International Journal of Disability, Development and Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/cijd20

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To cite this article: Mette I. Mebostad, Cathrine Orm, Stian Orm & Anders Nordahl-Hansen (24 May 2024): School Refusal Behaviour and Social Skills in Children with Attention-Deficit/hyperactivity Disorder, International Journal of Disability, Development and Education, DOI: 10.1080/1034912X.2024.2355340

To link to this article: https://doi.org/10.1080/1034912X.2024.2355340

Published online: 24 May 2024.

INTERNATIONAL JOURNAL OF DISABILITY, DEVELOPMENT AND EDUCATION
https://doi.org/10.1080/1034912X.2024.2355340

School Refusal Behaviour and Social Skills in Children with Attention-Deficit/hyperactivity Disorder

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ABSTRACT

Children with Attention-Deficit/Hyperactivity Disorder (ADHD) have higher school absenteeism and poorer social skills compared with typically developing children. The objectives of this study were to investigate (1) which forms of school refusal behaviour (SRB) are more common and (2) the relationship between SRB and social skills in children with ADHD. Parents ($N = 96$) of children with ADHD (M age = 12.4, range 10–15, 61.5% boys) completed the School Refusal Assessment Scale – Revised and the Social Skills Improvement System. Findings were analysed using analysis of variance, correlational analyses, and multiple regression analyses. The most common forms of SRB were avoidance of aversive situations at school and seeking attention from significant others. Significant correlations between different forms of SRB and engagement, autistic traits, cooperation skills, and self-control were found. Less engagement significantly predicted more SRB due to avoidance of aversive situations, avoidance of social situations, and seeking attention from significant others in multiple regression analyses. Targeting social engagement in social skills training for children with ADHD may decrease SRB.

ARTICLE HISTORY
Received 14 July 2021
Accepted 13 October 2022

KEYWORDS
Attention deficit hyperactivity disorder; school refusal; social skills; functional assessment

Around 5% of children and adolescents have attention-deficit/hyperactivity disorder (ADHD) (Polanczyk et al., 2007). ADHD is characterised by age-inappropriate hyperactivity, impulsivity, and inattention (Barkley, 2015). Social skills deficits are common (Bagwell et al., 2001; Løkke, 2011), and together with the core characteristics of those diagnosed with ADHD, they contribute to difficulties at school (DuPaul et al., 2018; Martin, 2014). From previous studies it is known that children and adolescents with ADHD have higher school absence than typically developing (TD) children and adolescents, but less is known about the causes of absenteeism (Orm et al., 2020). In the current study, we focus on SRB among children and adolescents with ADHD and the relationship between SRB and social skills.

Different definitions of SRB exist (Heyne et al., 2019). An influential model of SRB has been that of Kearney and Silverman (1993). They divide SRB into four categories based on the primary reason why a child refuses to go to school: (1) avoidance of school due to

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emotional difficulties in school situations, (2) avoidance of school due to difficulties in social situations, (3) seeking of attention from significant others outside of school, and (4) seeking of reinforcement outside of school. These four categories incorporate both anxiety related and non-anxiety related school refusal behaviour. To our knowledge, no previous study has assessed these four forms of SRB in children with ADHD. However, a few studies of SRB in children with ADHD have indicated that between 12 and 42% of children with ADHD display SRB (Harada et al., 2002; Ishii et al., 2003; Kano et al., 2010). Regarding the reasons for SRB among children with ADHD, Egger et al. (2003) found that ADHD was significantly associated with increased risk of mixed SRB, both anxiety related and non-anxiety related SRB.

Little is known about factors influencing SRB in children with ADHD. A study of school absence in children with ADHD indicated that difficulties with social and emotional skills may play a role (Classi et al., 2012). Social skills deficits are common in children with ADHD (Løkke, 2011; Storebø et al., 2019), and have been proposed to be considered a core deficit independent of difficulties with inattention, hyperactivity, and impulsivity (Løkke, 2011). Social skills have a broad influence on school functioning. Children with better social skills are more easily accepted by their peers as playmates (Blandon et al., 2010), and have better relationships with friends, families, and teachers (Anthony et al., 2005; Griggs et al., 2009). Lack of social skills among children with ADHD can provide challenges in relationships with teachers and peers. Ewe (2019) found that teachers report less emotional closeness and more conflicts in relation to children with ADHD compared to TD children. In another study, Holmberg and Hjern (2008) found that children with ADHD were more often involved in bullying, both as the bully and as the victim, compared to TD children. Such social difficulties at school are known risk factors for SRB (Ingul et al., 2019).

