems), Hispanic adolescents were at higher risk for an internalizing-only problem than COD-MH problems.

Older age of adolescents appeared to lower the risk for COD-MH problems (versus an internalizing-only problem). Furthermore, older age appeared to reduce the risk for an externalizing-only problem (versus the risk for neither internalizing nor externalizing problem). Compared with neither internalizing nor externalizing problem, however, the odds of an internalizing-only problem increased with age. Thus, younger victimized adolescents may be at greater risk for COD-MH and an externalizing-only problem, whereas older victimized adolescents may be at risk for an internalizing-only problem.

Hypotheses: Direct Effects

H1: Adolescents with severe victimization experiences (longer duration or more frequent victimization, multiple types of victimization, recent victimization, and victimization by trusted people) are more likely to exhibit COD-MH than they are to exhibit externalizing-only, internalizing-only and neither internalizing nor externalizing problem.

The results indicated that having severe victimization experiences significantly increased the likelihood of COD-MH problems among adolescents. For severe victimization experiences, the odds of COD-MH problems were greater than the odds of an internalizing-only problem, an externalizing-only problem or neither internalizing nor externalizing problem (Tables 6–8, Model 3). An adolescent with multiple types of victimization experiences was more likely to have a COD-MH problem than an adolescent with single type of victimization experience. If the adolescent was multiply victimized, the odds that he or she had a COD-MH problem (versus neither internalizing nor externalizing problem) increased by 91% (OR=1.91). (Table 6). In addition, if the adolescent was multiply victimized, the odds that he or she had a COD-MH (versus externalizing-only problem) increased by a factor of 1.59 (59%).

Furthermore, an adolescent who was frequently victimized or for a long duration was more likely to have a COD-MH problem (versus externalizing-only problem) than an adolescent who was not frequently victimized or was not victimized for a long duration. If the adolescent had been frequently victimized or for a long duration, the odds that he or she had a COD-MH problem (versus an externalizing-only problem) increased by 44% or by a factor of 1.44 (Table 8). Compared with the odds of an internalizing-only problem or

of neither internalizing nor externalizing problem, duration or frequency of victimization did not significantly change the odds of COD-MH problems, after adjusting for the effects of other variables in the model.

Recently victimized adolescents were more likely to have COD-MH problems than adolescents victimized more than a year ago. If the adolescent was recently victimized, the odds that he or she had a COD-MH problem (versus an internalizing-only problem) increased by 76% (OR=1.76; Table 7). Furthermore, if the adolescent was recently victimized, the odds that he or she had a COD-MH problem (versus neither internalizing nor externalizing problem) increased by 61% (OR=1.61; Table 6).

Controlling for all other variables in the final model, however, victimization by trusted people did not increase the odds of COD-MH problems when compared with the odds of an internalizing-only problem, an externalizing-only problem, or neither internalizing nor externalizing problem (Tables 6–8).

To further evaluate this hypothesis, the predicted probabilities of COD-MH problems for respondents with different sets of characteristics were evaluated. In all of the following examples, the values of all of the other variables are set at their means or modes. The predicted probability of COD-MH problems for adolescents with all four types of severe victimization experiences (with all other characteristics being set at the mean or mode) was 25% higher than their counterparts without any of the studied severe victimization experiences (see Table 12). The probability of COD-MH problems was more than 3 times greater than the difference in the probability of having an internalizing-only problem between adolescents with severe victimization experiences (versus those with none of these experiences). Adolescents with severe victimization experiences had

8% higher probability of having an internalizing-only in comparison to those who did not report these experiences. In contrast, severe victimization experiences were associated with a decrease in the probability of having an externalizing-only problem. With severe victimization experiences, the probability of having COD-MH problems (41%) was the greatest, followed by the probability of having an internalizing-only problem (26%), having neither internalizing nor externalizing problems (20%) and having an externalizing-only problem (13%; see Table 13). Specifically, frequent/long duration victimization was associated with a 15% increase and multiple types of victimization were related to an 11% increase in the probability of COD-MH problems (versus those adolescents who were not frequently victimized or were not victimized for a long duration, or those who were victims of single types of abuse; Table 12).

H2: The indicators of severity of victimization that predict an internalizing-only problem will also predict an externalizing-only problem.

The study found support for severe victimization experiences as common risk factors for internalizing and externalizing problems among adolescents. Adolescents with severe victimization experiences did not significantly differ in their odds of being in the internalizing-only or the externalizing-only problem groups, after adjusting for the effects of demographic characteristics, severity of substance misuse, stressors experienced, and resource variables (Table 11).

H3: a) Adolescents with severe victimization experiences are more likely to exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

b) Adolescents with severe victimization experiences are more likely to exhibit

an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

Three out of four victimization experiences did not differentiate adolescents with internalizing-only or an externalizing-only problem from adolescents with neither internalizing nor externalizing problem. In other words, the results were similar for adolescents who had an internalizing-only problem or an externalizing-only problem (versus neither internalizing nor externalizing problem). Tables 9 and 10 show that frequent or long duration victimization, multiple types or recent victimization did not increase or decrease the odds of an internalizing-only problem or an externalizing-only problem (versus neither internalizing nor externalizing problems).

Controlling for all other variables in the model, however, if the adolescent was victimized by someone he or she trusted, the odds that he or she would have an internalizing-only problem (versus neither internalizing nor externalizing problem) increased by 87% (OR=1.87 times; Table 9). Thus, victimization by trusted people may place adolescents at risk for internalizing problems.

H4: Adolescents with fewer psychological and social resources are more likely to exhibit a COD-MH problem than they are to exhibit an internalizing-only, an externalizing-only, or neither an internalizing nor an externalizing problem.

Among psychological and social resources, the hypothesis was supported for some comparisons but not for other comparisons. Adolescents with lower self-efficacy related to substance use were more likely to exhibit COD-MH problems than they were to exhibit externalizing-only or neither internalizing nor externalizing problem. If there was a one unit increase in self-efficacy related to substance use, then the odds that adolescents

would have COD-MH problems (versus an externalizing-only problem) decreased by 27% (OR=0.73). Furthermore, if there was a one unit increase in self-efficacy related to substance use, the odds that adolescents would have COD-MH problems (versus neither internalizing nor externalizing problem) decreased by 30% (OR=0.70).

As hypothesized, lower global self-efficacy increased the odds of COD-MH problems (versus neither internalizing nor externalizing problem). If there was one unit increase in global self-efficacy beliefs, the odds that adolescents would have COD-MH problems (versus neither internalizing nor externalizing problem) decreased by 13% (OR=0.87). Both lower global and substance-use specific self-efficacy beliefs, therefore, were significantly associated with an increase in the odds of adolescents having COD-MH problems (versus neither internalizing nor externalizing problem).

The hypothesis was not supported for social resources. Lower social resources did not emerge as a significant predictor of COD-MH problems (versus internalizing-only or an externalizing-only problem). Contrary to the hypothesis, if there was an additional increase in the number of types of people available for emotional support, the odds that adolescents would have COD-MH problems (versus neither internalizing nor externalizing problem) multiplied by 1.33 (33%; Table 6).

To further evaluate this hypothesis, the study examined the effects of resources on the predicted probabilities of COD-MH problem outcome. The probabilities were examined for adolescents who reported being frequently victimized and/or for a long duration, victimization by someone they trusted, multiple types of victimization experiences, and victimization within the past year. The probability of a COD-MH problem was found to decrease with higher psychological resources, with an 18%

difference in the probability of having COD-MH problems between adolescents with higher and lower psychological resources. However, higher and lower social resources did not differentiate in their probability of predicting COD-MH problems (Table 12).

H5: The psychological and social resources that predict an internalizing-only problem will also predict an externalizing-only problem.

The results supported the hypothesis for all types of psychological and social resources, except self-efficacy related to substance use. Adolescents with an internalizing-only problem did not differ from adolescents with an externalizing-only problem on global self-efficacy beliefs, available sources for emotional support, available problem-solving support and received support for victimization issues. If there was a unit increase in self-efficacy beliefs related to substance use, however, the odds that an adolescent would have an internalizing-only problem (versus externalizing-only problem) decreased by 18% (OR=0.82). Thus, adolescents with lower self-efficacy related to substance use were found to be at a higher risk for an internalizing-only problem than for an externalizing-only problem.

H6: a) Adolescents with fewer psychological and social resources are more likely to exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

b) Adolescents with fewer psychological and social resources are more likely to exhibit an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

This hypothesis was supported for some relationships. Self-efficacy related to substance use was also significantly related to reduced odds of an internalizing-only

problem (versus neither internalizing nor externalizing problem) but not an externalizing-only problem (versus neither internalizing nor externalizing problem). If there was a unit increase in self-efficacy related to substance use, the odds that an adolescent would have an internalizing-only problem (versus neither internalizing nor externalizing problem) decreased by 21% (OR=0.79).

Adolescents with higher global self-efficacy beliefs were less likely to have internalizing and externalizing problems than adolescents with lower global self-efficacy. If there was a unit increase in global self-efficacy beliefs, the odds of both internalizing-only and an externalizing-only problem (versus neither internalizing nor externalizing problem) decreased by 11% (OR=0.89 for both internalizing-only and an externalizing-only problem).

Among social resources, if there was an increase in the number of types of people available for emotional support, the odds that adolescents would have an internalizing-only problem (versus neither internalizing nor externalizing problem) increased by 19% (OR= 1.19). Furthermore, if there was an additional increase in the number of sources of emotional support, the odds that adolescents would have an externalizing-only problem (versus neither internalizing nor externalizing problem) multiplied by 1.23 (23%).

Compared with adolescents who did not report receiving support for victimization issues or available problem-solving social support, however, adolescents who reported having these types of support did not differ on the odds of having an internalizing-only problem (versus neither internalizing nor externalizing problem). In addition, the support and no-support groups did not differ on the odds of an externalizing-only problem (versus neither internalizing nor externalizing problem). Thus, problem-solving support and

received support for victimization had no significant effect on either internalizing-only or an externalizing-only problem (Tables 9–10).

Hypothesis: Indirect Effects

H7: Psychological and social resources will mediate the relationship between severity of victimization experience and a COD-MH problem.

In the multivariate model, the mediation hypothesis was not supported for victimization experiences, resources, and mental health outcome comparisons. Insufficient evidence of mediation, however, was obtained for two mental health outcome comparisons:

- COD-MH problems versus neither internalizing nor externalizing problem.

In Model 2, if the adolescents were victimized for longer duration and/or frequently victimized, the odds that they would have COD-MH problems (versus neither internalizing nor externalizing problem) increased by 51% (OR=1.51; β=0.41). With the addition of psychological and social resources in the mediated model (global self-efficacy beliefs, self-efficacy related to substance use, and number of types of people available for emotional support, which were all significant in Model 3), the beta coefficients decreased from 0.41 (CI=1.16-1.97) to 0.34 (CI=1.07-1.84) (Table 6). The effect of duration/frequency in the mediated model became nonsignificant, suggesting a mediating effect of psychological and social resources in the relationship between duration/frequency of victimization and the increased odds of having COD-MH problems versus neither internalizing nor externalizing problem.

