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An Evaluation of the Perfectionistic Social Disconnect Model among Ethnic Minority Youth

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Abstract

Interpersonal aspects of perfectionism, particularly perfectionistic self-presentation, have been identified as specific vulnerability factors in the development of depressive disorders during the early adolescent years. The Perfectionistic Social Disconnect Model (PSDM) offers a theoretical framework explaining the relationship between perfectionistic self-presentation (PSP) and depressive disorders. The PSDM suggests that perfectionistic self-presentation leads to depressive symptoms indirectly through interpersonal problems and social disconnection. While previous studies have supported the hypothesized role of social disconnection as a mediator in the relation between perfectionistic self-presentation and suicidal ideation, no studies have explored the role that interpersonal problems play in the model. Furthermore, the generalizability of the model has not been established for community and ethnic minority samples. The present study addresses these gaps by more fully evaluating the PSDM, including the hypothesized interpersonal problems components, as indicated by symptoms of social anxiety, and the social disconnection components, as indicated by loneliness, with depressive symptoms as the outcome variable. The sample includes 289 ethnic minority youth in the 5th, 6th, and 7th grades in three public middle schools in the Chicago area. Mediational analyses show that, as predicted, social anxiety explains the relationship between both PSP and loneliness and PSP and depression. Moreover, results indicate that loneliness mediates the relation between PSP and depression. Support for serial mediation was also found, suggesting that the relationship between PSP and youth depression is mediated

sequentially through both social anxiety and loneliness. The serial mediation

model, however, was only supported for the Latino subsample, and not for the

African American subsample, as revealed by exploratory analyses. These present

findings indicate that different ethnic groups may be differentially affected by

PSP. Findings also suggest that social anxiety may be an important target in the

prevention of depressive disorders in adolescence.

Introduction

Depressive disorders are an extensive and persistent problem among youth in the United States; it is estimated that 1 in 4 adolescents will experience a depressive disorder by the age of 18 (American Psychiatric Association, 2013; Avenvoli, Knight, Kessler, & Merikangas, 2008; Merikangas & Knight, 2009). Depressive disorders are characterized by a pervasive unhappy mood, irritability, a loss of interest and pleasure in activities, and a range of other symptoms, which ultimately lead to significant functional impairment (American Psychiatric Association, 2013). Beyond leading to significant functional impairment in adolescent's daily life, depressive disorders can be life-threatening as they are often accompanied by suicidal ideation and behaviors (American Psychiatric Association, 2013). The Centers for Disease Control and Prevention (2009) estimate that 10.5 to 17.4% of high school students have considered suicide, 8.6 to13.2% have planned on committing suicide, and 4.6 to 8.1% have actually attempted suicide, with females reporting higher attempt rates than males (Centers for Disease Control and Prevention, 2009). Moreover, in 2011 suicide was the third leading cause of death in people ages 10-14, and the second leading cause of death in ages 15-24 at a national level (Centers for Disease Control and Prevention, 2011) with certain ethnic groups such as Cuban Americans and Puerto Ricans being at particular high risk (Oquendo et al., 2001). It is estimated that 90% of all deaths by suicide are caused by mental illness with depressive disorders accounting for 60% of all suicides (Mann et al., 2005). Because depressive disorders are the primary precursor to suicide and suicidal ideation

(Smith & Crawford, 1986), it is important to expand models investigating risk factors to suicidal ideation and behavior to include depressive symptoms more generally.

Adolescents seem to be particularly vulnerable to depressive disorders; rates of depressive disorders almost double between the ages of 13 (8.4%) and 18 (15.4%) (Merikangas et al., 2010). The average age of onset for depression is early to mid-adolescence, between 11 and 14 years or age, when children are typically attending middle school (Kovacs, Feinberg, Crouse-Novak, S.L., & Finkelstein, 1984; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). The sharp increase in depression rates occurring during the middle school years is likely the result of the interaction between the many developmental changes occurring in multiple domains during early adolescence (Cicchetti & Toth, 2009).

As children enter middle school, peers increasingly become an important source of influence and support. During this developmental period, teenagers become especially prone to mood disruptions as they experience increases in their levels of self-consciousness and become more concerned over appearance, social skills, and others' perceptions of them (Cicchetti & Toth, 2009). These changes occurring during early adolescence are hypothesized to be partly responsible for the increased prevalence rates in anxiety and affective disorders in this age group (Birmaher et al., 1996; Cicchetti & Toth, 2009). It is worth noting that ethnic minority youth have been consistently found to be at a higher risk for developing depressive disorders (Merikangas et al., 2010; Wagstaff & Polo, 2012), with Latina adolescents being at a particularly high risk (Twenge & Nolen-Hoeksema,

2002). In addition to facing the normative stressors of early adolescence, minority adolescents face additional stressors linked to their minority status such as a lower socioeconomic status, acculturative stress, and discrimination (G. L. Stein, Gonzalez, & Huq, 2012).

Peer socialization processes and interpersonal problems have been identified as potential mechanisms for the onset and course of depression (Eaves, Silberg, & Erkanli, 2003; Rudolph, 2009). Given the increased importance that peer relationships and peer socialization have during early adolescence, understanding how individual vulnerabilities, stress, and disruptions in social systems affect the development of depression is crucial for better understanding the disorder in this age group. Interpersonal problems are hypothesized to lead to depressive disorders both directly and indirectly; interpersonal problems may lead to depressive disorders through negative beliefs, poor social relations, rejection by others, and/or social isolation (Hammen, 1999; Hammen & Rudolph, 2003; Joiner, 1999). Research exploring the relationship between interpersonal problems and the development of depressive disorders in middle school-aged adolescents could be particularly useful in identifying potential pathways to depressive disorders in an age group where social relations become a central component of self-identity (Seidman, Allen, Mitchell, & Feinmann, 1994; Simmons & Blyth, 1987). Furthermore, testing theoretical models of the pathways to depressive disorders with ethnic minority adolescents is essential to establishing the generalizability of these models, and, more importantly, to

understanding the pathways to the development of depression in particularly high risk groups.

Perfectionism and Perfectionistic Self-Presentation

Perfectionism has been identified as a specific vulnerability factor in the development of depressive disorders (Hewitt & Flett, 1991b, 1993). Perfectionism is a multidimensional personality trait consisting of both interpersonal and intrapersonal components. Hewitt, Flett, Turnbull-Donovan, & Mikail (1991) identify three dimensions of trait perfectionism: (1) self-oriented, where individuals require the self to be perfect; (2) other-oriented, where individuals require others to be perfect; and (3) socially prescribed, where individuals perceive that others require them to be perfect. These three components have been found to contribute to different levels and types of psychopathology, including maladjustment and depressive disorders (Egan, Wade, & Shafran, 2011; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991). For example, psychiatric patients with clinical depression tend to exhibit higher levels of self-oriented and socially-prescribed perfectionism than other psychiatric populations and controls (Hewitt & Flett, 1991a). In particular, socially prescribed perfectionism, an interpersonal form of trait perfectionism, has been identified as a specific vulnerability factor in the development of depressive disorders, with this interpersonal component of perfectionism predicting unique variance in levels of depressive symptomatology (Hewitt & Flett, 1991b, 1993).

Perfectionistic self-presentation (PSP) is a presentational style by which an individual seeks to be perceived as perfect by others by either actively

promoting one's perfection or concealing one's flaws (Hewitt et al., 2003).

Perfectionistic self-presentation is related to trait perfectionism in that both form

part of the larger construct of perfectionism, but each has clear and

distinguishable features (see Figure 1). Hewitt et al. (2003) argue that, while

perfectionists differ in their levels of trait perfectionism, they also differ on their

need to appear perfect to other people and on the extent to which they attempt not

to display or disclose imperfections in public. Perfectionistic self-presentation

differs from trait perfectionism in that trait perfectionism reflects a need to be

perfect whereas perfectionistic self-presentation reflects a need to appear to be

perfect in front of others (Hewitt et al., 2003). In other words, some perfectionists

are primarily concerned with creating an image of perfection, or of being flawless,

in public situations. Hewitt et al. (2003) distinguish between three facets of PSP

based on two general motivational components, which include striving to show

one's perfection, or striving to hide one's imperfections. The three facets of PSP

are (1) perfectionistic self-promotion, where the individual tries to impress others

through demonstrating that he or she is flawlessly capable, moral, successful, etc.;

(2) nondisplay of imperfection, where the individual attempts to conceal any

flaws or imperfections; and (3) nondisclosure of imperfection, where the

individual avoids verbally disclosing any personal flaws or imperfections (see

Figure 1). While self-presentation is essential to smooth social functioning,

maladaptive forms of self-presentation, such as PSP, can lead to a myriad of

negative psychological outcomes acting as risk factors and/or maintaining

mechanisms for different pathologies (Egan et al., 2011; Sherry, Hewitt, Flett,

Lee-Baggley, & Hall, 2007). Some of the negative outcomes of PSP include social anxiety, depression, and increased suicidal ideation (Besser, Flett, & Hewitt, 2010; Roxborough et al., 2012).

