DO EARLY COMMUNITY-BASED INITIATIVES PREDICT SOCIAL ANXIETY 20 YEARS LATER?

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DO EARLY COMMUNITY-BASED INITIATIVES PREDICT SOCIAL ANXIETY 20 YEARS LATER?

By

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THESIS

Submitted to the Department of Psychology
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Abstract

Social anxiety disorder is characterized by an extreme and persistent fear of embarrassment or scrutiny in social or performance situations. This condition is among the most common mental illnesses and is characterized by an early onset, chronic course, and significant associated health and social service costs. Nevertheless, it remains among the least recognized, researched, and treated mental health conditions. Critically, broader community characteristics have yet to be considered as valuable tools for disrupting the onset and maintenance of social anxiety. The present study examined the long-term impact of a comprehensive, holistic, community-based early childhood development initiative on social anxiety in young adults. Participants were 74 adults who grew up in impoverished communities and who took part in the initiative as children. An additional 32 individuals who did not partake in the initiative served as the comparison group. Hierarchical multiple regression was employed using initiative participation, gender, and socioeconomic status as predictor variables, and social anxiety as the outcome variable. Gender emerged as the only significant finding: Women reported higher levels of social anxiety than men, and the initiative had a positive impact on female, but not male participants. Findings make an important contribution to the existing literature on social anxiety disorder and provide direction for future preventive efforts.
Acknowledgments

It is said among authors that books are never finished. There simply comes a time when a writer must stop writing. I believe the same can be said about the long and arduous journey that is the master’s thesis. That time has arrived.

I would like to thank the Better Beginnings, Better Futures research participants who have been participating in research for over 20 years and who took time out of their hectic lives to respond to this survey. Their engagement made this work possible.

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Social Anxiety Disorder: Review of the Literature

It is expected that most of us will experience some level of unease or apprehension in novel social settings, or become embarrassed or self-conscious when suddenly at the centre of attention. However, individuals with social anxiety disorder (SAD) experience an extreme and persistent fear of negative evaluation when exposed to unfamiliar people in social and performance situations (American Psychiatric Association [APA], 2013). Affected individuals are consumed with worry that they might behave in ways that violate social norms, attract criticism from others, and result in social rejection (APA, 2013; Moscovitch, Rodebaugh, & Hesch, 2012). Fears are typically related to performance (e.g., public speaking, test taking, job interviews) or social interactions (e.g., attending social events, making conversation, eating or drinking in public) (Knappe, Beesdo-Baum, & Wittchen, 2010). Though the concept of social anxiety is broad (see Figure 1), SAD is generally viewed as existing along a continuum based on the number and types of feared situations and the degree of functional impairment (Bögels et al., 2010; Ha, Lim, Shin, & Oh, 2011).

Figure 1. Continuum of social anxiety in the general population (Reprinted from Barrett & Cooper, 2014).
The Nature of SAD: Prevalence, Onset, Course, Impact, and Context

Social anxiety disorder is among the most prevalent of the anxiety disorders (Stein & Stein, 2008). Unlike triggers for specific phobias that can often be avoided (e.g., someone with a fear of flying can avoid flying altogether), social situations are ubiquitous and difficult to escape, making this an especially debilitating condition (Clauss & Blackford, 2012).

Epidemiological surveys estimate the lifetime prevalence of individuals who meet full diagnostic criteria to be between 8.3% and 13.8% (Bandelow & Michaelis, 2015) with higher rates among individuals who are younger, single, less well educated, have lower incomes and unstable employment records, and are of lower socioeconomic status (Grant et al., 2005; Hidalgo, Barnett, & Davidson, 2001; Olssøn & Dahl, 2012; Zhang, Ross, & Davidson, 2004).

Social anxiety appears particularly early in life, most frequently during childhood or early adolescence, with a median age of onset of 13 years. This is younger than that for agoraphobia (20 years), panic disorder (24 years), and generalized anxiety disorder (31 years) (Bandelow & Michaelis, 2015). The presence of SAD is associated with a considerable degree of distress and impairment in many life domains including education, employment, interpersonal relationships, and mental health, and often results in higher levels of disability and significant reductions in quality of life (Hidalgo et al., 2001; Katzelnick et al., 2001; Stein & Stein, 2008; Walker & Kjernisted, 2000). It has been estimated that up to 88% of affected individuals also meet criteria for at least one other mental health problem with SAD often presenting first, suggesting it functions as a precursor to additional disorders (Fehm et al., 2008; Lampe et al., 2003; Stein, 2006).

In examining the claim that social anxiety has a comparatively early onset, it is important to note that adolescence represents a developmentally sensitive juncture during which critical biological, physiological, and cognitive changes are rapidly occurring. Important psychological
processes are impacted, resulting in considerable individual variation in the appraisal, expression, and regulation of emotion (Haller, Kadosh, Scerif, & Lau, 2015). Adolescents face great challenges as they prepare to enter secondary school, develop personal identities, gain greater autonomy and decision-making freedom from parents, negotiate increasingly complex peer relations, and start on the path to sexual maturity. G. S. Hall (1904) famously described this period as one of storm and stress characterized by parental conflict, mood disruptions, and heightened emotional reactivity. Although these transitions are developmentally normative, their inherent potential to induce stress and social worries has gone unrecognized within the social anxiety literature. Instead, “normal” adolescent behaviours such as shyness, reticence, introversion, and transient fears are commonly regarded as indices of internalizing problems and assumed to be indicators of later psychopathology, particularly social anxiety (e.g., Chronis-Tuscano et al., 2009). Future research should pay closer attention to the precarious social context in which adolescent transitions take place and how typical age-associated changes may serve as a vehicle for social anxiety.

As with other anxiety disorders, women are disproportionately affected by SAD. Though some studies have yielded inconsistent findings (e.g., Stewart & Mandrusiak, 2007), most consistently report greater prevalence rates and symptoms among women and young girls (Bandelow & Michaelis, 2015; Beesdo et al., 2007; Caballo et al., 2014; Hidalgo et al., 2001; MacKenzie & Fowler, 2013). It is critical to note here that mental illness in general, and female anxiety in particular, have historically been organized around a gendered discourse, one criticized for stigmatizing popular notions of female traits in order to keep women in restrictive social roles (Wright & Owen, 2001). Historical analysts have argued for the construction of mental illness as another method by which women are controlled by men, citing the domain of psychiatry as a patriarchal institution fundamentally oppressive to women (e.g., Showalter, 1987). In their
literature review on how gender stereotypes affect women’s experience of mental illness, Wright and Owen (2001) note that Victorian era women were seen as irrational and whose madness was linked to their sexuality. Indeed, mental illness, even when experienced by men, was considered a feminine affair. More recent research has found that prototypical feminine traits such as fearfulness and anxiousness are more often associated with psychiatric symptoms (Ginsburg & Silverman, 2000; Muris, Meesters, & Knoops, 2005) and that clinicians continue to diagnose women with affective disorders more frequently than men (Brook & Schmidt, 2008).

In an attempt to explain this disparity, gender role theory argues that girls and boys are differentially socialized and that traits such as shyness and fearfulness may be more socially acceptable for girls than for boys (Ginsburg & Silverman, 2000; Muris et al., 2005). It may also be that women lack social assertiveness because they tend to hold positions of less power and autonomy and belong to a lower social class relative to their male counterparts. Proximal factors such as constrained choices, little decision-making ability in the family and society, limited access to financial resources, and difficulties managing multiple roles may further weaken women’s self-concept, leading to feelings of low self-esteem and creating a vulnerability through which social anxiety can penetrate. Divisions between men and women in these domains are important considerations in the formation of social anxiety, yet remain unaddressed by the current literature.

In addition to gender, it is well established that race, ethnicity, and culture play an important role in the expression of social anxiety, though research findings in this area have been mixed. Some studies have found higher social anxiety among ethnic minority groups (e.g., Krieg & Xu, 2015; LeSure-Lester & King, 2004; Polo & López, 2009) with at least one study reporting significantly lower levels (e.g., Pina, Little, Wynne, & Beidel, 2014). Others still document lower prevalence among minority samples, but a more severe and persistent course compared with
White counterparts (Breslau, Kendler, Su, Gaxiola-Aguilar, & Kessler, 2005; Himle, Baser, Taylor, Campbell, & Jackson, 2009). Further, a study by Levine and colleagues (2015) found differences in risk and protective factors against SAD among African Americans and Black Carribeans, suggesting that SAD may impact black ethnic subgroups differently. How SAD manifests in ethnically diverse groups within a Canadian context has been examined by only a small handful of studies and these focusing for the most part on Asian-heritage groups (e.g., Hong & Woody, 2007; Hsu et al. 2012; Lau, Fung, Wang, & Kang, 2009).

Cross-cultural differences in social anxiety prevalence and symptomatology support the role of environmental influences in the etiology of this disorder. Given that the defining feature of SAD is a fear of negative evaluation by others, and that such fears are precipitated by social norms and expectations, it is reasonable to conclude that the meaning and expression of social anxiety will differ depending on the cultural context. For example, research has noted the Western emphasis on assertiveness, direct communication, and an independent view of the self (Clark, 2001). Conversely, East Asian cultures prioritize interpersonal harmony and emotional restraint with a more interdependent view of the self with significant others (Nisbett & Masuda, 2003). Socially reticent behaviours are therefore less likely to be regarded as maladaptive in collectivistic cultures and may even be valued and encouraged (Heinrichs et al., 2006). Indeed, a review of global 12-month SAD prevalence rates found that the United States and South America yielded the highest rates (2.8-7.9% and 6.4%-9.1%, respectively) whereas Asian countries and Nigeria had the lowest rates (0.2-0.6% and 0.3%, respectively) (Hoffman et al., 2010). In addition, Japanese and Korean cultures experience *taijin kyofusho* (TKS), a more allocentric form of SAD with concern centred on how one’s behaviour or personal appearance might offend or embarrass others, rather than oneself (Hofmann, Asnaani, & Hinton, 2010). Adequately assessing social fears therefore requires careful consideration of the context of culture.
Prominent Models of Social Anxiety Disorder

Cognitive-behavioural models of SAD describe how socially anxious individuals perceive and process social and evaluative information, and have received considerable empirical support. Studies show that affected individuals are more likely to interpret ambiguous events as negative and catastrophic, overestimate the probability and cost of negative social events (even when hypothetical), and rate past autobiographical blunders as more socially costly, embarrassing, and shame-inducing compared with healthy controls (Amin, Foa, & Coles, 1998; Moscovitch, Rodebaugh, & Hesch, 2012; Moscovitch & Hofmann, 2007; Rheingold, Herbert, & Franklin, 2003; Stopa & Clark, 2000; Trew & Alden, 2008). Other experiences include spontaneous and highly distressing self-images in which individuals behave in socially undesirable or embarrassing ways (Chiupka, Moscovitch, & Bielak, 2012). These images are perceived as valid reflections of the self and can often be traced back to early life experiences during which individuals felt socially excluded, rejected, or humiliated (Moscovitch et al., 2011).

