Profiles of School Refusal Behaviors among Neurodivergent Youth

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Authors Note

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Abstract

Background: Neurodivergent youth (i.e., youth with Autism Spectrum Disorder and/or Attention-Deficit Hyperactivity Disorder) are at high risk for engaging in school refusal behaviors, which are associated with negative consequences across multiple domains. However, the literature on factors associated with risk for school refusal behavior among neurodivergent youth is scarce.

Method: Latent Profile Analysis is used to identify homogenous groups of neurodivergent youth that are at higher risk for school refusal. Parent-reported data on 482 school-aged youth (M_{age} = 11.51; SD_{age} = 3.44) with varying levels of neurodivergence were collected.

Results: Findings suggest that there are four profiles of youth with varying levels of school refusal: (1) community youth with low school refusal and frequent time in general education, (2) neurodivergent youth with low school refusal and infrequent time in general education, (3) neurodivergent youth with high school refusal and infrequent time in general education, and (4) neurodivergent youth with high school refusal and frequent time in general education.

Discussion: Findings provide important insight into different profiles of community and neurodivergent youth at risk for school refusal. Neurodivergent youth with different constellations of autism- and ADHD-related traits, behaviors and school experiences are at a differential likelihood for engaging in school related behaviors. Implications are presented pertaining to the ability to identify and intervene with certain groups of youth, with the intention of preventing negative consequences associated with school refusal behaviors.

Keywords: neurodivergent, autistic, autism spectrum disorder, attention-deficit hyperactivity disorder, school refusal behaviors

Introduction

Nearly 14% of youth in public schools across the United States are considered to be 'chronically absent'. Although the definition for 'chronically absent' differs widely across schools and within the literature, chronic absenteeism typically indicates that the student has missed greater than 15 days of school. Notably, autistic youth are 277% more likely to be chronically absent relative to neurotypical youth. Youth with Attention-Deficit Hyperactivity Disorder (ADHD) are 125% more likely to be chronically absent relative to neurotypical youth (Black & Zablotsky, 2018). Nearly half of reported absences are a result of school refusal behavior (Totsika et al., 2020).

School refusal behavior is another construct that is poorly defined across the literature, but broadly speaking, pertains to verbal or physical refusal, distress and/or difficulty attending school (Berg, Nichols, & Pritchard, 1969; Kearney, 2008). Unlike absenteeism, school refusal behavior encompasses tardiness, partial absences (i.e., early departure), complete absences or merely a resistance to attend school (Kearney, 2008; Munkhaugen, Gjevik, Pripp, Sponheim, & Diseth, 2017). Kearney (1996) further characterized school refusal behavior into three distinct categories – self-corrective school refusal (i.e., less than 2 weeks of school refusal), acute school refusal (i.e., 2-52 weeks of school refusal), and chronic school refusal (i.e., greater than 53 weeks of school refusal). Although increased rates of school refusal are associated with negative outcomes, such as poor academic achievement and later school dropout (e.g., Fremont, 2003; Kearney, 2008; Thomas et al., 2015), the literature examining factors associated with school refusal behavior is scarce. Exploring if there are distinct profiles of individuals who are engaging in these high rates of school refusal behavior may be an essential step for intervening as early as possible and ideally, preventing negative consequences, such as chronic absenteeism.

Literature Review

School Refusal in Neurotypical Youth

School refusal behavior is associated with a number of intrapersonal, environmental, and interpersonal factors. Psychological concerns have been consistently identified as being related to school refusal behaviors in neurotypical students. Students who engage in school refusal behavior have a greater number of psychological concerns than students who do not engage in school refusal behavior (Bitsika, Heyne, & Sharpley, 2021; Heyne, Sauter, & Maynard, 2015; Kearney, 2008; Munkhaugen, Torske, et al., 2017). In fact, Egger, Costello, and Angold (2003) found that nearly one fourth of students who engaged in school refusal behavior had a psychological diagnosis. Of these students, 13.9% of students presented with depression and 10.8% presented with separation anxiety. Additional complaints associated with school refusal that may relate to psychological symptoms are sleep changes, sleep disturbances and various somatic symptoms, ranging from headaches to heart palpitations.

Classroom climate, as it relates to both peer and teacher relationships, has also been strongly associated with the likelihood to engage in school refusal (Kearney, 2008). In considering the importance of peer relationships, it is perhaps not surprising that youth who are bullied are about two times more likely to feel 'threatened' or 'at-risk' in the school setting than youth who are not bullied (Glew, Fan, Katon, Rivara, & Kernic, 2005). This is concerning, given that nearly 40% of middle schoolers have experienced bullying (Hicks, Jennings, Jennings, Berry, & Green, 2018), and around 25% of elementary-aged students report that they would refuse school if bullied (Glew et al., 2005). However, factors associated with increased school refusal behavior extend outside of the school setting.

