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I, Whitney J Raglin Bignall, hereby submit this original work as part of the requirements for the degree of Doctor of Philosophy in Psychology.

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Understanding the Social Support Needs of Parents of Children with ADHD: The Relation between Caregiver Strain and ADHD Specific Support Dissertation

Student's name: **Whitney J Raglin Bignall**

This work and its defense approved by:

Committee chair: Farrah Jacquez, Ph.D.

Committee member: Jeffery Epstein, Ph.D.

Committee member: Monica Mitchell, Ph.D.

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Understanding the Social Support Needs of Parents of Children with ADHD:

The Relation between Caregiver Strain and ADHD Specific Support

A Dissertation Project

Whitney Raglin Bignall, M.A.

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Department of Psychology

McMicken Colleges of Arts & Sciences

University of Cincinnati

Committee: Farrah Jacquez, Ph.D. (Chair)

Jeffery Epstein, Ph.D.

Monica Mitchell, Ph.D.

Abstract

The symptomatology and negative outcomes commonly associated with Attention-Deficit/Hyperactivity Disorder (ADHD) have been shown to cause a significant amount of caregiver strain. Social support has been identified as a possible buffer to caregiver strain. Although the benefits of increasing social support for parents of children with ADHD have been noted, the type of social support most needed has yet to be identified. The study has three aims: 1) to further specify the relation between parent reports of caregiver strain and their perceived ADHD-specific social support, 2) to investigate the types of social support parents of children with ADHD report they need given their level of caregiver strain and current level of perceived ADHD specific social support, and 3) to explore parents' interest in using a web-based social support intervention based on their level of caregiver strain. Fifty-one parents (Mage=38.98 years old, SD = 9.51; 94.1% female) completed self-report measures of caregiver strain, perceived ADHD specific support, needs for social support, an item to measure the intent to use the social networking platform, a demographic form, and measures of their child's symptomology and impairment. Our findings indicated that parents with more perceived ADHD specific social support experience less strain. The amount of social support parents reported needing was correlated with the child's symptomology, the amount of caregiver strain, and the level of perceived ADHD support. Parents reported needing a listening ear, information, and parental counseling for their child's ADHD the most, and a majority of the parents (62.75%) reported a strong intent to use the social networking platform if added to the ADHD portal. Therefore, the results of this study suggest that increasing social support interventions for parents would be beneficial to reducing their strain, and introduces the creation of a portal-based platform as one possible approach.

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Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a neurobehavioral disorder characterized by difficulties with attention and/or impulsivity and hyperactivity (Barkley, 2006; Froehlich et al., 2007). Currently affecting 11% of children in the United States (U.S. Department of Health and Human Services, 2011), ADHD can be extremely detrimental to a child's development and aspects of daily functioning, including school performance (i.e., academically and behaviorally), family life, and social interactions (Barkley, 1997; Barkley, 2006; Bussing et al., 2010; Madaan et al., 2008). The pervasive symptomatology and negative outcomes commonly associated with ADHD (e.g., lower education attainment) have also been shown to cause a significant amount of caregiver strain on parents (Duchovic, Gerkensmeyer, & Jingwei, 2009; Graziano, McNamara, Geffken, & Reid, 2011; Theule, Wiener, Tannock, & Jenkins, 2010). Unfortunately, despite the growing body of literature demonstrating the adverse effects of childhood ADHD on parental well-being, there are limited interventions aimed at reducing the burden experienced by parents.

Caregiver Strain Associated with ADHD

Over the last 25 years, the relation between stress and parenting a child with ADHD has been well established within six literature reviews and a meta-analysis (Deault, 2010, Fischer, 1990, Johnston & Mash, 2001, Mash & Johnston, 1990, McClearly, 2002, Morgan, Robinson, & Aldridge, 2002; Theule, Wiener, Tannock, & Jenkins, 2010). *Parenting stress* refers to a type of stress that occurs when a parent perceives a discrepancy between the demands of parenting and the resources he or she has to deal with that stress (Deater-Deckard, 2004; Morgan et al, 2002; Theule et al., 2010). *Caregiver strain* refers to "the demands, responsibilities, difficulties, and negative psychic consequences of caring for relatives with special needs" (Brannan, Helfinger, &

Bickman, 1997, pp. 212). Caregiver strain and parenting stress frequently have been used interchangeably (e.g., Bussing et al., 2003a; Bussing et al., 2003b; Evans, Sibley, & Serpell, 2009) and distinctions between the two constructs are not emphasized when examined together (Rockhill et al., 2013). The constructs of caregiver strain and parenting stress reflect major similarities in that they both define an aspect of the parent's response to caring for a child (Vaughan et al., 2012). Although Vaughan and colleagues argued a subtle distinction existed between the two, a clear distinction based on empirical evidence cannot be made, given the interwoven aspects of the two definitions. Thus in the literature, parenting stress appears to serve as the umbrella term referring to stress that is associated with parenting, whereas caregiver strain specifically describes parents' reactions to having a child with special caregiving needs. Therefore, as in previous studies (Bussing et al., 2003a; Bussing et al., 2003b; Evans, Sibley, & Serpell, 2009), parenting stress and caregiver strain will be considered only as one construct in this study, and referred to as caregiver strain.

Although all parents experience varying degrees of strain, the literature indicates a unique relation between ADHD and caregiver strain. Parents of children with ADHD experience significantly more strain than parents of non-clinical children, and the amount of strain a parent experiences as the child ages remains high (Deault, 2010; Theule et al., 2010). The severity of a child's ADHD (i.e., number of symptoms and presence of a co-morbid diagnosis) increases the burden experienced by parents, specifically in the context of co-morbidities such as conduct disorder (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Bussing et al., 2003a; Bussing et al. 2003b; Evans, Sibley, & Serpell, 2009; Podolski & Nigg, 2001; Theule, Wiener, Tannock, & Jenkins, 2010). Although the literature has debated whether mothers and fathers experience different levels of caregiver strain, the meta-analysis by Thuele and colleagues (2010) indicated

no significant differences in the strain experienced by mothers and fathers of children with ADHD. The impact of the gender of the affected child on the amount of parental strain experienced also has been debated (Bussing et al., 2003b; Johnston & Mash, 2001; McClearly, 2002). The meta-analysis by Thuele and colleagues (2010) found that the child's gender does seem to moderate the level of parental strain, with lower strain reported by parents of girls with ADHD.

Other studies have shown that high levels of caregiver strain have lasting and pervasive effects on the quality of life experienced by both the affected child and his or her parents (e.g., poor health, depressive symptoms), and are linked to poor parenting and a worsening of symptoms (Anastopoulos, Guevremont, Shelton, & DuPaul, 1992; Morgan, Robinson & Aldridge, 2002; Rogers, 1998; Vitaliano, Zhang, & Scanlan, 2003). High levels of strain negatively impact parents' abilities to manage their children's diagnoses and can often interfere with parents' abilities to adhere to health professionals' recommendations (Kazdin, 1995). Furthermore, reducing caregiver strain has been shown to aid in the efficacy of behavioral training (Kadin & Whitley, 2003).