In addition, interpersonal models emphasize the key role interactions with others play in this disorder (e.g., Alden & Taylor, 2004; Hoffart, 2005). According to this perspective, early childhood interactions with important figures shape our sense of self and what we come to expect from others (Benjamin, 1993; Alden & Taylor, 2004). Baldwin (1992) postulated that socially anxious individuals have a more negative interpersonal history with disapproving others and that these early interactions lead to negative schemata that affect relationships later in life. In support of these theories, a range of interpersonal difficulties has been documented among individuals with SAD including avoidance (Thompson & Rapee, 2002), social withdrawal (Gazelle, Workman, & Allan, 2010), dependent and submissive behaviour (Kachin et al., 2001), and less emotional expression, self-disclosure, and intimacy in relationships (Sparrevoohn & Rapee, 2009).
Individual Treatment for SAD

A range of cognitive, behavioural, and pharmacological approaches has been developed and found to be efficacious for the clinical management of social anxiety. Cognitive-behavioural interventions in particular are well established and work by altering distorted cognitions and dysfunctional behaviours (Lampe, 2009). Social skills training has also shown promise by targeting interpersonal difficulties (Sareen & Stein, 2000). Other psychological approaches include dialectical behaviour therapy (Simos & Hofmann, 2013), mindfulness-based cognitive therapy (McCabe, 2015), and acceptance and commitment therapy (Azadeh, Kazemi-Zahrani, & Besharat, 2016). Finally, psychoactive medications have shown efficacy in reducing anxiety and avoidance behaviours (Hoffman & Mathew, 2008). Despite the availability of effective treatment, underrecognition and undertreatment of SAD remains widespread with affected individuals waiting years or even decades before seeking treatment (Bruce et al., 2005; Wittchen & Fehm, 2003). It is believed that the core features of SAD, namely the fear of negative evaluation, may underlie delayed treatment seeking (Walker & Kjernisted, 2000).

A Novel, Community-Based Perspective on Social Anxiety

The extant literature indicates that SAD is a serious and prevalent disorder with significant cognitive, emotional, and interpersonal impairment. However, the current literature supports an individualistic perspective towards SAD with both theoretical and empirical conceptualizations centering on internally derived symptoms (e.g., cognitive biases, erroneous information processing, distorted judgment). This approach may be viewed as blaming the victim, an ideology seminally put forth by sociologist William Ryan (1971) whereby explanations of social issues are collapsed onto individual fault and wrongdoing. Ryan argued that maintaining the narrative on the failure of the victim obscures the contribution of larger structural sources to the problem and leaves institutionalized responses unexamined. Community psychology scholars
have long stressed the importance of addressing multiple and interacting levels of analysis, noting the complex interplay between individuals and factors in their environment that help steer development. However, our current understanding of social anxiety has developed entirely outside of a broader social-structural framework with little to no attention given to community-level determinants of this disorder.

Failure to consider additional levels of analysis is a significant shortcoming when considering the etiology of social anxiety. Given the highly social and inter-relational nature that defines this disorder, the prospect that social fears could be assuaged through community factors such as greater inclusion, belongingness, and sense of community may be a promising route through which SAD can be addressed. For instance, positive peer relationships and friendship quality have been related to greater global self-worth and fewer internalizing problems (Barrett & Cooper, 2014; Rubin et al., 2004) and demonstrably correlated with socio-emotional competence, a recognized component of psychological wellbeing (Nicholson, Lucas, Berthelsen, & Wake, 2012). Belongingness to one’s school and community is especially important for youth affected with social anxiety since social groups provide opportunities for increased peer contact, establishing relationships, and access to positive role models and supports (Barrett & Cooper, 2014). On the other hand, exposure to acute exclusion has been linked to negative mood and lower self-esteem (Begen & Turner-Cobb, 2015; Gerber & Wheeler, 2009). A recent intervention aimed at combating psychological distress through the formation of social relationships found significantly improved mental health, well-being, and social connectedness relative to the control group, with effects sustained six months later (Haslam, Cruwys, Haslam, Dingle, & Chang, 2016). Studies have further shown that core risk factors in children such as temperament, genetics, and parental psychopathology are neither necessary nor sufficient for the development
of social anxiety and that relational aspects such as peer group involvement and network size either mediate or moderate these risks (Frenkel et al., 2015).

Findings such as these illustrate the power of the social environment to influence mental health outcomes. Critically, they provide a strong theoretical rationale for addressing community-level factors and their potential relationship to social anxiety. Although the SAD risk literature is considerable, a comparatively smaller body of work has examined protective factors, and these in many cases understood as merely the absence of risk factors. Where environmental conditions are examined, they are limited to immediate familial factors such as parental psychopathology or rearing style, and tend to emphasize problems or negative aspects of the environment. Overdue for attention are potential protective factors present in the environment and how the broader community context can serve as a psychological resource for mitigating the onset of social anxiety.

**Current Knowledge of Effective Community-Based Prevention Programs**

One early childhood development initiative in Ontario, Canada, is worth noting as a prevention project that addresses many of the limitations noted above. Better Beginnings, Better Futures (BBBF) is a comprehensive, holistic, ecological, community-based initiative started in 1991 by the Ontario provincial government designed to prevent social and emotional problems in socioeconomically disadvantaged children and enhance the ability of families and communities to provide a positive environment for their children (Peters et al., 2010). The model is unique in that it incorporates a number of characteristics rarely seen in programs for young children (Peters, Petrunka, & Arnold, 2003) and as such serves as an exemplar for the efficacy of community-based interventions in improving wellbeing.

The BBBF initiative takes an ecological approach to human development, addressing multiple domains in a child’s environment with programs designed to meet the needs of children,
parents, and the community as a whole. The initiative expands on traditional measures of cognitive and academic functioning by including factors such as emotional and behavioral problems, social competence, and physical health. Activities are designed to increase community participation and improve the quality of the local neighbourhood by integrating programs with local service-providing organizations. One especially important aspect of BBBF is the provision of programs to support parents, improve parenting skills, and strengthen family wellbeing. According to Mian, Eisenhower, and Carter (2015), parent engagement is paramount in efforts to develop anxiety-focused, community prevention programs for children. The most distinctive feature of the BBBF model is the shared power and decision making between community members and professionals that provides opportunities for residents to be involved in all aspects of the initiative’s development, implementation, and management.

Long-term follow-up evaluations of BBBF have documented a wealth of positive outcomes in children, families, and communities including decreased emotional and behavioural problems and better social functioning in children, improved parent and family social and emotional functioning, greater parental involvement in children’s school, and better parent-teacher relationships (Peters et al., 2003). Hasford, Loomis, Nelson, and Pancer (2013) demonstrated that childhood participation in BBBF corresponds to a greater sense of community and meaning making in later adolescence and a comparatively deepened sense of community connection among participating youth. Qualitative analyses have further revealed higher scores among initiative participants on themes such as generativity (e.g., personal sense of creativity and success; Love, Nelson, Pancer, Loomis, & Hasford, 2013), positivity and reflexivity (Janzen, Pancer, Nelson, Loomis, & Hasford, 2010). Janzen and colleagues (2010) explored life narratives of 18-19-year-old BBBF youth and found that participation in community settings led to greater self-esteem, more confidence, improved changes in the social statuses and relationships, and more
and deepened friendships. Indeed, factors commonly known to be associated with social anxiety including social support and social acceptance (Festa & Ginsburg, 2011), social functioning (Segrin & Flora, 2000), self-esteem (Iancu, Bodner, & Ben-Zion, 2015), friendship quality (Festa & Ginsburg, 2011), parenting styles (Bandelow et al., 2004), and peer victimization (Mulder & van Aken, 2013) have been impacted by BBBF over time.

In conclusion, follow-up research over the past three decades makes a robust case for the efficacy of the BBBF initiative and points to the relevance of community as an appropriate alternative response to alleviating social fears. The unique aspects of the BBBF model such as more involved parenting, community collaboration, and improved neighbourhood quality, along with efforts to affect change in several developmental domains, lend a strong theoretical rationale for expecting community-based interventions to disrupt potential trajectories towards SAD.

**Socioeconomic Status as a Risk Factor for Social Anxiety Disorder**

Community-based interventions may be particularly important for children from low socioeconomic backgrounds who face greater risk for developing mental health problems. Research has shown that childhood socioeconomic status (SES), typically indexed as household income, parental education, parental occupational status, or family affluence (Currie et al., 2012), is a well-known risk factor for a range of negative outcomes including self-regulation and behavioural problems (Evans & Rosenbaum, 2008), lower IQ and academic achievement, increased anti-social behaviour (Heckman & Masterov, 2007), and increased risk of psychiatric disorders (Gilman, Kawachi, Fitzmaurice, & Buka, 2003). A recent systematic review by Reiss (2013) found that socioeconomically disadvantaged children and adolescents were two to three times more likely to develop mental health problems and that this relationship was strengthened as low SES persisted over time. Similarly, Miech and colleagues (1999) found that adolescents
whose parents had a lower occupational status, education level, and income had a greater likelihood of having an anxiety disorder, including SAD.

Low SES may affect the everyday lives of children and contribute to the development of SAD in a number of ways. First, low-SES children may have fewer opportunities to participate in social and recreational activities, translating into lost opportunities to learn social skills and form friendships (Memik et al., 2010). Second, low-SES families tend to experience more chronic stressors and uncontrollable life events (Wadsworth & Santiago, 2008). Interviews with Swedish children living in low-income families revealed a number of hardships including difficulty living in parity with schoolmates, overcrowded housing conditions, feelings of insecurity in their neighbourhoods, fewer leisure pursuits, and less involvement in social life than other children (Ministry of Health and Social Affairs, 2004). Finally, children growing up in impoverished environments may be ostracized and made objects of derision by others, with clear consequences for their self-esteem. One recent study found that self-esteem mediated the relationship between SES and social anxiety and that the underlying mechanism in the link between family SES and social anxiety was impaired self-esteem caused by poverty (Cheng, Zhang, & Ding, 2015).

**Theoretical Framework**

Collectively, the aforementioned factors highlight the range of adverse circumstances often experienced by low-SES families and how these may work to affect children’s developmental course towards social anxiety. Consistent with this theoretical perspective, the present study relies on Dohrenwend and Dohrenwend’s (1969) social causation theory as its guiding framework (Figure 2). Social causation theory posits that mental health problems are the result of socioeconomic disadvantage and the chronic stressors often associated with a low social position. Specifically, the model suggests a process of risk accumulation whereby repeated exposure to adverse conditions in childhood sets up a trajectory towards mental illness across the
lifespan. Greater exposure to negative life events, coupled with fewer resources and poor coping skills, increase the risk of psychological disorders and may interfere with healthy development (Fryers, Melzer, & Jenkins, 2003). It is also hypothesized that although individuals from all SES backgrounds are equally vulnerable to psychological problems, those in the lowest SES strata do not recover as quickly or as fully once they do develop problems.

Figure 2. Implied causal pathways in social causation theory.