A few studies have investigated the impact of social skills on SRB. Place et al. (2002) found that children with SRB invested less in friends, had a history of being bullied, and were socially isolated both at school and at home. Thus, Place et al. (2002) suggested that poor social skills and social isolation may play an important role in the development of SRB and proposed that interventions for SRB should focus on training social skills and establishing good social relationships with peers. Gonzálvez et al. (2019) found that children with more SRB related to the first three categories (as defined above) in the model by Kearney and Silverman (1993) displayed poorer social functioning than their peers with less SRB. In contrast, Gonzálvez et al. (2019) found that children scoring high on SRB related to the fourth category, seeking reinforcement outside of school, had better social functioning than their peers scoring low on this factor. Further, in children with another, related neurodevelopmental disorder, autism spectrum disorder, there seems to be a relation between social skills and SRB. Munkhaugen et al. (2019) found that children with autism spectrum disorder and SRB displayed lower social motivation than children with autism spectrum disorder without SRB. In summary, these studies suggest that social skills are related to SRB.

The objectives of this study were to investigate (1) what categories of SRB from the model by Kearney and Silverman (1993) are most common in children with ADHD and (2) the relationship between SRB and social skills in children with ADHD. Given the lack of previous research on the first objective, we did not propose any specific a priori hypothesis. The current literature gives reason to suspect the presence of high levels of different forms of SRB, both anxiety related (i.e. category #1

and #2) and non-anxiety related (i.e. category #3 and #4). For the second objective, we hypothesised, in accordance with previous literature, that better social skills would relate to less SRB across all four categories. Hoza et al. (2004) found that children with ADHD overestimated their social competence relative to parents and teachers reports. This finding is in line with other recent studies (Emeh et al., 2018; Steward et al., 2017). Therefore, the reliability of self-reports among children with ADHD have been questioned and, so in this study, we therefore relied on parent reporting.

Method

Participants

Parents ($N = 96$) of children with ADHD (M age = 12.4, SD = 1.74, 61.5% boys) participated in the study. Of the participants, 92 were mothers and 4 were fathers of children with ADHD, 73% had university or college education (≥1 year). To be included in the study, parents were required to report whether their child had a diagnosis of ADHD. Although no formal diagnostic assessment was conducted as part of this study, the assessment of ADHD in Norway is based on ICD-10 (World Health Organization, 1993) criteria. According to national guidelines, there should be a comprehensive and multidisciplinary assessment involving a clinical child psychologist and/or child psychiatrist before a diagnosis is set. The assessment should be based on anamnesis, parent- and teacher-reports on ADHD symptoms, mental health, and social and academic functioning, and clinical, structured interviews (Norwegian Directorate of Health, 2018). An a priori power analysis showed that a sample of 85 would be sufficient to detect a correlation of .30 between SRB and social skills with 80% power and significance level set at .05.

Procedure and Ethics

The study was prospectively approved by the Norwegian Center for Research Data (NSD) and considered to be in accordance with privacy protection laws. The questionnaire was completed anonymously and all participants provided informed consent prior to the questionnaire being administered on the understanding that they might withdraw from the research at any point prior to submitting their responses. Participants were recruited through social media groups for parents of children with ADHD (e.g. The Norwegian ADHD Society [ADHD Norge]) and the authors' social and professional networks. Participants were asked to complete an online questionnaire including demographic information and assessment of SRB and social skills.

Measures

SRB was assessed with the School Refusal Assessment Scale – Revised (SRAS-R; Kearney, 2002), the parent version. SRAS-R consists of 24 items divided into four subscales; (1) SRB due to avoidance of aversive situations at school, (2) SRB due to avoidance of social situations, (3) SRB due to seeking attention from significant others, and (4) SRB due to seeking reinforcement outside of school. Each subscale consists of six items rated on

a Likert-scale from never (0) to always (6). The SRAS-R subscales have demonstrated a high level of internal consistency (alpha = .78–.88), test-retest reliability (r = .61–.78), and inter-rater reliability (r = .46–.64) (Kearney, 2002, 2006).

Social skills were assessed with the Social Skills Improvement System (Gresham et al., 2011), the parent version. SSIS consists of 46 items divided into eight subscales; (1) engagement, (2) empathy, (3) communication, (4) cooperation skills, (5) responsibility, (6) assertion, (7) self-control, and (8) autistic traits (consisting of nine items in each of the seven subscales). Each item is rated on a Likert-scale from never (0) to always (3). The SSIS subscales have demonstrated good internal consistency (alpha = .64–.96) and convergent validity (r = .40–.93) (Gamst-Klaussen et al., 2016).

