How BIS/BAS and psycho-behavioral variables distinguish between social withdrawal subtypes during emerging adulthood

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A R T I C L E   I N F O

Article history:
Received 5 June 2017
Received in revised form 26 July 2017
Accepted 30 July 2017
Available online xxxx

Keywords:
Social withdrawal
Shyness
Unsociability
Avoidance
Anxiety
Creativity

A B S T R A C T

Informed by past theory and research on social withdrawal, the aims of this study were to investigate whether three subtypes of social withdrawal (shyness, avoidance, unsociability) are related with BIS and BAS, as hypothesized by leading theories. Also of interest was whether these three withdrawal subtypes are related uniquely to different theoretically-indicated outcomes during emerging adulthood, a developmental period that has received very little empirical attention in this area of research. Participants were 295 (Mage = 19.31 years) emerging adults who completed self-report measures assessing different motivations for social withdrawal, aggression, anxiety sensitivity, creativity, social anhedonia, and BIS/BAS. Structural equation modeling revealed findings that challenge theoretical models that assume that specific and varying combinations of BIS and BAS underlie different withdrawal subtypes. The models also revealed new evidence of specific and non-specific associations, including the first evidence of a potential benefit (creativity) associated with unsociability.

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1. Introduction

Too much solitude can cause serious physical and psychosocial costs. Growing evidence indicates that these effects last throughout the life span (Coplan & Bowker, 2014), and so it is therefore important to understand why some individuals are particularly predisposed to avoid social interaction. Such tendencies are captured by the construct of social withdrawal (i.e., the dispositionally-based behavioral tendency to move oneself from and avoid familiar and unfamiliar peers; Rubin, Coplan, & Bowker, 2009). Theory and research indicate that there are three primary motivations for withdrawal: (1) fear or anxiety, which leads to shyness; (2) dislike of social interaction, which causes avoidance; and (3) non-fearful preferences for solitude, which underlie unsociability. Approach and avoidance models propose that various combinations of approach and avoidant motivations underlie these different types of social withdrawal (e.g., Asendorpf, 1990). For instance, researchers argue that strong approach (BAS) and avoidance motivations (BIS) underlie shyness while strong BIS and weak BAS motivations underlie avoidance, although there is little data to support these connections between withdrawal subtypes and BIS/BAS.

Available evidence also suggests that there is significantly greater risk associated with withdrawal due to shyness and avoidance relative to withdrawal due to unsociability (for recent review, see Coplan, Ooi, & Noé, 2015). However, the risks associated with shyness and avoidance tend to be the same or non-specific in most of the aforementioned research (e.g., emotion dysregulation, poor relationship quality; Nelson, 2013). Unsociability is typically found to be unrelated to adjustment indices (e.g., Rubin, 1982). As a result, little is known about subtype-specific or non-shared risk correlates (e.g., correlates that are related to one subtype only). Information about proposed underlying mechanisms (BIS/BAS) and non-shared correlates would be useful for both construct clarification and the development of withdrawal-specific etiological models. Such knowledge could also help to improve the specificity of intervention and prevention efforts. In the present study, we examined the associations between withdrawal subtypes and measures of BIS and BAS, and also several indices of functioning (e.g., anxiety sensitivity; creativity) that are theoretically indicated to be, but not thoroughly empirically evaluated as, non-shared correlates of shyness, avoidance, and unsociability. Our focus on emerging adults (18–25 year olds) responds to recent calls for increased attention to social withdrawal during this developmental period (e.g., Nelson, 2013). The social withdrawal literature has tended to focus mostly on children and young adolescents, despite suggestions and evidence that withdrawal during emerging adulthood could interfere with critical developmental tasks surrounding education, employment, relationship formation, and identity achievement (Bowker, Nelson, Markovic, & Luster, 2014). Sensitivity to reward is also proposed to be the strongest during adolescence and emerging adulthood (Urošević, Collins, Muetsel, Lim, & Luciana, 2012), and thus emerging adulthood could be a critical developmental period to understand the linkages between BIS and BAS and social withdrawal.
1.1. Subtypes of social withdrawal

For many years, research on social withdrawal was limited by its focus on just one reason for withdrawal: fear/anxiety. Such withdrawal has been referred to as shyness, and there is a large body of research indicating considerable psychosocial risk associated with shyness during childhood, adolescence, and into emerging adulthood (e.g., anxiety, depression, peer victimization; Rubin et al., 2009). Informed by Gray’s (1982) theory of temperament and Asendorpf’s approach and avoidance model (Asendorpf, 1990), theory on social withdrawal suggests that strong activity in the neurobiological behavioral inhibition (BIS) and behavioral approach systems (BAS) underlie shyness. That is, shy individuals are thought to desire to approach and interact with peers (strong BAS, which reacts to appetitive and rewarding stimuli), but avoid withdrawal due to overwhelming social fears and anxieties about such interaction (strong BIS, which reacts to aversive, punishing or novel stimuli; Gray, 1982, Gray & McNaughton, 2000). They are believed to be trapped in an “approach-avoidance conflict,” evident in observations of shy youth engaging in hovering and on-looking behaviors in the company of unfamiliar peers as well as parallel play (e.g., Asendorpf, 1990).

