Published in final edited form as:

J Res Pers. 2017 April ; 67: 27–35. doi:10.1016/j.jrp.2016.01.003.

Distinguishing types of social withdrawal in children: Internalizing and externalizing outcomes of conflicted shyness versus social disinterest across childhood

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Abstract

Little research has examined the effect of subtypes of social withdrawal on the development of psychopathology across childhood.

Parents of 493 children (220 females) completed a measure of their child's conflicted shyness and social disinterest as well as the Child Behaviour Checklist (CBCL) when their child was age 3, and again at age 6. When children were age 9, parents completed the CBCL.

From 3 to 6, conflicted shyness predicted increases in anxiety symptoms in boys and girls, and predicted depressive symptoms in boys. From 6 to 9, social disinterest predicted increases in anxiety symptoms in girls and boys, and predicted increases in depressive symptoms in boys. In addition, in boys, conflicted shyness at age 6 predicted increases in externalizing symptoms at age 9.

Conflicted shyness appears to be particularly problematic in early to middle childhood, while social disinterest appears to be more maladaptive in later childhood, with some differences by gender.

Childhood social withdrawal has received substantial attention as a risk factor for internalizing disorders (see Coplan et al., 2004; Coplan & Armer, 2007; Rubin et al., 2009 for reviews). Widely recognized as a heterogeneous, multifaceted construct (Gazelle & Rubin, 2010; Spangler & Gazelle, 2009; see Coplan, 2000, and Rubin, Burgess, & Coplan, 2002, for reviews), childhood social withdrawal, broadly defined, refers to a failure to engage in social interaction or play with other children (see review by Coplan et al., 2004). Several authors, although not all using the same terminology, have distinguished between conflicted shyness, or shyness despite a desire to interact with others, and social disinterest, or a lack of motivation to engage in social interaction (e.g., Asendorpf, 1993; Coplan et al., 2004; Rubin et al., 2002). Although some studies have used laboratory-based observations of social reticence and solitary-passive play (e.g., Spinrad et al., 2004; Coplan et al., 2007), Coplan et al. (2015) note that these are not equivalent to conflicted shyness and social disinterest; as such, we focus our review of this literature on studies which have used measures more directly comparable to the latter constructs.

Childhood social withdrawal and later internalizing outcomes

Trait-like social withdrawal in early childhood has historically been conceptualized as an early-emerging form of internalizing problems in general, and social anxiety in particular. Theorists have argued that conflicted shyness should be relatively more, and social disinterest relatively less, maladaptive (Asendorpf, 1993; Coplan et al., 2004; Rubin et al., 2002). Children who show high levels of conflicted shyness wish to interact with their peers, but are too afraid or anxious to initiate these interactions. In contrast, children who show elevated social disinterest are more content to play by themselves, and do not have a strong motivation for social interaction, although they may do so if offered an attractive social invitation.

Prior to Coplan et al.'s (2004) study, relatively little empirical research had examined the psychosocial consequences of these forms of social withdrawal. To that end, Coplan et al. (2004) developed the Child Social Preference Scale, a parent-rated measure of childhood conflicted shyness and social disinterest, with the goal of examining their correlates. In their initial cross-sectional study of a sample of 3- to 5-year-olds, conflicted shyness was associated with elevated levels of temperamental negative emotionality and anxiety symptoms, whereas social disinterest was associated with lower levels of negative emotionality, supporting the hypothesis that that conflicted shyness is particularly maladaptive, whereas social disinterest is relatively more adaptive.

Numerous studies have since examined the psychosocial consequences of social withdrawal and, in particular, conflicted shyness, although, as noted by Coplan and Armer (2007), fewer studies have examined outcomes associated with social disinterest. For instance, in cross-sectional studies and longitudinal studies spanning a few months to three years, conflicted shyness was consistently associated with later symptoms of anxiety, depression, and internalizing problems (e.g., Chen et al., 2009; Coplan et al., 2007, 2013; Coplan & Armer, 2005; Coplan & Weeks, 2009; Findlay et al., 2009; Graham & Coplan, 2012; Kingsbury et al., 2013; Weeks et al., 2009; Yang et al., 2015). One study has supported an effect of shyness at age 8 or 9 on symptoms of anxiety at age 21 (Grose & Coplan, 2015). However, these studies did not adjust for baseline levels of the outcome in question; this precluded establishing the direction of the relationships and determining whether shyness is associated with change in outcomes over time. These studies have also been mostly limited to a year or less, and hence could not examine the longer term outcomes of shyness over childhood. Importantly, as well, most studies have not examined the consequences of social disinterest. Moreover, given the moderate correlation between conflicted shyness and social disinterest (Coplan et al., 2004), it is likely important to adjust for their shared variance in examining their long-term outcomes in order to dissociate their unique effects.