Data Analytic Plan

All statistical analyses were performed in JASP (JASP Team, 2020). To test for significant differences in the levels of the four SRB categories, we performed repeated measures analysis of variance (ANOVA). Due to lack of sphericity, we used the Greenhouse-Geisser correction. A significant result was followed-up with Bonferroni post-hoc tests. Cohen's d was used as an effect size measure, and Cohen's d of respectively .20, .50, and .80 were considered a small, medium, and large effect size. To test for significant associations between SSIS and SRAS subscales, we performed correlational analyses using Pearson's r. Pearson's r of respectively .10, .30, and .50 were considered a small, medium, and large effect size (Nordahl-Hansen et al., 2018). Significant correlations were followed-up with multiple linear regression analyses to examine the independent and joint contribution of social skills domains (SSIS subscales) to SRB categories (SRAS subscales), controlling for age and parental education.

Results

The Category of SRB

The means and standard deviations on the different SRB categories and social skills domains are depicted in Tables 1 and 2. Repeated measures ANOVA showed a significant difference in the levels of the four SRB categories (F (2.633,250.126) = 42.936, $p < .001$, eta-square = .311). Post-hoc analyses showed that the level of avoidance (SRB category 1) was significantly higher than the level of social avoidance, with close to large effect size of d=.76 (SRB category 2; $p < .001$) and the level of seeking reinforcement outside of school had a large effect size of d=.97 (SRB category 4; $p < .001$). Furthermore, the level of seeking attention from significant others (SRB category 3) was significantly higher than the level of social avoidance with a medium effect size of d=.63 (SRB category 2; $p < .001$,) and the level of seeking reinforcement outside of school had a large effect size of d =.84 (SRB category 4; $p < .001$). There were no significant differences in the level of SRB due to avoidance (category 1) and seeking attention from significant others (category 3) or between the level of SRB due to social avoidance (category 2) and seeking reinforcement outside of school (category 4).

Table 1. Descriptive statistics for boys and girls on the social skills improvement system.

	Communication		Cooperation		Self-Assertion		Responsibility		Empathy		Engagement		Self-control		Autistic traits[a]	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Valid *N*	59	37	59	37	59	37	59	37	59	37	59	37	59	37	59	37
Mean	12.46	12.49	10.00	10.16	13.97	13.78	10.51	10.22	11.48	11.57	10.59	10.78	7.48	7.60	13.83	14.49
Std. Deviation	2.64	2.91	2.28	2.88	2.72	2.93	2.88	3.04	3.19	3.55	3.61	3.43	3.62	3.44	3.34	2.92
Minimum	7.00	7.00	5.00	6.00	5.00	7.00	5.00	4.00	5.00	2.00	2.00	4.00	0.00	0.00	7.00	8.00
Maximum	19.00	19.00	14.00	17.00	19.00	19.00	18.00	18.00	17.00	17.00	20.00	19.00	16.00	14.00	22.00	20.00

[a]Higher score indicate less autistic traits.

Table 2. Descriptive statistics for boys and girls on the school refusal assessment scale.

	SRAS-R 1		SRAS-R 2		SRAS-R 3		SRAS-R 4	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Valid *N*	59	37	59	37	59	37	59	37
Mean	18.93	18.22	11.78	13.03	18.20	16.57	10.66	10.24
Std. Deviation	8.66	9.71	8.10	7.86	9.04	8.81	4.44	6.24
Minimum	0.00	0.00	0.00	0.00	1.00	2.00	1.00	1.00
Maximum	32.00	36.00	28.00	36.00	35.00	32.00	22.00	25.00

Associations Between SRB and Social Skills

Correlational analyses revealed several significant correlations between SRB and social skills. SRB category 1 correlated significantly with engagement ($r = -.34$, $p < .001$) and autistic traits ($r = -.26$, $p = .01$). SRB category 2 correlated significantly with engagement ($r = -.45$, $p < .001$) and autistic traits ($r = -.33$, $p = .001$). SRB category 3 correlated significantly with engagement ($r = -.28$, $p = .007$). SRB category 4 correlated significantly with cooperation skills ($r = -.26$, $p = .01$) and self-control ($r = -.24$, $p = .02$).