Caregiver strain has generally been identified as a key contributor to mental health treatment seeking and utilization since increased strain leads to greater utilization (Brannan, Heflinger, & Foster, 2003). Caregiver strain is often separated into objective and subjective factors. *Objective caregiver strain* refers to observable events that are directly related to the child's mental health (e.g. missing work), while *subjective caregiver strain* refers to the extent to which the parent reports feeling strained by the child's mental health (e.g. feeling worried or anger; Hoening &Hamilton, 1976; Brannan, Heflinger, & Bickman, 1997). The type of caregiver strain has been shown to affect both the kinds of treatment sought (e.g. inpatient or outpatient)

and the duration of services rendered. For example, parents reporting high levels of subjective internalized strain report using a combination of both traditional outpatient and residential services, and taking breaks in care, while families who reported high levels of objective strain often alternated between the two types of services with no gaps in service (Brannan, Heflinger, & Foster, 2003).

Caregiver Strain Interventions

Given the prevalence of caregiver strain associated with parenting a child with ADHD, several research studies have suggested that ADHD psychoeducational treatment include providing resources to improve parents' coping strategies (Hinojosa et al., 2012; Rockhill et al., 2013; Theule, Wiener, Tannock, & Jenkins, 2010). Unfortunately, specific interventions targeting caregiver strain beyond the established treatments of ADHD (e.g. behavioral parent training groups) are limited. Most behavioral trainings attempt to address caregiver strain within the curriculum, but reducing parental strain is not the primary focus (Anastopoulos et al., 1993; Anastopolous, Rhoads, & Farley, 2006). Currently, only one ADHD-specific intervention has been developed with the primary goal of reducing parental strain (Treacy, Tripp, and Baird, 2005). In their intervention study, Treacy and colleagues (2005) examined the Parenting Stress Management program (PSM). The PSM focused on teaching parents about their community resources, problem-solving skills, cognitive restructuring, effective communication, and self-care, as well as parenting skills and ADHD education found in traditional parenting groups. Among the 63 parents of 42 families, they found that the 9-week program was effective in significantly reducing parenting stress as well as improving parenting styles (e.g. verbosity; Treacy, Tripp, Baird, 2005). Unfortunately, there has yet to be any additional studies on parenting stress management programs and the current implementation of these groups in clinical

practice is unknown.

Social Support as a Buffer

Beyond the psychoeducational treatment, pediatric primary care providers have been encouraged to assess parents' social support networks (Bussing et al., 2003b), as social support has been identified as a possible buffer to caregiver strain (Cohen & Wills, 1985, Lovell, Mass, & Wetherell, 2012; Rodgers, 1998). *Social Support* refers to the mechanism by which interpersonal relationships and their resources assist one in coping with stressful circumstances and experiences (Cohen & Mckay, 1984). Research has consistently shown that people with higher levels of perceived social support experience significant benefits across health domains, including better physical and psychological health, the ability to recover faster from short illnesses, and a better ability to cope when managing chronic conditions (Uchino, 2006). Social support is also beneficial for both the child and his or her parents, especially for parents with significantly more caregiver demands (McConnell, Breikreuz & Savage, 2010; Saurez and Baker, 1997).

Increasing social support appears to be especially important for parents of children with ADHD (Bussing et al., 2003b; Hinjosa, 2012; McCleary, 2002), as they report increased social isolation (Barker, 1994) and challenges accessing social support (e.g. from family members and friends) as a consequence of their child's symptoms (Cunningham, Benness, & Siegel, 1988). Social support has been shown to improve parents' abilities to cope with the parenting strain stress of raising a child with ADHD (Podolski & Nigg, 2001). Furthermore, greater access to affirmative social support and neighborhood amenities (e.g. recreational facilities and libraries) reduces caregiver strain for parents of children with ADHD (Bussing et al., 2003b; Hinjosa, 2012).

Although the benefits of increasing social support for parents of children with ADHD have been noted, the type of social support (e.g., information, respite care, listening ear, and community services) most needed has yet to be identified. Furthermore, the method of implementation to best achieve the goal of increasing social support remains unclear. The current treatment methods of increasing social support lack empirical investigation. Social support provided by groups has been cited as a secondary advantage to attending parent-training groups (Chronis et al., 2004), and social support groups (often provided in the community) have been shown to increase self-esteem and positive coping, and decrease strain for parents of children with disabilities (Solomon et al., 2001). However, empirical evidence remains limited given the small number of studies investigating social support groups for ADHD. Given the fact that only a fraction of parents of children diagnosed with ADHD will attend a parent training (Rushton, Fant, & Clark, 2004), and the number of parents who participate in social support groups is unknown (Poloski & Nigg, 2001), there is a large gap in the current understanding of how parents of children with ADHD receive social support and if their level of strain impacts their perception of ADHD specific support.

Web-based Social Support

One possible novel approach to increase social support for parents of children diagnosed with ADHD is to create a web-based support group. Over the past 10 years, there has been an increase in the amount of web-based patient forums in areas such as diabetes and physical activity (Barrera et al., 2002; Cavallo et al., 2012; Gustafson et al., 1995; Magnezi, Bergman, & Grosberg, 2014; Lee & Whitley, 2014). These web-based forums have been shown to be effective in not only increasing engagement in treatment, but also increasing social support (Barak, Boniel-Nissim, & Suler, 2008). For example, Barrera and colleagues (2000) conducted a

randomized controlled trial of 160 type 2 diabetic patients in which they were divided into four groups (a. diabetes information only, b. personal self-management coach, c. social support intervention, d. personal self-management coach with social support intervention). Participants in the groups that included the social support forum saw significant improvements in diabetes specific social support and general social support.

Several benefits have been identified for the creation of web-based social support groups, with patients reporting increases in their levels of well-being, self-confidence, and personal empowerment (Barak, Boniel-Nissim, & Suler, 2008). Patients also have been shown to benefit more greatly when they are actively involved in participating within the network (e.g., posting comments; Barak, & Grohol, 2011). Online web-based forums may be especially helpful for caregivers, who have cited accessibility barriers (e.g., time and lack of childcare) which precluded their participation in face-to-face groups (Biegel, Shafran, & Johnsen, J. A. (2004). Unfortunately, evidence of the effectiveness of web-based platforms as a resource for parents, particularly parents of children with behavioral diagnoses, is limited due to a lack of research. In addition, the majority of research on web-based platforms for treatment has focused on adult patients and not caregivers of the patients (Barrera et al., 2002; Brannan, Moore, Smyth, 1995; Cavallo et al., 2012; Gustafson et al., 1995; Magnezi, Bergman, & Grosberg, 2014; Lee & Whitley, 2014). Nevertheless, parents of children with chronic conditions (e.g., diabetes) have requested the development of more web-based social support (Nicholas, Gutwin, & Paterson, 2013). Online support groups exist through organizations such as Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD) and Facebook; however, currently no research exists to establish the utilization rates or effectiveness of these ADHD specific parent support groups.

Although the creation of the web-based portal has advantages, there are possible risks that may prevent parents from participating. For example, fear of breaches in their privacy, and/or receiving negative responses or bullying from other parents (Barak, & Grohol, 2011; Eysenbach et al., 2004) may keep parents from wanting to participate. Therefore, it is important to note that although this intervention may be helpful for parents with high levels of strain, it may not be for every parent.