Several particularly noteworthy more recent studies have overcome aspects of these limitations. For instance, Eggum et al. (2012) found that, adjusting for baseline levels of symptoms, conflicted shyness was related to increases in internalizing symptoms over 2 years, while Karevold et al. (2012), although they did not use the CSPS, found that increases in shyness from age 2.5 years to 12.5 years was associated with increases in depression and anxiety symptoms over that interval.

We are aware of only two studies that examined the effects of both conflicted shyness and social disinterest. Coplan and Weeks (2009) found that conflicted shyness was related to internalizing symptoms, whereas socially disinterested children showed similar levels of internalizing symptoms as a non-shy control group of children. However, this study did not adjust for baseline levels of outcomes or for the covariance between conflicted shyness and social withdrawal. In the second study, and the only one of which we are aware to control for the mutual effects of these two types of social withdrawal, Liu et al. (2014) found that shyness and unsociability each explained unique variance in change in depressive symptoms over time.

While the bulk of research to date suggests that social withdrawal, and particularly conflicted shyness, confers risk for symptoms of psychopathology, other research has found that it is associated with adaptive qualities. For instance, in a Chinese sample, Chen et al. (2009) found that while children with elevated levels of conflicted shyness showed more depressive symptoms, they were also rated as showing better leadership, competence, and having higher academic achievement. Similar results have also been found in other non-North American countries (Eisenberg, Pidada, & Liew, 2001; Farver, Kim, & Lee, 1995; Kerr, Lambert, & Bem, 1996). In addition, while North American studies frequently find non-significant links between social disinterest and adjustment, there is evidence that social disinterest may be associated with psychopathology in some other cultures. For example, social disinterest was correlated with depressive symptoms in a sample of Chinese children and, while associations between shyness and measures of adjustment did not differ between Canadian and Chinese children, being unsociable was more strongly related to maladjustment in Chinese children than in Canadian children (Liu et al., 2014, 2015). Thus, findings of social disinterest being non-maladaptive may be unique to North American samples.

Given these discrepancies in the literature, it is likely that the adaptive or maladaptive nature of conflicted shyness and social disinterest is context- or culture-dependent. As Chen et al. (2009) note, shy behavior is less likely to be maladaptive in societies where assertiveness or self-expression is not appreciated or encouraged. As such, it is important to bear in mind that culture may define or influence what constitutes socially competent behavior, as well as what types of behaviours or support those social behaviours elicit from others. This may, in turn moderate the associations between subtypes of childhood social withdrawal and psychopathology.

Childhood social withdrawal and externalizing outcomes

While a fairly substantial body of literature has examined the internalizing outcomes associated with childhood social withdrawal, fewer studies have tested its associations with externalizing symptoms. Moreover, what literature there is suffers from the same methodological limitations described above. The majority of this literature has found either small but negative or non-significant associations between social withdrawal as a unitary construct, conflicted shyness, social disinterest, or similar constructs, and externalizing outcomes, however the results vary somewhat across studies. For instance, Eggum et al. (2012) reported that parent-rated shyness was associated with decreases over time in

teacher- but not parent-rated aggression, and Coplan et al. (2004) found that higher levels of conflicted shyness were related to lower levels of aggression, but disinterest was unrelated. Coplan and Weeks (2009), however, found no differences in externalizing behaviour among children who were classified as shy, unsociable, or neither, based on the CSPPS and several other sources. In sum, the literature on types of childhood social withdrawal and externalizing outcomes suggests that social withdrawal is either weakly but negatively or non-significantly related to externalizing behaviors. However, these studies have used a variety of methods to measure social withdrawal or its subtypes. Another concern is that internalizing behaviours are not typically adjusted for when examining externalizing outcomes. Given the substantial correlation between measures of internalizing and externalizing symptoms, (e.g., Stanger & Lewis, 1993), it is impossible to know whether shyness is really associated with one or the other. As such, we aim to examine whether subtypes of social withdrawal predict unique variance associated with internalizing versus externalizing symptoms.

Overall, research to date supports a robust relationship between conflicted shyness and the development of later internalizing symptoms, although the much more limited research examining social disinterest is somewhat contradictory. In addition, while the literature examining both types of social withdrawal and externalizing symptoms has found largely non-significant relationships, several limitations affect the conclusions to be drawn from these studies (e.g., Coplan & Weeks, 2010; Eggum et al., 2012; Liu et al., 2014).