Trait Perfectionism [a]	PSP [b]
• "I want <u>to be</u> perfect"	• "I want <u>to appear</u> to be perfect"

• 3 components:
  • Self-oriented
  • Other-oriented
  • Socially Prescribed
	• 3 components:
	  • Perfectionistic Self-Promotion
	  • Nondisplay of Imperfection
	  • Nondisclosure of Imperfection

[a] (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991) [b] (Hewitt et al., 2003)
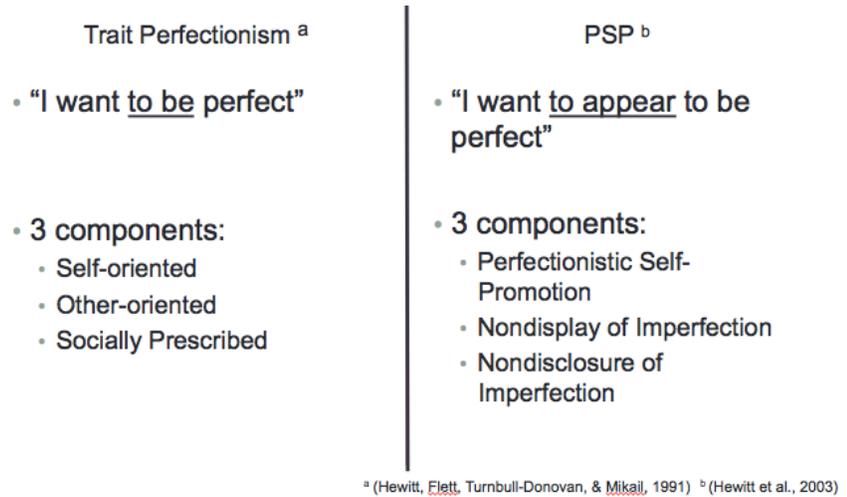
Figure 1. Side by side comparison of Trait Perfectionism and Perfectionistic Self-Presentation

Perfectionism across Culturally Diverse Groups

Scant research has focused on the role culture may have on the development and impact of perfectionism in adolescents' lives. Researchers have suggested that certain cultural groups differ in qualities such as social problem solving, perfectionistic tendencies, and suicide rates. For example, Asian Americans have been noted to have a tendency towards perfectionism (Yee, 1992), and Japanese American and Chinese American adolescents to have higher suicide rates than European Americans (Leong, Leach, Yeh, & Chou, 2007). The scarce research in the area has focused on elucidating the observed differences between Asian Americans and European Americans, given that they represent the

two ends of the collectivistic-individualistic culture continuum. For example, some researchers have suggested that because Asian Americans emphasize interdependence with others, they have a lower independent self-construal than European Americans, which may account for observed differences in cognition, motivation and adjustment (e.g., Markus and Kitayama, 1991). However, the research on the differential effects of perfectionism among other ethnic minorities is scarce, as the research has only focused on a limited number of ethno-cultural minority groups in the United States. Further limiting our understanding of perfectionism in diverse populations is the lack of reporting of socio-economic variables in the perfectionism literature. Studies in this area rarely report on the socioeconomic characteristics of the participants. As a result, it is not possible to draw conclusions on how variables like income or parental levels of education impact the levels of perfectionism. The role that perfectionism plays in the development of psychopathology across diverse populations, therefore, remains largely unexamined.

In terms of ethnicity, scarce research has compared Asian Americans and European Americans, in an effort to focus on comparing groups with both traditional collectivistic and individualistic cultures. A few studies have also included African American participants. For example, in a study with Asian American, African American, and European American college students, Castro and Rice (2008) found that Asian American students endorsed significantly higher levels of perfectionism than the other two groups, but that perfectionism affected these groups in different ways. Higher levels of perfectionism were associated

with depressive symptoms among European American and Asian American students, but not among African American students. Perfectionism was also a predictor of variance in cumulative GPA for the two ethnic minority groups, but not for European American students (Castro & Rice, 2003). In the Asian American sample, doubts over actions were associated with lower GPA but high personal standards were associated with higher GPA. In the African American sample, perfectionistic self-doubt was particularly detrimental as it was associated with the lowers GPAs compared to other groups. Similarly, Chang (1998; 2013) found that trait perfectionism was associated with increased hopelessness and suicide potential, and that ethnic status (Asian American vs. European American) significantly predicted differences in levels of perfectionism with Asian Americans endorsing higher concern over mistakes, doubts about their actions, parental expectations and criticisms (Chang, 1998, 2013), and loneliness (Chang, 2013). Surprisingly, Latinos, who represent the largest ethnic minority group in the United States (Census Bureau, 2015), have not been included in studies on the effects of perfectionism on mental health outcomes.

While culture plays an important role in determining levels of perfectionism and developmental trajectories of perfectionism (Herman, Wang, Trotter, Reinke, & Ialongo, 2003), it has also been found to play a moderating role on the relation between perfectionism and negative outcomes such as depression. In a study by Wang, Puri, Slanley, Methikalam, and Chadha (2012), the relation between perfectionism and depressive symptoms in Indian college students was stronger when the individual high on perfectionism endorsed high

collectivism and high perceived family standards and expectations. Research thus indicates the relation between perfectionism and depression may be stronger among certain minority groups placing high importance on making the family proud than in those from more individualistic backgrounds. It is also possible that perfectionistic self-presentation (PSP) differentially affects individuals from a more collectivistic background and/or who place high importance on succeeding for one's family. It is thus important to consider cultural factors when examining the impact that perfectionism may have on mental health outcomes. Therefore, it is not only relevant to study models of the effects of perfectionism on depressive symptoms, but integrating cultural components into these models is particularly important.

Many Latino families endorse a set of collectivistic cultural values known as "familism" which consist of obligation towards one's family, importance of family unity, and providing and turning for support to one's family (Sabogal, Marín, Otero-Sabogal, Marín, & Perez-Stable, 1987). Previous studies suggest that familism serves as a protective factor (Smokowski & Bacallao, 2008) against several negative outcomes in Latino youth including effects of discrimination (Delgado, Updegraff, Roosa, & Umaña-Taylor, 2011), risky behaviors (Umaña-Taylor, Updegraff, & Gonzales-Backen, 2011), and low self-esteem (Kuhlberg, Peña, & Zayas, 2010; Smokowski & Bacallao, 2007; Smokowski, Rose, & Bacallao, 2008). The literature also suggests that familism may be a protective factor against depression in Latino youth given that Mexican American youths whose parents endorse higher levels of familism report less depressive symptoms

(McHale, Updegraff, Kim, & Cansler, 2009), and that familism is associated with

fewer suicide attempts in Latina teens endorsing suicidal ideation (Kuhlberg et al.,

2010). Based on these previous findings, it is possible that Latino youth who

endorse higher levels of familism may be less negatively affected by

perfectionism than those who endorse low levels of familism.

Perfectionism Social Disconnect Model

Based on observations that many adolescents endorsing suicidal ideation

and behaviors displayed high levels of perfectionism, and on the finding that

socially prescribed perfectionism was a vulnerability factor in the development of

depressive disorders, Hewitt and colleagues (2006) proposed a model connecting

interpersonal perfectionism and suicidal ideation. Their Perfectionism Social

Disconnect Model (PSDM) theorizes that socially prescribed perfectionism-a

perception that others require perfection- leads to suicidal ideation through

interpersonal problems and social disconnection (see Figure 2). In other words,

interpersonal problems such as over-sensitivity and hostility stemming from the

perception that others demand perfection result in social disconnection and

alienation, which in turn may cause an individual to endorse suicidal ideation and

behaviors (Hewitt, Flett, Sherry, & Caelian, 2006). The original goal of the

PSDM was to explain the theoretical and empirically supported link between

perfectionistic traits and suicide attempts as a way to inform future interventions

and facilitate change and recovery (Hewitt et al., 2006). Research has supported

the hypothesized relationship between socially prescribed perfectionism and

suicide behaviors in both adults and adolescents. Socially prescribed

perfectionism is associated with, and accounts for unique variance in, suicidal

ideation in samples of psychiatric adult patients, college students, and psychiatric

adolescent patients (Hewitt et al., 2006; Hewitt, Flett, & Weber, 1994; Hewitt,

Newton, Flett, & Callander, 1997; Yoon & Lau, 2008).

More recently, the Perfectionism Social Disconnect Model (PSDM) has

been expanded to include other maladaptive aspects of interpersonal

perfectionism, which include socially prescribed perfectionism and perfectionistic

self-presentation (PSP). In addition, Sherry and colleagues (2008) expanded the

model to include depressive symptoms as the outcome variable and tested it in a

sample of primarily Asian-Canadian and European-Canadian college students.

Studies have empirically supported the expanded model including all aspects of

interpersonal perfectionism (i.e., socially prescribed perfectionism and PSP), both

subjective and objective social disconnection and depressive symptoms

(Roxborough et al., 2012; Sherry, Law, Hewitt, Flett, & Besser, 2008). Research

has found evidence that PSP is associated with suicide outcomes, and that this

relationship is mediated by social disconnection, thus supporting the role of PSP

as one of the components of the PSDM (Roxborough et al., 2012). Findings

suggest that, on the one hand, PSP leads an individual to become socially aversive

to others by either constantly promoting his/her perfection, or by retreating into

the self and failing to disclose or display any flaws (Hewitt et al., 2003), leading

others to reject the person and even bully him/her, which in turn leads to negative

psychological outcomes (Roxborough et al., 2012). Interpersonal perfectionism

leads individuals to develop feelings of non-mattering, which in turn lead to

feelings of isolation, social hopelessness, and depression (Flett, Galfi-Pechenkov, Molnar, Hewitt, & Goldstein, 2012; Roxborough et al., 2012). For example, Roxborough and colleagues (2012) found, in a sample of primarily European American psychiatric outpatient children and adolescents, that the relationship between maladaptive interpersonal perfectionism and suicide outcomes was mediated by social disconnection as measured by bullying –objective social disconnection –and social hopelessness –subjective social disconnection (Roxborough et al., 2012). Nounopolous (2013) found that ninth grade students endorsing maladaptive aspects of interpersonal perfectionism, including PSP, had poor social relations and connectivity (Nounopoulos, 2013).