In more recent years, there has been increased theoretical and empirical attention paid to individuals who withdraw due to strong dislike of social interaction (referred to as avoidant) and non-fearful preferences for solitude (referred to as unsociable). An application of Gray’s and Asendorpf’s models suggest that such individuals withdraw due to strong BIS and weak BAS (in the case of avoidance) or weak BIS and BAS (in the case of unsociability). These characterizations have received some indirect empirical support in studies of young children. Avoidant children are observed to engage in high levels of non-constructive solitary play (but little parallel play or social interaction; Asendorpf, 1990) and unsociable children are observed to make few social initiations to peers but little active avoidance of others (Coplan, Prakash, O’Neil, & Armer, 2004). Despite the wide-spread use of these BIS and BAS combinations in most contemporary theorizing about shyness, unsociability, and avoidance, to date there has been no empirical studies, to our knowledge, that directly considered BIS and BAS in relation to all three subtypes of withdrawal. Several investigators did evaluate the linkages between self-report measures of shyness and self-report measures designed to directly correspond with Gray’s BIS and BAS systems. In these studies, positive associations between self-reports of shyness (and the related construct of social anxiety) and BIS (e.g., Levinson, Rodebaugh, & Frye, 2011), and negative associations to BAS were revealed (e.g., Schmidt et al., 2008). Additional research is needed though, particularly on the unique associations between BIS/BAS and shyness, avoidance, and unsociability.

Another issue in the extant withdrawal literature is that relatively few studies reveal evidence of non-shared correlates. Indeed, shyness and avoidance tend to be related uniquely to the same psychosocial and behavioral outcomes, such as emotional dysregulation (Nelson, 2013), negative emotionality (Coplan et al., 2013), and loneliness (Bowker & Raja, 2011). In addition, in most studies, unsociability is found to be unrelated to any adjustment outcomes. However, etiological models of social withdrawal suggest that there should be some non-shared correlates (Asendorpf, 1990; Coplan et al., 2015; Rubin et al., 2009). For example, Asendorpf (1990) and Nelson and colleagues (Nelson, Coyne, Howard, and Cliff, 2016) hypothesized that avoidant individuals not only withdraw from, but also aggress against others (due to intense dislike and anger toward others). In partial support, Asendorpf (1990) observed elevated levels of aggression in avoidant children, and Nelson et al. (2016) found that avoidance during emerging adulthood was related to general externalizing problems (indexed with items pertaining to drug and alcohol use and delinquent behavior) vis-à-vis problematic media use. Coplan and colleagues have suggested that avoidance may be an early precursor to depression, and thus might be related uniquely to social anhedonia (or the inability to experience pleasure in social relationships and experiences; Coplan et al., 2015). Moreover, shy individuals are presumed to be especially sensitive to fears of being negatively evaluated by others and other anxiety-provoking situations, feelings, and experiences (Nelson, 2013; Rubin et al., 2009).

Unsociability, however, has been recently theorized to be related to positive adjustment outcomes, such as creativity (because anxiety-free time spent in solitude may allow for and foster creative thinking and work; Bowker & Raja, 2011; Coplan & Bowker, 2017). This notion has not yet been evaluated empirically but dovetails well with theory and research linking different features of personality and creativity (see Eysenck, 1993, Furman & Bachtai, 2008) as well as arguments that solitude can afford a unique context in which individuals can develop intellectually (see Coplan & Bowker, 2016). There is also some empirical evidence linking self-imposed solitude during adolescence and emerging adulthood to indices of psychosocial well-being, including creativity (e.g., Long & Averill, 2003; Long, Seburn, Averill, & More, 2003).

1.2. The present study

Our study first sought to investigate the linkages between shyness, avoidance, and unsociability and the BIS/BAS scales in order to evaluate the premise that strong and weak BIS and BAS systems underlie different types of social withdrawal during emerging adulthood. We also considered the unique associations between shyness, avoidance, and unsociability and theoretically–indicated correlates (anxiety sensitivity, aggression, creativity, social anhedonia), in an effort to reveal evidence of non-shared correlates. In addition, this study explored whether there were any sex differences in the pattern of associations. Some research with children and young adolescents suggests that the correlates and consequences of social withdrawal might be greater for boys than girls (Doey, Coplan, & Kingsbury, 2014), but it is unclear whether this is also the case for emerging adults.

2. Materials and method

2.1. Participants and procedure

Participants were 295 undergraduate students (171 females; M_{age} = 19.66 years; SD = 1.76) from one large public university in the United States. All students were enrolled in large introductory psychology course. The sample was ethnicity diverse, with approximately 46% self-identifying as Asian, 37% as Caucasian, 8% as African-American, 7% as Hispanic/Latino, and the remaining as Biracial or “other.” Participants attended one 45-minute laboratory visit conducted by trained research assistants. Written consent was obtained from all participants, and participants were informed that they were free to withdraw from the study at any time. During the laboratory visit, participants completed self-report measures administered using SurveyMonkey.com. All participants were awarded course credit for their participation, and were debriefed at the conclusion of the study. Study procedures were approved by the university Institutional Review Board. Responses from six participants were excluded from the final analyses due to missing data.

2.2. Measures

2.2.1. Social withdrawal subtypes

Participants completed the 21-item Child Social Preference Scale-Revised (Bowker & Raja, 2011), which has been used previously to assess adolescents’ and young adults’ individual levels of shyness (e.g., “Sometimes I turn down chances to hang out with others because I feel too shy”), unsociability (e.g., “I don’t have a strong preference for being alone or with others”), and avoidance (e.g., “I try to avoid spending time with other people”). There are also items assessing peer isolation, or solitude that results from being isolated by the peer group (e.g., “Sometimes others don’t want me to hang out with them”), which
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