Gender differences in the outcomes of social withdrawal

The literature overall, and in particular in North American children, suggests that conflicted shyness is particularly maladaptive whereas social disinterest may be less maladaptive. However, a recent review found that shyness is more strongly associated with internalizing symptoms among boys relative to girls, although it also notes some contrary findings (Doey et al., 2014). However, the conclusions of this review have been challenged by others who argued that the narrative review approach in Doey et al. (2014) was not sufficiently objective (Gazelle et al., 2014), or that the studies included were too broad and focused not only on childhood shyness per se, but on social withdrawal in general (Rubin & Barstead, 2014). Rubin & Barstead (2014) also provided additional evidence that anxious withdrawal in sixth grade is associated with more anxiety, but only for girls, and that in eighth grade, anxious withdrawal is associated with both depression and anxiety for girls and boys. However, it is somewhat difficult to extrapolate from these prior findings to the current study as the conclusions of these prior reviews were, by and large, not based on studies that differentiated between conflicted shyness and social disinterest, or adjusted for the effects of both. It is plausible that, as Doey et al. (2014) argue, social withdrawal may be more strongly related to psychopathological symptoms given the societal norms in Western cultures surrounding expectations of boys to be more socially dominant or assertive. However, further research into gender differences in the longitudinal relationships between conflicted shyness, social disinterest, and internalizing and externalizing symptoms is clearly needed.

Overview and hypotheses

The current study examined the effects of conflicted shyness and social disinterest at age 3, as measured by the CSPS, on change in internalizing and externalizing symptoms from age 3 to 6, and of these two forms of social withdrawal at age 6 on change in internalizing and externalizing from age 6 to 9. We sought to extend the literature in seven ways. First, we distinguished between the two major forms of internalizing symptoms – depression and anxiety – to determine the specificity of the links between social withdrawal and subsequent internalizing problems. Second, we examined externalizing, as well as internalizing, outcomes. Third, we adjusted for baseline levels of symptoms, allowing us to examine the effects of social withdrawal on *change* in symptomatology. Fourth, as children were followed over a 6 year period, we were able to examine these effects over a longer period of time than most studies in the literature. Fifth, we adjusted for the covariance between and longitudinal effects of both conflicted shyness and social withdrawal at age 3 and 6, in order to examine their unique effects on later outcomes. Sixth, by adopting a path-analytic framework, we were able to adjust for the shared variance between anxiety, depressive, and externalizing symptoms, as well as their longitudinal effects on one another. Finally, we were also able to examine the reciprocal effects of symptoms on subsequent social withdrawal.

We expected that, adjusting for the shared variance between conflicted shyness and social disinterest, higher levels of conflicted shyness would relate to increases over time in depressive and anxiety symptoms. However, given the scant or contradictory prior evidence regarding the effects of social disinterest on later outcomes, we had no *a priori* hypotheses regarding the effects of social disinterest on internalizing symptoms. We also had no *a priori* hypotheses regarding the effect of either form of social withdrawal on externalizing symptoms, or of the effects of symptoms on subsequent social withdrawal. We therefore regard these tests as exploratory, especially given that we aim to dissociate the unique effects of conflicted shyness and social disinterest. Finally, we expect the effects of conflicted shyness on psychopathology to be stronger in boys compared to girls. However, due to the lack of prior evidence, we have no *a priori* hypotheses regarding gender differences in the effects of social disinterest on psychopathology.

Method

Participants

Our sample consisted of 493 three-year olds (220 females; M age = 43.5 months, $SD = 2.8$) and the primary caretaking parent (472 mothers) who completed the CSPS as part of a larger longitudinal study of 559 children (see Olino et al., 2010 for details). Briefly, in 2004–2007, participants were recruited through commercial mailing lists and screened by phone to select children with no significant medical problems or developmental disabilities and who had at least one English-speaking biological parent who could participate. As part of this larger, ongoing study, parents and children were assessed at three-year intervals, i.e., at ages 3 (2004–2007), 6 (2007–2009), and 9 (2010–2013).

Most children were from middle-class families, as measured by Hollingshead's four-factor index of social status ($M = 45.18$, $SD = 11.04$; Hollingshead, 1975). At the age 3 assessment, most children were Caucasian (87.5%), non-Hispanic (90.7%), and came from two-parent (98.1%) families.

Our effective sample of 493 did not differ from the remaining 66 families in the original sample whose primary parent did not complete the CSPA on socioeconomic status (SES), child sex, the likelihood of coming from a two-parent home, race, ethnicity, anxiety, depressive, or externalizing symptoms at age 3 (all $ps > .20$). Of the 493 children whose parent completed the CSPA at age 3, 126 participants had missing data on one or more variables at one or more time points. These 126 did not differ significantly from the 367 with complete data at baseline in terms of SES, child sex, the likelihood of coming from a two-parent home, race, ethnicity, conflicted shyness, social disinterest, depressive, anxiety, or externalizing symptoms at any time point (all $ps > .15$). Little's MCAR test also confirmed that missingness was unrelated to any variable in our study: $\chi^2(32) = 30.79$, $p = .53$. Data can thus be viewed as missing at random for analyses. Full Information Maximum Likelihood (FIML) procedures in AMOS 22.0 were used to estimate the means and intercepts in the presence of missing data. This approach is generally acknowledged to be preferable to other methods for dealing with missing data, such as listwise deletion or mean imputation, as these latter approaches are more likely to yield biased estimates (Little & Rubin, 1989; Muthen, Kaplan, & Hollis, 1987; Schafer & Graham, 2002).