There are significant questions that remain to be addressed in the PSDM literature and in the validation of the model, more specifically. While interpersonal problems are hypothesized to mediate the relation between maladaptive aspects of interpersonal perfectionism and social disconnection, there is a dearth of research testing this hypothesized relation. Furthermore, the generalizability of the PSDM has not been fully established in adolescent populations. The first generalizability problem stems from tests of the model among early adolescents having been performed solely with suicidal ideation and behaviors as the primary outcome variables. While some researchers have expanded and tested the model with depressive symptoms as the primary outcome (Sherry et al., 2008) in college students, there is a lack of studies testing the PSDM with depressive symptoms as the primary outcome among other age groups, including younger adolescents. Therefore, the PSDM's ability to predict a

more general depressive symptomology in early adolescence has not been established and is problematic given the strong association of depressive disorders with social aspects of perfectionism (Hewitt et al., 2003) and suicidal ideation and behaviors (Hewitt et al., 1994; Hewitt et al., 1997; Roxborough et al., 2012) in this age group. Furthermore, the model has been tested primarily on referred clinical samples of children and adolescents. Therefore, the lack of generalizability to broader depressive symptomatology is compounded with a limited generalizability to community samples. Using a broader range of depressive symptomatology as the outcome variable will not only help expand the model beyond suicidal ideation and behavior, but will allow testing the model with non-psychiatric early adolescent populations, thus expanding the generalizability of the model to community samples. Lastly, PSDM literature lacks studies testing the PSDM on diverse samples, including ethnic minority youth from the United States. Studies of PDSM have focused primarily on European Canadian and Asian Canadian samples, thus limiting the generalizability of the findings to other ethnic groups, including Latino and African American adolescents. Furthermore, there is no research investigating how different ethno-cultural variables, including socio-economic status, may affect the relationship between perfectionism and depression. Research on the PSDM with ethno-cultural variables incorporated into the model is needed with samples of ethnic minority adolescents, who are at a higher risk of developing depressive disorders (Merikangas et al., 2010).
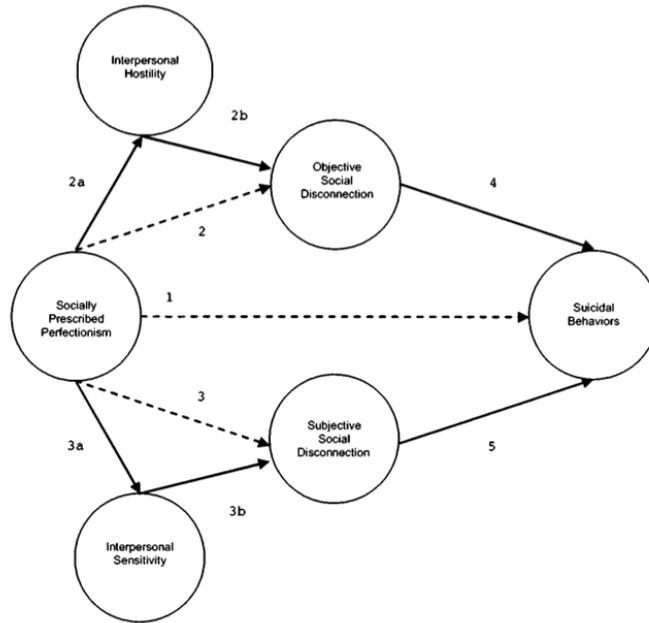
Figure 2. Hewitt et al.'s (2006) Perfectionism Social Disconnect Model

Social Anxiety as Interpersonal Sensitivity

The generalizability of the Perfectionism Social Disconnect Model

(PSDM), is not the only unanswered question with respect to this model. To date,

no studies have investigated the hypothesized role of interpersonal sensitivity in

the context of the PSDM. In their PSDM, Hewitt and colleagues (2006) argue that

interpersonal aspects of perfectionism lead to social disconnection indirectly

through interpersonal problems. For example, interpersonal sensitivity, defined as

"undue and excessive awareness of and sensitivity to the behavior and feelings of

others" (Boyce & Parker 1989, p. 342), has been proposed as an interpersonal

problem stemming from socially prescribed perfectionism. Individuals high on

interpersonal sensitivity often feel inadequate and have a tendency to misinterpret

others' behaviors as signaling rejection, leading these individuals to feel

uncomfortable and fearful in social situations and thus shy away from

interpersonal interactions (Boyce & Parker, 1989; Harb, Heimberg, Fresco, Schneier, & Liebowitz, 2002). When investigating a model of PSDM where PSP is a principal predictor variable, social anxiety may serve as the interpersonal problem mediator between PSP and social disconnection (see Figure 3). Similar to interpersonal sensitivity, social anxiety is associated with maladaptive appraisals of relationships making socially anxious individuals more likely to interpret and react to social situations in a way that is likely to increase negative affect, and thus increase the likelihood of depression (Rudolph, 2009). As mentioned above, interpersonal sensitivity was proposed in the PSDM as preceding social disconnection and suicidal ideation. Even though social anxiety has been found to precede both social disconnection and depression and conceptually fits well as an indicator of interpersonal sensitivity in the PSDM, to date, no studies have explored the role that social anxiety may play in the relationship between PSP and the social disconnection and depression components of the PSDM.

Social anxiety is characterized by a marked fear or anxiety about one or more social situations in which the individual is exposed to the scrutiny of others, and the individual fears acting in a way that will be negatively evaluated (American Psychiatric Association, 2013). While it is natural for humans to fear social exclusion, find ostracism to be painful, and experience social exclusion as punishment (McNeil, 2010), social anxiety disorder represents an extreme form of this fear of social exclusion affecting about 7% of the population in the United States (American Psychiatric Association, 2013). Clark's (2005) cognitive model of social anxiety argues that certain cognitions are activated in social situations

(e.g. self-doubt and the belief that all imperfections must be concealed) which help maintain social anxiety. Similarly, Schlenker and Leary (1982) proposed a self-presentational model of social anxiety arguing that social anxiety arises when a person wishes to make perfect impressions on others but doubts his/her ability to make these impressions, and imagines that others will evaluate him/her negatively. Because nondisplay of imperfection, a facet of perfectionistic self-presentation (PSP), entails "an avoidant or exclusionary style of behavior and involves concern over overt demonstrations of imperfection" (Hewitt et al., 2003, p.1305), nondisplay of imperfection may be an essential component underlying the development of social anxiety. Nondisplay of imperfection reflects an excessive worry about displaying less than desirable, or imperfect behavior in the presence of others that will result in negative evaluations and rejection (Hewitt et al., 2003). Similarly, people with social anxiety are extremely concerned about how they appear to others in social situations, and they try to minimize showing imperfections in social contexts (Jain & Sudhir, 2010).

Research has supported a robust association between PSP and social anxiety. PSP, and more specifically nondisplay of imperfection, seems to be one of the most consistent predictors of unique variance in social anxiety at both the between subjects and within-subjects level, even when controlling for trait perfectionism, perfectionistic cognitions, and depressed mood (Flett, Coulter, & Hewitt, 2012; Flett, Galfi-Pechenkov, et al., 2012; Mackinnon, Battista, Sherry, & Stewart, 2014). Clinical samples of individuals with social anxiety disorder endorse higher levels of nondisplay of imperfection in addition to higher levels of

fear of negative evaluation, greater worry over mistakes, and more doubt over their actions (Jain & Sudhir, 2010). In summary, based on the literature it seems that certain interpersonal perfectionistic tendencies, such as perceiving others as having strict expectations for the self and a concern of falling short of these expectations, contribute to social anxiety (Alden, Ryder, & Mellings, 2002). However, a dearth of longitudinal studies examining the relation between perfectionism and social anxiety prevent determining directionality of the relationship between PSP and social anxiety (Flett & Hewitt, 2014).
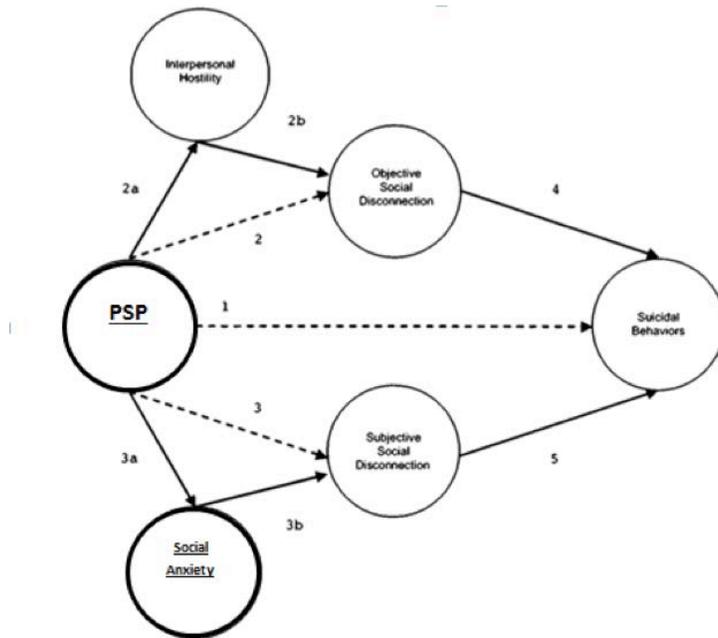
Figure 3. PSDM with Social Anxiety mediating the relation between PSP and subjective social disconnection

Social anxiety may serve as a mediator between PSP and social disconnection given its robust association with PSP and its relationship to social disconnection. Socially anxious individuals have difficulty forming desired social

relationships with peers, and as such experience feelings of loneliness, either because they shy away from interacting with peers, or because their fears invite peers to humiliate or bully them (La Greca & Lopez, 1998). Adolescents with social anxiety do not perceive themselves as being socially accepted (Uhrlass, Schofield, Coles, & Gibb, 2009) and have a tendency to avoid people they do not know and experience socially distressing events but are unable to cope effectively leading these adolescents to be inhibited, and feel socially fearful, lonely, and sad (Beidel, Turner, & Morris, 1999; La Greca & Lopez, 1998; Mash & Wolfe, 2010). Prospective studies have provided evidence that some individuals with social anxiety have a tendency to develop antisocial tendencies (Tillfors, El-Khouri, Stein, & Trost, 2009) thus supporting the role of social anxiety as a potential antecedent for social disconnection.

Socially anxious individuals' tendency to socially disengage is particularly harmful during the adolescents years and has been found to predict depression in younger children (Bolvin, Hymel, & Bukowski, 1995; Rudolph, 2009). Social anxiety often leads to feelings of social isolation, which may ultimately result in a major depressive episode (American Psychiatric Association, 2013; Henderson & Zimbardo, 1998; Turner, Beidel, & Townsley, 1990). Not surprisingly, socially anxious children commonly endorse comorbid depression, especially when their anxiety significantly impairs everyday functioning (Beidel et al., 1999; Bernstein, 1991). Prospective studies on the onset of social anxiety and depression suggest that social anxiety often emerges before depressive symptoms with the presence of social anxiety increasing the risk for developing a depressive disorder

threefold, and that the presence of social anxiety predicts a more malignant future

presentation of the depressive symptoms (Rohde, 2009; M. B. Stein et al., 2001;

Tillfors et al., 2009). The emergence of social anxiety prior to depressive

disorders further supports the role of social anxiety as a potential mediator in the

relation between PSP and depression.