Empirical studies provide support for the social causation hypothesis by demonstrating that factors associated with low SES contribute to variations in levels of mental health problems (for a review, see Reiss, 2013). Longitudinal data tracking children have been used to test the theory’s predictions since children’s behaviour does not typically determine a family’s social position (Wadsworth & Achenbach, 2005). These studies show that more children from low SES groups develop a variety of psychological symptoms (Wadsworth & Achenbach, 2005) and that low childhood SES is a significant predictor for the onset of mental disorders throughout the life course (McLaughlin et al., 2011).
Also important in highlighting the role of context in human behaviour and development is Bronfenbrenner’s (1977) ecological systems theory. Bronfenbrenner recognized that the developing person is embedded within a system of complex sociocultural levels, each having differential effects on development and each progressively changing throughout the lifespan. The model places the individual within the context of microsystems (e.g., home, school, work), mesosystems (e.g., interactions among family, school and peer groups), exosystems (e.g., social structures such as neighbourhoods, mass media, government agencies), and macrosystems (e.g., cultural, economic, social, legal, and political systems) and emphasizes the reciprocal relationship between individuals and these systems. The theory later emerged as a bioecological systems theory to stress an individual’s own biology as an additional component of development (Bronfenbrenner & Morris, 1998). With attention paid to both individual and sociocultural factors, ecological systems theory has utility for understanding how linkages between various contexts might steer the development of SAD.

Consistent with the theories of social causation and ecological systems, it can be argued that individuals in low socioeconomic positions experience environments that may themselves be antecedent to the development of psychopathology, particularly social anxiety. For instance, it may be that impoverished groups are more fearful or anxious because of their relative position in social and other categorical hierarchies that intensifies perceived threats of negative evaluation and makes them more highly tuned to how their behaviour is viewed by others. Disadvantaged communities may experience greater stigma, discrimination, and exclusion to which feelings of low self-esteem and self-worth are a natural and expected response. The causal pathways of social causation theory outlined in Figure 2 may therefore be reconceptualized from a preventive lens to include factors such as inclusion, social acceptance, belongingness, and sense of community. The question then becomes, to what degree do community characteristics influence
the development and experience of social anxiety? Could changing social conditions play a protective role against social fears, even in the context of socioeconomic disadvantage? Despite this reasoning, there remains a dearth of information on broader social, structural, and community processes and how these might be operative in the formation of social fears. These limitations must be addressed if social anxiety prevention efforts are to be fully explored and implemented.

**Overview of the Present Study**

If we accept the proposition that community may be an appropriate response to preventing social anxiety, empirical support would have important implications for steering the development of targeted interventions. Despite a considerable literature on early childhood prevention programs, a far smaller body of knowledge exists on how these may impact the development of social anxiety, and in particular, the protective effects of community-based approaches in circumventing this condition. To my knowledge, only a small handful of preventive interventions currently exist that specifically target youth social anxiety (Norwegian Universal Preventive Program for Social Anxiety: Aune & Stiles, 2009; FRIENDS: Lowry-Webster, Barrett, & Dadds, 2001; Skills for Academic and Social Success: Fisher, Masia-Warner, & Kelin, 2004; Turtle Program: Chronis-Tuscano et al., 2015; Cool Little Kids: Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005). Other similar initiatives exist (e.g., the Y-Worri project: Calear, Christensen, Griffiths, & Mackinnon, 2013; UTalk: Greca, Enrenreich-May, Mufson, & Chan, 2016), though these are still in the development and planning phases and their efficacy awaits future study.

With a few notable exceptions, however, both existing and potential programs are relatively brief interventions, often aimed at older youth, and do not target children from socioeconomically disadvantaged backgrounds. In addition, they do not always provide longitudinal data and cannot be assessed for their long-term developmental outcomes. Most critically, existing programs adopt an almost exclusively individualized focus for reducing social anxiety, excluding community as
an important context for healthy development. The aim of this study is therefore to examine the long-term effects of a community-based early childhood initiative on the development of social anxiety in young adulthood, particularly among diverse and socioeconomically disadvantaged groups who remain an understudied population. Findings could have considerable impact by including the community context in the etiology of social anxiety and highlighting opportunities to reduce SAD in high-risk contexts.

Based on the literature reviewed above and the theoretical frameworks outlined, the following research questions were explored:

1. Does participation in an early community-based intervention initiative (i.e., Better Beginnings, Better Futures) predict social anxiety in young adulthood?

2. What is the role of gender in this relationship?

3. What is this role of socioeconomic status in this relationship?

Based on the literature reviewed, it was hypothesized that:

1. Participants who took part in the BBBF initiative as children will report lower levels of social anxiety in adulthood relative to participants who did not take part in the initiative.

2. Overall, women will report greater social anxiety than their male counterparts, but women in the intervention group will fare better than women in the comparison group.

3. Overall, participants with relatively lower SES will report higher levels of social anxiety, but low-SES participants in the intervention group will fare better than low-SES participants in the comparison group.

4. Women with lower SES will report the highest levels of social anxiety than any other group.
Method

Research Paradigm

Research methods are guided by paradigms and their related assumptions. Paradigms underlie how research topics are chosen, how questions are framed, and which methods are derived (Nelson & Prilleltensky, 2010). Research questions always drive the choice of method; this study’s main objective was to compare levels of social anxiety between individuals who had received an early childhood intervention to those who had not. Consistent with this aim, and from a post-positivist research paradigm, the most fitting method is a quasi-experimental two-group between-subjects correlational survey design.

Right or wrong, the social sciences have long been criticized for privileging quantitative approaches that neglect humanistic, interpretive, historicist, and reflexive methods of inquiry and that produce “sophisticated but sterile research” (Babones, 2016, p. 455). Nevertheless, there remains an operable place for quantitative methodology within community psychology. Though it has its roots in ascetic logical positivism, post-positivism represents a more modest version of quantitative inquiry (Guba & Lincoln, 2005). Philosophically, this implies that a material reality exists, it can be benchmarked to some extent, and interventions can be causally related to its improvement, though such a reality can be only partially understood (Nelson & Prilleltensky, 2010). A post-positivist paradigm espouses explanatory and predictive power through empirical-analytical knowledge with the aim of revealing causal mechanisms. I therefore employed reliable and valid measurement scales with an aim towards generalizing my findings and making them transferable to similar contexts.

The post-positivist paradigm also recognizes the delicate balance between the pursuit of objectivity and the non-independence between the researcher and the phenomenon under study. It is accepted that the theories, knowledge, and values I bring to the research context bear
considerable weight on my findings (which cannot be value free) and that my biases may exert influence on the interpretation, representation, and dissemination of my findings.

Finally, consistent with the post-positivist approach, I recognize that research findings derived from any method are not universally true and generalizable. Although interpretations of reality vary and an exploration of individual experiences of social anxiety is warranted, such an inquiry was outside the scope of this study. Rather, the aim was to construct knowledge that can be used to inform interventions geared at reducing the risk for developing social anxiety.

**Personal Context**

According to Morgan (2007), what researchers choose to study and how they choose to study it inevitably involves aspects of their personal history, social background, and cultural assumptions. As a community psychology researcher, I cannot be separated from that which I am studying. It is therefore essential that I practice reflexivity by noting my standpoint – that is, the opinions, values, and experiences that I bring to the present work.

I am, and always have been, interested in psychology and wellbeing. I believe strongly in the tenet that our relationships and interactions with others create who we are and shape how we ought to live our lives as social beings. The need to belong is a fundamental concept in our psychology; indeed, it would be difficult to overestimate the centrality of relationships. By its very nature, social anxiety interferes with the formation of these relationships and can in some cases lead to a circumscribed social world. I am drawn to the topic of social anxiety because of my own life experiences as a once reclusive and socially fearful adolescent and as someone who has endured severe droughts of self-esteem and feelings of inadequacy throughout formative and even adult years. At times, my social inhibition precluded me from exploring new relationships and I retrospect on those years with regret at the lost opportunities for close and meaningful connections. As a parent of adolescents who are beginning to negotiate their own interpersonal
landscapes, I am able to relive some of the debilitating thoughts, emotions, and behaviours socially anxious individuals experience.

Though my life experiences have permitted me a certain emic understanding of social anxiety, I am fortunate to not have been afflicted by the full burden of this disorder. I am currently situated in a seat of social ease and I am able to enjoy meaningful relationships in many domains of my life. In this regard, then, I stand as a clear outsider, unacquainted with the severe impairment faced by many affected individuals. I have also enjoyed a relatively privileged socioeconomic status throughout my life and I acknowledge how my social position has protected me from many of the risk factors associated with SAD. It is these life experiences that shape my interest in further exploring this area of research.

Research Design

The present study is embedded within the larger BBBF 20-year multi-wave longitudinal project. BBBF took place in three highly economically disadvantaged neighbourhoods in Ontario, Canada, with demonstrated risk for poor child development including high rates of single parenthood, unemployment, teenage pregnancy, low maternal education, high stressful life events, immigration, and families living below the poverty line. However, all families living in geographically defined areas were invited to participate. Selected communities were highly ethnically diverse and included Indigenous and Anglophone families, Francophone families within an Anglophone society, newcomers to Canada, and other minority groups. Two additional communities matched in economic and community characteristics that did not participate in the BBBF initiative served as comparison sites. Programs were offered to children for the four years between junior kindergarten (age 4) and grade 3 (age 8) and follow-up studies have been conducted at grades 3, 6, 9, 12, and at approximately age 28 (the fifth and current wave of data collection). Using a purposeful sampling strategy, current study participants were a subset of
young adults drawn from the larger BBBF sample who had given permission to be contacted in the future. Although data collection is still in progress, due to time constraints the first 106 participants to complete the survey were selected for the current analysis. A two-group between-subjects design was used.

Participants

The present sample \((N = 106)\) includes the first respondents of a larger group of 933 youth who were invited to participate in the broader BBBF study. Intervention participants \((n = 74)\) were young adults who took part in the BBBF initiative when they were between the ages of four and eight years. Comparison participants \((n = 32)\) were young adults who lived in demographically similar neighbourhoods according to provincial census but did not participate in BBBF. (Additional demographics are reported in the Results section).

Measures

The larger study used a survey of 104 self-report assessments; most of the questionnaire items had been used in previous administrations. All assessments were administered in participants’ choice of either English or French. Despite considerable linguistic variability within the sample, participants have been responding to measures in English or French throughout the 20-year study period and were presumed to have proficiency with this format. For the purposes of this study, a new social anxiety measure was added to the survey.

Social anxiety. Social anxiety was assessed using the Social Phobia Inventory (SPIN; Connor et al., 2000; Appendix A). The SPIN is a 17-item self-report inventory developed to assess the severity of fear, avoidance, and physiological symptoms associated with social anxiety. Participants were asked to rate statements such as “I am afraid of people in authority” and “I avoid activities in which I am the centre of attention” on a 5-point scale \((0 = \text{not at all}, 4 = \text{extremely})\). The full-scale score ranges from 0 to 68 with higher scores corresponding to greater
social anxiety symptomatology. In North America, a cut-off value of 19 is used to distinguish between respondents with and without social anxiety (Connor et al., 2000).