Procedure

At age 3 and 6, the child's primary caretaking parent completed the Child Social Preference Scale (CSPA; Coplan et al., 2004) as a measure of their child's conflicted shyness and social disinterest, while both parents completed the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2000, 2001). When children were age 9, parents again completed the CBCL.

Materials

Social withdrawal—The CSPA (Coplan et al., 2004) is an 11-item parent-rated measure designed to assess conflicted shyness (7 items) and social disinterest (4 items) in children. For each item, parents respond to the question "how much is your child like that?" on a 5-point Likert scale. A sample conflicted shyness item is "My child seems to want to play with others but is sometimes nervous to," while a sample social disinterest item is "My child is just as happy to play quietly by him/herself than to play with a group of children." Coplan et al. (2004) reported good internal consistency and convergent and discriminant validity with a variety of psychosocial outcomes for each subscale. In the current study, Cronbach's alpha was .90 and .89 for conflicted shyness at age 3 and 6, respectively, and .73 and .65 for social disinterest at age 3 and 6, respectively. At age 3, of the 493 parents who completed the CSPA, 472 were mothers. At age 6, 392 parents completed the CSPA, of which 359 were mothers.

Depressive, anxiety, and externalizing symptoms—At age 3, depressive, anxiety, and externalizing symptoms were assessed with the Child Behavior Checklist for ages 1.5–5 (Achenbach & Rescorla, 2000). At age 6 and 9 symptoms were assessed via mothers' and

fathers' reports on the Child Behavior Checklist for ages 6–18 (Achenbach & Rescorla, 2001). The CBCL is a 113-item parent-report checklist assessing emotional and behavioral problems in children. In the current study, we used the *Diagnostic and Statistical Manual–IV* (American Psychiatric Association (APA), 1994) Anxiety Problems and Affective Problems (i.e., depression) subscales, as well as the externalizing symptoms scale. These scales show good internal consistency and convergence with interview-based symptom measures (Achenbach & Rescorla, 2001; Ebesutani et al., 2010; Nakamura et al., 2009). At age 3, the anxiety and affective problems subscales consist of ten items each while the externalizing subscale consists of 36 items. At age 6 and 9, the anxiety and affective problems subscales respectively consist of 6 and 13 items each, while the externalizing subscale consists of 35 items. Each item is rated for the past 6 months on a scale from 0 (not true) to 2 (very or often true). For mothers, at ages 3, 6, and 9, coefficient α was .62, .63, and .68 for affective problems, .67, .65, and .73 for anxiety problems, and .90, .88, and .88, for externalizing symptoms, respectively. For fathers, at ages 3, 6, and 9, coefficient α was .60, .53, and .76 for affective problems, .64, .62, and .69 for anxiety problems, and .91, .89, and .94, for externalizing symptoms, respectively. Mothers' and father's reports showed moderate correlations across age 3, 6, and 9 for affective ($r = .32, .46, .34, ps < .001$), anxiety ($r = .39, .49, .54, ps < .001$), and externalizing ($r = .49, .62, .52, ps < .001$) problems. Mothers' and father's scores on each symptom variable were therefore averaged at each time point. At age 3, 491 mothers and 393 fathers completed the CBCL. At age 6, 393 mothers and 327 fathers completed the CBCL. At age 9, 404 mothers and 364 fathers completed the CBCL. If scores for only one parent were available, that parent's scores were used. Finally, these average depressive and anxiety scores showed substantial correlations, between .52 and .59 ($ps < .001$) at age 3, 6, and 9, suggesting substantial overlap.

Data analyses

Analyses were conducted in AMOS 22.0. Analyses consisted of lagged path models. By controlling the effect of time 1 scores (e.g., depressive symptoms at age 3) on time 2 scores of the same variable, predictors (e.g., child shyness at age 3) of that time 2 score are then predicting the residual, or change, in that score from time 1 to time 2. We also adjusted for the effects of other symptoms, as well; for example, age 6 depressive symptoms were regressed on both age 3 depressive as well as anxiety and externalizing symptoms, thereby rendering our analyses quite conservative. A schematic of our model is depicted in Figure 1. At ages 3, 6, and 9, depressive, anxiety, and externalizing symptoms were included, as were both shyness and social disinterest at age 3 and 6. All five variables were covaried at age 3 and 6, while symptoms were covaried at age 9, thereby adjusting for their shared variance. Although not a primary goal of the paper, our lagged model also allowed us to examine whether there were any reciprocal relationships between symptoms and shyness and disinterest from age 3 to 6. All analyses initially adjusted for child sex; however, sex was unrelated to any outcomes at age 6 or 9, and was therefore dropped from our model.