- COD-MH problems versus an externalizing-only problem.

In the model examining COD-MH problems (versus an externalizing-only problem), if adolescents were victimized for longer duration and/or frequently victimized, the odds that they would have COD-MH problems (versus an externalizing-only problem) increased by 49% (β=0.40; OR=1.49). Multiple types of victimization also had a significant effect on COD-MH problems. If adolescents were multiply victimized, the odds that they would have COD-MH problems (versus an externalizing-only problem) increased by 66% (β=0.50; OR=1.66). Self-efficacy related to substance use was the only significant resource in the hypothesized mediated model. The mediated model showed a reduction in the beta coefficients of COD-MH problems, from 0.40 (CI=1.15-1.96) to 0.36 (CI=1.09-1.89) for duration/frequency of victimization, and a reduction of coefficients from 0.50 (CI=1.20-2.27) to 0.47(CI=1.16-2.21), for multiple types of victimization experiences.

According to Baron and Kenny (1986), there are three requirements for mediation. Examining the zero-order correlations for duration/frequency of victimization, multiple types of victimization, COD-MH, self-efficacy and types of available emotional support using the Baron and Kenny's criteria, duration/frequency of victimization and multiple types of victimization were significantly correlated with a) COD-MH (first requirement) and b) resources (i.e., self-efficacy related to substance use and types of available emotional support; second requirement). The resource variables were also significantly correlated with COD-MH (third requirement). In both the multivariate models, however, the reduction in coefficients was less than 20%. Since a 20% or a greater reduction has been used by researchers as evidence of mediation (MacKinnon, 2008), these results do not provide support for mediation.

Table 3. Sample Characteristics and Differences Between Neither Internalizing nor Externalizing, Internalizing, Externalizing, Co-morbidity (Both) Groups

	Total Sample (*n*=2,066)	Neither (a)(*n*=668)	Internalizing Only (b) (*n*=232)	Externalizing Only (c) (*n*=494)	Both (d) (*n*=672)	F or χ^2
*Gender (%)****-Males Females (R)	1429 637	38.2_{bcd} 19.2	8.6_{acd} 17.1	28.6_{abd} 13.5	24.6_{abc} 50.2	308.4 (3)
*Age (M, SD)****	15.6 (1.22)	15.6 (1.21)	15.9 (1.14)	15.4(1.19)	15.4 (1.26)	8.06 (3, 2062)
Single-Parent (%)	1071	32.6	12.4	24.4	30.6	5.51 (3)
Race/Ethnicity (%) White*** Black*** Hispanic Other (R)	960 368 291 447	28.4_{bcd} 45.7_{bcd} 34.7 28.2	11.1 9.2 14.1 11.2	22.4 27.2 25.1 23.7	38.0_{abc} 17.9_{abc} 26.1 36.9	26.8(3) 57.5(3) 7.5(3) 6.4(3)
Substance use (%) Use only*** Abuse*** Dependence***	365 724 977	51.8 42.4 17.6_{bcd}	11.2 8.7_{acd} 13.1	22.2 29.8_{abd} 20.2_{abd}	14.8 19.1_{abc} 49.1_{abc}	95.3(3) 119.8(3) 298.1(3)
*Stressors **(M,SD)*	1.25(1.59)	$0.71\ (1.15)_{bcd}$	$1.49\ (1.56)_{acd}$	$0.99\ (1.33)_{abd}$	$1.89\ (1.89)_{abc}$	75.9 (3, 2062)
Indicators of Severity of Victimization (%)						
Frequent/long duration victimization (%)***	1045	25.6_{bcd}	13.0_{acd}	20.8_{abd}	40.7_{abc}	87.9 (3)
Victimization by trusted perpetrators(%)***	921	23.3_{bcd}	15.0_{acd}	20.2_{abd}	41.5_{abc}	112.9 (3)

Table 3---continued

Multiple types of victimization (%) ***	467	18.4_{bcd}	13.7_{acd}	17.8_{abd}	50.1_{abc}	106.3 (3)
Recent victimization***	1,201	27.8_{bcd}	9.9	23.9	38.4_{abc}	52.9 (3)
Psychological Resources (M, SD)						
Global self-efficacy (M, SD)**	6.25 (2.18)	6.58 (2.24)	6.16 (2.01)	6.24 (2.22)	5.96 (2.12)	9.29 (3, 2062)
Self-efficacy: Substance Use (M, SD)**	4.16 (1.25)	$4.50\,(1.08)_{bd}$	$4.05\,(1.26)_{acd}$	$4.41\,(1.04)_{bd}$	$3.67\,(1.37)_{abc}$	64.19 (3, 2062)
Social Resources						
Emotional support** (M,SD)	4.29 (1.62)	$3.89\,(1.77)_{bcd}$	$4.36\,(1.59)_{a}$	$4.37\,(1.57)_{a}$	$4.59\,(1.42)_{a}$	22.23(3, 2062)
Problem-solving support (%)	1,605	31.3	11.2	24.4	33.1	4.2 (3)
Received support for victimization (%)	1,070	31.4	12.8	24.6	31.2	7.1(3)

abcd subscripts show which groups were statistically significant from other groups; R =Reference group

***p<.001

**p<.001

Table 4: Inter-correlations Among Study Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Duration/ Frequency of Victimization (1)	1												
Victimization by Trusted Perpetrators (2)	0.28**	1											
Recency of Victimization (3)	0.16**	0.05*	1										
Multiple Types of Victimization (4)	0.17**	0.24**	0.10**	1									
Global Self-Efficacy (5)	-0.03	-0.03	-0.06**	-.003	1								
Self-Efficacy: Substance Use (6)	-0.09*	-0.05*	-0.06**	-0.12**	0.15**	1							
Emotional Support (7)	0.08**	0.11**	-0.01	0.05*	0.25**	0.02	1						
Problem-Solving Social Support (8)	-.002	0.05*	0.05*	0.03	0.25**	0.09**	-0.46**	1					
Received Support for Victimization (9)	0.02	0.06*	-0.04	0.01	0.09**	0.06**	0.18**	0.13**	1				
COD-MH (10)	0.18***	0.17***	0.15***	.203***	-.09***	-.27***	0.13***	-0.03	-.03	1			
Internalizing-only (11)	0.06**	0.11***	-.05*	.04	-.014	-.03	0.02	0.01	.05*	-.25***	1		
Externalizing-only (12)	-.08**	-.08***	.000	-.08***	-.002	.11***	0.03	-0.02	.02	-.39***	-.19***	1	
Neither internalizing nor externalizing (13)	-.15***	-.17***	-.114***	-.16***	.10***	.19***	-0.17***	0.04	-0.02	-.48***	-.25***	-.39***	

*p<.05, **p<.01, ***p<.001

Table 5: Model Fit

Models	Model Fitting Criteria	Likelihood Ratio Tests			Pseudo R-Squares		
	-2 Log Likelihood	Chi-Square	Df	P	Nagelkerke R-Square	Cox and Snell R-Square	McFadden R-Square
Model 1: Control variables only	(3634.132)[1] 2928.619[2]	705.512	27	.000	.312	.289	.130
Model 2: Victimization variables added	(5002.783)[1] 4217.696[2]	785.087	39	.000	.341	.316	.144
Model 3: Psychological and social resource variables added	(5442.017)[1] 4.539.017[2]	902.454	54	.000	.381	.354	.166

1. The intercept-only model

2. The final model

Table 6: Co-morbidity (versus neither internalizing nor externalizing problems)

	Model 1				**Model 2**				**Model 3**			
Variables	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.	B (SE)		OR	C.I.
Model 1												
Gender	-1.27(0.14)***	77.41	0.28	0.21-0.37	-1.06(0.15)***	48.30	0.35	0.26-0.47	-0.95(0.16)***	36.49	0.39	0.28-0.53
Age	-0.15(0.05)**	8.04	0.86	0.78-0.96	-0.13(0.05)	6.00	0.88	0.79-0.97	-0.10(0.06)	3.29	0.90	0.81-1.01
Single Parent	0.08(0.13)	0.36	1.08	0.84-1.39	0.09(0.13)	0.47	0.92	0.71-1.18	0.12(0.13)	0.74	1.12	0.86-1.46
African	-0.83(0.19)***	19.65	0.44	0.30-0.63	-0.80(0.19)***	17.66	0.45	0.31-0.65	-0.65(0.19)**	10.76	0.52	0.35-0.77
Hispanic	-0.39(0.19)	3.95	0.68	0.46-0.99	-0.31(0.20)	2.31	0.74	0.49-1.09	-0.16(0.21)	0.53	0.86	0.56-1.30
Other Race	-0.05(0.17)	0.08	0.96	0.69-1.32	-0.02(0.17)	0.01	0.98	0.71-1.36	0.03(0.17)	0.04	1.03	0.74-1.45
Substance Abuse	0.66(0.20)**	10.96	1.94	1.31-2.87	0.64(0.21)**	9.62	1.89	1.26-2.82	0.53(0.21)	6.43	1.69	1.13-2.55
Substance Dependence	2.28(0.19)***	139.04	9.81	6.71-14.34	2.22(0.19)***	125.7	9.23	6.26-13.6	1.92(0.21)***	87.36	6.78	4.54-10.13
Stressors	0.48(0.05)***	101.23	1.61	1.47-1.77	0.42(0.05)***	72.31	1.52	1.38-1.67	0.42(0.05)***	69.70	1.52	1.38-1.67
Model 2												
Duration /Frequency					0.41(0.14)**	9.19	1.51	1.16-1.97	0.34(0.14)	.93	.40	1.07-1.84
Victimization by Trusted Perpetrators					0.30(0.14)	4.40	1.35	1.02-1.79	0.33(0.15)	.92	.39	1.04-1.86
Multiple Victimization					0.65(0.17)***	15.31	1.92	1.38-2.65	0.65(0.17)***	4.19	.91	1.36-2.68
Recency of Victimization					0.48(0.13)***	12.85	1.61	1.24-2.09	0.48(0.14)**	1.99	.61	1.23-2.10

Table 6---continued

Model 3												
Global Self-Efficacy									-0.15(0.03)***	9.72	.87	0.81-0.92
Self-Efficacy (Substance Abuse)									-0.35(0.06)***	5.19	.70	0.63-0.79
Sources for Emotional Support									0.28(0.05)***	2.51	.33	1.20-1.46
Problem-Solving support									-0.33(0.19)	.21	.72	0.49-1.03
Received Support for Victimization									-0.09(0.14)	.41	.92	0.70-1.19

**p<.01, ***p<.001

Table 7: Co-morbidity (versus an internalizing-only problem)