Using a clinical sample, Antony, Coons, McCabe, Ashbaugh, & Swinson (2006) found the SPIN to have excellent psychometric properties including high internal consistency (Cronbach’s alpha = .95), test-retest reliability ($r = .86$), convergent and discriminant validity, and sensitivity to clinical change. Radomsky and colleagues (2006) tested the SPIN among non-clinical English- and French-speaking Canadians and reported similar results including high internal consistency in both English (Cronbach’s alpha = .93) and French (Cronbach’s alpha = .93), test-retest reliability (English $r = .86$, French $r = .79$) and convergent and divergent validity. The SPIN has been translated into many different languages with demonstrated cross-cultural validity, though some discrepancy regarding number and content of factors, and different cut-off scores has been reported (e.g., Dogaheh, 2013; Osório, Crippa, & Loureiro, 2009; Sosic, Gieler, & Stangier, 2008). Carlbring and colleagues (2007) have demonstrated that anxiety measures completed via online questionnaires show similar psychometric properties when compared with questionnaires administered through conventional methods. With the current sample, Cronbach’s alpha reliability tests were conducted and found to be .939, .924, and .935 for the intervention group, comparison group, and total sample, respectively.

**Socioeconomic status (SES).** Previous BBBF follow-up studies assessed SES using single parenthood and annual family income (Peters et al., 2003). A large systematic review by Reiss (2013) of various indicators of SES revealed that low household income and low parental education were the strongest predictors of mental health problems among youth. The present study therefore calculated SES as a composite of annual income and level of education. Annual income was transformed into a 6-point scale ranging from 1 (less than $10,000) to 6 ($50,000 or more). Level of education was transformed into a 10-point scale ranging from 1 (no schooling) to
10 (doctoral or medical degree). Scores were standardized and averaged to create a single numerical score for SES ranging from 2 (less than $10,000 annual income and no formal schooling) to 16 (annual income of $50,000 or more and doctoral or medical degree) with higher scores indicating higher SES.

**Procedure**

This study was reviewed and approved by the Research Ethics Board, Wilfrid Laurier University. Participant confidentiality was fully maintained in all research material by disguising identifying information with numeric codes. Identifying information was kept in a password-protected laptop accessible only to the principle investigator and research assistants. The informed consent page outlined the sensitive nature of some of the survey questions. Participants were informed of the risk of emotional upset if negative life events were recalled during the survey and provided with information for contacting local mental health care resources. The informed consent page explained the purpose and voluntary nature of the study and that responses would be kept entirely confidential. Participants were free to skip any question or withdraw from the study at any time. Consistent with previous BBBF follow-up studies, $25 compensation was offered.

Participants were recruited by email, phone, social media, and Canada Post, and invited to complete the survey on a secure online site hosted by Qualtrics. Three invitations and two reminders were sent out in total. Participants had the option of completing the survey on an electronic device, or have the survey administered in person or over the phone with a research assistant recording responses into Qualtrics. The survey was estimated to take 45-60 minutes to complete. Participants were able to stop and re-start the survey within a period of 30 days.
**Knowledge Transfer**

For interested participants, study findings will be shared as a form of payback and a token of appreciation for their participation. Sharing study findings with participants is consistent with the ethos of community psychology as it allows them to see the role they played in the research process. Findings will also be posted on the BBBF research website and presented at sites where BBBF programs are still in effect so families can learn about the long-term impacts of the programs in which they are participating. Additional dissemination efforts for academic audiences will include preparing the study for submission to an academic journal, presenting findings at academic conferences, writing policy briefs and opinion-editorials, and meeting with the Ontario Ministry of Education to share findings and inform intervention policy.

**Pilot Study**

Prior to administering the survey, a pilot study was conducted to test the survey instrument. Fifteen participants were recruited from two BBBF sites; 11 took part in the pilot. Participants were service users with similar socio-demographics to the research sample and provided feedback on the look and feel of the survey. Feedback was used to refine questions and procedures, guide planning, and improve the overall delivery of the survey.

**Data Analysis**

A priori statistical power analyses for sample size estimation were performed using GPower 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007). Previous BBBF follow-up studies found small effect sizes for youth self-reported self-esteem and emotional anxiety (-0.29 and 0.26, respectively), variables closely related to social anxiety. Therefore, small and medium F-test convention effect sizes (.02 and .15, respectively) were tested with a power level of 0.8 and an alpha level of .05 (one-sided). Results indicated a required sample size of 550 and 77 to detect
small and medium effect sizes, respectively. The current sample size was therefore sufficient for analysis assuming a small to medium effect size.

SPSS version 18.0 software was used to carry out all analyses. Hierarchical multiple regression analysis was employed with social anxiety as the dependent variable and BBBF participation, gender, and SES as predictor variables. Although the literature points strongly to cultural influences on the experience of social anxiety, racial/ethnic origin was not included as a predictor in the model due to insufficient sample sizes for each of the nine origin groups and subsequent reduced power. Main effects of BBBF participation, gender, and SES on levels of social anxiety were examined. In addition, three interaction effects of gender x BBBF participation, gender x SES, and SES x BBBF participation were tested. Hierarchical multiple regression is appropriate for determining how much of the variation in the dependent variable is explained by the independent variables and understanding the predictive power of each independent variable (Laerd Statistics, 2015).

Results

The goals of this study were to examine the effect of participation in an early childhood development initiative on levels of social anxiety in adulthood and the role of gender and SES in this relationship. The following hypotheses were tested:

H1: Young adults who participated in BBBF as children (i.e., intervention group) will have lower social anxiety than young adults who did not participate in BBBF (i.e., comparison group).

H2: Women will have higher social anxiety than men, but women in the intervention group will have lower levels than women in the comparison group.

H3: Participants with lower SES will be more socially anxious, but low-SES participants in the intervention group will fare better than low-SES participants in the comparison group.

H4: Women with lower SES will report the highest levels of social anxiety than any other group.
Descriptive Statistics for Sociodemographic Characteristics

Following a three-month recruitment period, responses were collected from 115 participants. Nine participants were excluded (five from the intervention group, four from the comparison group) due to missing data. Missing data were due to survey discontinuation or technical difficulties and determined to be missing completely at random (MCAR), i.e., the reason for missingness was not related to the underlying values of the missing data (Jeličić, Phelps, & Lerner, 2010). The remaining sample (N = 106) was therefore not considered at risk of introducing any estimation biases; missing cases analysis was not performed. Of the 106 participants, 74 were from the intervention group (\(M_{age} = 28.18, SD = .59; 48 \text{ women}) and 32 were from the comparison group (\(M_{age} = 28.68 \text{ years}, SD = .33; 18 \text{ women})). The majority of the sample (61.3%) identified primarily as Canadian in ethnic/racial origin and had completed college or university degrees (62.2%). The mean annual income was $53,815.13 (SD = 34,182.26).

Complete total, intervention, and comparison participant demographics are presented in Table 1.

Independent-samples t-tests were conducted to determine if differences in mean education, annual income, and SES between intervention and comparison groups were statistically significant. The mean education score for the intervention group was 0.13 higher than the comparison mean education score (\(SE = 0.31\), CI\(^1\) [-.19, 1.04], however this difference was not statistically significant, \(t(104) = 1.367, p = .174\). Mean annual income for the comparison group was $7,755.54 higher than the mean annual income for the intervention group, (\(SE = 7,226.86\), CI [-6,575.60, 22,086.67], however this difference was also not statistically significant, \(t(104) = 1.073, p = .286\). There was a statistically significant difference in SES scores with the comparison group scoring higher than the intervention group, \(M_{difference} = 0.98, SE_{difference} = 0.48, CI [.03, 1.93], t(104) = 2.037, p = .02\).

\(^1\) CI = 95% Confidence Interval
Table 1

Demographic Characteristics of Sample (N = 106)

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Intervention (n = 74)</th>
<th>Comparison (n = 32)</th>
<th>Total (N = 106)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td>$M = 28.18$ ($SD = .59$)</td>
<td>$M = 28.68$ ($SD = .50$)</td>
<td>$M = 28.33$ ($SD = .57$)</td>
</tr>
<tr>
<td><strong>Gender n (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>48 (64.9)</td>
<td>18 (56.3)</td>
<td>66 (62.3)</td>
</tr>
<tr>
<td>Men</td>
<td>26 (35.1)</td>
<td>14 (43.8)</td>
<td>40 (37.7)</td>
</tr>
<tr>
<td><strong>Ethnic/racial origins n (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African</td>
<td>5 (6.8)</td>
<td>-</td>
<td>5 (4.7)</td>
</tr>
<tr>
<td>American</td>
<td>3 (4.1)</td>
<td>1 (3.1)</td>
<td>4 (3.8)</td>
</tr>
<tr>
<td>Asian</td>
<td>11 (14.9)</td>
<td>3 (9.4)</td>
<td>14 (13.2)</td>
</tr>
<tr>
<td>British</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Canadian</td>
<td>44 (59.5)</td>
<td>21 (65.6)</td>
<td>65 (61.3)</td>
</tr>
<tr>
<td>European</td>
<td>4 (5.4)</td>
<td>-</td>
<td>4 (3.8)</td>
</tr>
<tr>
<td>French/Québecois</td>
<td>2 (2.7)</td>
<td>1 (3.1)</td>
<td>3 (2.8)</td>
</tr>
<tr>
<td>Indigenous</td>
<td>3 (4.1)</td>
<td>1 (3.1)</td>
<td>4 (3.8)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (2.7)</td>
<td>5 (15.6)</td>
<td>7 (6.6)</td>
</tr>
<tr>
<td><strong>Education n (%)</strong></td>
<td>$M = 7.55^\wedge$ ($SD = 1.47$)</td>
<td>$M = 7.42^\wedge$ ($SD = 1.53$)</td>
<td>$M = 7.84$ ($SD = 1.32$)</td>
</tr>
<tr>
<td>No schooling</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Some elementary</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Complete elementary</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Some secondary</td>
<td>2 (2.7)</td>
<td>-</td>
<td>2 (1.9)</td>
</tr>
<tr>
<td>Completed secondary</td>
<td>8 (10.8)</td>
<td>1 (3.1)</td>
<td>9 (8.5)</td>
</tr>
<tr>
<td>Some post-secondary</td>
<td>7 (9.5)</td>
<td>3 (9.4)</td>
<td>10 (9.4)</td>
</tr>
</tbody>
</table>
### Education n (%) (continued)

<table>
<thead>
<tr>
<th>Education</th>
<th>Intervention (n = 74)</th>
<th>Comparison (n = 32)</th>
<th>Total (N = 106)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed community/technical college, CEGEP, nurse’s training</td>
<td>18 (24.3)</td>
<td>8 (25)</td>
<td>26 (24.5)</td>
</tr>
<tr>
<td>Completed university or teacher’s college</td>
<td>26 (35.1)</td>
<td>14 (43.8)</td>
<td>40 (37.7)</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>9 (12.2)</td>
<td>1 (3.1)</td>
<td>10 (9.4)</td>
</tr>
<tr>
<td>Doctoral/medical degree</td>
<td>-</td>
<td>4 (12.5)</td>
<td>4 (3.8)</td>
</tr>
<tr>
<td>Other education/training</td>
<td>4 (5.4)</td>
<td>1 (3.1)</td>
<td>5 (4.7)</td>
</tr>
</tbody>
</table>

### Annual income^a n (%) (continued)

<table>
<thead>
<tr>
<th>Annual income</th>
<th>Intervention (n = 74)</th>
<th>Comparison (n = 32)</th>
<th>Total (N = 106)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10,000</td>
<td>3 (4.1)</td>
<td>1 (3.1)</td>
<td>4 (3.8)</td>
</tr>
<tr>
<td>10,000-20,000</td>
<td>10 (13.5)</td>
<td>2 (6.3)</td>
<td>12 (11.3)</td>
</tr>
<tr>
<td>20,000-30,000</td>
<td>14 (18.9)</td>
<td>4 (12.5)</td>
<td>18 (17)</td>
</tr>
<tr>
<td>30,000-40,000</td>
<td>9 (12.2)</td>
<td>2 (6.3)</td>
<td>11 (10.4)</td>
</tr>
<tr>
<td>40,000-50,000</td>
<td>9 (12.2)</td>
<td>7 (21.9)</td>
<td>16 (15.1)</td>
</tr>
<tr>
<td>&gt;50,000</td>
<td>29 (39.2)</td>
<td>16 (50)</td>
<td>45 (42.5)</td>
</tr>
</tbody>
</table>

^a Annual income was calculated from monthly income.