Loneliness as Subjective Social Disconnection

The role of social disconnection in the Perfectionistic Social Disconnect

Model (PSDM) is relatively better established than the role of interpersonal

sensitivity (e.g., Roxborough et al., 2012). However, subjective social

disconnection and interpersonal sensitivity have yet to be addressed within the

same study. In their PSDM, Hewitt and colleagues (2006) argue that social

disconnection, both objective and subjective, mediates the relationship between

perfectionism and depressive symptoms. As mentioned above, individuals high

on perfectionistic self-presentation (PSP) and social anxiety have a tendency to

withdraw from social situations to avoid negative judgment from others. Because

time spent with others is rated as fundamentally more rewarding (Emler, 1994;

Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004), withdrawal and the

incapacity to create a sense of connectedness with others result in health and

emotional decline (Hawkley & Cacioppo, 2010). Humans are social creatures and

a sense of belonging is crucial to our wellbeing (Baumeister & Leary, 1995). As

such, people who experience trouble creating satisfying social connections

experience a sense of deprivation usually expressed through feelings of non-

belonging and loneliness (Baumeister & Leary, 1995; Cacioppo, Hughes, Waite,

Hawkley, & Thisted, 2006; Heinrich & Gullone, 2006).

Loneliness is defined as the subjective perception and experience of social interactions as dissatisfying (Qualter, Brown, Munn, & Rotenberg, 2010) and has been implicated as an important factor predicting quality of life (Karnick, 2005). Loneliness predicts higher morbidity and mortality including increased cardiovascular risk in young adulthood (Caspi, Harrington, Moffitt, Milne, & Poulton, 2006). Loneliness has also been associated with a myriad of negative psychological outcomes including depression (Hagerty & Williams, 1999; Qualter et al., 2010), and suicide (Goldsmith, Pellmar, Kleinman, & Burney, 2002). Interestingly loneliness predicts increases in depressive symptoms longitudinally, but depressive symptoms do not predict increases in loneliness (Cacioppo, Hawkley, & Thisted, 2010). Some have argued that loneliness and depression have some of the same underlying causal origins (Weeks, 1980). For example, beyond increasing depressive symptoms, loneliness also predicts increases in perceived stress, anxiety, and anger, and reductions in self-esteem and optimism (Cacioppo, Hawkley, et al., 2006).

Social withdrawal and social disconnection have previously been defined as loneliness (e.g., Cacioppo et al,. 2010). This disconnection ultimately leads to experience feelings of sadness (Cacioppo et al., 2010; Cacioppo, Hughes, et al., 2006). While often used as a synonym of social disconnection, loneliness has not been studied as a variable within the PSDM. Loneliness does not only seem to be a good indicator of social disconnection, but it seems to be a variable that fits well within the PSDM. Both self-disclosure and social anxiety have been implicated as predictors of loneliness with self-disclosure having a low effect size and social

anxiety having a medium to medium-large effect size (Mahon, Yarcheski,

Yarcheski, Cannella, & Hanks, 2006), thus supporting the role of PSP, especially

nondisclosure of imperfection, and social anxiety as antecedents to loneliness as

an indicator of social disconnection in the PSDM.

Rationale

The Perfectionism Social Disconnect Model (PSDM) was originally

developed to provide a theoretical framework to explain the relationship between

perfectionism, social disconnection, and suicidal ideation (Hewitt et al., 2006).

Previous studies have supported the hypothesized mediational role of social

disconnection in the relation between perfectionism and suicidal ideation and

behaviors (Roxborough et al., 2012; Sherry et al., 2008). However, there are

significant gaps in the literature related to the PSDM that will be addressed by the

present study. First, it is unclear whether the PSDM could explain the

development of a broader symptomatology of depression beyond suicidal ideation

in early adolescence. Second, the PSDM has been tested primarily with

psychiatric populations, thus limiting its generalizability to community samples.

Third, most of the research on perfectionistic self-presentation (PSP) and the

PSDM has been conducted primarily with European Canadian and Asian

Canadian adolescent populations. Thus, the generalizability of the PSDM to

youth representing other cultural and socioeconomic groups has not been

established. In addition, even though culture seems to play an important

moderating role in the relationship between perfectionism and negative mental

health outcomes, no ethno-cultural variables have been considered or incorporated

into the model. Lastly, no studies have been carried out that tested the proposed

meditational effect of interpersonal problems in the relationship between

perfectionism and social disconnection. Therefore, the nature of the relation

between PSP and social disconnection remains unclear. By exploring the role of

social anxiety as mediator in the model, the present study will expand the

understanding of the relationship between perfectionism and social disconnection.

In addition, this will be the first study to simultaneously test the role of social

anxiety (interpersonal sensitivity) and loneliness (subjective social disconnection)

in the PSDM.

The present study will expand the PSDM to include broader symptoms of

depression instead of focusing exclusively on suicidal ideation. Expanding the

outcome variable to include a broader concept of depression will allow for the

model to be tested with a community sample and thus allow for increased

generalizability. In addition, the present study will focus on testing the PSDM in

a sample of predominately low income Latino and African American youth and,

as such, will help determine the generalizability of the PSDM. This study will

also explore the moderating role that familism may have on the relation between

perfectionism and negative outcomes in Latino youth.

Statement of Hypotheses

Primary Hypotheses

Hypothesis 1. The first path that will be evaluated will consist of

evaluating symptoms of social anxiety as a mediator in the relation between PSP

and loneliness, as represented by *a1d21 (*see Figure 4). Based on the role of

interpersonal sensitivity in the PSDM, it is hypothesized that higher PSP will be associated with higher loneliness, and this association will be partially or fully accounted for by symptoms of social anxiety.

Hypothesis II. The second path that will be evaluated will consist of evaluating symptoms of social anxiety as a mediator in the relation between PSP and symptoms of depression, as represented by *a1b1* (see Figure 4). Based on the role of interpersonal sensitivity in the PSDM, it is hypothesized that higher PSP will be associated with higher depressive symptoms, and this association will be partially or fully accounted for by symptoms of social anxiety.

Hypothesis III. The third path that will be evaluated will consist of evaluating loneliness as a mediator in the relation between PSP and symptoms of depression, as represented by *a2b2* (see Figure 4). Based on the role of subjective social disconnection in the PSDM, it is hypothesized that higher PSP will be associated with higher depressive symptoms, and this association will be partially or fully accounted for by loneliness.

Hypothesis IV. The fourth path to be tested is represented by the path a1d21b2 in Figure 4. Based on the PSDM, it is hypothesized that social anxiety and loneliness will serve as serial mediators in the relationship between PSP and symptoms of depression. It is predicted that the data will support a model in which social anxiety is predicted to casually influence loneliness. The mediators (social anxiety and loneliness) are hypothesized to occur in series (as opposed to in parallel) with levels of perfectionistic self-presentation being positively associated with symptoms of social anxiety. Symptoms of social anxiety, in turn,

being positively associated with loneliness, and finally, loneliness being

positively associated with symptoms of depression (see Figure 4). The fourth path

representing the serial mediation hypotheses will also be explored separately for

the two ethnic minority groups represented in the sample: African American and
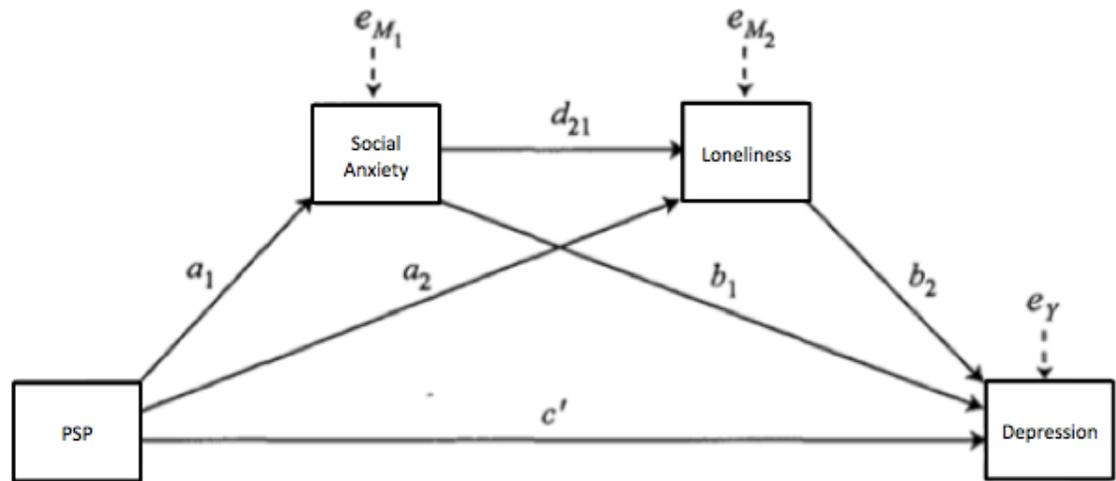
Latino.

Figure 4. Proposed Serial Mediation Model

Secondary Hypotheses

The role of familism as a moderator of the PSDM in the Latino sample

will also be explored via the following exploratory hypotheses.

Hypothesis V. Familism will moderate the relationship between

perfectionism and depression. It is predicted that PSP will be more strongly

associated with depression among youth who endorse lower familism.

Hypothesis VI. Familism will moderate the relationship between

perfectionism and social anxiety. It is predicted that PSP will be more strongly

associated with social anxiety among youth who endorse lower familism.

Hypothesis VII. Familism will moderate the relationship between perfectionism and loneliness. It is predicted that PSP will be more strongly associated with loneliness among youth who endorse lower familism.

Hypothesis VIII. A moderated mediation will be explored. Perfectionistic self-presentation will be positively associated with depressive symptoms and this association will be partially or fully accounted for by social anxiety. Familism will moderate both the relationship between PSP and social anxiety, and the relationship between PSP and depression. It is predicted that PSP will be more strongly associated with social anxiety and depression among youth who endorse lower familism (see Figure 5).