	Model 1				**Model 2**				**Model 3**			
Variables	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.
Model 1												
Gender	0.12(0.16)	0.60	1.13	0.83- 1.54	0.05(0.17)	0.09	1.05	0.76-1.47	0.11(0.17)	0.42	1.12	0.79-1.56
Age	-0.32(0.07)***	21.13	0.73	0.64-0.83	-0.30(0.07)***	18.96	0.74	0.65-0.85	-0.29(0.07)***	17.25	0.75	0.65-0.86
Single Parent	-0.25(0.16)	2.53	0.78	0.57-1.06	-0.25 (0.16)	2.46	0.78	0.57-1.06	-0.23(0.16)	2.12	0.79	0.58-1.08
African	-0.47 (0.25)	3.69	0.63	0.39-1.01	-0.46(0.25)	3.46	1.58	0.39-1.03	-0.43 (0.25)	2.85	0.65	0.39-1.07
Hispanic	-0.65(0.23)**	7.91	0.52	0.33-0.82	-0.64(0.23)**	7.49	0.53	0.33-0.83	-0.64(0.24)**	7.06	0.53	0.33-0.85
Other Race	-0.06(0.19)	0.10	0.94	0.64-1.39	-0.07(0.20)	0.13	0.93	0.63-1.38	-0.08(0.21)	0.17	0.92	0.62-1.37
Substance Abuse	0.53(0.26)	4.09	1.69	1.02-2.84	0.46(0.26)	2.97	1.58	0.94-2.65	0.41(0.27)	2.34	1.50	0.89-2.53
Substance Dependence	1.09(0.24)***	21.37	2.97	1.87-4.71	1.01(0.24)***	17.93	2.74	1.72-4.36	0.85(0.25)**	12.01	2.34	1.45-3.78
Stressors	0.11(0.05)**	5.85	1.12	1.02-1.22	0.09(0.05)	3.94	1.09	1.00-1.21	0.09(0.05)	3.91	1.10	1.00-1.21
Model 2												
Duration /Frequency					0.10(0.17)	0.38	1.11	0.79-1.54	0.09(0.17)	0.28	.09	0.79-1.53
Victimization by Trusted Perpetrators					-0.31(0.18)	3.00	0.74	0.52-1.04	0.29(0.18)	2.79	74	0.52-1.05
Multiple Victimization					0.22(0.18)	1.49	1.25	0.88-1.77	0.19(0.18)	1.10	.21	0.85-1.73
Recency of Victimization					0.59(0.16)***	13.41	1.80	1.31-2.47	0.56(0.16)***	12.16	.76	1.28-2.41

Table 7---continued

Model 3												
Global Self-Efficacy									-0.04(0.04)	0.98	.96	0.89-1.04
Self-Efficacy (Substance Abuse)									-0.12(0.06)	3.58	89	0.78-1.00
Sources for Emotional Support									0.11(0.06)	3.08	11	0.99-1.25
Problem-Solving support									0.06(0.22)	0.07	06	0.69-1.62
Received Support for Victimization									-0.39(0.16)	5.54	68	0.49-0.94

**p<.01, ***p<.001

Table 8: Co-morbidity (versus an externalizing-only problem)

	Model 1				**Model 2**				**Model 3**			
Variables	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.
Model 1												
Gender	-1.39(0.15)***	85.83	0.25	0.19-0.33	-1.27(0.16)***	64.76	0.28	0.21-0.38	-1.21(0.16)***	56.33	0.29	0.22-0.41
Age	0.02(0.05)	0.16	1.02	0.92-1.13	0.03(0.05)	0.30	1.03	0.93-1.14	0.05(0.06)	0.96	1.06	0.95-1.17
Single Parent	-0.01(0.13)	0.01	0.99	0.77-1.28	-0.01(0.13)	0.002	0.99	0.77-1.29	0.01(0.13)	0.002	1.01	0.78-1.31
African	-0.58(0.19)**	8.88	0.56	0.38-0.82	-0.55(0.19)**	7.94	0.57	0.39-0.85	-0.56 (0.20)**	7.55	0.57	0.38-0.85
Hispanic	-0.29(0.20)	2.16	0.74	0.50-1.10	-0.23(0.20)	1.25	0.79	0.53-1.19	-0.31(0.21)	2.16	0.73	0.48-1.11
Other Race	-0.10(0.17)	0.37	0.90	0.66-1.25	-0.07(0.17)	0.19	0.93	0.67-1.29	-0.11(0.17)	0.44	0.89	0.64-1.25
Substance Abuse	0.16(0.22)	0.56	1.18	0.77-1.80	0.16(0.22)	0.53	1.18	0.76-1.81	0.06(0.22)	0.07	1.06	0.69-1.64
Substance Dependence	1.30(0.21)***	39.98	3.68	2.46-5.52	-1.28(0.21)***	37.27	3.59	2.38-5.42	1.01(0.22)***	22.27	2.76	1.81-4.20
Stressors	0.29(0.04)***	46.23	1.34	1.23-1.46	0.25(0.04)***	30.74	1.28	1.17-1.39	0.25(0.05)***	30.76	1.29	1.18-1.41
Model 2												
Duration /Frequency					0.40(0.14)**	8.68	1.49	1.15-1.96	0.36(0.14)**	6.82	.44	1.09-1.89
Victimization by Trusted Perpetrators					0.11(0.14)	0.59	1.12	0.84-1.48	0.14(0.15)	0.94	15	0.87-1.54
Multiple Victimization					0.50(0.16)**	9.64	1.66	1.20-2.27	0.47(0.17)**	8.05	.59	1.16-2.21
Recency of Victimization					0.26(0.14)	3.73	1.30	0.99-1.70	0.24(0.14)	3.08	.28	0.97-1.67

Table 8---continued

Model 3												
Global Self-Efficacy									-0.04(0.03)	0.22	0.97	0.91-1.02
Self-Efficacy (Substance Abuse)									-0.31(0.06)***	8.96	0.73	0.65-0.82
Sources for Emotional Support									0.07(0.05)	0.02	0.08	0.97-1.19
Problem-Solving support									-0.31(0.19)	0.75	0.73	0.51-1.06
Received Support for Victimization									-0.18(0.14)	0.69	0.84	0.64-1.09

**p<.01, ***p<.001

Table 9: An internalizing-only problem (versus neither internalizing nor externalizing problems)

	Model 1				**Model 2**				**Model 3**			
Variables	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.
Model 1												
Gender	-1.39(0.17)***	62.98	0.25	1.78-0.35	-1.12(0.18)***	36.27	0.33	0.23-0.47	-1.07(0.19)***	31.99	0.34	0.24-0.49
Age	0.17(0.07)	5.59	1.18	1.02-1.36	0.17(0.07)	5.68	1.19	1.03-1.37	0.19(0.07)**	6.92	1.21	1.05-1.39
Single Parent	0.33(0.16)	4.04	1.39	1.01-1.91	0.34(0.16)	4.21	1.40	1.02-1.94	0.35(0.16)	4.35	1.41	1.02-1.96
African	-0.36(0.23)	2.42	0.69	0.44-1.09	-0.34(0.23)	2.14	0.71	0.45-1.12	-0.22(0.24)	0.86	0.80	0.49-1.28
Hispanic	0.25(0.23)	1.18	1.29	0.82-2.03	0.33(0.24)	1.98	1.39	0.88-2.22	0.49(0.25)	3.84	0.62	1.00-2.64
Other Race	0.02(0.21)	0.01	1.02	0.67-1.54	0.05(0.22)	0.06	1.06	0.69-1.61	0.12(0.22)	0.29	1.13	0.73-1.73
Substance Abuse	0.13(0.23)	0.34	1.14	0.73-1.79	0.18(0.23)	0.59	1.19	0.76-1.89	0.12(0.24)	0.27	1.13	0.71-1.79
Substance Dependence	1.19(0.22)***	29.96	3.31	2.15-5.07	1.22(0.22)***	29.99	3.37	2.18-5.21	1.07(0.23)***	21.36	2.90	1.85-4.56
Stressors	0.37(0.06)***	41.89	1.44	1.29-1.61	0.32(0.06)***	30.23	1.38	1.23-1.55	0.32(0.06)***	29.69	1.38	1.23-1.55
Model 2												
Duration /Frequency					0.31(0.17)	3.20	1.36	0.97-1.90	0.25(0.17)	2.06	.28	0.91-1.80
Victimization by Trusted Perpetrators					0.61(0.18)**	11.19	1.84	1.29-2.62	0.63(0.18)***	11.58	.87	1.30-2.68
Multiple Victimization					0.43(0.20)	4.43	1.54	1.03-2.29	0.46(0.21)	4.86	.58	1.05-2.30
Recency of Victimization					-0.11(0.17)	0.44	0.89	0.65-1.24	-0.09(0.17)	0.28	.92	0.66-1.27

Table 9---continued

Model 3												
Global Self-Efficacy									-0.11(0.04)**	.88	.89	0.83-0.97
Self-Efficacy (Substance Abuse)									-0.23(0.07)**	0.01	.79	0.69-0.92
Sources for Emotional Support									0.18(0.06)**	.56	.19	1.06-1.34
Problem-Solving support									-0.39(0.23)	.96	.68	0.44-1.06
Received Support for Victimization									0.29(0.17)	.08	.35	0.97-1.88

**p<.01, ***p<.001

Table 10: An externalizing-only problem (versus neither internalizing nor externalizing problems)

	Model 1				**Model 2**				**Model 3**			
Variables	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.
Model 1												
Gender	0.13(0.16)	0.62	1.13	0.83-1.55	0.21(0.17)	1.54	1.23	0.89-1.71	0.25(0.17)	2.23	1.29	0.92-1.79
Age	-0.17(0.05)**	11.89	0.84	0.77-0.93	-0.16(0.05)**	10.39	0.85	0.77-0.94	-0.15(0.05)**	9.23	0.86	0.78-0.95
Single Parent	0.09(0.12)	0.49	1.09	0.86-1.39	0.09(0.12)	0.60	1.10	0.87-1.39	-0.11(0.12)	0.75	1.11	0.87-1.42
African	0.25(0.16)	2.44	0.78	0.57-1.07	-0.25(0.16)	2.34	0.78	0.57-1.07	-0.09(0.17)	0.30	0.91	0.66-1.26
Hispanic	-0.09(0.18)	0.28	0.91	0.63-1.30	-0.08 (0.19)	0.17	0.93	0.64-1.33	0.16(0.19)	0.66	1.17	0.80-1.71
Other Race	0.05 (0.16)	0.11	1.06	0.77-1.46	0.05(0.17)	0.10	1.05	0.76-1.46	0.15 (0.17)	0.76	1.16	0.83-1.61
Substance Abuse	0.50(0.16)**	9.52	1.65	1.20-2.27	0.47(0.16)**	8.45	1.61	1.17-2.21	0.47(0.17)**	8.02	1.59	1.16-2.21
Substance Dependence	0.98(0.17)***	32.58	2.66	1.90-3.73	0.94(0.17)***	29.79	2.57	1.83-3.61	0.90(0.18)***	25.33	2.46	1.73-3.49
Stressors	0.18(0.05)***	13.51	1.20	1.09-1.33	0.17(0.05)**	10.99	1.19	1.07-1.31	0.17(0.05)**	10.19	1.18	1.07-1.31
Model 2												
Duration /Frequency					0.01(0.13)	0.003	1.01	0.78-1.29	-0.03 (0.13)	0.04	.98	0.76-1.26
Victimization by Trusted Perpetrators					0.19(0.14)	1.91	1.21	0.92-1.59	0.19(0.14)	1.76	.20	0.92-1.59
Multiple Victimization					0.15(0.18)	0.69	1.16	0.82-1.64	0.18(0.18)	0.99	.19	0.84-1.69
Recency of Victimization					0.22(0.12)	2.99	1.24	0.97-1.58	0.23(0.13)	3.39	.26	0.99-1.61