Overall, parents of children with ADHD experience high levels caregiver strain that negatively impact both the child and the parent. Social support has been identified as a possible way to buffer the negative outcomes associated with parenting strain. Although there are currently some options for parents to obtain ADHD specific social support through practitioner-lead (e.g. parenting training groups) and community supported treatments (e.g. face-to face support groups and internet support groups), the literature on interventions designed specifically to enhance social support for parents of children with ADHD remains limited. Moreover, there is currently no data on the type of social support needed, parents' preferences for obtaining social support, and their overall willingness to participate in such interventions. A better understanding of parents' needs and preferences as they relate to their levels of strain is a critical first step in the development of effective interventions that are acceptable and targeted to the needs of this group.

Purpose of Present Study

The purpose of this study is to examine the relation between caregiver strain and social support perceived by parents of a child diagnosed with ADHD, and to gain a better understanding of their social support needs. The study has three aims. The first aim seeks to further specify the buffering relation between social support and strain by examining the relation

between caregiver strain and the ADHD specific social support of parents with a child diagnosed with ADHD. We hypothesize that parents who have higher levels of ADHD specific support will report lower levels of caregiver strain. The second aim is an exploratory investigation of the types of social support needs reported by parents of children with ADHD given their level of caregiver strain and current level of perceived ADHD specific social support. We hypothesize that parents with low levels of perceived ADHD specific social support and high levels of caregiver strain will report higher social support needs. The third aim is to explore parents' interest in using a web-based social support intervention based on their level of caregiver strain. Given the increased popularity of web-based support groups, we will investigate parents' intent to use a social networking platform incorporated into an ADHD treatment portal. We hypothesize that the level of ADHD specific support will moderate the relation between parents with caregiver strain and their intent to use the social networking platform, with parents with increased caregiver strain and lower levels of ADHD social support indicating more intent to use the social networking platform.

Method

Participants

Participants were 60 parents with a child diagnosed with ADHD receiving care through their primary care provider, and currently receiving ADHD treatment through www.myadhdportal.com. Only one parent per family was recruited, and parents were excluded as participants if their child was only using the portal for an ADHD assessment and had not received treatment. Nine participants were removed from the final analysis, including seven participants who consented to the study but did not complete any of the study measures, and two participants who completed some but not all of the study measures. Thus, the final sample

consisted of 51 parents. See Table 1 for complete demographic characteristics of the sample. Participants were, on average, 38.98 years old, (SD = 9.51), the biological parent (84.3%) and female (94.1%). The majority of participants were either African American (51.0%) or White (45.1%). The average current age of each participant's child diagnosed with ADHD was 10.34 years old (SD = 3.05), and the average age of the child at time of diagnosis with ADHD was 7.04 years old (SD = 2.17).

The Primary Care Practice. All of the participants in this study were recruited through a pediatric primary care practice with two locations in a large, urban mid-western city. The primary care practice includes five pediatricians (2 female, 3 male) and one nurse practitioner (female), serving a mix of urban and suburban families. The overall patient population is 52% female and 48% male. English is the most preferred language with 96% of the families using it as their first language. The race/ethnic distribution of the patients within the clinic is: 61% African American 25% White, 5% Biracial/multiracial, 2% Asian, and 0.6% Middle Eastern. Currently, 40% of the patients in the clinic are insured through Medicaid.

Measures

Caregiver strain. The Caregiver Strain Questionnaire (CGSQ; Brannan, Heflinger, & Bickman, 1997) is a 21-item self-report measure to assess caregiver strain. The CGSQ asked parents to indicate the extent to which his or her child's symptoms have affected the parents and the family over the past year. The CGSQ is rated on a 5-point Likert scale ranging from 1 (not at all a problem) to 5 (very much a problem). The CGSQ has three subscales: Objective Caregiver Strain (e.g. missing work), Subjective Externalized Caregiver Strain (e.g. anger toward child), and Subjective Internalized Caregiver Strain (e.g. worried). The internal reliability of the CGSQ

is consistently strong (α = .93; Brannan et al., 1997). In the current study, the CGSQ-total score was examined in all three aims and showed excellent internal consistency (α = .94).

ADHD specific social support. The Perceived Social Support Scale for ADHD (PSSS) was modified from the scale in Barrera et al., (2002). The scale contains 12 items on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The scale is comprised of six items that are worded positively (access to support) and six that are worded negatively (no access to support); negatively worded items are reversed scored such that higher total scores indicate greater access to support. The measure includes questions regarding different types of support (i.e., emotional [items 1-4], informational [items 9-12], and advice [items 5-8]) parents perceived divided into two subscales: General and Peer. In the Barrera et al., (2002) study the measure's total score showed an internal consistency of α = .90. The total score showed excellent internal consistency in the current sample (α = .92). The PSSS-total score was examined as an independent variable in all three aims. See Appendix B for the PSSS items.

Child symptoms and impairments. The Vanderbilt ADHD Diagnostic Parenting Rating Scale (VADPRS; Wolraich, Feurer, Hannah, Baumgaertel, & Pinnock, 1998; Wolraich et al., 2003) included 18 DSM-IV ADHD symptoms as well as screener questions: eight ODD symptoms, 14 CD symptoms, and seven anxiety/depression symptoms. The scales measuring comorbidity have good reliability, factor structures, and concurrent validity (Wolraich et al., 2003). The scales are measured on a 4-point Likert scale (ranging from 0=never, to 3=very often). The Impairment Rating Scale (IRS; Fabiano and Pelham, 2006) is a multidimensional measure of functioning across domains. The IRS parent rating scale contained eight questions on a 7-point scale (from "No problem, definitely does not need treatment" to "Extreme problem, definitely needs treatment") along with open text elaborations and comments. The IRS exhibits

concurrent, discriminant and convergent validity (Pelham, Fabiano, & Massett; 2005). The four VADPRS scales along with the an average score across the IRS domains were used as covariates in the first two aims.

Demographics. The demographic survey assessed information about the child of the respondent: age, gender, duration of child's ADHD diagnosis, and co-occurring diagnoses or illnesses. Additionally, the following information was obtained about the respondent: relationship to the child, marital status, age, race/ethnicity, number of children in the home, highest level of education, and family income (where income was measured by asking parents to estimate their annual income and providing them with 6 order categories ranging from "under 20,000" to "greater than 100,000." The questionnaire also asked questions regarding previous treatment experiences to assess the past and current treatments respondent parents used to manage their child's ADHD.

Intent to use of the social networking platform. Parents were given a description of the social network platform and were told that development of the platform was being considered. They were then asked whether they would be interested in using it and the likelihood of being able to use it (e.g. time, access to internet, and experience with other social networks). Their intent to use was measured on a 7-point Likert scale ranging from "extremely unlikely" to "extremely likely." The score of this item was the dependent variable in Aim #3. In addition, for descriptive analysis only the intent to use variable was dichotomized into two groups: "low intent" (scores ranging from 1 to 4) and "strong intent" (scores ranging from 5 to 7). See Appendix A for the description and item measuring the intent to use of the social networking platform.

Need for social support. Parents were asked to what extent in the past year they needed specific types of social support due to their child's behavioral problems using the method utilized by Douma, Dekker & Koot (2006). The level of support needed was measured on a 4-point Likert scale (ranging from "no need" to "very strong need"). The measure was comprised of seven items (each item representing a different type of support): a friendly ear for the parents to talk to; information; activities for the child; respite care; practical or material help; child mental health care; and parental counseling specifically aimed at dealing with the child's ADHD. All seven variables were examined separately as dependent variables in Aim #2, and for analyses the level of support was dichotomized into groups labeled "low need" (combining those who indicated "1-no need" and "2-some need") and "high need" (combining those who indicated "3-strong need" and "4-very strong need"; Douma, Dekker, & Koot, 2006). A composite score was also calculated (by summing the totals of the seven types of support before they were dichotomized) to measure overall need of social support to be included as an additional dependent variable for Aim #2.