Hypothesis IX. A moderated mediation will be explored. Perfectionistic self-presentation will be positively associated with depressive symptoms and this association will be partially or fully accounted for by loneliness. Familism will moderate both the relationship between PSP and social loneliness and the relationship between PSP and depressive symptoms. It is predicted that PSP will be more strongly associated with loneliness and depression among youth who endorse lower familism (see Figure 6).
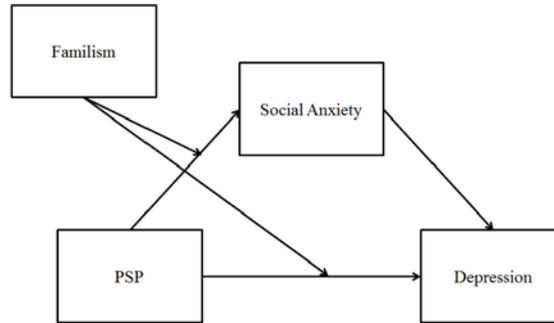
Figure 5. Proposed Moderated Mediation Model with social anxiety as the mediator between PSP and depression and familism as a moderator between PSP and social anxiety and PSP and depression
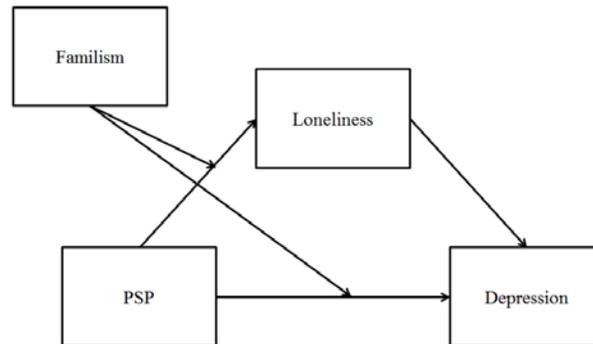
Figure 6. Proposed Moderated Mediation Model with loneliness as the mediator between PSP and depression and Familism as a moderator between PSP and loneliness and PSP and depression

Method

Participants

The present study used data from 289 students between the ages of 10 and 14 ($M = 11.39$; $SD = 0.94$). The sample consisted of 148 females (51.2%) and 141 males (48.8%) in the 5th ($n = 77$; 23.6%), 6th ($n = 108$, 37.4%), and 7th ($n = 104$, 36.0%) grades of three elementary schools in the Chicago metropolitan area.

According to the 2014-2015 enrollment data published by Chicago Public Schools, the first school enrolled 71.3% Latino students, with the second greatest enrolled demographic being African American (23%) and 88.5% of the students in the school were classified as low income; the second school enrolled 77% Latino students, 3.4% African American students and 70.8% of the enrolled students were classified as low income; and the third school enrolled 19.8% Latino students, 70% African American students and 82.4% of the enrolled students were classified as low income by the state of Illinois (Chicago Public Schools, 2015).

The study sample was composed predominantly of ethnic minority students. A total of 62.3% of the participants were Latino ($n = 180$); 16.6% were African American ($n = 48$); 3.3% were European American ($n =10$); 0.7% were Asian American ($n = 2$); and 20.4% reported that they belonged to two or more ethnic groups ($n = 59$). The adolescents who reported being from two or more ethnic groups were 69.5% part Latino ($n =41$); 66.1% were part Black ($n = 39$); 9.8% were part Asian ($n = 5$); and 70.6% were part European American ($n = 36$). The 10 students who reported being only from European American backgrounds were excluded from this study in order to examine the hypotheses with a sample exclusively composed of ethnic minority youth.

Measures

Perfectionistic Self-Presentation Scale –Junior Form (PSPS-Jr). The PSPS-Jr (Hewitt et al., 2011) is a scale adapted from the original Perfectionistic Self-Presentation Scale (PSPS) to be used with children and adolescents. The

scale has a total of 18 statements, which are rated on a 5-point scale from 1 "Strongly Disagree" to 5 "Strongly Agree." The PSPS-Jr, like its parallel adult form, is made up of three subscales. The *Perfectionistic Self-Promotion* subscale consists of 8 items, such as "It is important to act perfectly around other people" and had acceptable internal consistency in this sample ($\alpha = 0.89$). The *Nondisplay of Imperfection* subscale is composed of 6 items, such as "Mistakes are worse when others see me make them" and also had acceptable internal consistency in this sample ($\alpha = 0.71$). Lastly, the *Nondisclosure of Imperfection* subscale consists of 4 items, such as "I do not let other people know when I fail at something" and had a somewhat lower alpha coefficient in this sample ($\alpha = 0.59$). These reliability coefficients are similar to those found in previous published research utilizing this measure (Flett, Coulter, et al., 2012; Hewitt et al., 2011). Because they are different expressions of PSP, these subscales are scored and tested separately (Hewitt et al., 2011).

Multidimensional Anxiety Scale for Children (MASC) Social Anxiety Subscale. The MASC (March, Parker, Sullivan, Stallings, & Conners, 1997) is measure of anxiety divided into four major factors: physical symptoms, social anxiety, harm avoidance, and separation anxiety. For the present study, only the *Social Anxiety* subscale was used. The Social Anxiety subscale is comprised of 9 items, such as "I'm afraid other people will think I'm stupid." Participants rate how true each statement is for them in a 4-point scale from 1 "Never" to 4 "Often." The Social Anxiety subscale of the MASC was found to have acceptable

internal consistency in this sample ($\alpha = 0.88$), similar to that found in previous

published research (March et al., 1997).

Loneliness and Social Dissatisfaction Questionnaire (LSDQ)

Loneliness Subscale. The Loneliness and Social Dissatisfaction questionnaire

(Asher, Hymel, & Renshaw, 1984; Asher & Wheeler, 1985) is a self-report

measure of children's feeling of loneliness and social dissatisfaction in school

settings. The full measure includes 16 items that load unto 2 factors: *Loneliness*

and *Social Satisfaction* (Bagner, Storch, & Roberti, 2004). For this study, only the

Loneliness subscale was collected. This subscale is comprised of 10 items, such

as "I feel alone," which are each rated on a 5-point scale from 1 "Always True" to

5 "Not True at All." The Loneliness subscale had acceptable internal reliability in

this sample ($\alpha = 0.90$), which is consistent with the alpha coefficient reported in

previous published research (Asher & Wheeler, 1985).

Children's Depression Inventory (CDI). The CDI (Kovacs, 1992) is a

measure assessing cognitive, affective, and behavioral symptoms of depression in

children. It is comprised of a 27-item rating scale where participant chose a

statement, out of three, that is most indicative of how he/she has been in the

previous two weeks (e.g., "I am sad once in a while," "I am sad many times'" or

"I am sad all the time"). Each chosen statement for each item is then recoded as

0, 1, or 2 such that higher scores reflect more severe symptoms (Kovacs, 1992).

For this study, item 10, evaluating suicidal ideation, was not collected. This

measure had good internal consistency ($\alpha = 0.86$) in this sample, which is similar

to previous alpha coefficient levels reported for this measure (Figueras Masip, Amador-Campos, Gomez-Benito, & del Barrio Gandara, 2010).

Familism. This familism measure (Gil, Wagner, & Vega, 2000) is a measure aimed at evaluating values and attitudes of familism including loyalty towards the family, family cohesion, and a sense of obligation towards family members. This measure consists of 7 items such as "Family members feel loyal to the family," which are each rated on a 5-point scale from 1 "Strongly Agree" to 5 "Strongly Disagree." The familism scale was found to have acceptable internal reliability in this sample ($\alpha = 0.89$), which is consistent with the alpha coefficient reported in previous research (Gil, Wagner, & Vega, 2000).

Procedure

The present study used data collected from a larger intervention study. The measures used in this study were part of a survey administered as a screening procedure to identify youth at-risk for depression. Recruitment began by making presentations about the surveys in the student classrooms, and handing out recruitment packets that included a brief letter which, along with the parental consent form, were sent home with the students. Parents were asked to review the information and return the signed consent form indicating whether or not they allowed the student to participate in the survey. Students were approached in three elementary schools in the Chicago area. A total of 452 students were approached and received recruitment packets. Signed parental consent forms were returned by 395 (87.4%) of those approached and 310 (78.9 %) indicated they agreed to allow their child to participate. All but 10 students who received

parental consent also assented to participate and completed the survey. Out of the 10 students who did not complete the survey, 8 students were absent and a make-up administration could not be conducted; 1 declined to participate on the day of the surveys; and 1 student transferred to a different school between the time consent was collected and the time of the survey administration. Of the 300 students composing the original dataset, 1 was excluded due to missing data, and 10 (3.3%) were excluded from this study because they identified as European American only.

The survey was administered during the regular school day in the students' classrooms at a time deemed convenient by the teachers and the school staff and administrators. The survey took approximately 45 minutes to complete. After obtaining student assent, a research assistant read the survey items out loud to the participating students. The survey booklets did not include the participant names, only their study-assigned identification number. Additional research assistants served as monitors, who walked around the room to ensure students were following along and answered student questions and concerns. Once the survey was concluded, students participated in a group game while the research team checked for, and collected missing data. A raffle of $5 gift cards (about 1 card for every 5 participants) was conducted for every room. A separate administration in Spanish was conducted with one English Language Learner student who was predominantly Spanish speaking. The Institutional Review Board of DePaul University and the Research Review Board of the Chicago Public School District approved all study procedures.

Results

The dataset was examined for missing data. A negligible percentage of observations were missing (see Table 1). Subjects were excluded from all analyses if they were missing over 50% of observations on any given scale (1 subject was excluded). Within-subject mean imputation was utilized to address the remaining missing observations. Means and standard deviations for the PSPS-Jr. subscales, MASC Social Anxiety subscale, LSD-Q Loneliness subscale, Familism, and the CDI are shown in Table 2. Correlations across all study variables are shown in Table 3.