Table 10---continued

Model 3												
Global Self-Efficacy									-0.11(0.03)***	3.17	.89	0.85-0.95
Self-Efficacy (Substance Abuse)									-0.04(0.06)	.34	.96	0.85-1.09
Sources for Emotional Support									0.21(0.05)***	2.08	.23	1.13-1.35
Problem-Solving support									-0.02(0.17)	.02	.98	0.69-1.37
Received Support for Victimization									0.09(0.13)	.50	.09	0.85-1.39

**p<.01, ***p<.001

Table 11: An internalizing-only problem (versus an externalizing-only problem)

	Model 1				**Model 2**				**Model 3**			
Variables	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.	B (SE)	W	OR	C.I.
Model 1												
Gender	-1.52(0.18)***	67.86	0.22	0.15-0.32	-1.32(0.19)***	46.86	0.27	0.18-0.38	-1.32(0.19)***	45.49	0.27	0.18-0.39
Age	0.34(0.07)***	21.96	1.40	1.22-1.61	0.33(0.07)***	20.83	1.39	1.21-1.61	0.35(0.07)***	22.11	1.41	1.22-1.63
Single Parent	0.24(0.17)	2.08	1.27	0.92-1.77	0.24(0.17)	2.07	0.79	0.92-1.77	0.24(0.17)	1.99	1.27	0.91-1.77
African	-0.11(0.24)	0.21	0.89	0.56-1.44	-0.09(0.24)	0.16	0.91	0.57-1.46	-0.13(0.25)	0.28	0.88	0.54-1.43
Hispanic	0.35(0.24)	2.12	1.42	0.89-2.27	0.41(0.24)	2.84	1.51	0.94-2.43	0.33(0.25)	1.69	1.39	0.85-2.27
Other Race	-0.04(0.22)	0.03	0.96	0.63-1.47	0.002(0.22)	0.00	1.00	0.65-1.54	-0.03(0.22)	0.02	0.97	0.63-1.49
Substance Abuse	-0.37(0.25)	2.20	0.69	0.43-1.13	-0.29(0.25)	1.39	0.75	0.46-1.22	-0.35(0.25)	1.90	0.71	0.43-1.16
Substance Dependence	0.22(0.23)	0.86	1.24	0.79-1.96	0.27(0.24)	1.34	1.31	0.83-2.08	0.17(0.24)	0.46	0.49	0.73-1.89
Stressors	0.18(0.05)**	11.40	1.20	1.08-1.34	0.15(0.06)**	7.38	1.16	1.04-1.29	0.16(0.06)**	7.72	1.17	1.05-1.31
Model 2												
Duration /Frequency					0.29(0.18)	2.91	1.35	0.96-1.90	0.27(0.18)	2.40	.32	0.93-1.86
Victimization by Trusted Perpetrators					0.42(0.19)	5.07	1.52	1.06-2.18	0.44(0.19)	5.56	.55	1.08-2.24
Multiple Victimization					0.28(0.21)	1.91	1.33	0.89-1.99	0.28(0.21)	1.82	.32	0.88-1.98
Recency of Victimization					-0.33(0.17)	3.69	0.72	0.52-1.01	-0.32(0.17)	3.56	.73	0.52-1.01

Table 11---continued

Model 3												
Global Self-Efficacy									0.003(0.04)	.01	.003	0.93-1.09
Self-Efficacy (Substance Abuse)									-0.19(0.07)**	.96	.82	0.71-0.95
Sources for Emotional Support									-0.03(0.06)	.29	.97	0.86-1.09
Problem-Solving support									-0.37(0.23)	.49	.69	0.44-1.09
Received Support for Victimization									0.21(0.17)	.46	.23	0.88-1.73

**p<.01, ***p<.001

Table 12: Predicted Probabilities and Differences in Probabilities for Combinations of Explanatory Variables

		Comorbidity of Internalizing and Externalizing Problems	An Internalizing –only Problem	An externalizing -only problem	Neither internalizing nor externalizing problems
Severe Victimization Experiences					
1.	Reported all types of severe victimization experiences	0.41	0.26	0.13	0.20
	Did not report any type of severe victimization experience	0.16	0.18	0.18	0.48
	Differences in predicted probabilities	0.25	0.08	-0.05	-0.28
Severe Victimization Experiences and Psychological Resources					
2.	Higher psychological resources	0.33	0.24	0.15	0.28
	Lower psychological resources	0.51	0.26	0.11	0.12
	Differences in predicted probabilities	-0.18	-0.02	0.04	0.16
Severe Victimization Experiences and Social Resources					
3.	Higher social resources.	0.47	0.25	0.14	0.14
	Lower social resources	0.47	0.23	0.10	0.20
	Differences in predicted probabilities	0	0.02	0.04	-0.06

Table 12….continued

Severe Victimization Experiences and Both Psycholgical and Social Resources					
4.	Higher psychological and social resources	0.39	0.24	0.16	0.21
	Lower psychological and social resources	0.56	0.23	0.08	0.13
	Differences in predicted probabilities	-0.17	0.01	0.08	0.08

1 Severe victimization experiences include respondents who reported all of the following types of abuse: frequent victimization and/or for a long period of time, victimization by trusted perpetrators, victimization by multiple types of victimization and, victimization within the past year.

2. Psychological resources include global self-efficacy beliefs and self-efficacy related to substance use.

3. Social resources include number of types of people available for emotional support, problem-solving social support, and received support to deal with victimization.

4. In calculating these predicted probabilities, means and mode values were specified for all other explanatory variables except the ones that were compared (e.g., victimization variables, psychological, and social resources).

5. For continuous measures, adolescents with lower psychological and social resources were those with scores one standard deviation below the mean; those with higher resources were ones with scores one standard deviation above the mean.

Table 13: Differences in Probabilities

		Comorbidity of Internalizing and Externalizing Problems	Internalizing –Only Problems	An externalizing-only problem	Neither internalizing nor externalizing problem
1.	Frequently victimized or for a long duration versus infrequently victimized or not victimized for a long duration	0.15	0.07	-0.03	-0.05
2.	Victimized by a trusted perpetrator versus not victimized by a trusted perpeptrator	0.02	0.08	-0.01	-0.09
3.	Victim of multiple types of victimization versus victim of single type of victimization	0.11	0.02	-0.02	-0.11
4.	Recently victimized versus victimized more than a year ago	0.08	-0.04	0.01	-0.05

CHAPTER V

DISCUSSION

This study examined the role of severity of victimization and resources on COD-MH problems, as well as the potential mediating effects of psychological and social coping resources on the relationship between severity of victimization and COD-MH among victimized substance-using adolescents. Using the common factor model of comorbidity, personal (e.g., lower self-efficacy) and social resources (e.g., social support) were hypothesized to be shared risk factors for internalizing and externalizing problems. Because, in the empirical literature, victimization experiences were found to be risk factors for both internalizing and externalizing problems (Gjone & Stevenson, 2004) and because the common factor model suggests that internalizing and externalizing problems share risk factors, this research therefore is based on the argument that victimization experiences would be significantly associated with COD-MH problems, and there would be no difference between adolescents with an internalizing-only problem and an externalizing-only problem, on severity of victimization and on resources.

The following sections first briefly summarize the relation between the control variables and COD-MH and MH problems, because these results may be useful to practitioners. Second, the following sections cover the study hypotheses and whether and how the findings were consistent with the study hypotheses, and with existing theory and research. This discussion is followed by a discussion of the study limitations, future research, and implications for social work practice.

Control Variables

Race. This study found some evidence for racial/ethnic differences in MH problems, with African Americans more likely to externalize and Hispanics more likely to internalize than other ethnic groups. African Americans were less likely to have COD-MH problems (versus externalizing-only or neither internalizing nor externalizing problems) than other groups. Hispanics were less likely to have COD-MH problems (versus internalizing-only problems) than other groups. These findings are consistent with some authors who found racial/ethnic differences in MH symptoms of victimized adolescents (Hatcher, Maschi, Morgen, & Toldson, 2009). Cultural variations in values are one possible explanations for these differences. For example, African American culture may place a higher value on confrontation and assertiveness, which may be labeled as an externalizing behavior (McLaughlin, Hilt, & Nolen-Hoeksema, 2007).

Gender was associated with significant differences in MH problems. Males were less likely to have a COD-MH problem (versus externalizing-only or neither internalizing nor externalizing problems) than females. Females were more likely to have an internalizing-only problem than males, and males were more likely to have an externalizing-only problem than females. Although these findings are consistent with the empirical literature that shows a relationship between gender and types of MH problems, the studies on gender variations among adolescents in internalizing and externalizing problems are mixed. While most studies show males in the general population are more likely to externalize (Darves-Bornoz, Choquet, Ledoux, Gasquet, & Manfredi, 1998; Gallerani, Garber, & Martin, 2010), a national probability study on victims of child maltreatment show female adolescents are more likely to externalize than male

adolescents (Wall et al., 2005). A study on gender differences in psychiatric symptoms among adolescents by Edokpolo and colleagues (2010) found that females with substance use disorders had more externalizing and internalizing problems than males. In this research, female adolescents appeared to be at higher risk than males for COD-MH and internalizing-only problems.

Age. In this study, age was another characteristic significantly related to MH. Studies show that internalizing and externalizing problems may increase or decrease with age. The change in MH problems with age may occur due to numerous psychological, biological, social, and contextual factors (Compas, Hinden, & Gerhardt, 1995). In this study, older adolescents were more likely than younger adolescents to have an internalizing-only problem. In contrast, younger adolescents were more likely than older adolescents to have an externalizing-only or a COD-MH problem. These findings are consistent with research that suggests that internalizing and externalizing symptoms vary markedly across childhood and from early to late adolescence (McLaughlin et al., 2007).

Severity of substance misuse. Adolescents with substance abuse diagnoses were more likely to have an externalizing-only problem, versus neither internalizing nor externalizing problems, than were adolescents who did not meet the criteria of substance abuse. This is in line with research that shows a link between externalizing problems and substance abuse (see Boyle et al. 1992, Jester et al., 2008).