^not statistically significant

### Assumptions for Analysis

According to Laerd (2015), there are eight assumptions in multiple regression that must be considered. The first two assumptions (a continuous dependent variable, and two or more independent variables) were established prior to analyses. This section outlines test outcomes for the remaining six assumptions.
**Independence of observations.** There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.289.

**Linearity.** Inspection of a partial regression plot indicated absence of linearity between the dependent variable (social anxiety) and the continuous independent variable (SES). Violations of the linearity assumption reduce statistical power; log-10 and square root transformations were therefore applied to the SES variable to increase linearity, however results did not differ significantly. Therefore, in the interest of interpretability (Tabachnick & Fidell, 2018), the non-transformed SES variable was retained.

**Homoscedasticity of residuals.** There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus (unstandardized) predicted values.

**Absence of multicollinearity.** There was no multicollinearity according to correlation coefficients no greater than 0.7 between any two independent variables. Additional evidence included VIF values for independent variables less than 10 (or Tolerance values greater than 0.1).

**Unusual points.** The dataset did not contain any outliers as evidenced by no standardized residuals greater than +/-3 standard deviations. All leverage values were less than 0.2. There were no influential points as evidenced by all Cook’s Distance values below 1.

**Normally distributed residuals.** Residuals were approximately normally distributed as assessed by visual inspection of the histogram with superimposed normal curve and the normal P-P plot of regression standardized residual.

In addition, the assumption of a normally distributed dependent variable (i.e., SPIN scores) was assessed. Skewedness and kurtosis were within critical values (1.63 and 1.58, respectively) and normal and detrended Q-Q plots indicated a normal distribution. Inspection of the histogram however revealed a severe positive skew and the Kolmogorov-Smirnov test was
significant, suggesting a departure from normality. A log-10 transformation was applied to the SPIN variable as recommended for positively skewed distributions (Tabachnick & Fidell, 2018), however the correction did not result in additional evidence of normality. Since multiple regression analysis is fairly robust against deviations from normality (Laerd Statistics, 2015), data were accepted as approximately normally distributed and the non-transformed SPIN variable was retained.

Table 2 displays the results of SPIN scores and SES level by group. The total mean SPIN score was 33.76 (SD = 12.73) with scores ranging from 17 to 64; 81.1% of total sample scored above the North American SPIN cut-off score of 19. Intervention participants had lower SPIN scores, $M = 32.84$ (SD = 1.51) relative to comparison participants, $M = 35.91$, $SD = 2.12$, however this difference was not statistically significant, $t(104) = 1.141$, $p = .257$. Further, the effect size value of $\beta = -.15$ (unstandardized $B = -4.30$) suggested a small practical significance. The total SES score was 12.04 (from a range of 2 – 16), $SD = 2.30$. The intervention group had a lower mean SES score, $M = 11.74$, $SD = 2.56$ compared to the comparison group, $M = 12.72$, $SD = 1.73$, $t(104) = 2.334$, $p = .022$ though this difference was small. Overall, women had higher SPIN scores, $M = 36.68$ (SD = 11.77) compared to men, $M = 28.95$ (SD = 12.95), a statistically significant difference of 7.73, 95% CI [2.73, 12.73], $t(104) = -3.083$, $p = .002$ and an effect size of $\beta = .30$ (unstandardized $B = 7.73$). Women in the intervention group reported considerably lower SPIN scores, $M = 33.93$ (SD = 2.22) compared to women in the comparison group, $M = 42.22$ (SD = 9.25), $t(64) = 2.429$, $p = .018$, however when entered into regression analyses with all predictors, the interaction became non-significant. According to Shieh (2009), interaction effects are notoriously difficult to detect often due to insufficient statistical power. However, the graph depicted in Figure 3 is illustrative of a trend towards an interaction that would likely have reached significance given a larger sample size and increased power. Also, the effect size value for the
Table 2

Description of Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Intervention (n = 74)</th>
<th>Comparison (n = 32)</th>
<th>Total (N = 106)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPINb</td>
<td>M = 32.84^ (SD = 1.51)</td>
<td>M = 35.91^ (SD = 2.12)</td>
<td>M = 33.76 (SD = 12.73)</td>
</tr>
<tr>
<td>Socioeconomic Statusa</td>
<td>M = 11.74** (SD = 2.46)</td>
<td>M = 12.72** (SD = 1.73)</td>
<td>M = 12.04 (SD = 2.30)</td>
</tr>
<tr>
<td>6</td>
<td>1 (1.4)</td>
<td>-</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>7</td>
<td>1 (1.4)</td>
<td>-</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>8</td>
<td>8 (10.8)</td>
<td>-</td>
<td>8 (7.5)</td>
</tr>
<tr>
<td>9</td>
<td>3 (4.1)</td>
<td>1 (3.1)</td>
<td>4 (3.8)</td>
</tr>
<tr>
<td>10</td>
<td>8 (10.8)</td>
<td>1 (3.1)</td>
<td>9 (8.5)</td>
</tr>
<tr>
<td>11</td>
<td>17 (23)</td>
<td>6 (18.8)</td>
<td>23 (21.7)</td>
</tr>
<tr>
<td>12</td>
<td>5 (6.8)</td>
<td>8 (25)</td>
<td>13 (12.3)</td>
</tr>
<tr>
<td>13</td>
<td>10 (13.5)</td>
<td>5 (15.6)</td>
<td>15 (14.2)</td>
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<tr>
<td>14</td>
<td>13 (17.6)</td>
<td>7 (21.9)</td>
<td>20 (18.9)</td>
</tr>
<tr>
<td>15</td>
<td>4 (5.4)</td>
<td>1 (3.1)</td>
<td>5 (4.7)</td>
</tr>
<tr>
<td>16</td>
<td>2 (2.7)</td>
<td>3 (9.4)</td>
<td>5 (4.7)</td>
</tr>
<tr>
<td>17</td>
<td>2 (2.7)</td>
<td>-</td>
<td>2 (1.9)</td>
</tr>
</tbody>
</table>

**p < .01, two-tailed
^not statistically significant
aComposite SES measure was created by summing level of education and annual income (range: 2 to 16). bRange: 0-68.

interaction (β = -.34; unstandardized B = -8.72) approaches moderate and therefore potentially meaningful significance. The opposite trend occurred for men: men in the intervention group had higher SPIN scores, $M = 29.58$ ($SD = 14.39$) than men in the comparison group, $M = 27.79$ ($SD = 10.12$) however this difference was not statistically significant, $t(38) = -.413, p = .682$. 
The third hypothesis that low-SES participants would report higher SPIN scores could not be confirmed as bivariate correlations indicated SES was not associated with SPIN scores, $r = -.04, p = .685$. Alternative specifications of the SES variable (i.e., transformation, standardization) did not yield new findings (see Appendix B), nor did analyses using income and education as separate variables; all correlations clustered around zero, $rs = -.04$ to $.05$, $p = .309$ to $.694$. Finally, the fourth hypothesis predicted that women with low SES would report the highest levels of social anxiety than any other group. Because there was no evidence of a gender x SES interaction, this hypothesis also could not be confirmed (see Figure 4).
A six-step hierarchical multiple regression analysis was conducted to test main and interaction effects of BBBF participation, gender, and SES on SPIN scores. Gender and SES were used as covariates. Variables were entered in the following order: 1) gender; 2) SES; 3) group; 4) gender x group; 5) gender x SES; and 6) group x SES. Results are presented in Table 3. Gender was the only statistically significant variable predicting 8.7% (R² adjusted = 7.9%) of the variance in SPIN scores (β = .296, p = .002). Neither BBBF participation (β = -.154, p = .109) nor SES (β = -.059, p = .535) significantly predicted SPIN scores. In addition, none of the interaction terms were statistically significant, however the gender x group interaction revealed a small to moderate effect size suggesting a meaningful effect of the BBBF intervention on women.

Figure 4. Non-significant interaction effects of gender x SES on SPIN scores.
Table 3

Summary of Hierarchical Multiple Regression Analysis for Variables Predicting Social Anxiety (N = 106)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
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<td></td>
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<td>.30*</td>
<td>7.82</td>
<td>2.46</td>
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<td>- .06</td>
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<td>- .15</td>
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<tr>
<td>(R^2) change</td>
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<td>.023</td>
<td>.022</td>
<td>.024</td>
<td>.011</td>
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</tbody>
</table>

\(^*\)p < .05. \(^**\)p < .01.

\(B\) = unstandardized regression coefficient; \(SE\(_B\)\) = Standard error of the coefficient; \(\beta\) = standardized coefficient

\(^a\)Gender was dummy-coded (0=men, 1=women). \(^b\)BBBF group was dummy coded (0 = comparison, 1= intervention)
Discussion

Social anxiety disorder is a prevalent and burdensome psychiatric condition associated with considerable functional impairment in almost all facets of daily life. Traditionally, scholars have ascribed prominence to individual levels of analysis in their treatment of social anxiety. Although this approach has been fruitful in elucidating the information-processing biases that underlie the condition, it has been limited by its oversight of broader community-level factors in which these biases may occur. The present work drew attention to this neglected area by studying the long-term effects of a community-based early childhood development initiative on social anxiety among a diverse and impoverished population.