As hypothesized, all three PSPS-Jr. subscales were positively correlated with depression, indicating that participants endorsing higher levels of PSP also reported higher levels of depressive symptoms. This relationship was statistically significant for the three subtypes of PSP, including Perfectionistic Self-Promotion ($r = .15$, $p < .05$), Nondisplay of Imperfection ($r = .24$, $p < .001$), and Nondisclosure of Imperfection ($r = .30$, $p < .001$). Further, the three factors of the PSPS-Jr. were also positively correlated to symptoms of social anxiety. The positive correlations between symptoms of social anxiety and Perfectionistic Self-Promotion ($r = .23$, $p < .001$), Nondisplay of Imperfection ($r = .39$, $p < .001$), and Nondisclosure of Imperfection ($r = .32$, $p < .001$) were statistically significant. The three facets of PSP were also significantly and positively associated with loneliness; Perfectionistic Self-Promotion ($r = .14$, $p < .05$), Nondisplay of Imperfection ($r = .26$, $p < .001$), and Nondisclosure of Imperfection ($r = .27$, $p < .001$). As predicted, social anxiety was positively associated with loneliness and

depression, such that higher levels of social anxiety were significantly associated with higher levels of loneliness ($r = .54$, $p < .001$) and more depressive symptoms ($r = .51$, $p < .001$). Lastly, in accordance with the hypothesis, loneliness was positively related with depressive symptoms such that higher levels of loneliness significantly predicted more depressive symptoms ($r = .67$, $p < .001$)

Table 1.

Missing observations by scale, N=289.

Scale	Expected Observations	Missing Observations	Percentage of Data missing
PSPS-Jr	5,202	0	0.00%
Loneliness	2,890	2	0.07%
MASC – Social Anxiety	2,601	11	0.42%
CDI	7,514	3	0.04%
Familism	2,023	0	0.00%
TOTAL	20,230	16	0.08%

Table 2.

Means and Standard Deviations for Key Study Variables

	Mean	Standard Deviation	N
Perfectionistic Self-Promotion	2.54	1.00	289
Nondisplay of Imperfection	3.02	0.85	289
Nondisclosure of Imperfection	2.98	0.89	289
Social Anxiety	2.08	0.74	289
Loneliness	1.70	0.78	289
Familism	4.17	0.73	289
CDI	0.34	0.29	289

Table 3.

Correlations across Key Study Variables

	1.	2.	3.	4.	5.	6.	7.
1. PSPS-JR P.S.P.	----						
2. PSP-JR Ndisp.I.	0.57***	----					
3. PSPS-JR Ndisc.I.	0.40***	0.55***	----				
4. MASC-SA	0.23***	0.39***	0.31***	----			
5. LDSQ-Loneliness	0.15*	0.26***	0.26***	0.54***	----		
6. Familism	0.05	-0.04	-0.13*	-0.30***	-0.28***	----	
7. CDI	0.14*	0.23***	0.28***	0.51***	0.68***	-0.40***	--

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

PSPS-Jr P.S.P – Perfectionistic Self-Promotion
PSPS-Jr Ndisp.I. – Nondisplay of Imperfection
PSPS-Jr Ndisc.I. –Nondisclosure of Imperfection

Primary Hypotheses

Hypotheses I through III - Simple Mediation Analyses

Three separate simple mediations were conducted to test hypotheses I, II, and III. In accordance with the literature (Hewitt et al., 2011), each analysis was conducted three times, testing each of the three subscales of the PSPS-Jr independently. The mediational models were tested using PROCESS, a macro for SPSS created by Hayes and Matthes (2009) (http://www.comm.ohiostate.edu/ ahayes/SPSS%20programs/modprobe.htm). Bootstrapping was used to calculate the indirect effects of PSP on loneliness and depressive symptoms. Bootstrapping involves repeatedly drawing a sample, of the same size, from the existing data. Then, the indirect effect is estimated as an unstandardized B weight for each resampled dataset. This process was repeated 10,000 times thus generated an approximation of the underlying sampling distribution of the indirect effect. This approximation was used to create confidence intervals for the indirect effects. An effect was considered to be significant if zero was not contained in the confidence

interval (Hayes, 2013). Even though it only produces unstandardized B weights, bootstrapping was preferred over other methods of testing indirect effects given that it does not assume normality (Hayes, 2013).

The models were tested with (results not shown) and without gender as a covariate and the results were similar. The model without a covariate was preferred as it allowed for the calculation of Preacher and Kelley's (2011) kappa squared effect size estimate. This standardized effect size is used to represent the strength of an indirect effect (effect of the independent variable on an outcome variable through a mediator) and is the proportion of the total possible effect that is shown by the sample (Preacher & Kelley, 2011).

Hypothesis I. As predicted, social anxiety was a significant mediator in the relationship between each of the three factors of perfectionistic self-presentation (PSP) and loneliness. The indirect effect of perfectionistic self-promotion on loneliness through social anxiety was significant, $b = 0.10$, 95% BCa CI [0.05, 0.17] and of a relatively medium size, $k^2 = 0.13$, 95% BCa CI [0.06, 0.21] based on Preacher and Kelly's (2011) guidelines for interpreting k^2 (see Table 4). Similarly, the indirect effect of nondisplay of imperfection on loneliness through social anxiety was significant, $b = 0.19$, 95% BCa CI [0.13, 0.27] and represented a medium to large effect size $k^2 = 0.20$, 95% BCa CI [0.14, 0.28]. Lastly, the indirect effect was significant for nondisclosure of imperfection, $b = 0.14$, 95% BCa CI [0.08, 0.21] and represented a medium to large effect size, $k^2 = 0.16$, 95% BCa CI [0.10, 0.24].

Table 4.

Regression coefficients evaluating the role of social anxiety as a mediator of the relationship between PSP and loneliness.

	c		c'		Indirect Effect		
	b	95% CI	b	95% CI	b	95% CI	% reduction
Perfectionistic Self-Promotion	0.12	[0.03 0.21]	0.02	[-0.06, 0.10]	0.10	[0.04, 0 .16]	83
Nondisplay of Imperfection	0.24	[0.13, 0.34]	0.05	[-0.05, 0.15]	0.19	[0.12, 0.27]	79
Nondisclosure of Imperfection	0.23	[0.13, 0.33]	0.09	[0.00, 0.18]	0.14	[0.08, 0.21]	61

c= total effect of PSP on loneliness, c' = direct effect of PSP on loneliness , % reduction = percent reduction in b from c to c'

Hypothesis II. As hypothesized, social anxiety was a significant mediator in the relation between the three facets of PSP and depressive symptoms (see Table 5). The indirect effect was significant for perfectionistic self-promotion b = 0.03, 95% BCa CI [0.02, 0.06] and of relatively medium size, $k^2 = 0.12$, 95% BCa CI [0.06, 0.20]. Similarly, the indirect effect of nondisplay of imperfection on depressive symptoms through social anxiety was significant b = 0.07, 95% BCa CI [0.04, 0.10] and represented a medium to large effect size $k^2 = 0.19$, 95%BCa CI [0.13, 0.27]. Lastly, the indirect effect was also significant for nondisclosure of imperfection b = 0.05, 95% BCa CI [0.03, 0.07] and of medium size $k^2 = 0.15$, 95% BCa CI [0.09, 0.22].

Table 5.

Regression coefficients evaluating the role of social anxiety as a mediator of the relationship between PSP and depression

	c		c'		Indirect Effect		
	b	95% CI	b	95% CI	b	95% CI	% reduction
Perfectionistic Self-Promotion	0.04	[0.01, 0.07]	0.01	[-0.02, 0.04]	0.03	[0.02, 0.06]	75
Nondisplay of Imperfection	0.08	[0.04, 0.12]	0.01	[-0.03, 0.05]	0.07	[0.04, 0.10]	88
Nondisclosure of Imperfection	0.09	[0.06, 0.13]	0.04	[0.01, 0.08]	0.05	[0.03, 0.07]	56

c= total direct effect of PSP on depression, c' = direct effect of PSP on depression, % reduction = percent reduction in b from c to c'

Hypothesis III. As noted in Table 6, loneliness was a significant mediator in the relation between the three facets of PSPS and depressive symptoms. The indirect effect of perfectionistic self-promotion on depressive symptoms through loneliness was significant, b = 0.03, 95% BCa CI [0.01, 0.06] and of medium size, $k^2 = 0.12$, 95% BCa CI [0.02, 0.21] Similarly, the indirect effect of nondisplay of imperfection on depressive symptoms through loneliness was significant, b = 0.06, 95% BCa CI [0.03, 0.09] and of medium to large effect size $k^2 = 0.19$, 95%BCa CI [0.11, 0.28]. Lastly, the indirect effect of nondisclosure of imperfection on depressive symptoms through loneliness was significant b = 0.05, 95% BCa CI [0.03, 0.08] and represented a medium to large effect size $k^2 = 0.19$, 95% BCa CI [0.10, 0.27].

Table 6.

Regression coefficients evaluating the role of loneliness as a mediator of the relationship between PSP and depression

	c		c'		Indirect Effect		
	b	95% CI	b	95% CI	b	95% CI	% reduction
Perfectionistic Self-Promotion	0.04	[0.01, 0.07]	0.01	[-0.01, 0.04]	0.03	[0.01, 0.06]	75
Nondisplay of Imperfection	0.08	[0.04, 0.12]	0.02	[-0.01, 0.05]	0.06	[0.03, 0.09]	75
Nondisclosure of Imperfection	0.09	[0.06, 0.13]	0.04	[0.01, 0.07]	0.05	[0.03, 0.08]	56

c= total effect of PSP on depression, c' = direct effect of PSP on depression, % reduction = percent reduction in b from c to c'

Hypothesis IV - Serial Mediation Analyses

A serial mediation model was tested using the procedures outlined by Hayes (2013). PROCESS was used to conduct all analyses. Three separate models were evaluated, one for every component of PSP. Serial mediation analyses assume that one mediator casually influences the other mediator. In the present two-mediator in serial model (see Figure 4) a component of Perfectionistic Self-Presentation (PSP) is considered to influence symptoms of depression through 4 pathways (see Figure 4). There are 3 indirect pathways in this model: (1) PSP to symptoms of depression through symptoms of social anxiety only (a_1b_1); (2) PSP to symptoms of depression through loneliness only (a_2b_2); and (3) PSP to symptoms of depression through symptoms of social anxiety and loneliness, in serial, with social anxiety affecting loneliness ($a_1d_{21}b_2$; Hypothesis IV). The fourth pathway is a direct pathway from PSP to symptoms of depression (*c'*) (see Preacher and Hayes, 2008 and Taylor, MacKinnon, &

Tein, 2008). Bootstrapping was used to conduct the inference tests for the

indirect effects.