In contrast, adolescents with substance dependence diagnoses, in this research, were more likely to have COD-MH problems (versus internalizing-only, externalizing-only or neither internalizing nor externalizing problems) than were adolescents with no substance dependence diagnoses. The high rate of COD-MH problems among substance-

dependent adolescents in this study is consistent with research by Chan et al. (2008). In their study of 4,938 adolescents and 1,958 adults assessed for substance-abuse treatment, they found rates of co-occurring internalizing and externalizing problems were higher among respondents with past year dependence than those without. Substance dependence, therefore, appears to be a risk factor for COD-MH problems, and substance abuse appears to be a risk factor for externalizing-only problems among victimized adolescents.

Stressors were significantly related to COD-MH and MH problems among victimized adolescents. Adolescents who experienced a larger number of stressors were more likely to have COD-MH problems (versus externalizing-only or neither internalizing nor externalizing problems) than were adolescents with a smaller number of stressors. Additionally, adolescents with a large number of stressors were more likely to have an internalizing-only problem (versus externalizing-only and neither internalizing nor externalizing problems) than adolescents with small number of stressors. Thus stressors appear to be a risk factor for COD-MH and internalizing problems among victimized adolescents.

Research shows stressors activate neurobiological responses necessary for individuals' survival. If they occur frequently, these responses increase the risk of psychopathology in childhood and adolescence. Stressors may particularly trigger the onset of internalizing or externalizing symptoms in adolescents with certain types of genes and environmental experiences (Gunnar & Quevedo, 2007). Moreover, stressors, perceived as uncontrollable events, have also been associated with severity of substance misuse (King & Chassin, 2008) and mental health (Scheniderman, Ironson, & Siegel, 2005; Turner et al., 2006; Turner & Lloyd, 1995). Thus, life stressors are important

factors that must be considered in future research and in substance abuse treatment with adolescents who have COD-MH and MH issues.

Hypotheses

Hypothesis 1 stated adolescents with severe victimization experiences are more likely to exhibit COD-MH problems than they were to exhibit internalizing-only, externalizing-only, and neither internalizing nor externalizing problems. This hypothesis was confirmed for adolescents who were victimized frequently or for a longer duration, who were recently victimized, and who had multiple types of victimization experiences. The hypothesis was not supported, however, for adolescents who were victimized by trusted perpetrators.

For types of severe experiences, frequently victimized adolescents or those victimized for longer duration were more likely to have COD-MH problems (versus an externalizing-only problem), than were adolescents without frequent/long duration victimization experiences. These findings are consistent with research that suggests frequent victimization and/or longer duration victimization can place adolescents at risk for both internalizing and externalizing problems (Finkelman, 1995; Naar-King et al., 2002). One explanation for these findings is that longer duration or frequent victimization experiences may place excessive demands on coping or pose a risk for maladaptive coping due to which adolescents may internalize or externalize their responses to these experiences. Additionally, frequent or long duration experiences imply that adolescents may have been experiencing abuse for a long time that have not been reported. Therefore, they may not have received timely mental health services or services to prevent re-victimization.

Adolescents with multiple types of victimization experiences are more likely to have COD-MH problems (versus externalizing-only or neither internalizing nor externalizing problems), than are adolescents with a single type of victimization experiences. The findings are in line with research that shows multiple types of victimization relate to a greater number of, and more severe, negative outcomes than do single types of victimization (Finkelhor et al., 2007). The traumagenic dynamics involved in more frequent victimization experiences (e.g., powerlessness and betrayal) or repeated negative messages that something is wrong with the victim, or he or she is at fault for the abuse, may increase the likelihood of both internalizing and externalizing behavior problems.

Adolescents who reported being victimized within the past year were more likely to have COD-MH problems (versus internalizing-only or neither internalizing nor externalizing problems) than were adolescents who were victimized more than a year ago. Recently victimized adolescents may still be experiencing abuse or be worried about future abuse. Adolescents currently in abusive relationships have more MH and behavioral problems than do those who had been abused in the past (Luster & Small, 1997). Studies on adults also provide support for the negative effects of recent victimization. Recent abuse among adults has been associated with more dysfunctional coping methods and poorer MH than less recent abuse (Dale et al., 2009).

Hypothesis 2 stated that the indicators of severity of victimization experiences that predict an internalizing-only problem will also predict an externalizing-only problem. This hypothesis was based on the common-factors model of comorbidity,

according to which severe victimization experiences were considered as shared risk factors for both internalizing and externalizing problems.

In the multivariate analysis, after controlling for demographic variables, substance misuse, stressors, and resource variables, adolescents with an internalizing-only problem did not differ from adolescents with an externalizing-only problem on severity victimization characteristics. These findings are in line with the common-factors model, which suggests that type and severity of abuse are common factors for internalizing and for externalizing problems (Bal, Bourdeaudhuij, Crombes, & Oost, 2005).

Hypothesis 3 stated that adolescents with severe victimization experiences are more likely to exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem. Furthermore, adolescents with severe victimization experiences are more likely to exhibit an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

If the same predictors exist for externalizing-only and internalizing-only problems when compared to adolescents with neither internalizing nor externalizing problems, then further support will exist for the common-factors model. This hypothesis was confirmed for all types of severe victimization experiences except victimization by a trusted perpetrator. The three indicators of severity in this study (multiple types of victimization, duration/frequency, and recency) did not differentiate adolescents with internalizing and externalizing-only problems from neither internalizing nor externalizing problems. Thus, the same three predictors existed for externalizing-only problems (versus neither internalizing nor externalizing problems) and internalizing-only problems (versus neither

internalizing nor externalizing problems), providing support for the common-factors model of comorbidity.

Adolescents who were victimized by trusted perpetrators, however, were more likely to have internalizing-only problems (versus neither internalizing nor externalizing problems), than were those victimized by a nontrusted abuser. Adolescents victimized by trusted perpetrators, therefore, may be at higher risk for internalizing problems than those victimized by nontrusted perpetrators. These findings were similar to Trembley et al.'s findings(1999). They found that children victimized by a close adult had more internalizing symptoms than those victimized by a more distant perpetrator, like a stranger or someone outside the family. A betrayal of trust by an emotionally close perpetrator may result in hurtful emotions and internalizing consequences (Leary et al., 1998; Trembley et al., 1999). In contrast, victimization by trusted perpetrators was not significantly related to an externalizing problem. Thus, victimization by trusted perpetrators may not be a shared risk factor for internalizing-only and externalizing-only problems, as predicted by the common-factors model for comorbidity.

Hypothesis 4 stated adolescents with fewer psychological and social resources are more likely to exhibit a COD-MH problem than they are to exhibit an internalizing-only, an externalizing-only, or neither an internalizing nor an externalizing problem. This hypothesis was confirmed for psychological resources but not for social resources. A lower level of psychological resources (self-efficacy related to substance use and global self-efficacy beliefs) were associated with a higher risk for COD-MH problems.

Self-efficacy is an important variable in studies on victims. Victimized children and adolescents have more negative representations of self (Kim & Cicchetti, 2003), and

they often show learned helplessness and hopelessness. Such negative self-perceptions may explain why adolescents reported helplessness in their ability to control their drug use.

Low self-efficacy was significantly related to greater likelihood of COD-MH problems (versus neither internalizing nor externalizing problems). Beliefs are considered important in optimal MH and behavioral functioning. Adolescents with low global self-efficacy and low self-efficacy related to substance use were more likely to have COD-MH problems (versus neither internalizing nor externalizing problem); than did adolescents with high self-efficacy. Other studies have also found an association of low self-efficacy with poorer MH. For instance, in a study comparing maltreated children younger than age 8 with those older than 8, lower levels of social self-efficacy (self-efficacy in conflict situations) were related to higher levels of internalizing problems (Kim & Cicchetti, 2003).

Higher levels of social resources, however, such as received support for victimization issues, and problem-solving social support, were not associated with COD-MH problems. Available sources for emotional support increased, not decreased, the likelihood of COD-MH problems (versus neither internalizing nor externalizing problems). Adolescents with a larger number of people available for emotional support were more likely to have internalizing-only problems, versus neither internalizing nor externalizing problems, and were more likely to have an externalizing-only problem, versus neither internalizing nor externalizing. These findings are contrary to my hypothesis which focuses on the benefits of social support.

The availability of sources of emotional support could have had a positive effect on mental health if the victim actually received support, and these sources of support were valued by the victims. Support has a greater influence on MH if it is the support required to deal with particular stressors (Cohen & Willis, 1985). In this study, available sources of emotional support were evaluated in general terms, not in relation to severe victimization experiences, which may be more important in understanding COD-MH. The measures could not cover multiple support systems available for victims to specifically address their abuse issues. In addition, the measures used were insufficient to evaluate the receipt of support, the context of the support provided and the type of support in detail.

Another possible explanation for the increase in COD-MH problems with the increase in the number of sources of emotional support is differences in characteristics of providers and recipients of support and the valence of the support. Characteristics of both support providers and adolescents may influence adolescents' coping and adjustment to stress, and may be related to COD-MH. Adolescents' display of negative emotions under stress, such as frustration and anxiety, can lead support providers to make unhelpful comments or show discomfort or rejection (more negative interactions). Providers' reactions can have negative effects on victims' MH (Westmass & Silver, 2001). This study did not examine negative exchanges, but they may explain the positive relationship between the number of sources of emotional support and COD-MH problems. This research could not determine the nature of interactions adolescents had with their sources of emotional support.

If adolescents are able to develop and maintain positive relationships with support providers and are able to receive desired support, the support may have beneficial outcomes. Adolescents who experience more stress, however, may not be able to access or maintain desired support systems due to their poor coping or interpersonal skills (Muller & Lemiex, 2000; Osborne & Rhodes, 2001). Some research suggests support providers may not invest effort in supporting individuals who cope poorly or do not attempt to help themselves. In contrast, individuals who work hard to overcome their problems motivate others to help them (Shwarzer & Knoll, 2007).

Finally, the findings that the numbers of sources of support were associated with greater likelihood of COD-MH problems indicate adolescents' support systems may not have been adequate for them to address their MH needs. Adolescents in more distress or those with internalizing and externalizing problems may be more likely to have more support providers after these problems emerge. Consequently, the cross-sectional nature of the study may have accounted for the relationships observed. Longitudinal research may be useful to study how support influences problem development.

Self-efficacy is one of the mechanisms through which social support facilitates better coping with stress and positive outcomes. Support systems related to enhanced self-efficacy are associated with beneficial outcomes (Schwarzer & Knoll, 2007). Although adolescents with severe victimization experiences had higher mean scores on available sources of emotional support than did those who did not have these experiences, they had lower scores on self-efficacy. The analysis in this study did not examine the mediation effect of self-efficacy on the relationship between social support and MH and, therefore, should be examined in future studies.

Hypothesis 5 stated the psychological and social resources that predict an internalizing-only problem will also predict an externalizing-only problem. This hypothesis was confirmed for both the effect of global self-efficacy beliefs and the effect of social resources on internalizing problems and on externalizing-only problems. Lower levels of global self-efficacy beliefs and social resources (number of types of people available for emotional support, problem-solving social support, and support received for victimization issues) appeared to be common factors that did not differentiate adolescents with internalizing-only problems from adolescents with externalizing-only problems. These findings support the common-factors model, which suggests that global self-efficacy beliefs and social resources are common factors for internalizing and for externalizing problems.