Linear regression analysis with SRB category 1 as dependent variable and engagement, autistic traits, age, and parental education as predictors revealed a significant model explaining 12% of the variance in SRB category 1 (F (4,91) = 3.012, $p = .02$, $R^2 = .12$). Only engagement was a significant predictor (B = −.911, SE = .405, $t = -2.250$, $p = .03$). In a second regression analysis, SRB category 2 was a dependent variable and engagement, autistic traits, age, and parental education were predictors. The result revealed a significant model explaining 21% of the variance in SRB category 2 (F (4,91) = 6.008, $p < .001$, $R^2 = .21$). Only engagement was a significant predictor (B = −1.121, SE = .339, $t = -3.310$, $p < .001$). In a third regression analysis, SRB category 3 was a dependent variable and engagement, age, and parental education were predictors. The result revealed a significant model explaining 15% of the variance in SRB category 3 (F (3,92) = 5.525, $p = .002$, $R^2 = .15$). Engagement (B = −.772, SE = .245, $t = -3.149$, $p = .002$) and age (B = −1.423, SE = .499, $t = -2.854$, $p = .005$) were significant predictors. In a fourth regression analysis, SRB category 4 was a dependent variable and cooperation skills, self-control, age, and parental education were predictors. The result revealed a significant model explaining 13% of the variance in SRB category 4 (F (4,91) = 3.411, $p = .01$, $R^2 = .13$). Only parental education was a significant predictor (B = −1.301, SE = .609, $t = -2.137$, $p = .04$) while cooperation skills approached significance (B = −.442, SE = .231, $t = -1.918$, $p = .06$).

Discussion

Our first objective was to examine what categories of SRB are more common among children with ADHD. Our results indicate that SRB in children and adolescents with ADHD are more often motivated by avoidance of aversive situations at school and seeking attention from significant others than social avoidance and seeking reinforcement outside of school. Our second objective was to examine the relationship between social skills and SRB. Our results indicate that several social skills domains are significantly associated with different SRB categories, but social engagement is the only social skills domain consistently related to SRB when adjusting for other domains in multiple regression analyses.

Better social engagement predicted lower SRB due to avoidance of aversive situations at school, social avoidance, and seeking attention from significant others.

Regarding the first objective, our findings are in line with previous research (Egger et al., 2003) showing that both anxiety- and positive reinforcement-related SRB are common among children with ADHD. High levels of SRB due to seeking attention from significant others may be a result of separation anxiety (Kearney & Albano, 2004), whereas high levels of SRB due to avoidance of aversive situations can be a result of generalised anxiety disorder and phobias (Kearney & Albano, 2004). The prevalence of anxiety among children and adolescents with ADHD is higher than in the general population (Kadesjö & Gillberg, 2001; Reale et al., 2017), and research from the general population has found that anxiety disorders are closely related to SRB (Kearney & Albano, 2004). Different intervention strategies are recommended for the two categories of SRB (category 1 and 3) (Kearney, 2008). When children are refusing to attend school to avoid aversive situations, psychoeducation about anxiety, teaching relaxation techniques, and gradual exposure are important parts of successful interventions for understanding and ameliorating this behaviour (Kearney, 2008). For children refusing to attend school to seek attention from significant others, parent-training to establish clear boundaries and authoritative parenting, as well as clear expectations about attendance and reinforcement systems to reward attendance may be important (Kearney, 2008). Interventions targeting SRB category 3 May be particularly important for younger children, as our results found that SRB due to seeking attention from significant others decreases with age. This result is in line with previous investigations (Kearney & Albano, 2004). Therefore, interventions targeting parenting skills in parents of children with ADHD (e.g. Bjørnebekk et al., 2015) and preventive strategies in regard anxiety disorders and phobias (e.g. Fjermestad et al., 2020) may be important to prevent SRB among children with ADHD. However, it is important to note that due to the correlational nature of this study, we do not know if engagement is affecting SRB or vice versa. It could also be that children develop SRB due to factors such as bullying, rejection from peers, and lack of friends, and a poor relationship with their teacher, which in turn gives them few opportunities to practice engagement and could thus decrease their self-efficacy in social situations.

Regarding our second objective, our findings suggest that social engagement may be particularly important in the understanding of SRB among children with ADHD. Friendships are important for well-being at school and academic performances and social engagement may be a key for establishment and maintenance of friendships (Lee & Shin, 2019). Thus, the impact of social engagement on SRB may indicate the importance of friendship. Furthermore, our findings are similar to that of Munkhaugen et al. (2019) who found that social motivation, but not other aspects of social skills, was related to SRB among children with ASD. Looking at the items of the engagement subscale in SSIS (e.g. *engage in ongoing peer activities; starting conversations with peers*) it seems like social engagement and social motivation are similar constructs (Santos et al., 2014). The ability to motivate oneself to initiate social activities and to take initiatives to join or start up social activities may be difficult for children with neurodevelopmental disorders like ADHD and ASD and could contribute to lower well-being at school and ultimately SRB. Low social engagement and motivation may result in children missing opportunities for social interaction and impede further building of social skills (Santos et al., 2014). In this sense, social engagement can be one of several factors affecting SRB through different