Procedures

A message was sent through www.myadhdportal.com (hereafter referred to as the "portal"; Epstein, Langberg, Lichtenstein, Kolb, & Simon, 2013) to approximately 300 parents of children diagnosed with ADHD whose care (primarily for medication services only) was managed by their child's primary care provider (PCP). The message (see Appendix C) alerted them to the opportunity to take part in the study online to help us understand their caregiver needs and preferences, and to help doctors and health providers do a better job supporting parents of children with ADHD. Interested participants were provided with an online link to participate, which first presented them with a three-page information sheet (e.g., an abridged

consent type form) that detailed the study and informed each parent that by completing the included measures they were giving their consent. Once deciding to participate, respondents completed the study measures (listed above) via a secure website (i.e., Redcap). The initial response rate following the message being sent via the portal yielded 33 people to click on the link, and the message was sent twice four months apart (with 26 completing the study). Additional recruitment strategies to share the same message were added to increase participation, including notifying parents about the study by the primary care office staff through emails, phone calls, and during office visits (e.g. medication appointments or picking up medication refill prescriptions). Having parents complete the survey on an electronic tablet while they waited for their office visit yielded the most success in recruitment. After completing the measures (i.e., CGSQ, PSSS, VADPRS, IRS, a demographic questionnaire, and questions regarding different types of support and the intent to use questionnaire of a social network platform), the parents were asked to give their address in order to receive compensation for their participation (i.e. a $10 gift card of their choice to Wal-Mart, Kroger, or Target stores).

Data Analytic Plan

Preliminary data analysis. First, the primary study variables (i.e., CGSQ, PSSS, the seven types of social support, and the intent to use the social networking platform) were evaluated for missing data. Next, all the variables were tested to see if they violated any assumptions of normality by examining frequency distributions, skewness, and kurtosis (Tabacknick & Fidell, 2007). The variables were examined for outliers and linearity using box plots and scatterplots respectively. Descriptive statistics (i.e., means, standard deviations, and ranges) were calculated for the primary variables. Bivariate correlations between the independent

and dependent variables were calculated. All variables were checked for multicollinearity using collinearity diagnostic testing in SPSS and examining the correlation matrix.

For the primary outcome variables for Aim #2, the seven types of support were dichotomized into groups of "low support" and "high support" as instructed by the authors Douma, Dekker and Koot (2006). Chi-squares tests, independent sample t-tests and analysis of variance (ANOVA) were used to determine the associations between the primary variables and the demographic variables. Demographic variables included child gender, race/ethnicity, marital status, level of education, and family income, and these variables were dummy coded. Pearson correlations were conducted to assess the association between the continuous demographic variables (i.e. the age of the child, age of the parent, and how long the child has been diagnosed with ADHD) and the child's symptomology (i.e., subscales on the VADPRS and IRS) with the primary study variables. Any significant differences or correlations were included as covariates in subsequent analyses.

Testing aims. For Aim #1, hierarchical linear regressions were employed to examine caregiver strain and current ADHD specific social support, with the demographic variables and child's symptomology controlled by including them first in separate blocks.

Univariate logistic regression analyses were used to evaluate Aim #2 to explore each type of social support separately as the dependent variable (i.e., high vs. low social support for each of the seven social support types), while caregiver strain, current ADHD specific social support, and the child symptomology (i.e., VADPRS subscales and the average IRS score) were tested as continuous predictor variables. Also, hierarchical linear regression analyses were used to examine the relation between the total need for social support with caregiver strain, current ADHD specific support, and the child's symptomology for Aim #2.

A multiple linear regression was conducted to test for moderation for Aim #3. For the interaction model, the independent variables of the regression were caregiver strain, level of ADHD support, and the interaction between caregiver strain and level of ADHD support. The interaction was created by multiplying caregiver strain with the level of ADHD support after they were centered to have a mean of zero. The dependent variable of the regression is parents' intent to use the social networking platform.

Results

Preliminary Data Analysis

Two participants were removed from the analyses due to failure to complete all of the requisite study measures. Of the remaining 51 participants, there were no missing data.

Normality was examined, with all variables distributed normally (with skewness and kurtosis values less than one) except the need for respite care, which was positively skewed (S = 1.06, SEs = .33, K = -.38, SEk = .66), the screener questions measuring conduct behaviors (S = 1.63, SEs = .33, K = 2.01, SEk = .66), and internalizing symptoms (S = 1.34, SEs = .33, K = 1.04, SEk = .66). These three variables were not transformed as their skewness and kurtosis were below 2. There were no outliers indicated within the data. Scatter-plot examination showed that each predictor had a linear relationship with the outcome variables with the exception of intent to use the social networking platform.

Description of Primary Variables

The primary study variables are CGSQ and PSSS as predictors, and the seven types of social support and the intent to use the social networking platform as the outcome variables. The CGSQ is also an outcome variable in the first aim. Table 2 provides the percentage of parents who reported strong needs for support or intent to use the social networking platform. Overall,

caregivers endorsed having a strong need for a friendly ear, information, parental counseling, and activities. In addition, 62.75% of the caregivers endorsed the intent to use the social networking platform.

Table 3 summarizes the descriptive statistics among the primary variables, and Table 4 shows the bivariate correlations between those variables. Caregiver strain was significantly positively correlated with all seven needs of social support (range: $r= .47$ *to* $r= .65$, $p < .01$) and significantly negatively correlated with the perceived ADHD specific support ($r=-.36$, $p < .01$). Perceived ADHD specific support was significantly negatively correlated with six out of the seven needs of social support (ranging from $r = -.31$ to $r = -.41$, $p < .05$). The seven variables assessing needs of support were significantly positively correlated with each other (ranging from $r = .31$ to $r= .65$, $p < .05$) with a few exceptions (e.g., the need for activities only correlated with half of the other types of support). The intent to use the social networking platform was not significantly correlated with any of the primary variables. No multicollinearity was evident using the collinearity diagnostics.

Examination of Demographics

T-tests and ANOVAs were conducted to examine if the CGSQ and PSSS varied by the demographic variables. There were no significant differences on any of the primary variables for race/ethnicity, education level, and marital status, $p=ns$. Chi-squares were conducted to examine if the seven different types of support varied by the demographic variables. A significant relation was found between child gender and need for child mental health care, with caregivers of sons diagnosed with ADHD reporting a great need, $X^2 (1, N = 51) = 6.28, p < .05$). In addition, significant differences were found between income and need for child mental health care support, $X^2 (5, N = 51) = 15.53, p < .01$, along with the need for parental counseling, $X^2 (3, N =$

51) = 7.59, p <.05 with those with a lower income reporting a greater need for those two types of support. There were no significant correlations found between child age, caregiver age, or how long the child has been diagnosed with ADHD with any of the primary variables (see Table 5).