The most robust finding of this study was that social anxiety is more common among women than men. Overall, women scored an average of 7.73 points higher on the SPIN, representing the only statistically significant result. This finding is in line with the majority of prior work demonstrating greater social anxiety prevalence among women (Bandelow & Michaelis, 2015; Caballo et al., 2014; Fehm & Wittchen, 2004; Grant et al., 2005; cf. Yonkers, Bruce, Dyck, & Keller, 2003). A number of mechanisms have been proposed to account for this difference including emotional, social, and neurobiological explanations (e.g., Bandelow & Domschke, 2015; Nolen-Hoeksema & Aldao, 2011; Tamres, Janicki, & Helgeson, 2002) as well as self-concepts, which is most relevant to the current study. Gender variations in self-concepts are indicative of how men and women understand and assess themselves in relation to their social worlds and may account for the observed gender differences in the present work. Nolen-Hoeksema (2001) discusses the tendency for women to possess an interdependent self-concept that is intricately based in interpersonal relationships. Such an orientation may engender an acute awareness of the social context and a heightened sensitivity to critical evaluation by others. Women may therefore be more concerned with the status of their relationships leading to greater
distress when faced with the potential for interpersonal conflict. Indeed, studies have found that anxious women experience greater distress than men when interpersonal relationships are troubled (Shear, Feske, & Greeno, 2000). Men on the other hand are more likely to hold an independent self-concept and develop a social self based on personal attributes rather than the quality of their relationships. Such an orientation may attenuate pressure to meet interpersonal and performance demands expected by others, resulting in lower social anxiety. Moscovitch, Hofmann, & Litz (2005) found that interdependent and independent orientations predicted higher levels of social anxiety among men positively and negatively, respectively, though this pattern was reversed in women.

An alternate hypothesis is that male participants under-reported feelings of social anxiety, reflecting differences in reporting rather than in experience. Some studies have found that although women are more frequently diagnosed with SAD, treatment-seeking samples have a higher male prevalence, suggesting that social anxiety interferes more strongly with daily functioning in men than it does in women (Fehm et al. 2008). This is likely due to cultural pressures surrounding men’s social performance leading to increased distress and impairment if men feel their behaviour does not conform to social expectations. It may be that men in our sample do indeed experience greater functional impairment compared to women, but chose not to reveal their impairment. Future research could shed more light on gender differences by investigating help- or treatment-seeking behaviour in relation to social anxiety symptomatology.

Women in the intervention group reported significantly lower SPIN scores than women in the comparison group indicating that the BBBF intervention positively affected female, but not male, participants. This difference is consistent with a compensatory model of development in which individuals at higher risk reap greater benefit from intervention partly because they have more scope for improvement. To illustrate, a study by Bodovski and Farkas (2007) found that
kindergarteners’ learning-related skills had the largest return on achievement in elementary school for students with the lowest level of initial achievement. Applied to the present work, this theoretical framework may be useful in explaining why the benefits of the BBBF initiative were not reaped uniformly across men and women. Research shows women have a more severe clinical presentation of SAD, endorse a greater number of social fears, experience greater physiological and psychological responses when faced with feared social situations, and have lower levels of psychosocial functioning (Alvares et al., 2013; Asher & Aderka, 2018; Xu et al. 2012). Relatedly, according to Response Styles Theory (Nolen-Hoeksema, 1987, 1991), women have a greater tendency to ruminate over their worries and problems, a process that focuses attention on distress, negatively distorts thinking, and erodes social support. Men, on the other hand, tend to use problem-solving tactics and attend to negative moods by engaging in distracting behaviours that ameliorate depressive moods.

The literature also suggests a number of psychosocial risk factors that make women particularly vulnerable to developing social anxiety. Studies show that as children, parents are more restrictive of girls’ than boys’ behaviour and have lower expectations for girls’ competencies and achievements (Nolen-Hoeksema, 2001). Relative to men, women tend to hold less power in society, occupy a lower social status, have less decision-making authority within the family, and report more negative life events (Marteinsdottir, Svensson, Svedberg, Anderberg, & von Knorring, 2007; Nolen-Hoeksema, 2001; Panayiotou & Papageorgious, 2007). In addition, Westernized cultures tend to promote female physical attractiveness to a greater extent than male attractiveness, an ideal that is associated with greater social anxiety and body shame for women than for men (Dakanalis et al., 2014). Agthe and colleagues (2011) found that lower self-perceived physical attractiveness among women was related to higher social anxiety (men were not included in the study’s sample). Although being physically attractive may contribute to
enhanced confidence in social situations, it has been found to significantly disadvantage women in organizational contexts (Agthe, Spörrle, & Maner, 2011). Westernized cultures also tend to hold dual notions of women’s behaviour; although assumed to be warm in casual interactions, women are expected to be impersonal and assertive in professional contexts, the latter ironically associated with greater risk of women being perceived as cold and unlikeable compared to authoritative men (Amanatullah & Tinsley, 2013). Women therefore face unique social pressures to calibrate not only their physical appearance but also expressions of prototypical feminine and masculine traits with consequences that vary across situations. In contrast, men have been found to consistently strive for dominance in both social and professional contexts (e.g. Wood, 2009), suggesting less variability in gender role expectations for men. Experiences such as these highlight why women may be particularly vulnerable to developing excessive social fears and why an intervention that promotes protective factors would have greater female impact.

Related research has addressed how social support has differential effects on men and women. Wareham, Fowler, and Pike (2007) found that emotional and informational support were associated with decreased depression severity in women but increased depression severity in men. Others have found women attach greater importance to the role of social support in coping with stressors (Kendler, Myers, & Prescott, 2015). Support networks are especially important given that women tend to have a greater number of role obligations compared to men. Research shows that in addition to household chores, childrearing, and caring for older relatives, women’s total workload is higher than men’s with women working for longer periods per day in both paid and unpaid labour (McGinnity & Russel, 2005; Werne, Vosko, Deveau, Pimentel, & Walsh, 2010). This combination of paid work and family duties leaves less time for leisure, education, and other economic activities, making women more likely to experience burnout and other stress-related outcomes (Voydanoff, 2002). Because low social support was one of the high-risk indices
used to select BBBF communities, a key component of the initiative was providing avenues for participants to receive additional social support, improve interpersonal relationships, and gain greater social acceptance. Given differential perceptions of social support, the provision of these support structures may have been more favourably accepted by women, but deterred men, and thus more effective in alleviating emotional and psychological distress among women.

In conclusion, the greater susceptibility of women to experience social anxiety as well as gender variations in how social support is perceived highlights the relevance of a compensatory model framework in explaining why the BBBF intervention conferred a unique advantage to women over men. Further research examining whether different types of social support are predictive of social anxiety differentially for men and women may help to shed light on these associations and lead to more gender-sensitive interventions.

The most shocking finding in the present study was that the mean SPIN score for the total sample was 33.76 with comparable means for the intervention (32.84) and comparison (35.91) groups. This corresponds with the cut-off score typically used by North American clinicians as the diagnostic threshold for moderate social anxiety (33) with scores above 40 denoting severe social anxiety (Davidson, 2016). However, the threshold score at which the SPIN best discriminates between those with and without social anxiety has been found to vary according to the nature of the sample population (e.g., general versus clinical samples, adults versus youth) and critically, the cultural context in which the SPIN is administered (see Table 4 for clinical cut-off scores used in different cultures). It is unclear therefore whether the high SPIN mean in the present sample reflects genuine increased symptom severity or whether it is due to insufficient consideration of cultural aspects within the SPIN instrument. The wide range of SPIN cut-off scores across nations strongly suggests that North American-defined criteria for SAD may not fully encapsulate the cross-cultural expression and mental representation of the social anxiety
### Table 4

*Mean and Cut-off SPIN Scores in Various Populations*

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Sample Size and Characteristics</th>
<th>Mean SPIN (SD)</th>
<th>Cut-off Score</th>
</tr>
</thead>
</table>
| Antony et al. (2006) | Canada   | 132 SA outpatients  
57 PDA outpatients  
62 OCD outpatients  
$M_{age} = 37.4 - 40.1$ | 44.7 (14.8)  
21.9 (13.0)  
24.6 (17.1) | 19            |
| Connor et al. (2000)  | U.S.A.    | 68 healthy volunteers  
47 outpatients without SA  
238 clinical trial participants with SA  
$M_{age} = 37.8$ | 12.1 (9.3)  
-  
41.1 (10.2) | 16 - 19       |
| Ranta et al. (2007)  | Finland  | 5252 general population adolescents  
$M_{age} = 15.3$ | 12.2 (8.7) | 19            |
| Osório et al. (2010) | Brazil   | 2314 university undergraduate students  
$M_{age} = 21.4$ | -  | 19 - 21       |
| Nagata et al. (2013) | Japan    | 86 healthy volunteers  
86 outpatients with SA  
$M_{age} = 26.8$ | 11.2 (8.2)  
41.5 (11.4) | 22            |
| Sosic et al. (2008)  | Germany  | 2043 healthy volunteers  
39 outpatients with SA  
76 outpatients with depression or anxiety  
$M_{age} = 43.65$ | 22.66 (15.02)  
36.21 (13.61)  
20.93 (14.11) | 25            |
| Dogaheh (2013)  | Iran     | 300 healthy university volunteers  
30 SA patients  
Age = 18-38 | 14.18 (9.56)  
41.87 (6.32) | 29            |
| Talepasand et al. (2006) | Iran   | 701 healthy volunteers  
$M_{age} =$ unspecified | 18.3 (10.4) | 33            |

*Note.* SA – social anxiety; PDA - panic disorder with agoraphobia; OCD – obsessive-compulsive disorder
construct. Because the present sample was highly ethnically, racially, and linguistically diverse (in one site, 88% of participating families were born outside Canada with approximately 40 languages spoken; 16% of present sample), it is possible that participants’ cultural backgrounds lend a different understanding, evaluation, and reporting of social anxiety symptoms.

It is interesting to note however that despite the present sample’s considerable cultural heterogeneity, the majority of participants (61.3%) identified primarily as Canadian in ethnic/racial origin. Given that their participation in the BBBF study began when they were four years old, we can reasonably deduce that participants were raised and educated (if not also born) in a Canadian context. Theoretically, a primarily Canadian identity would predict SPIN scores closer to the average score found in healthy North American samples (12.1; Connor et al., 2000). That participants’ scores depart so drastically from this average may be understood within the context of the cultural discrepancy hypothesis (Hsu et al., 2012) whereby high social anxiety reflects a discrepancy between heritage culture and mainstream Western culture. Canadian culture generally socializes children to be assertive, communicate in a direct manner, and strive for personal achievement, values that may clash with the alternative teachings of home culture such as social reticence, emotional restraint, and deference to authority. East Asian-heritage groups, for example, interpret eye-gaze avoidance less negatively and have a greater tolerance for silence compared to Western-heritage people (McCarthy et al., 2006), behaviours that for Western clinicians may constitute potentially pathological behaviour. Research participants of some cultures may therefore endorse higher ratings on certain SPIN items because these behaviours are considered normative in their culture. Hsu and colleagues (2012) recently found that compared to monocultural individuals whose heritage culture is consistent with the dominant culture in which they live, bi- or multicultural individuals report experiencing greater social anxiety and other measures of distress. Because the majority of research participants grew up in
dual-culture households, they may hold multiple cultural identities whose social standards and expectations are at odds with one another, leading to unease in social situations and therefore greater social anxiety. Future research should explore how mainstream and heritage cultural values conflict and to what extent social and psychological adjustment to cultural discrepancy predicts social anxiety.