Hypothesis 6 stated that adolescents with fewer psychological and social resources are more likely to exhibit an internalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem. Similarly, adolescents with fewer psychological and social resources are more likely to exhibit an externalizing only problem than they are to exhibit neither an internalizing nor an externalizing problem.

This hypothesis was confirmed for the effect of fewer psychological resources on an internalizing-only problem (versus neither an internalizing nor an externalizing problem). In this study, lower self-efficacy related to substance use was associated with a greater risk for an internalizing-only problem than it was for an-externalizing-only problem. Lower self-efficacy related to substance use increased the risk for an internalizing-only problem (versus neither an internalizing nor an externalizing problem). These findings are consistent with previous research that suggests low self-efficacy is

related to higher levels of internalizing problems among victimized children and adolescents (Kim & Cicchetti, 2003) than non-victims.

Although researchers have examined other types of self-efficacy, such as social or academic self-efficacy, (and not global self-efficacy or self-efficacy related to substance use), their findings affirm the importance of self-efficacy as an important individual resource. It appears to be a significant factor in predicting optimal development (Kim & Cicchetti, 2003) and, based on some evidence, internalizing and externalizing problems (Horn & Vanessa, 1997).

This hypothesis was not confirmed for the effect of fewer social resources on an internalizing-only or an externalizing-only problem (versus neither an internalizing nor an externalizing problem). Received support for victimization issues and problem-solving social support were not significantly related to an internalizing-only, and to an externalizing-only problem. The number of types of people available for emotional support, however, was significantly related to both internalizing- and externalizing-only problems, versus neither internalizing nor externalizing problems, providing further support for the common-factor model of comorbidity.

Hypothesis 7 stated psychological and social resources would mediate the relationship between severity of victimization and COD-MH. The hypothesis for mediation was not supported for all group comparisons. Introducing psychological and social resources into the multivariate model did not significantly influence the relationship between severity of victimization and COD-MH problem (versus an internalizing-only problem). Insufficient evidence of mediation was found for the

following group comparisons: COD-MH problems, (versus neither internalizing nor externalizing problems), and COD-MH problems (versus an externalizing-only problem).

Psychological and social resources (global self-efficacy, self-efficacy-related to substance use, and number of types of people available for emotional support) appeared to influence the relationship between duration/frequency of victimization and COD-MH problems, versus neither internalizing nor externalizing problems.

Self-efficacy related to substance use appeared to influence the relationship between duration/frequency and multiple types of victimization and COD-MH problems, versus externalizing-only problems. Although the evidence of mediation in these models was insufficient, it shows the important role of self-efficacy among victimized adolescent substance users. Research has shown that dysfunctional or negative beliefs individuals hold about themselves inhibit their abilities to effectively cope with life stressors (Muller & Lemieux, 2000) such as their ability to effect change in their substance use and adversely affect their MH.

Conclusion. This study provided substantial support for the common-factor model of comorbidity. Several individual and environmental risk factors, such as substance dependence, stressors, and lower levels of psychological and social resources, were related significantly to both internalizing and externalizing problems. Severe victimization experiences consistently emerged as significant predictors for comorbidity and for both internalizing, and for externalizing problems.

Victimization by a trusted perpetrator, however, was the only type of victimization experience that was related to an internalizing-only problem rather than with an externalizing-only problem. This finding shows that although severe

victimization experiences are shared risk factors for comorbidity of internalizing and externalizing problems, some indicators of severity of victimization may place adolescents at greater risk for one problem versus another. This is consistent with studies that show that victimization by trusted perpetrators may increase the risk for internalizing problem (Leary et al., 2008) rather than an externalizing problem (Lawyer et al., 2006).

The literature suggests duration/frequency, multiple types of victimization, recency, and type of perpetrator may place individuals at risk for poorer mental health outcomes. The results of this study are consistent with other findings (such as, Finkelhor et al., 2007). For instance, frequency of victimization was found to be related to co-occurring disorders among adults (Sells et al., 2003), and duration of victimization was found to be related to internalizing problems among adolescents (Naar-King et al., 2002). The indicators of severity of victimization that increased the likelihood of COD-MH problems in this study corroborate the findings of previous research.

Lower self-efficacy was significantly amd positively related to COD-MH or MH problems providing support for low self-efficacy being a shared risk factor for COD-MH problem. The results of the study, however, did not find support for the positive effect of social support on health and well-being. In contrast, the study found that number of types of people available for emotional support was associated with poorer MH outcomes.

Limitations and Implications for Future Research

This study has several limitations that may have affected the results. This research is based on pooled data from multiple individual site studies. The sample included adolescents who were assessed at the time of intake for substance-abuse treatment and therefore is not representative of the nonclinical population. This study is only

generalizable to substance-using adolescents with histories of victimization and who were referred to substance-abuse treatment. As many adolescents assessed for substance abuse treatment are court-ordered, they may have responded in socially desirable ways and may have under-reported externalizing behavior problems. This may have resulted in biased prediction of externalizing-only problems and co-occurring internalizing and externalizing problems.

The results on severe victimization experiences may have been influenced by the timing of the adolescents' assessments. Due to limited time at intake assessment, the clinical staffs are unable to develop rapport with their clients. A good rapport is necessary to discuss sensitive issues such as severe victimization experiences (Perron et al., 2008). In this research, some adolescents may have mistrusted interviewers and given misleading answers. They may not have disclosed abuse, which might have resulted in a large number of adolescents being incorrectly classified as nonvictims and excluded from the study sample. Furthermore, adolescents who reported being victimized in the past may not have endorsed other severe experiences, particularly sexual abuse, due to lack of rapport with the staff conducting the assessments. This may have resulted in cases being excluded from the multiply victimized group of adolescents. There was no way of testing whether these data on severity of victimization was missing due to non-disclosure of victimization experiences or whether the missing data was problematic. If the data is non-ignorable (e.g., non-disclosure causing the missingness could not be measured but may have a negative impact on MH), the inferences based on listwise deletion are biased and inefficient (King et al., 2001). This study used listwise deletion method and missing data

on independent variables because of non-disclosure of abuse may have affected conclusions about the effect of severe victimization experiences on adolescents' MH.

Other limitations include likely bias in adolescents' recall of their experiences. They may not have remembered all the details of their experiences. Because the study is based on self-report data, the findings of the study might differ if multiple informants had been included and any inconsistencies between reports from adolescents and other sources had been evaluated. Using multiple informants may have strengthened the validity of study findings on the effect of severe victimization experiences on COD-MH problems and should be considered in future research.

Another limitation of this research might have been the approach to measuring victimization experiences. Each indicator of severity of victimization studied in this research was measured using one item. Multiple items for each indicator of severity may be useful to examine the range of experiences within each indicator of severity of victimization. For example, for frequent victimization, further questions may be asked regarding the perpetrator involved and the type of victimization experienced frequently. Moreover, multiple types of victimization were limited to three types of victimization, without focus on the context, and did not include a broader range of victimization, such as peer assault, bullying at school, or gang violence. Also, the study had just one item that combined both frequency and duration of victimization, so this study could not assess the independent effects of these characteristics on MH outcomes. An in-depth study of the *characteristics of each severity* indicator (i.e., duration, frequency, a broad range of multiple victimization experiences and recency) may have provided a better understanding of the nature of these experiences and which characteristics of these

experiences (e.g., frequent victimization by a close or distant perpetrator) had the greatest impact on COD-MH, internalizing-only or externalizing-only problems.

Measures that capture subjective views of adolescents' victimization experiences may also be useful to fully understand the effects of these experiences on the likelihood that adolescents will experience both internalizing and externalizing problems. For example, measures may include appraisals of these experiences, attributions of blame, and perceptions of beneficial coping strategies. Additional research with more comprehensive and precise measures assessing the full range of severe victimization experiences among substance-using adolescents is needed to evaluate both internalizing and externalizing problems. Identifying the adolescents' subjective view of their victimization experiences that are related to internalizing and externalizing problems may inform researchers and practitioners as to which indicators of severity are shared risk factors for both internalizing and externalizing problems and which indicators of severity are related to one type of MH problem.

Furthermore, this study did not examine whether type of abuse had an impact on COD-MH problems. Although this research assumed that severity of victimization would result in the same negative outcomes regardless of the type of abuse, future research is needed to further support that number of types of victimization experiences is a more potent predictor of COD-MH than experiencing a single type of victimization.

Another limitation of the study includes the likelihood of under reporting of victimization due to variations in perceptions of victimization, especially among minority groups. Various minority groups comprised a large proportion of adolescents in the sample,

which might have influenced the findings of the study on victimization. Adolescents from different racial/ethnic groups may differ in legitimization of physical abuse by parents and therefore may or may not endorse the item on physical abuse. Physical punishment that may have been considered physical abuse by a Caucasian adolescent may have not been considered abuse by an Asian adolescent. An African American adolescent may have normalized confrontational interaction with his or her caregiver, whereas a Caucasian adolescent may have considered it as an emotional abuse. Therefore, African American adolescents may have been less likely to endorse the item on emotional abuse than Caucasian adolescents. As discussed in previous sections, this may have resulted in non-ignorable missing data on severity of victimization and in inefficient statistical conclusions regarding the effects of severity of victimization on COD-MH.

Future research may focus on developing culturally relevant victimization items for minority adolescents seeking substance-abuse treatment. Research may also evaluate the usefulness of the GAIN-I with diverse racial/ethnic groups. In their study on African American substance abusing adolescents, Perron et al. (2008) noted:

> Psychometrics of the GAIN has not been thoroughly examined among African American adolescents. African-American adolescents, especially those in urban environments, may have different conceptualizations of victimization due to their chronic exposure. Additional research is needed to understand how victimization can be effectively measured across different populations (p. 73).

Another limitation is that the study's mental health findings may not be generalizable to practitioners who use other types of clinical diagnostic approaches. The

COD-MH and MH outcomes in this study were measured using GAIN-I scales. According to Chan et al. (2008), diagnostic impressions based on standardized interviews with GAIN do not fully match the diagnosis by a psychiatrist or a clinician. Although GAIN-I measures are based on DSM-IV criteria, they vary in some aspects. For instance, measures do not use the age of onset criteria on conduct disorder. Additional work is necessary to examine the similarity between the GAIN-I diagnosis and clinician diagnosis of MH problems (Chan et al., 2008). The COD-MH and MH outcomes examined in this research, therefore, may not fully match the diagnostic impressions by a clinician.

This research did not examine other possible outcomes. The study focused on comorbidity of internalizing and externalizing problems only. Adequate research on other types of disorders (e.g., eating disorders among victimized adolescents) does not exist. Future research may investigate a wider range of co-occurring MH disorders and their relationship to victimization histories to further support the negative effect of victimization experiences on adolescents' mental and behavioral health. For example, it may be important to consider ADHD, in future research on co-occuring disorders and in assessing adolescents who are referred to substance abuse treatment. ADHD has been associated with psychiatric comorbidity and problems of substance misuse (American Society of Addiction Medicine, 2007).