Examination of Covariates - Child Symptomology

Correlations showed several significant relations between the primary variables and the child's symptomology (see Table 5). Overall, ADHD symptoms as measured by the VADPRS significantly correlated with caregiver strain as measured by the CGSQ ($r= .35$ $p < .05$) and the need for information/practical materials ($r= .28$ and $r= .35$, $p < .05$), while screener items on the VADPRS measuring oppositional, conduct, and internalizing symptoms significantly positively correlated with the CGSQ, need for respite care, practical help, counseling for parents, and child mental health care (ranging from $r= .29$ to $r= .55$, $p < .01$). Correlations were also significant for impairments as measured by the IRS across the primary variables (ranging from $r = .28$ to $r = .67$, $p < .05$) with the exception of the need for activities and respite as well as the PSSS, which had no significant correlations with scales measuring symptoms or impairment.

Aim #1

Multiple regression analyses were used to explore the relation between the parent's current ADHD specific social support (PSSS) and the dependent variable, caregiver strain (CGSQ; see Table 6). Using hierarchical linear regressions, the child's symptomology (i.e., the subscales of the VADRPS and average score on the IRS) was entered in the first step as the only covariate, given that none of the demographic variables significantly differed/correlated with the primary variable. In the first step, the child's symptomology contributed significantly to the regression model, *F (5,45) = 8.53, p< .01* and accounted for 48.7% of the variance in caregiver

strain. Introducing the PSSS variable explained an additional 7.5% of the variation in caregiver strain and this change in R^2 was significant, $F(6,44) = 9.41, p < .01$. The only significant predictors of caregiver strain were the impairment (measured by the IRS) and level of ADHD specific support (measured by the PSSS), which explained 8.58% and 7.51% of the variance in caregiver strain respectively. The pattern of results suggest that almost half of the variability in caregiver strain is predicted by the child's symptomology, and with symptomology controlled the level of ADHD specific support contributes to the prediction of caregiver strain, with more ADHD specific support predicting less caregiver strain.

Aim #2

For Aim #2, to detect which factors significantly increased the likelihood caregivers would endorse needing different types of support, univariate logistical regression analysis was used to examine each type of social support separately. See Tables 7 for the results of the logistical regressions with odds ratios related to the parents having a particular need for support. In general, caregiver strain made a significant contribution in the prediction of several different types of support, with parents approximately twice as likely to strongly need a friendly ear ($p < .01$), information ($p < .01$), practical/material help ($p < .05$), and parental counseling ($p < .05$) with every one-unit increase in caregiver strain. In addition, the number of ADHD symptoms increased the odds a parent needed practical/material help ($p < .01$).

Hierarchical linear regressions were used to examine the relation between the amount of social support parents reported they needed (a composite score of the different types of social support) given their level of caregiver strain and current level of perceived ADHD specific social support. See Table 8 for the regression statistics. The child's symptomology (the subscales of the VADRPS and average score on the IRS) was entered in the first step as a covariate and

contributed significantly to the regression model, *F (5,45) = 5.55, p< .01* and accounting for 38.1% of the variation in needing support. Introducing the perceived ADHD specific social support and caregiver strain variables explained an additional 29.0% of the variation in needing support and this change in R^2 was significant, *F (7,43) = 12.56, p< .01*. The only significant predictors of the amount of social support needed were perceived specific ADHD support and the level of caregiver strain, which explained 7.78% and 10.18% of the variance respectively. Thus, the pattern of results suggest the amount of social support caregivers need is predicted by their level of strain and perceived ADHD support, with less support and more strain leading to a greater level of social support needs.

Aim #3

In order to identify main effects and moderators of the relation between caregiver strain and the intent to use the social networking platform, hierarchical linear regression models were conducted with the intent-to use a social networking platform as the dependent variable. In the first step, the main effects of caregiver strain (mean-centered) and perceived ADHD specific social support (mean-centered) were entered in order to estimate the amount of variance accounted for by each variable individually. In the second step, the interaction term between caregiver strain and perceived ADHD specific support was entered into the regression model.

As illustrated in Table 9, the results indicated the main effects of caregiver strain and perceived ADHD specific social support were not significant, p = ns. In terms of an interaction, although approaching significance, it was not significant, p = .07. Figure 1 shows the relation between caregiver strain and the intent to use the social networking platform by level of ADHD specific support. Although not statistically significant, the results are in the direction predicted in

which those with high levels of caregiver strain would be more likely to intend to use the network if they had a lower level of ADHD specific support.

Discussion

The symptomology and negative outcomes commonly associated with ADHD are well established as causing significant caregiver strain (Duchovic, Gerkensmeyer, & Jingwei, 2009; Graziano, McNamara, Geffken, & Reid, 2011; Theule, Wiener, Tannock, & Jenkins, 2010). Although social support is recognized as a possible buffer to the strain experienced by parents of children with ADHD, there is no research to date that examines the specific types of social support needed in the context of a parent's level of strain and their current perceived ADHD specific support. Therefore, our study had three specific aims. First, we sought to further specify the buffering relation between social support and strain by examining the relation between caregiver strain and the ADHD specific social support of parents of a child diagnosed with ADHD. Second, we sought to gain an understanding of the types of social support these parents need in relation to their strain and perceived ADHD social support. Finally, we sought to explore parents' interest in using the web-based social support intervention based on their level of caregiver strain and perceived ADHD specific support.

To address the first aim, the relation of the child's symptomology to caregiver strain was explored. Consistent with previous research, caregiver strain was greater among parents who reported their child having more symptoms (Anastropolous et al., 1992; Bussing et al., 2003b; Hinojosa et al., 2012; Podolski & Nigg, 2011). In addition, our study took a novel approach by including the child's impairment ratings in an effort to further describe their level of functioning and overall symptomatology. Furthermore, increased symptoms of ADHD, ODD, conduct and internalizing disorders demonstrated a significant, positive correlation with caregiver strain.

However, when all of the child's symptomology variables were examined together, only the child's overall impairment score was a significant predictor of caregiver strain within our population. This finding reinforces the importance of assessing the level of impairment experienced by a child with ADHD rather than relying solely on the total number of symptoms present (Subcommittee on Attention-Deficit/Hyperactivity Disorder, Steering Committee on Quality Improvement and Management, 2011). Further, the strong relation between a child's impairment level and caregiver strain may be explained by the minimal improvement found in impairment domains for those who receive medication treatment through their community pediatrician (O'Connor, Garner, Peugh, Simon, & Epstein, 2015).

In the current study, we found that the level of ADHD specific social support was a significant predictor of caregiver strain after controlling for child symptomology, with parents reporting higher levels of ADHD specific social support reporting lower caregiver strain. Our study also showed that the level of caregiver strain and perceived ADHD specific support predicted the need for social support, even after controlling for the child's symptomology. Specifically, greater caregiver strain and less ADHD specific social support predicted a higher level of social support needs. Our findings mirror previous studies that found lower levels of parental strain for those who receive more support through their neighborhoods, family, and friends (Bussing et al., 2003b; Hinojosa et al., 2012; Theule et al., 2011). Our results provide evidence of the benefits afforded to parents who receive social support specifically geared toward their child's ADHD, thereby adding to the literature a more descriptive representation of parents' perceived support (e.g., including receiving information and advice from other parents specifically about ADHD).