developmental pathways (Masten & Cicchetti, 2010). For example, lack of social engagement may be accompanied by social segregation and feelings of loneliness, which again could contribute to anxiety and depression symptoms, putting children with ADHD at risk of SRB (Kearney & Albano, 2004). Another possibility is that lack of social engagement reflects an underlying pattern of behavioural inhibition, which is associated with anxiety and depression symptoms and elevated in children with neurodevelopmental disorders (Fjermestad et al., 2017).

Social engagement was the only social skills domain which significantly predicted SRB when adjusting for other social skills domains and demographic variables. Nonetheless, social skills domains like self-control, cooperation, and autistic traits were also related to different categories of SRB in the correlational analyses. Autistic traits were related to the avoidance based SRB categories (category one and two). This is in line with research showing that ASD is associated with a higher risk of SRB (Munkhaugen et al., 2017). However, when controlling for social initiatives and demographic variables, autistic traits were no longer significantly associated with SRB. This could indicate that the effect of more autistic traits on SRB are mediated by lack of social engagement and motivation. Further research with longitudinal designs is needed to test this hypothesis.

Self-control and cooperation were the only social skills domains related to the fourth category of SRB, seeking reinforcement outside of school. However, neither the effect of self-control nor cooperation were significant when controlling for demographic variables. Higher parental education on the other hand was a significant predictor of less SRB due to seeking reinforcement outside of school. Thus, our results are in line with the results of Gonzálvez et al. (2019), who found that social skills were differentially related to category four versus the three other categories of SRB. Our results do not support, however, that SRB due to seeking reinforcement outside of school are related to better social skills in children with ADHD.

Limitations and Directions for Future Research

Despite some notable strengths, such as a large sample-size within a small age range (5 years, SD = 1.74) and with a good balance of parents of both girls and boys, as well as the use of standardised and comprehensive assessment tools for SRB and social skills, our study also has some limitations. One limitation is the use of a single-rater, parents. Inclusion of multiple raters (e.g. children, teachers) could have strengthened our study, and it could be interesting to investigate in a further study whether the relationship between social engagement and SRB can be replicated when using child- and/or teacher-ratings. The use of child-ratings would be an especially welcome addition. Another limitation relates to the cross-sectional nature of our study, making it difficult to draw clear conclusions about the direction of the relationships observed. Longitudinal studies examining predictors of SRB in children with ADHD are warranted. The last limitation of our study relates to the lack of an independent diagnostic assessment providing insights into comorbidity. The nature of this study (i.e. an online questionnaire) prevented us from conducting an independent diagnostic assessment of the children's ADHD diagnosis. In addition, we lacked information about comorbidity in our sample, and given the high prevalence of comorbid disorders in children with ADHD (Kadesjö & Gillberg, 2001; Reale et al., 2017), we suspect that this prevalence is also high in our sample. This lack of

information prevented us from disentangling the effect of comorbidity on SRB. In future research, a more comprehensive diagnostic and comorbidity assessment would strengthen the conclusions that can be drawn. Furthermore, adding an educational aspect to the SRAS-R, that is, how does the 'fear' of not being as good as their peers academically, affect the SRB of children with ADHD, would potentially be a revealing topic for future research.

Clinical Implications

A more profound understanding of the nature, causes, and consequences of SRB among children with ADHD is crucial for prevention and treatment. Preventing and treating SRB are important for promoting more positive long-term outcomes, especially related to academic performances. The findings of our study have several clinical implications. One implication might be that targeting social engagement skills may prevent and contribute to the treatment of SRB. Other implications, related to the categories of SRB among children with ADHD, might be that psychoeducation about anxiety and avoidance and parent-training can be effective in treating SRB in response to the two most common categories of SRB among children with ADHD identified in this study. It is also important to note that category one relates to avoidance of aversive situations at school, which could suggest that school factors play an important role in the development of SRB among children with ADHD. Thus, targeting different school factors may be important in prevention and treatment. This can be done through identifying aversive situations and modifying the demands of these situations to make them achievable for children with ADHD.

Acknowledgments

We thank all participants for their contribution to this study.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Funding

No funding was received for this study.

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Ethics Statement

All participants provided informed consent prior to participation, in accordance with the Declaration of Helsinki. The study was carried out in accordance with the recommendations of the Norwegian Center for Research Data, which gave prospective ethical approval.

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