Gender differences in effects were examined via multigroup models. Under this approach, regression paths and covariances are initially constrained to be equal across groups. The fit of this model is then compared to the fit of a model in which paths are free to vary across groups. A significant improvement in model fit, as measured by a chi-square difference test,

indicates that the significance of at least some of the paths is significantly moderated by group (i.e., child gender). Regression coefficients are then examined across groups to determine which paths differ.

As measures of goodness of fit, we present chi-square, ratio of chi-square to degrees of freedom, comparative fit index (CFI), and root-mean-square error of approximation (RMSEA). Generally, CFI values greater than .90 (Hoyle & Panter, 1995), a χ^2/df less than 2 (Carmines & McIver, 1981), and an RMSEA less than .08 (Kline, 1998) indicate acceptable fit.

Based on prior literature (e.g., Coplan et al., 2004; Coplan & Weeks, 2010), we expected small to medium effect sizes. Given that each variable in our model was initially regressed upon five predictors, power analyses suggest that a sample of 148 would be the minimum required to detect effects with an alpha of .05 and .80 power (Cohen et al., 2003; Soper, 2015).

Results

Descriptive statistics and bivariate correlations

Bivariate correlations between study variables as well as descriptive statistics are presented in Table 1. From age 3 to 6, conflicted shyness and social disinterest showed test-retest correlations of .60 ($p < .001$) and .51 ($p < .001$), respectively, and were modestly correlated at both age 3 ($r = .39$, $p < .001$) and 6 ($r = .28$, $p < .001$).

Age 3 conflicted shyness was associated with elevated levels of depressive and anxiety symptoms at age 3, 6, and 9, as well as with externalizing symptoms at age 9, although it was unrelated to externalizing symptoms at ages 3 and 6. Similarly, age 6 conflicted shyness was associated with elevated depressive and anxiety symptoms at ages 6 and 9, as well as elevated externalizing symptoms at age 9, although it was unassociated with externalizing symptoms at age 6. In contrast, age 3 social disinterest was unassociated with any symptom variable at age 3, 6, or 9, and age 6 social disinterest was associated only with higher levels of anxiety symptoms at age 9.

Gender effects

Our initial model predicting changes in depressive, anxiety, and externalizing symptoms is depicted in Figure 1. It should be noted that the model in Figure 1 shows only one group – the multi-group model simply repeats the same model a second time (i.e., there are no visual differences between a constrained versus unconstrained model). Constraining all regression paths to be equal across genders yielded the following fit statistic: $\chi^2 (80, N = 493) = 227.346$, $p < .01$, $\chi^2/df = 2.84$, CFI = .94, RMSEA = .061. Allowing them to vary across genders yielded the following fit statistics: $\chi^2 (46, N = 493) = 81.084$, $p < .01$, $\chi^2/df = 1.63$, CFI = .99, RMSEA = .036. A chi-square difference test revealed that a model in which paths are free to vary across genders fits the data significantly better than a model in which paths are constrained to be equal, $\chi^2 (34) = 146.262$, $p < .001$, indicating that at least some paths vary significantly across groups.

The effects of shyness and disinterest on symptoms across childhood in girls versus boys

Given the finding that at least some regression paths vary significantly across genders, on the basis of Wald tests (see Fox, 1997), non-significant paths were removed one at a time within each gender, and the model was re-estimated. Paths that were non-significant across genders were deleted first. Non-significant paths specific to each gender were then deleted. Chi-square difference tests were computed after each deletion to ensure that the fit of the model did not decrease significantly. Listing fit statistics following every deleted path would consume considerable space, and so will not be detailed here, but results for each model are available upon request. All non-significant covariances between baseline variables were also trimmed one at a time, with models re-evaluated as above after each deletion.

In both genders, non-significant covariances were trimmed in the following order: age 3 social disinterest with age 3 depressive, anxiety, and externalizing symptoms, and age 6 social disinterest with age 6 depressive, anxiety, and externalizing problems. Non-significant regression paths were then trimmed in the following order: age 3 shyness to age 6 externalizing and social disinterest; age 3 social disinterest to age 6 depressive, anxiety, and externalizing symptoms and age 6 shyness; age 3 depressive symptoms to age 6 social disinterest and anxiety symptoms; age 3 externalizing symptoms to age 6 social disinterest and shyness; and age 3 anxiety to age 6 depressive and externalizing symptoms and shyness and social disinterest. From age 6 to 9, non-significant paths were trimmed in the following order: age 6 anxiety symptoms to age 9 depressive and externalizing symptoms; age 6 shyness to age 9 depressive symptoms; age 6 disinterest to age 9 externalizing symptoms; age 6 externalizing symptoms to age 9 anxiety symptoms; and age 6 depressive symptoms to age 9 anxiety symptoms. All other paths were significant in either boys or girls.