Parent's marital status, family health and socioeconomic status have all been associated with school refusal behavior among youth. Children who have divorced or separated parents engage in more school refusal behavior resulting in school tardiness than students with married parents (Chu, Guarino, Mele, O'Connell, & Coto, 2019). School refusal behaviors are also higher among youth with a chronically ill family member at home and among youth from a lower socioeconomic status (Adams, 2021; Kearney, 2008; Munkhaugen, Gjevik, et al., 2017; Tonge & Silverman, 2019). Thus, factors related to school refusal do not seem to be isolated to the school setting, but rather extend across different contexts. Although the literature and understanding of school refusal in neurotypical children is scarce, the literature pertaining to school refusal in neurodivergent youth is virtually nonexistent.

School Refusal in Neurodivergent Youth

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by two key domains, 1) social communication deficits and 2) restricted and repetitive behaviors and interests (American Psychiatric Association, 2013). Given recent efforts to raise awareness surrounding ableist language, individuals with a diagnosis of ASD will be referred to as *autistic* or *neurodivergent* throughout the remainder of this paper, as is preferred by many (but not all) autistic individuals (Bottema-Beutel, Kapp, Lester, Sasson, & Hand, 2021). Importantly, neurodivergent may also be referring to individuals with a diagnosis of ADHD. ADHD is a neurodevelopmental disorder characterized by symptoms of 1) inattentiveness and 2) hyperactivity (American Psychiatric Association, 2013). Although there is inconsistency as to how often ADHD co-occurs in autistic individuals, prevalence estimates are typically around 50% (Hong, Singh, & Kalb, 2021).

Research exploring school refusal in autistic youth, albeit underdeveloped, is essential, as autistic youth are at a significantly higher likelihood to engage in school refusal behavior than non-autistic youth. While the prevalence of school refusal behavior in neurotypical youth is upwards of 35%, over 50% of autistic youth engage in school refusal behavior (Kearney, Spear, & Mihalas, 2014; Munkhaugen, Gjevik, et al., 2017). Autistic youth between 9 and 16 years old in Norway engaged in significantly more days of school refusal than did their neurotypical peers (Munkhaugen, Gjevik, et al., 2017). Similarly, autistic youth in the United States have higher rates of absenteeism due to school refusal than non-autistic youth, even after controlling for various demographic features and comorbid health conditions (Black & Zablotsky, 2018).

Similar to neurotypical students, autistic students who engaged in school refusal behaviors had significantly more symptoms related to anxiety, depression, withdrawal, and somatic complaints than students who did not engage in school refusal behaviors (Munkhaugen, Torske, et al., 2017). However, that there tend to be elevated levels of mental health concerns among autistic youth in general, especially among those who have experienced bullying (Cappadocia, Weiss, & Pepler, 2012; Mattila et al., 2010). Upwards of 70% of autistic individuals have cooccurring psychiatric disorders (Mattila et al., 2010). Although there is still concern that youth with more than one diagnosis are at a higher risk for school refusal and/or absenteeism (Black & Zablotsky, 2018; McClemont, Morton, Gillis, & Romanczyk, 2021; Trammell, Wilczynski, Dale, & McIntosh, 2013), the direct relationship between bullying, school refusal behavior and mental health in autistic youth is not entirely clear.

One commonly co-occurring diagnosis in autistic youth associated with increased risk for school refusal is ADHD. Children with a diagnosis of *both* ASD and ADHD are at the highest risk of engaging in school refusal when compared to children with a diagnosis of *only* ASD*, only*

ADHD or *no diagnosis*. School refusal behavior according to parent-report increased to 68% in autistic children who had comorbid ADHD (McClemont et al., 2021). It is plausible that school refusal rates are higher in autistic youth with ADHD, as those with a diagnosis of *both* ASD and ADHD may express more externalizing symptoms (e.g., impulsivity, hyperactivity) and have poorer adaptive skills than youth with either *one* diagnosis alone (Hong et al., 2021). Externalizing symptoms are commonly associated with an increased likelihood to engage in school refusal behavior *and* experience bullying victimization (Munkhaugen, Torske, et al., 2017).