The complex influence of culture on our understanding of mental health raises the question of whether the SPIN is a fundamentally biased test instrument. This claim is not new. Indeed, since the inception of the intelligence quotient (IQ) test in the early 1900s, one of the most prevalent criticisms waged against conventional aptitude tests is that their construction, administration, and interpretation biases against certain groups. Although the current Diagnostic and Statistical Manual of Mental Disorders (DSM; APA, 2013) encourages recognition of cultural diversity among clients, the development and validation of mental health assessment tools are often guided by universal theories intended to generalize to all respondents (Burgess, DiBartolo, & Rendón, 2017). Researchers typically assume that the resultant instruments assess psychological constructs similarly across groups and rarely provide evidence for their measurement equivalence (Byrne, 2010). But to what extent can two individuals or groups with such widely varying cultural, historical, and contemporary experiences and predispositions respond to a scale in the same way? This nuance points to important considerations for criteria beyond traditional psychometric properties and the attendant question of whether test instruments need more appropriate theoretical development. It also challenges the widespread assumption that the survey respondent bears full responsibility for properly understanding and interpreting each item, an expectation consistent with the blaming the victim ideology. Although testing bias cannot be entirely eliminated (Kruse, 2016), we can make efforts to reduce such bias. This includes better recognition that diagnostic criteria and psychiatric nosology may be culturally
loaded and that culturally-patterned thoughts, emotions, and behaviours should not necessarily be considered pathological.

The main hypothesis of the present study was not supported. Although the intervention group reported lower levels of social anxiety, this finding was not statistically significant. This was rather surprising given that the intervention integrates mechanisms known empirically to be effective in the prevention of social anxiety. For example, high perceived social acceptance and validation, and feeling supported by friends are theorized to enhance feelings of competence in social situations, increase self-worth, and buffer against excessive fears of negative peer evaluation (Festa & Ginsburg, 2011). BBBF initiated a number of socially oriented activities and active community participation intended to increase social support and acceptance, improve friendship quality, and enhance social skills, all factors that should have predicted lower levels of social anxiety. In addition, research has consistently identified the quality of the parent-child relationship as largely influential in the development of social anxiety. BBBF offered parent-focused programs that provided parents with emotional and social support, child development information and resources, and parenting skills programs to promote family cohesion and enhance parent–child relationships. BBBF programs also supported parental well-being on the premise that parents must be functioning well themselves in order to be effective agents of change for their children. Although BBBF did focus on overall family functioning, the initiative may not have targeted specific rearing styles associated with childhood social anxiety such as parental control, rejection, shame, overprotection, and lack of emotional warmth (Knappe et al., 2010). It may be that parents engaged in these types of rearing practices but that these did not receive the specific attention required to mitigate their effects.

We also cannot be sure to what extent the intervention was taken up by participants and their families. Although programs and supports were offered universally to all families within a
geographically defined area, participants were not actively recruited but rather self-selected to take part, making it difficult to ascertain what portion of families actually engaged with the services offered. It is possible that some families questioned the intervention’s usefulness or did not feel the need to partake in the programs provided. Research shows that parents of low income and education as well as minority racial/ethnicity and immigrant groups are generally less likely to participate in prevention programs and that these engagement challenges may be related to attitudes towards mental health and help-seeking behaviours (Bjørknes, Jakobsen, & Naerde, 2011; Heinrichs, Bertram, Kuschel, & Hahlweg, 2005). Another possibility is that parents were not entirely cognizant of their high-risk status and may not have been motivated to take preventive steps. Models of help-seeking behaviour postulate that an individual must first recognize that a problem exists before seeking help (Godoy & Carter, 2013). This makes engagement in the BBBF initiative inherently challenging given that participants are not actively recruited and parents may not be attuned to their familial risk factors. Scholars have also addressed the barrier of mistrust or not wanting to be a research subject (Gross, Julion, & Fogg, 2001) as a possible barrier to engagement. BBBF used a community-based participatory research model that brought parents and community residents into the development of programs and stimulated dialogue within communities, though the meaningfulness of the intervention may not have been salient enough to persuade parents to participate. Given that parents drive their children’s participation, identifying methods to maximize parental engagement is crucial in the development of anxiety-focused community prevention programs.

It may also be that the BBBF intervention did not extend long enough to have an effect on later social anxiety. The World Health Organization (2012) notes that taking action to improve conditions of daily life should begin before birth and extend throughout childhood and adolescence, during family-building and working ages, and into old age. However, the present
study did not explore the extent to which prolonged exposure to the intervention, or increased participation in programs, contributed to more desirable outcomes. The extended time lapse since youth participated in the initiative and the complexities of local contexts make it possible that any early effects of BBBF are no longer present or have since been influenced by a host of other variables. As participants passed from adolescence and entered young adulthood, they likely faced a number of transitional changes and challenges, all of which may have attenuated the impact of the intervention. Booster sessions have been shown to be effective in some treatments for child and adolescent mood and anxiety disorders (e.g., Gearing, Schwalbe, Lee, & Hoagwood, 2013); their addition to the BBBF initiative may therefore be necessary to maintain long-term effects and provide a more convincing test of its benefits.

Finally, research supports a vulnerability-stress model of social anxiety resulting from the combined influence of genetic heritability, disturbed family functioning, parental psychopathology, and early trauma and abuse, along with any number of life experiences that accumulate risk and ultimately predispose one to develop distorted self images characteristic of social anxiety. A comprehensive initiative such as BBBF was rather ambitious in that it strived to change a range of child, family, school, and community outcomes. Although the intervention targeted a number of known risk factors for social anxiety, not all were amenable to change. What’s more, because social anxiety was not a specific focus of the intervention, but rather targeted indirectly under a broader umbrella of general mental health promotion, it may not have addressed the multitude of social anxiety-specific factors. More narrowly focused prevention programs might have better success in changing a smaller number of outcomes. More future research is needed to explore whether social anxiety-targeted programs can be effective within the context of a community-based platform implemented with community support.
The third hypothesis proposed that social anxiety would show a linear relationship corresponding to level of SES. This hypothesis was not supported. The two variables were not correlated and low SES did not predict higher social anxiety as expected. This finding suggests somewhat of a misfit between the theoretical framework guiding this study, namely social causation theory, and the empirical evidence. That is, if social causation theory is correct, the inflated social anxiety levels seen in the current sample would presumably be associated with primarily low SES, however no such relationship was found. Indeed, despite alarmingly high social anxiety levels, the present sample also reported a relatively high SES mean (12.04 on a range from 2-16).

To clarify, this study reported on participants’ current SES which may not be representative of the conditions they experienced growing up. One way to explain the mismatch between the observed high SES and concurrent high social anxiety is by adducing participants’ childhood SES as creating a vulnerability that contributed to their current social anxiety levels. Childhood SES is widely recognized as an important marker of early environmental conditions and has been shown to have pernicious effects on mental health outcomes in adulthood, including SAD (Gilman et al., 2003; Marmot, Shipley, Brunner, & Hemingway, 2001; Rapee & Spence, 2004; Wadsworth & Achenbach, 2005). Although some studies have found the association between childhood SES and adult mental health disappears after accounting for adult SES (Marmot et al., 2001), others have found that the association persists (Huurre, Aro, & Rahkonen, 2003; Mäkinen, Laaksonen, Laelma, & Rahkonen, 2006). Critically, the relationship between childhood SES and adult social anxiety cannot be explained by adult SES given that in most cases onset occurs early on in late childhood or early adolescence, prior to the establishment of adult SES, a premise that has been supported by previous research (e.g., McLaughlin et al., 2011).
There are manifold reasons why growing up poor could have consequences for adult social anxiety. Children growing up in low-SES households are more likely to be exposed to trauma, violence, family conflict, maladaptive parenting, and dysfunctional attachment relationships during the early years of life, factors directly implicated in the development of social anxiety (Bandelow et al., 2004; Brook & Schmit, 2008). The emotional sequelae associated with early traumatic events are thought to stimulate and reinforce negative beliefs about the self and lead to greater levels of social anxiety in the future (Bitran & Barlow, 2004). Poor families also face increased stress due to more unpredictable and uncontrollable life events such as frequent moves, neighborhood violence, and/or changes in family structure, and have diminished material resources, reduced access to information, low family, social, and community support, and the absence of positive role models (Lorant et al., 2003; McDonald, Jouriles, Briggs-Gowan, Rosenfield, & Carter, 2007; Wadsworth et al., 2008). Impoverished children may be demeaned or socially ostracized by more advantaged others, exacerbating children’s sensitivity to peer approval and social comparison, particularly during important developmental stages, perceptions that are consistent with the role of cognitive biases in SAD.

In addition to individual-level measures of SES, area-based socioeconomic measures (e.g., mean neighbourhood income) play an important role by characterizing the socioeconomic profile of a geographic area rather than an individual (Subramanian, Chen, Rehkopf, Waterman, & Krieger, 2006). Increased use of such measures reflects a growing interest in place and context as determinants of wellbeing. Research suggests that the daily experience of living in an area where environmental stressors are concentrated and where collective resources are lacking exerts a negative impact on mental health (e.g., Macintyre, Ellaway, & Cummins, 2002; Xue, Leventhal, Brooks-Gunn, & Earls, 2005). Children exposed to high neighbourhood stressors may demonstrate elevated social anxiety due perceptions of danger, poor access to social support from
neighbours, and few opportunities and places for socializing (Vine et al., 2012). This fit well with Bronfenbrenner’s (1977) model of development that posits environmental influences will be accentuated when the environment is relatively lacking in resources. Because study participants grew up in resource-poor environments, they may have faced distressing experiences that led to core symptoms of SAD such as worry, insecurity, or a heightened perception of the world as threatening and uncertain (Clark & Wells, 1995).

To summarize, a large body of research has found robust correlates of childhood SES beyond financial hardship that provide direction for understanding the pathways through which SES creates vulnerabilities and impacts mental health. It is likely that, despite evidence of upward social mobility, the chronic stressors associated with growing up impoverished conferred long-term effects on participants’ self-views that now shape expectations and experiences of social interactions and significantly influence the way they perceive, interpret, and appraise themselves in relation to their social worlds. Findings underscore the importance of ameliorating childhood adversities and preventing their emotional sequelae when targeting interventions to children in low-SES contexts.

Limitations

There are, of course, limitations associated with the present work. Methodologically, caution is needed in assessing the impact of the BBBF initiative. As with any quasi-experimental design in which groups are not randomly assigned, there may be differences in the intervention and comparison communities (other than the presence or lack of BBBF) that may have accounted for some of the outcomes, making claims of causality tenuous. However, although quasi-experiments generally have lower internal validity than randomized controlled trials (see Geldsetzer & Fawzi, 2017 for a review), they tend to yield findings with higher external validity because the intervention being evaluated is implemented using real-life systems rather than
systems designed for the purpose of research (Bärnighausen et al., 2017). Further, because the BBBF initiative was offered universally to all residents within the chosen communities, participants were not recruited but rather self-selected to participate and may have been inherently different from those who opted not to partake. The progressive loss of participants through attrition over 20 years of data collection may have also biased the current sample. In addition, due to time constraints, data analysis began once the necessary number of participants had completed the survey and did not wait for the entire cohort to participate. This narrowing may have resulted in a biased sample not representative of the larger BBBF cohort. Finally, this study relied on an ethnically and linguistically diverse Ontarian sample and caution is needed in generalizing findings beyond the sample represented. Replication in samples drawn from other settings and cultural contexts to improve external and ecological validity is warranted.