In boys (Figure 2, top panel), all remaining covariances were significant. Non-significant regression paths were then constrained to equal zero in the following order: externalizing symptoms at age 3 to depressive and anxiety symptoms at age 6; depressive symptoms at age 3 to externalizing symptoms at age 6; shyness at age 6 to anxiety symptoms at age 9; externalizing symptoms at age 6 to depressive symptoms at age 9; and depressive symptoms at age 6 to externalizing symptoms at age 9.

In girls (Figure 2, bottom panel), all remaining covariances were also significant. Non-significant regression paths were then constrained to equal zero in the following order: age 3 shyness to age 6 depressive symptoms; age 3 depressive symptoms to age 6 shyness; and age 6 shyness to age 9 anxiety and externalizing symptoms.

The final model (Figure 2) showed the following fit statistics: $\chi^2(97, N = 493) = 133.44, p = .008, \chi^2/df = 1.38, CFI = .99, RMSEA = .03$, suggesting an excellent fit to the data. A chi-square difference test comparing this model to the initial model with all paths included, but free to vary across genders, showed that the final model did not have a worse fit to the data after non-significant paths were trimmed, $\chi^2(51, N = 493) = 52.36, p = .42$. The final model was therefore preferred on the basis of its greater parsimony.

Figure 2 presents the standardized parameters for the final model. In boys (Figure 2, top panel), at age 3, shyness was positively correlated with depressive ($r = .26, p < .001$), anxiety

($r = .35, p < .001$) and externalizing symptoms ($r = .12, p = .03$). At age 6, shyness was positively associated with anxiety symptoms ($r = .22, p < .01$). Higher levels of shyness at age 3 predicted increases in both anxiety and depressive symptoms at age 6, while greater depressive symptoms at age 3 also predicted increases in shyness at age 6. Higher levels of shyness at age 6 predicted increases in externalizing symptoms at age 9, but was unrelated to change in depressive or anxiety symptoms. Higher levels of social disinterest at age 6 predicted increases in both depressive and anxiety symptoms at age 9.

In girls (Figure 2, bottom panel), at age 3, shyness was positively correlated with depressive ($r = .12, p < .02$) and anxiety ($r = .31, p < .001$), but not externalizing, symptoms. Social disinterest was uncorrelated with any symptom variable at age 3. At age 6, neither shyness nor disinterest correlated significantly with any symptom variable. Shyness at age 3 predicted increases in anxiety, but not depressive or externalizing, symptoms at age 6. There were no effects of symptoms at age 3 on shyness or social disinterest at age 6. Shyness at age 6 did not predict change in any symptom variable at age 9. However, higher levels of social disinterest at age 6 predicted increases in depressive symptoms at age 9.

Discussion

This study examined the effects of two types of childhood social withdrawal, conflicted shyness and social disinterest (Coplan et al., 2004), on the development of symptoms of psychopathology across childhood in boys and girls. In contrast to most previous literature, we examined externalizing, as well as depressive and anxiety, symptoms. We also adjusted for the covariance between anxiety, depression, and externalizing symptoms and prior levels of symptoms as well as the covariance between conflicted shyness and social disinterest. In addition, we were able to examine whether symptoms in early childhood predict change in either type of social withdrawal from age 3 to 6. Finally, this study contributed to the literature on gender differences in psychopathology outcomes associated with childhood social withdrawal by finding some noteworthy differences in the patterns of effects of different types of social withdrawal on later symptoms of psychopathology.

Partially consistent with prior literature (e.g., Coplan et al., 2004; Coplan et al., 2012; Findlay et al., 2009; Karevold et al., 2011; Karevold et al., 2012), we found that from age 3 to 6, conflicted shyness predicted subsequent anxiety symptoms in boys and girls, but also predicted depressive symptoms in boys, while age 3 depressive symptoms in boys reciprocally predicted increases in conflicted shyness at age 6. From age 6 to 9, however, social disinterest, but not conflicted shyness, predicted increases in depression and anxiety for boys, and predicted increases in anxiety symptoms for girls. Finally, we observed that, in boys, conflicted shyness may be a risk factor for externalizing symptoms in middle childhood, but not for girls.

Conflicted shyness and psychopathology

Results from age 3 to 6 provide more evidence that children, regardless of gender, who wish to socialize with their peers but are too afraid or shy to do so (i.e., conflicted shyness) are at risk for developing anxiety symptoms over childhood. However, conflicted shyness in boys at age 3 also predicted increases in depressive symptoms. These results may be consistent

with the findings of Doey et al. (2014), in that shyness in early childhood may be relatively more maladaptive for boys compared to girls. This relationship also appears to be reciprocal in boys. While it appears that shyness confers risk for depressive symptoms, those symptoms at age 3 also relate to increases in conflicted shyness at age 6. Although we did not examine mediators in the current study, one possible explanation is that young boys who are already shy or who already show elevated depressive symptoms, may expect to be rejected or not liked by their peers, and therefore may fail to pursue social relationships or may lack the social skills to do so in an effective manner. For the depressed boy, this may increase the fear of being excluded or ignored by others, while for the shy boy, this may result in increased depressive symptoms over time. The CSPS was not administered at age 9 as it not appropriate for that age, and so we were unable to examine reciprocal relationships between shyness and symptomatology from age 6 to 9.