This study could not examine all potential predictors of COD-MH. Besides victimization, alternative explanations exist for MH and COD-MH. Depressed parents, for example, pose genetic risks for depression in their children. As depression in the family is associated with family conflict, depressed parents may also pose a risk for

externalizing problems among children. Thus family conflict and parental depression may also explain comorbidity of internalizing and externalizing problems (Caron & Rutter, 1991) among adolescents. Due to a lot of missing data on the variable of socioeconomic status, the study could not include socioeconomic status as a control variable in the analysis. The study findings on the effect of severity of victimization on MH may have been weaker if socioeconomic status or other variables were included in the analysis, as socioeconomic status is one of the major risk factors for victimization and for poor MH outcomes. In addition, if the variables excluded in the study are considered simultaneously with the variables included in the dissertation research, then variables in the dissertation research such as severity of victimization and other predictors may no longer be significant.

This research did not find evidence of a mediating effect of resources on the relationship between victimization experiences and MH for all comparisons. Additional research is necessary to examine pathways to understand why adolescents with severe victimization histories develop COD-MH problems. The mediation analysis in this study focused on a limited number of psychological and social resource variables. Also some of the variables tested for mediation may have been too general and not specific to victimization experiences. Due to the limitations of secondary data analysis, the study could not include victimization-specific variables such as attributions of blame, perception of threat, and coping processes that have empirical support for their mediating effects on the relationship between victimization and outcomes. For instance, studies show that victimization-specific negative appraisals such as blaming oneself for the experience have a negative effect on internalizing and externalizing symptoms (Bal et al.,

2009). Again, if these variables were included in the analyses, they may provide a more comprehensive understanding of COD-MH or they may negate the effect of variables that were significant in the dissertation research.

An additional limitation of the study was the measures used to assess for the effects of resources. For instance, this research could not test whether self-efficacy as a psychological resource was an attribute of an individual or feedback from others in the environment. In addition, the measures of self-efficacy used in the study were not victimization-specific or did not examine coping ability in a variety of stressful situations. An abuse-specific measure or measure that was designed to assess responses in dealing with victimization stress would have been a better measure for examining self-efficacy for this sample of victimized adolescents. Furthermore, the social resources tested for their mediation effect in this study did not capture the full range of perceived and received support that victims may desire, and that could explain variability in their MH outcomes. The full range of support may include such factors as feeling supported and believed by someone they trusted to share their experiences, immediate safety plans developed to prevent their further victimization, and level of satisfaction with the support provided.

The cross-sectional nature of this research limited the argument for temporal conclusions about the direct effects examined and, therefore, the results of this study should be interpreted with caution. For example, MH problems may be contributing factors to victimization experiences. The temporal order of direct and indirect effects is difficult to establish in a cross-sectional research. Longitudinal studies are necessary to examine processes that explain the trajectory of victimization experiences to MH and to

comorbidity of internalizing and externalizing disorders. Despite the cross-sectional nature of this research, however, and other limitations discussed in this section, the existing theoretical literature that establishes a relationship between victimization and negative outcomes provides a strong support for the effects of severity of victimization on COD-MH and MH problems among adolescents.

Implications for Practice

This research found that effects of severity of victimization are not limited to either internalizing- or externalizing-only problems, but may influence co-occurrence of internalizing and externalizing problems. Severity of victimization and co-occurring internalizing and externalizing problems may have a significant negative effect on other behaviors, such as substance misuse. Although this study was not able to tease out the causal relationship between victimization and COD-MH, the relationships found have implications for social work practice with adolescents who present with victimization, mental health, or substance abuse histories.

Assessment

Victimization is not a unidimensional experience. The complex indicators of severe victimization experiences —frequency, duration, recency, type of perpetrator involved—can influence mental health. For instance, adolescents who are multiply victimized may be differentially affected than adolescents who are singly victimized (Finkelhor et al., 2005). Thus assessment of adolescents presenting or substance abuse or mental health must include not only a general assessment of a possible victimization history but involve an in-depth evaluation of any disclosed victimization. This additional depth would encompass specific dimensions of the experience (such as single versus

multiple experiences, ongoing victimization, and so on) and questions about what happened, how it happened, why it happened, and what is to be done (Wall & Levy, 2005). This assessment should also identify victims' perceptions or reactions to theit victimization, and specific resources needed to address their experiences.

A mixed-method instrument including quantitative and qualitative questions may be useful to examine the range of severe victimization experiences among these adolescents. For example, qualitative questions focusing on adolescents' stories of victimization experiences in their own words may be useful to explore context and severity of victimization and the impact on adolescents.

Assessment may also involve examining available resources, gaps in capacity to cope, obstacles to development and growth and key areas of improvement. Adolescents' capacity to cope with victimization, and their risk for poor mental or behavioral health, are affected by other factors, such as the extent to which the experiences were stressful, whether they possess the skills to adjust, or have available social support for interpreting victimization experiences (Gottfredson, 1989).

Coping and vulnerability for developing MH disorders are also influenced by social, environmental and cultural contexts in which adolescents live. For instance, this study found a significant relationship between race/ethnicity and MH problems, which shows the importance of considering racial/ethnic differences among victimized substance-using clients. Differences may be present also in the definitions and perceptions of victimization, which may have resulted in under reporting of victimization and associated MH problems. In addition, race/ethnic differences may be noted in health beliefs that impact help-seeking or response to interventions. To conduct adequate

assessments of potential risks across diverse groups of clients, practitioners' training may include knowledge of different cultural groups and cultural variations in perceptions and definitions of victimization and MH. Furthermore, practitioners must also consider gender and developmental differences in coping and response to victimization. For instance, studies show that coping strategies differ with age (Folkman, Lazarus, Pimley, & Novacek, 1987) and gender.

Girls are more likely than boys to be negatively impacted by experiences of victimization perpetrated by a family member (Drug Strategies, 2010). It is important, therefore, to thoroughly assess for gender as a risk factor for poor MH and whether adolescents need targeted treatment plans that are gender-sensitive. Thus practitioners should thoroughly assess for culture, age and gender as risk factors for MH or COD-MH problems among adolescents with severe victimization histories.

Treatment Planning and Intervention

The assessment process is followed by a treatment planning phase in which practitioners and adolescents develop a priority list of treatment goals and then specify short-term and long-term goals. Short-term goals are formulated to address problems that require immediate attention, such as safety concerns. For instance, this study found that recency of victimization was significantly associated with COD-MH problems. Recent or ongoing victimization may suggest that adolescents are living in abusive environments or worried about future abuse. Therefore practitioners as mandatory reporters may assess for imminent risk and inform child protective services. A safe environment may also be a consideration for victimized adolescents with severe MH or SA problems such as suicidal ideation or substance dependence. Therefore, a short term goal can be to develop and

implement a safety plan to prevent self-harm behaviors such as substanice misuse or re-victimization. The plan may entail placement in an inpatient treatment facility or a controlled recovery environment to ensure safety of adolescents in imminent danger or at imminent risk of serious harm.

Long-term goals: Addressing the history of victimization

A long-term goal is recovery from victimization-related MH or SA problems and prevention of re-victimization. The findings that victimization experiences are associated with negative outcomes highlight the importance of trauma-sensitive treatment (Clark, 2002; Harris, 1998) for substance using adolescents. Trauma-sensitive treatment "refers to incorporating an awareness of trauma and abuse into all aspects of treatment and the treatment environment" (Clark, 2002; p.1). Trauma-sensitivity needs to be incorporated in assessments, placement decisions, and prevention and intervention programs. Furthermore, trauma-informed services in SA treatment require practitioners to simultaneously address trauma and SA. This is in contrast to parallel and sequential or serial approaches to treatment. In parallel approaches, adolescents receive both treatment for trauma and SA at the same time in different settings with different providers. In serial approaches, adolescents receive treatment for SA followed sequentially by treatment for trauma. Both these approaches have been criticized for under-estimating the complex relationships between victimization, trauma and SA issues, emphasizing the need for integrated services (Finkelstein et al.,2004; Hawkins, 2009).

A number of trauma sensitive interventions have been developed and tested for addressing internalizing and externalizing problems among victimized children and adolescents. For instance, Abuse-focused Cognitive-Behavioral Therapy (AF-CBT) is an

evidence-based treatment for physically abused children. The focus is on addressing cognitive distortions, affect regulation, stress management, anger control, coping skills, development of social support plan and skills in enhancing social competence or development of pro-social behaviors. Although the treatment is primarily designed to address externalizing problems among victimized children, improved family and peer interactions may enhance self-efficacy and also reduce their internalizing problems (Cohen, Mannarino, Murray, & Igelman, 2006).

Focusing on treating MH outcomes of specific types of victimization, however, may not cover the full-range of adolescents' treatment needs. It is crucial to address severe victimization experiences that may put them at risk or have harmful effects. According to Cohen et al. (2006), "effective treatment models may target specific symptoms clusters, developmental level, and/or level of severity/chronicity more than specific types of maltreatment/trauma experiences" (p.739). This study found negative MH consequences associated with recent victimization, multiple types of victimization, frequent victimization experiences and for longer duration and, victimization by trusted perpetrators. As a large proportion of adolescents are less likely to have experienced single event victimization, one type of victimization or victimization only by a stranger, it is important for practitioners to understand their complex experiences in developing treatment plans. For instance, this study found that experiences of multiple types of victimization increased the risk for both internalizing and externalizing problems among adolescents. As adolescents often experience multiple types of victimization, interventions must be designed targeting the effects of multiple types of victimizations.

In their review of studies on the treatment of MH consequences of victimization, Cohen et al. (2006) argued that interventions which effectively reduce MH problems in children exposed to one type of victimization are also effective for other types of victimization or for multiple types. For instance, trauma-focused cognitive behavioral therapy (TF-CBT) originally developed for sexual abuse victims has been tested and shown to be effective for multiply victimized children. The model is described using the acronym (CRAFTS) "*c*omponents-based, *r*espect of cultural values, *a*daptable and flexible, *f*amily-focused, *t*herapeutic relationship is central, and *s*elf-efficacy is emphasized (Hoch, 2009; p.184)." As parents are significant contributors to adolescents' development, non-offending parents are part of the treatment program. This model tested on both children and adolescents (3-17 years of age), can be effectively applied to address internalizing and low self-efficacy issues among victimized adolescents (Cohen et al., 2006; Hoch, 2009).

Cognitive behavioral interventions (CBT) based on the premise that individuals can be taught to identify, reflect on, and adapt patterns of thinking and feeling (Dobson & Dozois, 2001; Macy, 2007) may be effective in addressing low self-efficacy beliefs. The CBT component of trauma-focused therapy, coping and safety skills training, creates a sense of mastery and enhances adolescents' self-efficacy. The focus is on skill building in adaptive coping behaviors such as self-management. Specifically coping skills training involves progressive muscle relaxation, breathing exercises, affect expression and regulation skills (e.g., anger management skills for adolescents with externalizing behavior problems, mindful awareness of feelings, affect tolerance skills for adolescents to manage painful emotions and associated behaviors) and cognitive coping.