The results of our study showed that parents most commonly reported needing a friendly ear, information, and parental counseling specifically regarding their child's ADHD over the past year, with over 50% of parents endorsing those specific needs. Notably, with every one-unit increase of caregiver strain experienced by parents the odds are approximately two times greater for respondent parents to endorse strongly needing the three aforementioned social supports. Therefore, for families of children with ADHD experiencing caregiver strain, resources providing parents with affirmational support, information, and counseling appear to be the most desired. A similar pattern of needs was found in the Douma et al., (2006) study within a different population (i.e., parents of children with an intellectual disability), with the exceptions that the parents in our study more commonly endorsed needing parental counseling about their child's condition, and rarely endorsed the need for respite services. Interestingly, the types of support caregivers report needing are often offered in behavioral parent training groups (Chronis et al., 2004). However, many of the caregivers in the study had not received parent training and were only receiving medication services provided through their PCP. Our finding of lower utilization of behavioral parent training is representative of the broader sample of parents of children with ADHD (Rushton, Fant, & Clark, 2004). In addition, behavioral training is considered the most effective treatment to address the impairments associated with ADHD (Fabiano et al., 2009; Pelham & Fabiano, 2008). Therefore, increasing parents' utilization of behavioral parent training may be a viable option in addressing their caregiver strain, as it is known to decrease impairment and provide ADHD specific support. One important factor to consider in the low utilization rates of behavioral training is that PCPs often cite constraints (such as time) as a reason they are unable to provide the service (Cormier, 2008). Thus, PCPs often report preferring to refer families to community resources to access behavioral parent training. Increasing the utilization

of behavioral therapy will need to involve collaboration between PCPs and other mental health specialties to educate parents of the resource (Epstein et al., 2010).

In our study, when the potential to receive social support through a social networking platform was offered to parents, the majority of the parents in the study strongly endorsed the likelihood of their participation in such a network. While our study results regarding the moderating effects of specific ADHD specific support were not significant, there was a trend towards significance for parents who are strained and without ADHD specific social support to endorse the potential of participating on the portal. Surprisingly, caregiver strain, ADHD specific social support, and the child's symptomology did not correlate with caregiver intent to use the social network. Therefore, this type of intervention holds the potential to be a universally well-received intervention to offer all parents with a child diagnosed with ADHD. The high level of intent to use the social networking platform is consistent with the growing trend of web-based patient forums in the last 10 years (Barrera et al., 2002; Cavallo et al., 2012; Gustafson et al., 1995; Magnezi, Bergman, & Grosberg, 2014; Lee & Whitley, 2014). Interestingly, although these parents reported a high intent to use the social networking platform, none had attended a face-to-face social support group regarding their child's ADHD. Thus, further examination is needed to determine if there is a true preference for online social support over in person contact, or if the low reported utilization of face-to-face support groups is more likely due to a lack of knowledge about the available resource. Nevertheless, research has shown that parents are increasingly using the Internet as a source of support and information (Doty & Dworkin, 2014; Plantin & Daneback; 2009)

Taken all together, our study highlighted that parents with a child diagnosed with ADHD are often in need of social support. Caregiver support needs are magnified by their level of strain

and lower resources/support specific to ADHD. Furthermore, the child's symptomology and impairments are important factors in the strain they experience. Given that our population was recruited through the primary care setting, it would suggest that parents of children who receive treatment for their child's ADHD primarily through their PCP may not have access to the information and other resource supports they need. Consequently, efforts to increase access to psychosocial interventions through the primary care setting are important to reducing the strain experienced by parents (Hinojosa et al., 2012; Power, Mautone, Frye, & Blum, 2008). Such efforts could include providing PCPs with training to assess for caregiver strain, and the resources (e.g., links to CHADD and referrals for behavioral parent training) to provide to parents. Further, providing parents with multimodal treatment (including behavioral therapy) through an integrated behavioral service offered within the primary care setting may be a more feasible approach to provide parents with a direct channel through which to access their support needs (Power et al., 2014). This would be especially helpful for families reporting a reduced income as they report having a greater need for parental counseling.

Although our study provides a greater understanding of the social support needs of parents of children with ADHD, several limitations of this study were carefully considered. First, our study's generalizability is limited given that the study population was recruited from one primary care office in a Midwestern city. In addition, due to unanticipated difficulties and minimal contact between study participants, the research team and primary care staff; recruitment was less than optimal, precluding our ability to examine our third study aim with sufficient power. Also, because we collected study measures and demographic data from a single source, our study is exposed to the risk of reporter bias, with parents reporting on both the child's symptomatology and their caregiver strain. Lastly, due to study feasibility issues, data regarding

the parents' mental health symptoms were not collected, precluding our ability to control for their symptomology in our model.

Our findings suggest several promising avenues for future research. An important next step would be to implement and test the utilization of a social networking platform on the portal by looking specifically at factors such as which parents are more likely to use it, the type of information shared, and if parents reported feeling supported by their participation. Our study highlighted the need for additional efforts focused not only on the development of evidence based ADHD education tools for parents and caregivers, but also on their effective dissemination. Lastly, research is needed to gain an understanding of the barriers that preclude parents from receiving behavioral training and increasing efforts for families to receive multimodal treatment through the primary care setting, where these patients are more likely to receive treatment.

In conclusion, based on our findings, while parents of children diagnosed with ADHD experience significant caregiver strain, parents with more perceived ADHD specific social support experience less strain. The amount of social support parents reported needing was correlated with the child's symptomology, the amount of caregiver strain, and the level of perceived ADHD support. Parents and caregivers reported needing a listening ear, additional information, and parental counseling for their child's ADHD the most in the past year. A majority of the parents reported the intent to use the social networking platform if added to the ADHD portal, therefore suggesting that online platforms may hold great promise to provide innovative opportunities for increasing parental social support. In order to best leverage this technology, and after the social networking platform has been established, future research should

examine its effects on caregiver strain to help inform clinical practice and the recommendations given to parents to reduce their strain.

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Table 1. Baseline Demographic and Clinical Characteristics

Demographic variable	
Age, *M (SD)*	38.98 (9.51)
Gender of caregiver, n (%)	
Female	48 (94.1%)
Male	3 (5.9%)
Race/Ethnicity, n (%)	
African American	26 (51.0%)
Asian American	1 (2.0%)
Hispanic	1 (2.0%)
White, non-Hispanic	23 (45.1%)
Education, n (%)	
Some high school	1 (2.0%)
Graduated high school	9 (17.6%)
Some college	20 (39.2%)
College graduate	10 (19.6%)
Master's Degree	10 (19.6%)
Doctorate	1 (2.0%)
Marital Status, n (%)	
Single	12 (23.5%)
Living with partner	9 (17.6%)
Married	25 (49.0%)
Divorced	5 (9.8%)
Annual Family Income, n (%)	
Under $20,000	7 (13.7%)
$20,000-$40,000	15 (29.4%)
$41,001-$60,000	13 (25.5%)
$60,001-$80,000	6 (11.8%)
$80,001-$100,000	4 (7.8%)
Greater than 100,000	6 (11.8%)
Number of children in the home, *M (SD)*	2.24 (1.21)
Relationship to the child, n (%)	
Biological parent	43 (84.3%)
Adoptive parent	2 (3.9%)
Step-parent	2 (3.9%)
Other	4 (7.8%)
Age of child, *M (SD)*	10.34 (3.05)
Sex of child, n (%)	
Female	12 (23.5%)
Male	39 (76.5%)
Age of child's ADHD diagnosis, *M (SD)*	7.04 (2.17)
Comorbidity*, n (%)	
Anxiety	7 (38.9%)
Depression	4 (22.2%)
ODD	2 (11.1%)
Learning disorder	3 (16.7%)
Other	7 (38.9%)
Treatment for ADHD*, n (%)	
Medication	45 (93.8%)
Individual therapy with child	17 (35.4%)
Family therapy	3 (6.3%)
Parent training	4 (8.3%)
Face to face support group	0