Moreover, in boys, higher levels of conflicted shyness predicted increases in externalizing symptoms from age 6 to 9. We should, however, note the relatively small effect of shyness on externalizing symptoms, although our analyses were quite conservative. This result suggests that conflicted shyness may be a risk factor for externalizing problems in boys specifically during middle to late childhood, but not from early to middle childhood. However, this stands in contrast to other studies that have found non-significant or negative relationships between shyness and externalizing symptoms (e.g., Eggum et al., 2012; Coplan et al., 2004; Coplan & Weeks, 2010), one of which also found no gender differences in effects (Eggum et al., 2012). The relationship between social withdrawal and externalizing outcomes in boys versus girls should continue to be explored in future research.

Explanations for this finding go well beyond our data and should be examined in future research. However, one possible explanation for this effect in boys stems from findings that boys, on average, are more prone to externalizing symptoms than girls (e.g., Leadbeater et al., 1999). Boys, then, may be more likely to act out in frustration over their social exclusion. In addition, being ignored or not included by peers, even if it is because of active withdrawal due to conflicted shyness, may be much more salient in middle to later childhood as they spend increasing amounts of time with their peers. Given the increased importance of peer acceptance and inclusion in later childhood a lack thereof could result in anger, aggression, or other externalizing problems for boys who are already more likely to show externalizing symptoms. This, too, may be consistent with the contention of Doey et al. (2014) that boys are expected to be more socially dominant or assertive; externalizing behaviours may be one way for boys to assert themselves. Finally, Eisenberg et al. (2005) note that as children age, more is expected of them in social situations (e.g., speaking up in class). For socially withdrawn children, this may result in internal conflict, which, in boys, is expressed as anger and other externalizing behaviours.

Social disinterest and psychopathology

As noted by Coplan and Armer (2007), there is relatively little research concerning the long term outcomes of social disinterest. Our results provide evidence that social disinterest in early to middle childhood, in terms of anxiety, depressive, and externalizing symptoms, for both girls and boys, is neither maladaptive nor adaptive, at least when adjusting for its

shared variance with conflicted shyness. Thus, as originally argued by Coplan and colleagues (2004), young children who, at least in a North American context, are content to play alone and not engage with their peers are not displaying pathological or maladaptive behaviour. These children appear to be content to play by themselves and do not feel resentment or anger over their lack of social inclusion. They may also be more self-sufficient and perhaps less aware of, and therefore less reactive to, peer behavior.

However, from middle to late childhood, social disinterest appears to become more maladaptive, as it predicted increases in anxiety symptoms from age 6 to 9 in both girls and boys, whereas shyness did not. As with the effects of conflicted shyness from age 3 to 6, elevated levels of social disinterest appeared to be particularly maladaptive for boys compared to girls, given that it also predicted depressive, in addition to, anxiety symptoms. This, too, may be consistent with the findings of Doey et al. (2014), in that a form of social withdrawal appears to be particularly maladaptive for boys.

These results, taken together with findings from age 3 to 6, suggest that while conflicted shyness is particularly maladaptive in early childhood, social disinterest is instead more maladaptive in middle to late childhood. These results contradict some prior evidence that social disinterest is not significantly related to psychopathological outcomes (e.g., Coplan & Weeks, 2010), but are consistent with over evidence that social disinterest predicts depressive symptoms (Liu et al., 2014). The reasons for this cannot be determined from the current study. It is possible that in later childhood, compared to early childhood, both boys and girls are expected to be more assertive, outgoing, and generally gregarious. Children who are content to play by themselves may be seen as “losers,” or as odd in some way by other children, which may result in poorer quality relationships with peers in general if and when that child does wish to interact or play with others. Again, this goes well beyond the data, and gender differences in the long term outcomes of social disinterest, as well as mechanisms underlying this effect, should be examined in future research.

It is also important to note that because our sample comprised American children, results may not, or even likely do not, generalize to other, non-North American populations (see Chen et al., 2009; Liu et al., 2015). For instance, children who, in our sample, showed increases in anxiety symptoms predicted by conflicted shyness, may be less prone to develop symptoms in other cultures that view them as having qualities which are more highly valued than in North America. Future research should continue to delineate cultural differences in the effects of social withdrawal on psychopathology and integrate this with gender differences in outcomes.