Cognitive coping refers to the process of identifying relationship between thoughts, feelings, and actions. Adolescents are made aware of unhelpful thinking patterns, the connection between such thoughts and their experiences, and how to identify and develop adaptive thinking. Cognitive processing (through role plays or dialogue between the therapist and the client) changes cognitive distortions (e.g., self-blame) related to victimization to more helpful thought patterns. For instance, victimized adolescents may be helped to reinterpret their victimization experiences as unpreventable circumstances and accept that these experiences were not their fault. Positive self-talk may be used to change negative feelings, and promote relaxation, feelings of safety and hopefulness. This process is useful in enhancing adolescents' self-efficacy.

The model also includes a psycho-education component in which practitioners inform adolescents about characteristics of victimization such as indicators of severity of victimization. For instance, they may give adolescents books on others' experiences of severe victimization and then ask them to write a book about their own victimization experiences. Adolescents develop a trauma narrative and practitioners work with them to create a list of chapters for the book. Writing a trauma narrative trains them to tolerate their feelings and thoughts about their victimization experiences. A sense of control in writing a trauma narrative is useful to counteract their feelings of helplessness. Practitioners validate their experiences and provide a sense of acceptance and being heard. Adolescents are trained in making meaning and changing their views about their victimizaion experiences (Hoch, 2009). For instance, their views may change that they are to be blamed for victimizaiton by trusted perpetrators or they are helpless in preventing multiple types of victimization experiences.

In a game called Survivor's Journey, practitioners introduce structured, engaging fun material to help adolescents share general and personal information about their experiences of severe victimization (Hoch, 2009). Such activities can be used to help adolescents talk about their experiences of multiple types of victimization, frequent or long-term abuse, victimization experiences by trusted perpetrators or recent victimization experiences. This sharing of experiences provides a cathartic fulfillment and can counteract internalizing problems.

With a large number of adolescents in SA treatment reporting victimization histories, it is essential to address victimization issues among these adolescents. A one-size-fits-all approach to treatment (Edokpolo et al., 2010) may not work to address victimization issues among adolescents in SA treatment settings. For example, adolescents with victimization experiences may have more difficulty controlling their substance misuse due to lower self-efficacy beliefs than other adolescents have. They may therefore require more specialized services than general substance-using adolescents. Unlike victimization histories, negative or low self-efficacy beliefs are not fixed and therefore can be altered in clinical interventions. These beliefs are critical in motivating adolescents toward positive change and positive coping strategies (Pajares, 1997; Taylor & Stanton, 2007).

Positive coping can also be promoted by resources in the environment. Social resources accessed or available for victimized adolescents in this study were not significantly related to positive MH outcomes. In contrast, one of the social resources (number of types of people available for emotional support) was positively related to COD-MH problems. On the one hand, despite people being available for emotional

support, adolescents may have been unable to benefit from these people or may have lacked social skills in accessing or using these support systems. On the other, these available people may have shown negative reactions or a lack of support, which may have increased adolescents' likelihood of having COD-MH problems. Thus all support providers may not be effective for victims. Quality of support systems, however, may be more important in preventing MH problems or exacerbating existing MH or behavioral problems among victimized adolescents.

Regardless of what accounts for their limited social support systems, many victimized adolescents would benefit from training in social skills so they can develop positive and maintain meaningful relationships with their support systems. Moreover, practitioners should focus on enhancing positive relationships among family members through training, education, and skill building. This includes promoting positive and supportive relationships among siblings.

Practitioners must, however, use great caution in addressing situations in which the victimization was perpetrated by a trusted person, such as family members. Despite the abuse, adolescents may still have strong bond to them. In such cases, it might be best to start with individual sessions to determine the nature of the relationship and any ongoing safety concerns before transitioning these adolescents to family group activities. Group activities may not be appropriate for victimized adolescents with externalizing behavior problems (e.g., anger/aggression or abusive behaviors) as they may pose a risk to others in the group (Dennis 2004).

In developing safety plans for victimized adolescents, practitioners may not only consider building family-based support systems but also community support systems. For

instance, they can work with school systems to train teachers to identify signs of victimization or to promote programs that prevent peer victimization or bullying.

Long-term goals: Addressing co-occurring mental health issues

Various SA treatment models are designed to address co-occurring problems among adolescents such as abuse-related MH problems. For instance, in the Seven Challenges Program, co-occurring problems are addressed by placing the reason and motivation for substance misuse in perspective. Adolescents are challenged to look at the impact of substance misuse on their lives, to look at their responsibility and the responsibility of others for their problems, to work on problem-solving by making thoughtful decisions about their lives and following through on those decisions (Schwebel, 2009). In MET/CBT7 program, adolescents participate in motivational enhancement and CBT treatment. CBT is used to facilitate alternate skills for coping with situations (e.g., victimization) that may have led to the use of substances (Godley et al., 2008). These treatment models are individually tailored and can be used to address other co-occurring problems among adolescents in treatment, such as internalizing and externalizing behaviors.

Practitioners addressing abuse-related trauma among substance using adolescents may find that they also need to attend to other serious mental and behavioral problems. For instance, an emotionally disturbed female adolescent may engage in self-injurious behavior (e.g., cutting) to reduce internal distress, which can create a physical health risk. Or a male adolescent may act out (e.g., threaten to use or use weapons against other people) which may put him at risk of juvenile justice involvement. If such problems are severe, practitioners will not be able to focus on trauma or SA issues until their

conditions are stabilized. In such cases, practitioners may need to develop a behavior management plan integrated into SA treatment. For instance, they may ask a parent to monitor their child's behaviors during the week, set consequences for engaging in problem behaviors or ask a parent to praise the child when he responds without acting out (Cohen, Berliner, & Mannarino, 2010).

Some of the components of SA treatment models can be useful to address significant behavior problems. For example, a key component of SA treatment services is increasing the level of incentive towards positive change. Motivational interviewing and motivation enhancement techniques in SA treatment models are focused on transferring the incentives to change from external sources (e.g., family, courts) to promoting intrinsic motivation (i.e., a genuine desire to change one's behavior; Breda & Heflinger, 2004). These techniques, focusing on changing attitudes, thoughts and feelings towards problem behaviors, have been found to be successful for treating other conditions and MH disorders (Cohen, Berliner, & Mannarino, 2010). Practitioners may use these approaches to change problem behaviors that are related to risks in other social, physical or psychological domains.

Some models specifically designed to address co-occurring MH problems among substance using adolescents include Seeking Safety and Dialectical Behavior Therapy. Seeking Safety has been developed for adolescents with co-occurring SA and PTSD problems and can be integrated with other treatments. The focus is on safety training to identify and eliminate self-destructive behaviors and to learn new coping skills. Dialectical Behavior Therapy (DBT) has evidence for the treatment of co-occurring disorders among young adults and is a promising approach for treating co-occurring

disorders among adolescents. The treatment blends CBT elements with mindfulness and meditation practices. As emotional vulnerability and an invalidating environment result in emotional dysregulation and high risk behaviors (e.g., self-injury and substance misuse), the focus of DBT is on emotional validation and acceptance along with skills training. Adolescents are taught skills to use when confronted with thoughts, feelings, or situations that cause them to react in unhealthy ways (Chard, & Widiger, 2005). It has been adapted and used to address internalizing and externalizing problems among adolescents in a variety of treatment facilities (Hawkins, 2009). Therefore, it can be a useful approach to address co-occurring MH issues among adolescents in SA treatment settings.

Furthermore, for effective treatments for co-occurring problems, practitioners must be trained in culturally competent detection, prevention, and interventions to cater to the needs of adolescents from diverse groups. For instance, treatment for Hispanics should emphasize family values and involve extended family (Lim, 2008). In culturally competent empowerment programs such as Seven Challenges, problems are placed in the context of broader social and environment issues (Schwebel, 2009). Developmentally and culturally appropriate substance abuse treatment services may improve participation and outcome of treatment (Lim, 2008). To conclude, substance using adolescents with severe victimization histories and co-occurring MH problems require “person-centered, recovery oriented, culturally competent, trauma-informed and co-occurring-capable” systems of care to help address their complex needs and to help achieve their recovery goals (MDCH Communications, 2010).

Prevention

The findings that severe victimization experiences and stressors are risk factors for COD-MH problems have key implications for prevention. They underscore the need for early identification of at-risk children and adolescents to prevent the onset of MH or behavioral problems. Early identification of risk can be done in multiple settings, such as schools, foster care, or juvenile justice residential facilities. Professionals working with children and adolescents in these settings must be made aware of the negative effects of victimization experiences on mental and behavioral health of children and adolescents. They must be trained in identifying at-risk children or adolescents and connecting them to appropriate resources. Timely mental health services can help promote adaptive coping among victimized adolescents and reduce their risk for developing substance abuse or MH problems.

Prevention efforts must also focus on reducing the risk for re-victimization. Adolescents with severe victimization histories and those in current abusive relationships are more likely to be revictimized. As recommended by Perron et al. (2008), prevention efforts in the form of psycho-education and cognitive-behavioral therapy groups included as part of the substance abuse treatment may help reduce the risk of victimization. Prevention efforts may promote use of psychological and social resources that may prevent the onset of mental and behavioral health problems among victimized adolescents.

Summary of Practice Implications

Broadly, the study findings suggest the importance of a holistic approach to assessing and treating substance-using adolescents with a history of victimization.

Multiple individual and environmental factors, such as severity of victimization, COD-MH problems, and low self-efficacy, pose a risk for adolescents' functioning and may affect their participation and outcomes of substance-abuse treatment.

For instance, in this study, severe victimization histories, substance dependence, and stressors were related to COD-MH problems among adolescents. COD-MH problems among substance-using adolescents have been associated with other problems, such as crime involvement and poor treatment response (Chan et al., 2008). A quality treatment plan for substance-using adolescents may require addressing other issues besides substance problems, such as abuse experiences and MH needs. Integrated services for adolescents could be useful, as well as providing SA, MH, and victim services in the same program. Practitioners in SA treatment settings must be trained in assessment, referral, and interventions with adolescents with COD-MH problems and victimization histories. By helping adolescents deal with victimization and COD-MH problems, substance abuse issues may be addressed.

Conclusion

This research highlights the importance of examining indicators of severity of victimization and their effect on COD-MH and MH problems among substance-using adolescents. It underscores the need to consider the contribution of psychological and social resources in protecting adolescents from developing severe co-occurring problems. It contributes to the knowledge of co-occurring disorders by identifying indicators of severity of victimization as significant risk factors for co-occurrence of internalizing and externalizing problems among substance-users. It contributes also to the knowledge of other risk factors, such as stressors and substance dependence, that may explain co-

occurring MH problems among substance-using adolescents. Finally, this research establishes the significance of self-efficacy as a resource in preventing COD-MH problems among victimized substance-using adolescents.

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