* More than one diagnosis or treatment possible

Table 2. Caregiver's Current Social Support Needs

Types of support	Indicated Strong Need, n (%)
A friendly ear	30 (58.82%)
Information	28 (54.90%)
Activities	25 (49.02%)
Respite	12 (23.53%)
Practical/Material	13 (25.49%)
Parental Counseling	26 (50.98%)
Child Mental Health	20 (39.22%)
Intent to use social networking platform	32 (62.75%)

Table 3. Descriptive Statistics for Primary Variables

	Range	Mean	SD
1. CGSQ	3.25 - 13.96	7.70	2.39
2. PSSS	12 - 84	44.27	16.92
3. A friendly ear to talk to	1 - 4	2.80	.96
4. Information	1 - 4	2.69	.95
5. Activities for the child	1 - 4	2.55	1.12
6. Respite care	1 - 4	1.82	1.13
7. Practical or material help	1 - 4	1.96	.98
8. Parental counseling	1 - 4	2.57	1.25
9. Child mental health care	1 - 4	2.14	1.13
10. Intent to use social networking platform	1 - 7	5.08	2.04

Note. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002). The CGSQ total score was calculated by summing the mean scores of the three subscales as instructed by (Brannan, Heflinger, & Bickman, 1997).

Table 4. Bivariate Correlations of Primary Variables

	1	2	3	4	5	6	7	8	9	10
1. CGSQ	-	-.36**	.59**	.48**	.27	.47**	.53**	.65**	.49**	.06
2. PSSS		-	-.39**	-.35*	-.19	-.32*	-.35*	-.41**	-.31*	-.10
3. A friendly ear			-	.52**	.26	.37**	.40**	.53**	.35*	.01
4. Information				-	.42**	.22	.44**	.61**	.24	.15
5. Activities					-	.29*	.42**	.33*	.34*	.04
6. Respite						-	.42**	.45**	.41**	.09
7. Practical/Material							-	.39**	.27	.07
8. Parental Counseling								-	.55**	.21
9. Child Mental Health									-	-.13
10. Intent to use social networking platform										-

Note. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002). ** P< 0.01 level, * P< 0.05 level

Table 5. Correlations of Demographic Variables with Primary Variables

	Parent age	Child age	Length of diagnosis	ADHD symptoms	ODD symptoms	Conduct symptoms	Internalizing symptoms	IRS
1. CGSQ	-.13	-.21	-.15	.35*	.49**	.55**	.29*	.67**
2. PSSS	-.24	.14	.07	-.13	-.05	-.01	-.10	-.17
3. A friendly ear	-.04	-.20	-.01	.24	.15	.20	.07	.31*
4. Information	-.02	-.14	-.12	.29*	.18	.19	.11	.16
5. Activities	.13	.14	.20	.09	.21	.19	.29*	.26
6. Respite	.05	-.08	.13	.10	.38**	.39**	.31*	.47**
7. Practical/Material	-.17	-.17	-.06	.37**	.27	.32*	.25	.39**
8. Parental Counseling	-.00	-.14	-.07	.21	.40**	.38**	.33*	.55**
9. Child Mental Health	.05	-.15	-.02	.11	.42**	.51**	.27	.43**
10. Intent to use the social networking platform	-.10	-.10	-.04	.18	.20	-.08	.18	.28*

Note. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002); IRS: The Impairment Rating Scale (Fabiano and Pelham, 2006) ADHD: Attention-Deficit/Hyperactivity Disorder, ODD: Oppositional Defiant Disorder. ** P< 0.01 level, * P< 0.05 level

Table 6. Summary of Hierarchical Regression Analysis for Variables Predicting Caregiver Strain

Variable	*B*	*t*	R^2	ΔR^2
Step 1			.49**	.49**
Conduct symptoms	.23.	-.33.		
Internalizing symptoms	-.05.	1.53		
ADHD symptoms	.08	.62		
ODD symptoms	.03	.17		
IRS	.50	3.25		
Step 2			.56**	.08**
PSSS	-.28	-2.75		

Note. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002); IRS: The Impairment Rating Scale (Fabiano and Pelham, 2006) ADHD: Attention-Deficit/Hyperactivity Disorder, ODD: Oppositional Defiant Disorder. ** P< 0.01 level, * P< 0.05 level

Table 7. Summary of Logistical Regression Analyses

	A friendly Ear			Information			Activities			Respite		
	B	*SE B*	OR, (95% CI)	B	*SE B*	OR, (95% CI)	B	*SE B*	OR, (95% CI)	B	*SE B*	OR, (95% CI)
CGSQ	.93**	.32	2.53 (1.36 - 4.72)	.81**	.29	2.24 (1.26- 3.98)	.14	.20	1.15 (.78 - 1.68)	.17	.27	1.19 (.70 - 2.01)
ADHD symptoms	.01	.04	1.01 (.94 - 1.09)	.05	.03	1.05 (.99- 1.11)	-.01	.03	.99 (.95 - 1.03)	-.04	.04	.97 (.89 - 1.05)
ODD symptoms	-.06	.11	.94 (.75 - 1.17)	.04	.10	1.08 (.85 - 1.26)	-.03	.08	.97 (.83 - 1.14)	.05	.10	1.05 (.85 - 1.28)
PSSS	-.03	.03	.98 (.93 - 1.03)	-.02	.02	.98 (.93- 1.03)	-.01	.02	.99 (.95- 1.03)	-.06	.04	.94 (.88 - 1.01)
IRS	-.10	.50	.91 (.34 - 2.42)	-.90	.47	.41 (.16- 1.03)	.14	.34	1.15 (.59- 2.23)	.57	.50	1.77 (.67 - 4.68)
CD symptoms	-.04	.18	.966 (.68 - 1.38)	-.06	.16	.94 (.69-1.29)	.03	.15	1.03 (.77 - 1.37)	.07	.18	1.07 (.75 - 1.54)
Internalizing Symptoms	-.04	.11	.963 (.78 -1.18)	0.47	.10	1.05 (.87 - 1.27)	.11	.08	1.12 (.96 - 1.31)	.05	.09	1.06 (.88 - 1.27)

Note. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002); IRS: The Impairment Rating Scale (Fabiano and Pelham, 2006) ADHD: Attention-Deficit/Hyperactivity Disorder, ODD: Oppositional Defiant Disorder; CD: Conduct Disorder; ** P< 0.01 level, * P< 0.05 level

Table 7. Summary of Logistical Regression Analyses (Continued)