Clinical implications

Our results support the identification of children, both boys and girls, in early or middle childhood who show high levels of conflicted shyness as these children are at risk for symptoms of anxiety in early and middle childhood, while boys are also at risk for depressive symptoms. However, results also suggest that in later childhood, and in terms of internalizing symptoms, social disinterest may be the more potent risk factor for anxiety symptoms in both genders, while boys may also be at risk for depressive symptoms. Finally, identifying boys in middle childhood who show elevated levels of conflicted shyness may

promote the identification of those at risk for the development of externalizing symptoms in later childhood.

Our results do not suggest a need to intervene with young children who appear content to play by themselves and who do not have a strong desire for social interactions. However, this behavior appears to be more maladaptive in later childhood. As such, our results suggest that parents, teachers, and clinicians should not be overly concerned if a young child exhibits these behaviours, but may wish to intervene if socially disinterested behaviors are shown in later childhood.

Limitations and future directions

This study had several notable strengths, including a six-year longitudinal design with repeated assessments of conflicted shyness and social disinterest and both mothers' and fathers' reports of anxiety, depression, and externalizing symptoms, and analyses which adjusted for the independent effects of shyness and disinterest, the covariances between symptoms, and the effects of symptoms on each other. However, several limitations should be noted.

First, while symptom scores incorporated fathers' reports, mothers reported on both symptoms and children's social withdrawal, which may have inflated the associations between the CSPS variables and symptoms. Related to this, we do not know if results would extend to interview-based reports of symptoms, diagnoses of internalizing or externalizing disorders, or child reports.

As previously mentioned, we did not have data on social withdrawal at age 9; we were therefore unable to assess whether anxiety symptoms continue to predict changes in shyness from age 6 to 9, as they did from age 3 to 6. Finally, although the current study represents an important step in examining longer term outcomes of conflicted shyness and social disinterest, further research is needed to examine their relationships to outcomes into adolescence and adulthood.

Conclusion

We found that from age 3 to 6, conflicted shyness confers risk for increases in for anxiety symptoms in boys and girls, and for increases in depressive symptoms in boys, while conflicted shyness at age 6 in boys was related to increases in externalizing symptoms at age 9. In contrast, social disinterest at age 6 predicted increases anxiety symptoms for both boys and girls at age 9, as well as depressive symptoms in boys. Early childhood depression symptoms also predicted increases in conflicted shyness from age 3 to 6 in boys. Results provide further evidence of the maladaptive nature of social withdrawal, and suggest that conflicted shyness may be particularly maladaptive in early childhood, whereas social disinterested may be relatively more maladaptive in later childhood. Results also suggest that social withdrawal overall may be a more potent risk factor for psychopathology in boys compared to girls.

Acknowledgments

Supported by NIMH grant RO1 MH45757 (Klein) and a Social Science and Humanities Post-Doctoral Fellowship (Kopala-Sibley).

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Figure 1.

Initial path model examined across genders relating social withdrawal and symptoms at age 3, 6, and 9. Note: Covariances on endogenous variables refer to covariances on error terms of those variables.

Figure 2.

Results relating social withdrawal to symptoms at age 3, 6, and 9. ** $p < .01$, * $p < .05$.

Parameters represent standardized regression weights. Covariances between endogenous terms refer to covariances on the errors terms of those variables. Values on covariances not depicted for visual clarity.

Table 1

Descriptives and bivariate correlations for all study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Age 3 conflicted shyness	--	.39**	.60**	.22**	.19**	.33**	.06	.16**	.24**	.05	.15**	.19**	.12*
2. Age 3 social disinterest		--	.23**	.51**	-.06	.01	-.05	-.02	.02	-.03	.06	.07	.03
3. Age 6 conflicted shyness			--	.28**	.26**	.38**	.10*	.19**	.34**	.04	.21**	.31**	.13*
4. Age 6 social disinterest				--	-.07	-.08	-.03	-.01	.06	-.04	.06	.11*	-.05
5. Age 3 depressive symptoms					--	.59**	.56**	.38**	.30**	.30**	.34**	.33**	.37**
6. Age 3 anxiety symptoms						--	.41**	.35**	.42**	.29**	.28**	.33**	.28**
7. Age 3 externalizing symptoms							--	.31**	.30**	.57**	.30**	.31**	.54**
8. Age 6 depressive symptoms								--	.55**	.62**	.66**	.42**	.51**
9. Age 6 anxiety symptoms									--	.49**	.44**	.63**	.42**
10. Age 6 externalizing symptoms										--	.46**	.33*	.72**
11. Age 9 depressive symptoms											--	.52**	.62**
12. Age 9 anxiety symptoms												--	.48**
13. Age 9 externalizing symptoms													--
Mean	1.99	2.48	1.78	2.21	2.40	3.36	12.24	1.11	1.17	5.27	1.14	1.25	4.45
SD	.84	.77	.75	.69	1.84	2.25	6.61	1.60	1.36	5.43	1.55	1.55	4.85

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