Hypothesis IV was supported for all three subscales of the PSPS-Jr (see

Table 7). When testing serial multiple mediation, the specific indirect effect of

perfectionistic self-promotion on depressive symptoms through both social

anxiety and loneliness was significant, b=0.02, 95% BCa CI [0.01, 0.04], thus

supporting hypothesis IV for this subscale of the PSPS-Jr. Similarly, the specific

indirect effect of nondisplay of imperfection on depressive symptoms through

both social anxiety and loneliness was significant b=0.04, 95% BCa CI [0.02,

0.06]. Lastly, the specific indirect effect nondisclosure of imperfection on

depressive symptoms through both social anxiety and loneliness as serial

mediators was also significant, b = 0.03, 95% BCa CI [0.02, 0.05].

Table 7.

*Regression coefficients for serial mediation analyses with social anxiety and
loneliness as mediators in the relationship between PSP and depression.*

	c		c'		Indirect Effect		
	b	**95% CI**	**b**	**95% CI**	**b**	**95% CI**	**% reduction**
Perfectionistic Self-Promotion	0.04	[0.01, 0.07]	<0.002	[-0.02, 0.03]	0.02	[0.01, 0.04]	96
Nondisplay of Imperfection	0.08	[0.04, 0.12]	-0.001	[-0.03, 0.03]	0.04	[0.02, 0.06]	101
Nondisclosure of Imperfection	0.09	[0.06, 0.13]	0.03	[0.00, 0.05]	0.03	[0.02, 0.05]	67

c= total effect of PSP on depression, c' = direct effect of PSP on depression when controlling for social anxiety and loneliness, indirect effect = effect of PSP on depression through social anxiety and loneliness, % reduction = percent reduction in b from c to c'

The full model (Hypothesis IV) was tested twice, once with the Latino

subsample and once with the African American subsample. Youth of mixed

ethnic backgrounds who were both African American and Latino were (n = 22)

were excluded in both models, in order to allow ease of comparison between the

two groups.

Latino Sample. Analyses with the Latino sample indicated that social

anxiety and loneliness act as mediators, in series, between the three facets of PSP

and symptoms of depression. The indirect effects for perfectionistic self-

promotion (b = 0.03, 95% BCa CI [0.01, 0.05]), nondisplay of imperfection (b =

0.05, 95% BCa CI [0.03, 0.08]), and nondisclosure of imperfection (b = 0.03,

95% BCa CI [0.01, 0.06], were all significant (see Table 8).

Table 8.

Serial Mediation Regression coefficients for the Latino subsample.

	Latino Sample (n=180)						
	c		c'		Indirect effect		
	b	95% CI	b	95% CI	b	95% CI	% reduction
Perfectionistic Self-Promotion	0.09	[0.04, 0.13]	0.03	[-0.01, 0.06]	0.03	[0.01, 0.05]	66
Nondisplay of Imperfection	0.10	[0.06, 0.15]	0.01	[-0.03, 0.04]	0.05	[0.03, 0.08]	90
Nondisclosure of Imperfection	0.10	[0.05, 0.14]	0.02	[-0.01, 0.06]	0.03	[0.01 0.06]	80

c = total effect of PSP on depression, c' = direct effect of PSP on depression when controlling for social anxiety and loneliness, indirect effect = effect of PSP on depression through social anxiety and loneliness, % reduction = percent reduction in b from c to c'

African American Sample. The serial mediation model proposed in

Hypothesis IV was tested with the African American sample only. Analyses indicated that social anxiety and loneliness did not act as mediators, in series, between the three facets of PSP and symptoms of depression. The indirect effects for perfectionistic self-promotion (b = 0.00, 95% BCa CI [-0.01, 0.03]), nondisplay of imperfection (b = 0.02, 95% BCa CI [0.00, 0.06]), and nondisclosure of imperfection (b = 0.03, 95% BCa CI [0.00, 0.08], were not significant (see Table 9).

Table 9.

Serial Mediation Regression coefficients for the African American subsample.

| | African American Sample (n=48) | | | | | |
| | c | | c' | | Indirect effect | |
	b	95% CI	b	95% CI	b	95% CI
Perfectionistic Self-Promotion	-0.02	[-0.09, 0.04]	-0.01	[-0.06, 0.04]	0.00	[-0.01, 0.03]
Nondisplay of Imperfection	-0.02	[-0.11, 0.06]	-0.04	[-0.11, 0.03]	0.02	[0.00, 0.06]
Nondisclosure of Imperfection	0.02	[-0.05, 0.09]	-0.01	[-0.07, 0.05]	0.03	[0.00, 0.08]

c = total effect of PSP on depression, c' = direct effect of PSP on depression when controlling for social anxiety and loneliness, indirect effect = effect of PSP on depression through social anxiety and loneliness, % reduction = percent reduction in b from c to c'

To further explore differences in the relationships among the key variables of the study between the African American and Latino students, bivariate correlations are presented in Table 10, and are compared using Fisher r-to-z transformations, calculated using the online calculator provided by Richard Lowry (http://vassarstats.net/rdiff.html), in Table 11. Among Latinos, higher

scores on the perfectionistic self-promotion subscale significantly and positively associated with the mental health variables (e.g., social anxiety and depression). In contrast, the same PSPS-Jr. scale was not significantly associated with loneliness or depression among African Americans. For example, the correlation between perfectionistic self-promotion and depression among Latinos is positive and significant ($r(180)=0.29$, *p<0.01*), while it is negative and non-significant among African Americans ($r(48)=-0.10$, *p>0.05).* Similarly, nondisplay of imperfection was significantly and positively associated with depression for the Latino sample ($r(180)=-0.31$, *p>0.01),* but had a non-significant and negative association for the African American sample ($r(48)=-0.09$, *p>0.05*). Interestingly, the z transformations indicate that this pattern of results was unique to perfectionistic self-promotion and nondisplay of imperfection and the lack of significant correlation between nondisclosure of imperfection and depression may be a power issue due to the smaller sample size for African Americans.

Table 10.

Correlation among key study variables for the Latino and African American subsamples

Latino Sample (n = 180)							
	1.	2.	3.	4.	5.	6.	7.
1. PSPS-Jr P.S.P.	----						
2. PSP-Jr Ndisp.I.	0.59***	----					
3. PSPS-Jr Ndisc.I.	0.43***	0.56***	----				
4. MASC-SA	0.29***	0.40***	0.30***	----			
5. LDSQ-Loneliness	0.25**	0.33***	0.30***	0.61***	----		
6. Familism	-0.04	-0.08	-0.10	-0.32***	-0.32***	----	
7. CDI	0.29**	0.31***	0.30***	0.55***	0.73***	-0.36***	--
African American Sample (n = 48)							
1. PSPS-Jr P.S.P.	----						
2. PSP-Jr Ndisp.I.	0.53***	----					
3. PSPS-Jr Ndisc.I.	0.40**	0.62***	----				
4. MASC-SA	0.07	0.25	0.39**	----			
5. LDSQ-Loneliness	-0.09	0.01	0.12	0.42**	----		
6. Familism	0.17	0.05	-0.24	-0.26	-0.27	----	
7. CDI	-0.10	-0.09	0.09	0.40**	0.66***	-0.18	--

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

PSPS-Jr P.S.P – Perfectionistic Self-Promotion
PSPS-Jr Ndisp.I. – Nondisplay of Imperfection
PSPS-Jr Ndisc.I. –Nondisclosure of Imperfection

Table 11.

Significance of the Difference between the Correlation Coefficients in the Latino and African American Sample using Fisher r-to-z Transformation

	1.	2.	3.	4.	5.	6.	7.
1. PSPS-Jr P.S.P.	----						
2. PSP-Jr Ndisp.I.	0.52	----					
3. PSPS-Jr Ndisc.I.	0.22	-0.55	----				
4. MASC-SA	1.37	0.55	-0.61	----			
5. LDSQ-Loneliness	2.07*	1.99*	1.13	1.56	----		
6. Familism	-1.27	-0.78	0.87	-0.39	-0.33	----	
7. CDI	2.39**	2.46*	1.31	1.17	0.81	-1.17	---

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

PSPS-Jr P.S.P – Perfectionistic Self-Promotion
PSPS-Jr Ndisp.I. – Nondisplay of Imperfection
PSPS-Jr Ndisc.I. –Nondisclosure of Imperfection

Secondary Hypotheses – Familism as a Moderator

Hypothesis V. As shown on Table 12, the interaction coefficients

associated with the cross-products of the three facets of PSP and familism were

not significant in the model, revealing that familism does not act as a moderator in

the relation between PSP and depression. As a reminder, these analyses were

conducted for the Latino sample only (n = 180).

Table 12.

*Regression coefficients evaluating the role of familism as a moderator of the
relationship between PSP and depression.*

	b	95% BCa CI
Perfectionistic self-promotion*familism	0.02	[-0.03, 0.07]
Nondisplay of imperfection*familism	0.04	[-0.02, 0.09]
Nondisclosure of imperfection*familism.	-0.02	[-0.09, 0.04]

Hypothesis VI. As shown on Table 12, the interaction coefficients

associated with the cross-products of the three facets of PSP and familism were

not significant in the model, indicating that familism does not act as a moderator

in the relation between PSP and social anxiety. As a reminder, these analyses

were conducted for the Latino sample only (n = 221).

Table 13.

Regression coefficients evaluating the role of familism as a moderator of the relationship between PSP and social anxiety.

	b	95% BCa CI
Perfectionistic self-promotion*familism	-0.03	[-0.16, 0.10]
Nondisplay of imperfection*familism	-0.03	[-0.16, 0.11]
Nondisclosure of imperfection*familism.	-0.07	[-0.24, 0.10]

Hypothesis VII. As shown on Table 13, the interaction coefficients associated with the cross-products of the three facets of PSP and familism were not significant in the model, indicating that familism does not act as a moderator in the relation between PSP and loneliness. As a reminder, these analyses were conducted for the Latino sample only (n = 221).