Another potential limitation is the self-report nature of the survey battery. Self-report instruments are susceptible to response biases and can challenge the credibility of research (Johnson & Fendrich, 2005). For responses to be valid, participants need to have responded truthfully and measurement error has often been attributed to social desirability concerns (Johnson & Fendrich, 2005). The sensitive nature of the SPIN items, including the potential stigma associated with socially reticent behaviours may have resulted in participants underreporting the extent of their experiences. However, given that the survey was completed online and not in a face-to-face context as previously administered, it is likely participants were more forthcoming with their experiences since they were responding privately and independently in the absence of a survey administrator.

Conceptually, because BBBF programs were tailored to the context of each community, outcomes cannot be based on distinct intervention ingredients such as a fixed curriculum or a specified number of sessions. Although the initiative as a whole was based on key principles of
the project model (e.g., ecological, universal, community driven, collaborative), each site developed a set of programs appropriate for and consistent with the unique needs and character of the community with an average of 20 programs delivered in each site. This poses not only a significant challenge in replicating the outcomes of the intervention, but also limits evidence for determining which elements are responsible for impacting social anxiety.

Despite these limitations, the lack of research on broader social structural factors on SAD is an important omission in the social anxiety literature. Although the present study did not demonstrate a main effect, this outcome is likely a methodological rather than phenomenological issue. An important area for future research may include use of a longitudinal study. Tracking social anxiety over an extended period of time would permit an understanding of the developmental origins of this disorder, how social anxiety progresses over time, determine its temporal order with other variables, and provide greater evidence of causality. A mixed method investigation incorporating a qualitative component may also be instructive. Narrative perspectives may offer a fuller account of the experience of social anxiety and may shed light on previously unconsidered drivers of this condition.

Conclusion

The present study is the first known of its kind to investigate the protective capacity of structural and environmental conditions on long-term SAD outcomes. Building on the work of Bronfenbrenner (1977) who stressed the importance of attending to the multiple ecological contexts in people’s lives, the theoretical assumption was that children provided with enriched learning and socialization experiences in several life domains would develop more positively than children without those experiences. Applied to the current work, ingredients of the BBBF intervention were theorized to have influenced the long-term experience, management, and life impact of social anxiety. This hypothesis was not supported. Although not immediately
apparent, findings nevertheless support an agenda with important potential directions for early intervention efforts aimed at preventing SAD.

First, this study is consistent with a social causation hypothesis and suggests that early life adversities predispose individuals to developing social anxiety regardless of later life circumstances and despite upward social mobility. Research on children living with disadvantage supports additive models whereby psychological problems are not the result of one specific risk factor but instead the combined presence of different factors (Vänskä et al., 2017). A major task for future researchers is to tease apart these interrelationships and determine their specific mechanisms of action on social anxiety.

Second, the present sample reported an alarmingly high SPIN score mean that surpasses most clinical cut-off thresholds. More work is needed to determine why these young adults are so highly socially anxious. Researchers are encouraged to go beyond quantitative analyses of group mean differences and use qualitative approaches that explore perceptions and lived experiences of social anxiety.

Third, efforts to intervene in the etiology of SAD among minority groups carry particular public health significance in Canada. Currently, minority groups comprise one-fifth of the total Canadian population with major urban cities such as Toronto and Vancouver made up of much higher proportions (47% and 45%, respectively; Statistics Canada, 2010). It is now widely accepted that individual behaviour cannot be evaluated as functional or dysfunctional without reference to individuals’ contexts of relevance, particularly their cultural context. The SPIN as a measure of social anxiety is based on a concept of the self and values evolved in Western societies and as such may not accurately capture the sociocultural embeddedness of social behaviour. However, limited empirical data and even sparser theoretical preconceptions hinder researchers, practitioners, and policy makers in deciding how a more culturally informed mental
health assessment might prevail. It is therefore imperative that future scholars work to construct and administer social anxiety instruments that are culturally and contextually conscious.

Fourth, and consistent with the study’s only statistically significant finding, greater gender analyses are pertinent to social anxiety interventions. From a policy perspective, more attention should be paid to developing interventions that are gender specific as research shows that men and women not only have distinct patterns of SAD prevalence but also differential perceptions of social support. One important approach is to address nuanced environmental factors that are more notably impactful for women than for men. For example, social anxiety is associated with lower educational attainment and lower income levels, inequities that generally disadvantage women over men (Dahl & Dahl, 2010). Harmful beauty ideals that explicitly and implicitly objectify women must be revisited. Points of comparison based on unrealistic standards may be internalized by women and contribute to body image problems for which fear of scrutiny and increased public self-consciousness would be a natural consequence. Dominant social and cultural mechanisms such as these work to disempower women and may contribute to the gendered inequities in this disorder. More work is therefore needed on intersectorial policies to increase women’s empowerment, agency, and economic productivity, and improve access to opportunities that improve outcomes.

Another important avenue is increasing funding for girls’ programming. In particular, developmental interventions that work to build girls’ self-esteem and self-efficacy, enhance their sense of self-worth, and strengthen psychological resilience can act as significant intervening variables and cultivate a strong sense of self against social evaluative fears. Ideally, efforts to build girls’ resiliency would begin early on. Parenting programs should expand their reach and educate caregivers on risk factors associated specifically with social anxiety. For example, parents could learn how to better support their children’s acquisition of important social and
coping skills by creating opportunities for positive social interactions through play dates, participation in sport clubs, and activities with peers. Education on rearing styles is also relevant so parents can learn to avoid engaging in overprotection, shaming, lack of emotional warmth, and other parental behaviours that predispose children to becoming socially anxious.

From a community perspective, interventions such as BBBF play an important role in facilitating capacity to build social networks. BBBF used active, non-traditional methods to partner with existing community organizations, break down social isolation, and build trusting relationships with local residents. Although not exclusively beneficial for women, opportunities to develop systems of support by meeting and engaging with others appears to better buffer women than men from stress-related outcomes. Intervention protocols that promote collective action and community building create optimal settings in which to foster inclusion. This is especially important in low-income, high-risk communities that generally experience decreased social network size and greater social isolation (Hefner & Eisenberg, 2009), and where social support has a stronger relationship with psychological distress than conditions of poverty (Caron et al., 2007).

On a final note, this work represents a call to action. Social anxiety is an important preventive focus and a community perspective adds incremental value to the literature over and above existing etiological and maintenance models. At its core, social anxiety disorder reflects a deep and disabling fear of negative evaluation, public scrutiny, and ultimately, social rejection. Nevertheless, this condition is not solely a psychological phenomenon. Broader community difficulties such as bullying (Gladstone, Parker & Malhi, 2006), violence (Kashdan & McKnight, 2010), and victimization (Mulder & van Aken, 2013) have been identified as important correlates of social anxiety. These bodies of research point to lack of community as a potential maintaining factor in SAD. Critically, they provide a compelling reason to revisit our current social conduct
and reflect on behaviours that may belie our sociability and our humanity. Indeed, the experience of social anxiety is viewed by some as a feature of our modern times and the outgrowth of a particular social, political, and economic climate (Bandelow & Michaelis, 2015). According to Baumeister and Leary (1995), belonging is a fundamental human need that supports our ability to function effectively. It is therefore crucial that in addition to efforts aimed at removing environmental risk factors, attention also be paid to the development of pro-social qualities, particularly in children and youth. One example is Roots of Empathy, a school-based intervention that promotes prosociality by teaching caring, cooperation, helpfulness, and perspective taking in students, behaviours considered to be hallmarks of social and emotional competence in childhood and adolescents (Schonert-Reichl, Smith, Zaidman-Zait, & Hertzman, 2012; Wentzel, Filisetti, & Looney, 2007). Roots of empathy provides support for how interventions can facilitate the development of children’s socio-emotional understanding and advance prosocial behaviour and characteristics.

At the end of each daily episode, talk-show host Ellen DeGeneres delivers the following closing remarks: Be kind to one another. In this time of much needed care and compassion, it is more imperative than ever that we promote pedagogies of kindness and acceptance, maximize our sense of community, and create multiple allegiances to interrupt this pattern of fear and avoidance.
Appendix A

SOCIAL PHOBIAS INVENTORY (SPIN) ©

Please indicate how much the following problems have bothered you during the past week. Mark only one box for each problem, and be sure to answer all items.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Somewhat</th>
<th>Very much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am afraid of people in authority</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I am bothered by blushing in front of people</td>
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<tr>
<td>3. Parties and social events scare me</td>
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<tr>
<td>4. I avoid talking to people I don’t know</td>
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<tr>
<td>5. Being criticized scares me a lot</td>
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<tr>
<td>6. Fear of embarrassment causes me to avoid doing things or speaking to people</td>
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<tr>
<td>7. Sweating in front of people causes me distress</td>
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<tr>
<td>8. I avoid going to parties</td>
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<tr>
<td>9. I avoid activities in which I am the center of attention</td>
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<tr>
<td>10. Talking to strangers scares me</td>
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<tr>
<td>11. I avoid having to give speeches</td>
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<td></td>
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<tr>
<td>12. I would do anything to avoid being criticized</td>
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<td></td>
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<tr>
<td>13. Heart palpitations bother me when I am around people</td>
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<tr>
<td>14. I am afraid of doing things when people might be watching</td>
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<tr>
<td>15. Being embarrassed or looking stupid is among my worst fears</td>
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<tr>
<td>16. I avoid speaking to anyone in authority</td>
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<td></td>
</tr>
<tr>
<td>17. Trembling or shaking in front of others is distressing to me</td>
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<td></td>
</tr>
</tbody>
</table>
Appendix B

Model Comparison: SES vs. log-10 SES
(assumptions are tested on full model, i.e., all variables included)

<table>
<thead>
<tr>
<th>Model</th>
<th>SES</th>
<th>Log-10 SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (gender)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.087</td>
<td>.087</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.079</td>
<td>.079</td>
</tr>
<tr>
<td>$R^2$ change</td>
<td>.087</td>
<td>.087</td>
</tr>
<tr>
<td>p-value</td>
<td>.002</td>
<td>.002</td>
</tr>
<tr>
<td>2 (gender, SES)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.091</td>
<td>.092</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.073</td>
<td>.074</td>
</tr>
<tr>
<td>$R^2$ change</td>
<td>.003</td>
<td>.004</td>
</tr>
<tr>
<td>p-value</td>
<td>.007</td>
<td>.007</td>
</tr>
<tr>
<td>3 (gender, SES, group)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.114</td>
<td>.115</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.087</td>
<td>.089</td>
</tr>
<tr>
<td>$R^2$ change</td>
<td>.023</td>
<td>.024</td>
</tr>
<tr>
<td>p-value</td>
<td>.006</td>
<td>.006</td>
</tr>
</tbody>
</table>
References


impulsivity prevails over shy inhibition. *Current Directions in Psychological Science, 19*(1), 47-50.


Voydanoff, P. (2002). Linkages between the work-family interface and work, family, and