	Practical/Material			Parental Counseling			Child Mental Health Services		
	B	*SE B*	OR, (95% CI)	B	*SE B*	OR, (95% CI)	B	*SE B*	OR, (95% CI)
CGSQ	.97*	.49	2.63 (1.01- 6.88)	.66*	.30	1.93 (1.07 - 3.46)	.18	.26	1.19 (.72 - 1.98)
ADHD symptoms	.13*	.06	1.14 (1.01 - 1.28)	-.04	.04	.96 (.89 - 1.04)	-.04	.04	.97 (.90 - 1.04)
ODD symptoms	-.22	.16	.80 (.58 - 1.11)	.09	.12	1.09 (.85 - 1.39)	.09	.10	1.10(.90 - 1.34)
PSSS	-.11	.05	.90 (.81 - 1.00)	-.05	.03	.96 (.90 - 1.01)	-.05	.03	.95 (.90 - 1.01)
IRS	-.54	.64	.58 (.17 - 2.05)	.72	.55	2.06 (.70 - 6.05)	.16	.44	1.17 (.50 - 2.74)
CD symptoms	.44	.28	1.55 (.89 - 2.69)	-.04	.22	.96 (.62 - 1.47)	.37	.22	1.44 (.95- 2.21)
Internalizing Symptoms	.04	.12	1.04 (.82 - 1.33)	.01	.11	.96 (.62- 1.47)	-.02	.09	.98 (.82 - 1.17)

Note. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002); IRS: The Impairment Rating Scale (Fabiano and Pelham, 2006) ADHD: Attention-Deficit/Hyperactivity Disorder, ODD: Oppositional Defiant Disorder; CD: Conduct Disorder ** P< 0.01 level, * P< 0.05 level

Table 8. Summary of Hierarchical Regression Analysis for Variables Predicting Level of Social Support

Variable	*B*	*t*	R^2	ΔR^2
Step 1			.38**	.38**
Conduct symptoms	.10	.61		
Internalizing symptoms	.12	.76		
ADHD symptoms	-.00	-.05		
ODD symptoms	.00	.00		
IRS	.50	2.71		
Step 2			.67**	.29**
PSSS	-.31	-3.19		
CGSQ	.48	3.65		

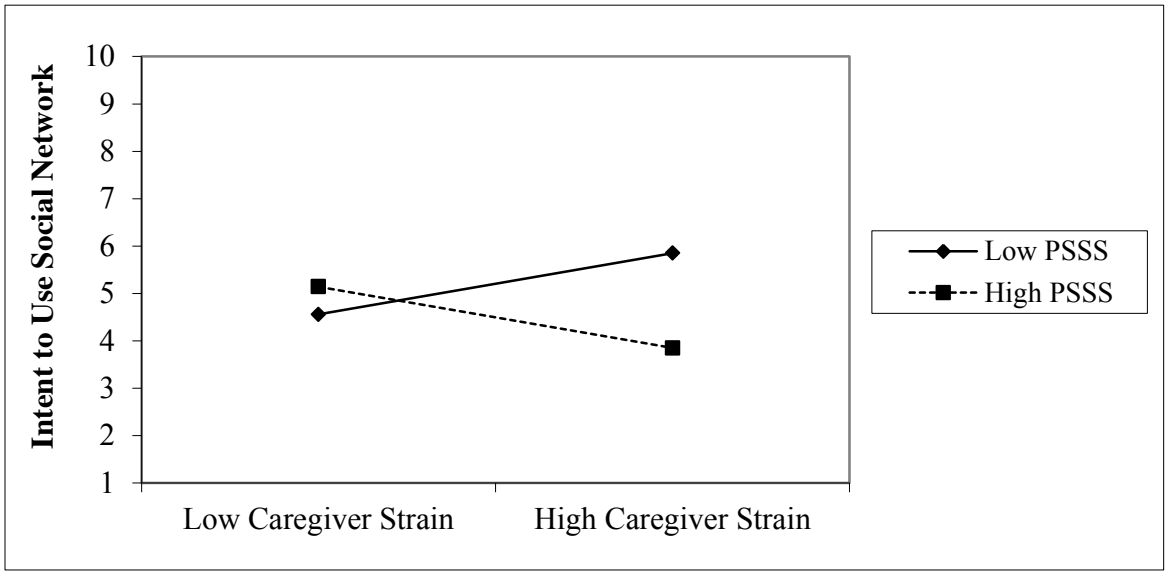
Note. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002); IRS: The Impairment Rating Scale (Fabiano and Pelham, 2006) ADHD: Attention-Deficit/Hyperactivity Disorder, ODD: Oppositional Defiant Disorder; ** P< 0.01 level, * P< 0.05 level; β = standardized b-weight

Table 9. Main and Interactive Effects of PSSS and CGSQ Factors Predicting the Intent to Use the Social Networking Platform

		ΔR^2	β	*t*	*p*
Step 1		.01			*ns*
	PSSS		-.10	-.62	
	CGSQ		.03	.16	
Step 2		.07			.07
	PSSS*CSGQ				

Note. β = standardized b-weight. CGSQ: the Caregiver Strain Questionnaire (Brannan, Heflinger, & Bickman, 1997); PSSS: The Perceived Social Support Scale for ADHD, which was modified from the scale in Barrera et al., (2002);

Figure 1. The Relations Between the Intent to Use the Social Networking Platform and Caregiver Strain by level of ADHD Specific Support



Appendix A

Intent to Use of a Social Networking Platform Question

Currently, you use the ADHD portal to help communicate with your pediatrician to manage your child's ADHD. As a way to increase the social support between parents of children with ADHD, the portal is considering adding a social networking component that would allow for parents to communicate with one another and discuss topics related to their child's ADHD. Would you be interested in using the social networking platform? Below please indicate the likelihood that you would use it considering your time, access to Internet, experience with other social networks, and desire to talk with other parents.

Extremely Unlikely						Extremely Likely
1	2	3	4	5	6	7

Appendix B

Questions for the Perceived Social Support Scale

(Adapted Barrera et al., 2002)

1. I could contact people who were interested in how well I was doing with my child's ADHD care. (General subscale)

2. I could contact parents of children with ADHD just to express some of the concerns I had about my child's condition. (Peer subscale)

3. It was hard for me to find people I could contact who personally understood what it's like to have a child with ADHD. (Peer subscale - reversed)

4. I didn't really have people I could contact to express some of my personal feelings about my child's ADHD. (General subscale - reversed)

5. I could contact people who could give me good advice about managing my child's ADHD. (General subscale)

6. It was easy for me to find people who could make personal suggestions about what has worked for them in handling their child's ADHD. (Peer subscale)

7. It was difficult for me to reach people to get advice about ADHD care. (General subscale – reversed)

8. When I wanted advice from a parent of a child with ADHD, I found that I didn't have people I could contact. (Peer subscale- reversed)

9. I had people I could contact to get information about understanding ADHD as a condition. (General subscale)

10. It was convenient for me to reach people who could give me personal information about what they did to improve their child's ability to function. (Peer subscale)

11. I didn't have access to other parents of children with ADHD who had current information about good ADHD management practices. (Peer subscale – reversed)

12. I found it difficult to contact people who could give me the facts about ADHD. (General subscale – reversed)

Appendix C

Recruitment Message to Parents

We know that, as parents, you have busy schedules and a lot on your plate. We also know that parents of a child with ADHD experience significantly more stress. Due to the amount of stress parents experience, a research team from the University of Cincinnati is conducting a research study to help doctors and health providers do a better job supporting parents of children with ADHD by understanding their needs and preferences.

Time commitment and study details: The research study involves completing an online survey that will take 20 to 25 minutes. Participation is completely up to you and will in no way affect your child's current services. For your participation and time, you will receive a $10 gift card of your choice of Walmart, Target or Kroger's. Your participation will be greatly appreciated as the research team hopes to better understand the social support needs of parents of children with ADHD, like you.

By clicking the link below, you will be provided with additional information about the study and will be given an opportunity to start the study if you so choose.