Table 14.

Regression coefficients evaluating the role of familism as a moderator of the relationship between PSP and loneliness.

	b	95% BCa CI
Perfectionistic self-promotion*familism	0.02	[-0.12, 0.15]
Nondisplay of imperfection*familism	-0.02	[-0.17, 0.13]
Nondisclosure of imperfection*familism.	-0.05	[-0.23, 0.13]

Hypotheses VIII and IX. Because exploratory hypotheses V through VII were not supported, exploratory hypotheses IV and V were not analyzed.

Conclusions

The Perfectionism Social Disconnect Model (PSDM) provides a theoretical framework to explain the relationships between perfectionism, social disconnection and depressive symptoms (Hewitt et al., 2006). The PSDM proposes that perfectionistic self-presentation indirectly leads to depressive symptoms through interpersonal sensitivity and social disconnection. While previous studies have provided support for the PSDM (e.g., Roxborough et al. 2012; Sherry et al. 2008), there continue to be significant gaps in the literature, which the present study sought to address. First, building on previous research, the present study is among the first to explore depressive symptoms as an outcome, rather than simply suicidal ideation and behaviors. Expanding the model to include broader depressive symptomatology as the outcome is important given that depression affects almost 25% of all adolescents in the United States (American Psychiatric Association, 2013; Avenvoli et al., 2008; Merikangas & Knight, 2009), and is the primary precursor to suicidal ideation and behaviors (Mann et al., 2005; Smith & Crawford, 1986).

Second, beyond broadening the PSDM to depressive symptomatology, the present study is the first to test the proposed meditational effect of interpersonal problems in the relationship between perfectionism and social disconnection, and the relationship between perfectionism and depressive symptoms. Thus, the present study expands the PSDM literature by investigating whether social anxiety, an indicator of interpersonal sensitivity, serves as a mediator in the PSDM. As hypothesized, social anxiety mediated the relationship between PSP

and loneliness, and between PSP and depression. These findings are significant as they serve to corroborate the role that interpersonal problems play in the PSDM. Furthermore, these findings suggest that social anxiety may be an important target in the prevention of depressive disorders in adolescence. Previous studies have found social anxiety to precede both loneliness (American Psychiatric Association, 2013; Henderson & Zimbardo, 1998; Turner, Beidel, & Townsley, 1990) and depression (Rohde, 2009; M. B. Stein et al., 2001; Tillfors et al., 2009). Individuals endorsing social anxiety have a marked fear of acting in a way that will be negatively evaluated (American Psychiatric Association, 2013). For this reason, socially anxious individuals tend to disengage leading to feelings of social isolation, which ultimately result in depressive symptoms (American Psychiatric Association, 2013; Henderson & Zimbardo, 1998; Turner et al., 1990). Targeting social anxiety in early adolescents may help these individuals to develop satisfying social interactions and thus avoid social disconnection, such as loneliness, and ultimately depressive symptoms. The results of the present study suggest that social anxiety is linked to PSP. The temporal direction of these relations, however, is not well understood. Future studies should investigate the temporal relation between PSP and social anxiety. Knowing the temporal emergence of PSP and social anxiety is needed in order to help better tailor both prevention and intervention programs. In their PSDM, Hewitt and colleagues (2006) argue that social disconnection, both objective and subjective, mediates the relationship between perfectionism and depressive symptoms. Among this sample of ethnic minorities, support for that proposition was found, as loneliness

served as a mediator of the relationship between PSP and depression, thus highlighting the usefulness of loneliness as an indicator of the larger construct of subjective social disconnection. The present findings are in line with previous literature (Roxborough et al., 2012; Sherry et al., 2008) and serve to reiterate the role that social disconnection plays in the emergence of depressive symptoms in adolescents endorsing high levels of PSP.

Third, beyond being the first study to test the role of interpersonal sensitivity in the PSDM, the present study is the first to directly evaluate a set of paths proposed by the PSDM via serial mediation analyses. The present finding found that the data are consistent with the proposition that PSP leads to interpersonal problems (i.e., social anxiety), which in turn lead to social disconnection (i.e., loneliness), which then result in depressive symptoms. This finding is relevant as it serves to corroborate the indirect nature of the relation between PSP and depressive symptoms proposed by the PSDM. It is worth noting that these findings were present for all three facets of PSP, which suggests that these are robust findings for different aspects of perfectionism, but also raises the question as to whether or not separating the subscales is useful, as others have suggested.

Fourth, the presented study is the first to test the PSDM in a sample including the two largest ethic minority groups in the United States (Census Bureau, 2015). The test of the PSDM in African American and Latino youth is significant as the PSDM literature is limited in its generalizability due to the model having been tested primarily with psychiatric populations of European

Canadians and Asian Canadians, and to the limited information provided on the socioeconomic composition of these populations. Overall, the present study shows that many of the links hypothesized in the PSDM appear to be valid for ethnic minority youth of predominately low-income backgrounds drawn from a school sample as perfectionistic self-presentation (PSP) was associated with higher levels of social anxiety loneliness and depression in the overall sample.

Exploring the PSDM in different ethic groups allowed the present study to uncover how the PSDM might work differently for different ethnic groups. The relations between PSP and negative outcomes proposed by the PSDM were found to be significant in the subsample of Latino youth, and very much consistent with previous findings with samples of older adolescents and young adults of European and Asian backgrounds. These findings are of special significance as this is one of the first studies to explore the PSDM with a Latino sample. However, these same relations were not significant in the African American sample, and they are not simply attributable to the larger sample size (and corresponding power) of the Latino subsample in the study. This lack of significant indirect effects is in contrast with the findings with the Latino sample indicating that the Perfectionistic Social Disconnect Model may not apply for African American individuals. Of special note are the relationships between perfectionistic self-promotion and depression and nondisplay of imperfection and depression; perfectionistic self-presentation and nondisplay of imperfection were positively associated with depressive symptoms among Latinos, but the direction of these relationships was negative among African Americans. The findings are consistent

with previous literature indicating that perfectionism affects ethnic groups in different ways. For example, higher levels of perfectionism have been shown to be associated with depressive symptoms in some ethnic groups but not in African Americans (Castro & Rice, 2003). These findings indicate that ethnicity acts as a moderator in the PSDM. Future studies should investigate what specific cultural variables help explain why the PSDM may apply to some ethno-cultural groups but not others.

Fifth, the present study is also among the first to investigate the role that specific ethno-cultural variables play as potential moderators in the PDSM. The present study evaluated familism, an ethno-cultural variable, as a possible moderator in the PSDM. In line with previous literature, higher levels of familism predicted lower levels of social anxiety, loneliness, and depression, thus suggesting that familism may serve as a protective factor in the development of negative health outcomes among Latino adolescents (Delgado et al., 2011; Kuhlberg et al., 2010; McHale et al., 2009; Smokowski & Bacallao, 2008; Smokowski & Bacallao, 2007; Smokowski et al., 2008; Umaña-Taylor et al., 2011). Interestingly, contrary to the hypothesis, familism was generally not significantly associated with PSP, except for a small but significant negative relationship with nondisclosure, and familism did not act as a moderator in the PSDM. These findings contrast with Wang et al.'s (2002) findings that the relation between perfectionism and depressive symptoms is stronger when individuals endorse high collectivism and high perceived family standards and expectations (Wang et al., 2012). It seems that, for Latinos, familism defined as

obligation towards one's family, importance of family unity, and providing and turning for support to one's family (Sabogal et al., 1987) acts as neither a risk nor a protective factor in the PSDM. Although familism did not act as a buffer for the negative effects of PSP, as evidenced by the lack of findings in the moderation models, research exploring familial, socialization, and cultural variables is warranted in order to best understand the emergence of PSP and why it affects different ethno-cultural groups differently.

While making significant contributions to the PSDM literature, the present study has several limitations. The data in this study are cross-sectional, and as such it is not possible to determine the temporal order of the variables. While some literature suggest that social anxiety precedes loneliness and depression, less is known about the temporal order of PSP and social anxiety. Future studies should prospectively explore the mediational paths proposed by the PSDM, especially the proposed path between perfectionism and interpersonal sensitivity, as there is no research exploring this relationship. Furthermore, while representative of the sampled schools' populations, the uneven distribution of African American and Latino students did not allow to determine if the lack of significant findings in the African American population could be explained by the differences in sample size. While Fisher r-to-z transformation allowed for the comparison of the bivariate correlations among study variables between the two groups, it was not possible to do a similar comparison for the serial mediation analyses. The correlations and Fisher r-to-z transformations, however, do suggest that different processes may be at play in the Latino and African American

populations, especially in regards to the relationship between perfectionistic self-promotion to depressive symptoms and nondisplay of imperfection to depressive symptoms.. Future studies should further investigate the differential effects that each facet of PSP may have on mental health outcomes in low-income African American and Latino youth, as well as seek to understand specific ethno-cultural characteristics that may be responsible for these differences.

Overall, the present study serves to expand the PSDM literature in spite of its limitations. First, findings suggest that the PSDM is generalizable beyond suicidal ideation and behavior to a broader depressive symptomology. The depressive symptoms used as the outcome variable did not include suicidal ideation and behaviors. As such, the possibility that these results are because suicidal ideation is present is ruled out thus reiterating that the PSDM can predict a broader depressive symptomology.   Second, this study indicates that social anxiety is an important process in the development of depressive symptoms and loneliness and that, as such, should receive more attention in prevention programs. Third, the present study is the first to test a significant set of paths proposed by the PSDM via serial mediation analyses and indicate that both interpersonal sensitivity and social disconnection play a mediational role in the relation between PSP and depression. Fourth, the present study expanded the generalizability of the PSDM beyond clinical samples of primarily European Canadian and Asian Canadian individuals of unknown socioeconomic status by utilizing a community sample of low-income ethnic minority adolescents. Lastly, the present study is the first to investigate the role that ethno-cultural variables

play as potential moderators in the PDSM. Beyond expanding the generalizability

of the PSDM, exploring the role of ethno-cultural variables helped uncover the

moderational role of ethnicity in the PSDM thus suggesting that the PSDM may

not be equally applicable to all ethnic groups.

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