Bullying among Neurodivergent Youth

Although little is known about school refusal in neurodivergent students, it is expected that bullying accounts for a large percentage of school refusal behaviors (Astor, Benbenishty, Zeira, & Vinokur, 2002; Bitsika et al., 2021; Havik, Bru, & Ertesvåg, 2015). Youth who are bullied are nearly six times more likely to engage in school refusal behavior (Vidourek, King, & Merianos, 2016). 83.3% of autistic boys who engaged in school refusal behavior self-reported being bullied almost every day (Bitsika et al., 2021). Although the reliability of self-report measures in autistic youth is not always consistent (Lerner, Calhoun, Mikami, & De Los Reyes, 2012), these reports have been largely corroborated by parents. 35% of autistic youth's parents have also reported that their child has missed school as a result of bullying (McClemont et al., 2021). Notably, autistic youth with ADHD are not only more likely to engage in school refusal (McClemont et al., 2021), but are 46% more likely to experience bullying compared to autistic youth without ADHD (Montes & Halterman, 2007).

It is estimated that nearly 77% of autistic youth are bullied annually (Cappadocia et al., 2012). In recent years, bullying has been thought to be better categorized into four distinct

categories—verbal (e.g., teasing, taunting), relational/social (e.g., rumors, isolating peers), cyber (e.g., verbal/relational bullying via social media), and physical (e.g., hitting, shoving, etc.) (Bradshaw, Waasdorp, & Johnson, 2015; Morton, Gillis, Zale, Brimhall, & Romanczyk, 2021; Rose, Monda-Amaya, & Espelage, 2010; Vivolo-Kantor, Martell, Holland, & Westby, 2014). Verbal and relational bullying are the two most common forms, and are positively associated with age (Cappadocia et al., 2012). It may be that as children grow developmentally, they are able to comprehend and utilize their verbal and interpersonal skills in a more nuanced manner. This is important to note, as the difference in social abilities between neurotypical and neurodivergent youth becomes greater with age (Wallace et al., 2017), perhaps making neurodivergent youth more susceptible to these forms of bullying. In addition, autistic youth often experience additional bullying that is specific to ASD-related traits (e.g., mocking self-stimulatory behaviors). ASD-related bullying, although unique to the experiences of autistic individuals, may take the form of verbal, physical, relational and/or cyberbullying (Morton et al., 2021).

Given the strong relationship between bullying and school refusal behavior, examining factors associated with bullying may also be important in considering school refusal profiles among neurodivergent youth. Although numerous school-related factors have been associated with school refusal behavior, parents tend to attribute their child's school refusal to bullying above other potential causes. For instance, while parent-reported 'behavioral problems' and school-implemented behavior support plans (BSPs) were also statistically associated with greater school refusal behaviors, they were not commonly identified as reasons for school refusal by parents (McClemont et al., 2021; Munkhaugen, Torske, et al., 2017). Although it is plausible that parents are attributing school refusal to their child's victimization because bullying may be a

more salient problem in the context of school-refusal, it may also be that 'problem behaviors'

and BSPs relate to *both* bullying and school refusal. In other words, it may be that 'problem

behaviors' and BSPs are actually or merely perceived by parents as being indirectly related to

school refusal. Another support that may also be in place for neurodivergent youth whom have

an individualized education plan (IEP) is a 1:1 aide. However, contrary to a BSP, having a 1:1

aide has shown to buffer against bullying and school refusal behaviors (McClemont et al., 2021).

Thus, it is possible that the supports and services that neurodivergent youth may receive related

to externalizing behaviors are of greater importance when considering bullying experiences and

school refusal behaviors than the externalizing behaviors themselves.

The primary aim of this study is to examine school refusal behavior profiles among youth

across a spectrum of neurodiversity. I hypothesize that multiple profiles of youth varying in both

neurodiversity and school refusal behavior will emerge. Within these profiles, I hypothesize that

youth will share a number of similar factors (e.g., bullying, age, services, etc.) along with a

similar likelihood to engage in school refusal behaviors. The ability to identify these different

profiles may provide vital insight into groups of students more likely to engage in school refusal,

allowing for earlier intervention.

Methods

Participants

Participants were from a larger dataset of 519 adults (Morton et al., 2021). Eligibility

criteria included being over the age of 18 and having at least one child between the ages of 6-17

years old. For the purpose of this study examining school refusal behaviors among school-aged

youth in the United States, participants whom resided outside of the United States were

excluded. Although the original dataset consisted of 519 participants, a total of 37 participants

were excluded for failing to meet inclusionary criteria for the present study (N = 482). Of the 37

participants whom were excluded, 10 were outside the age range of 6-17 years of age and 27

resided outside of the United States.

Child and parent demographic descriptives of the sample can be found in Table 1 and

Table 2, respectively. The majority of participants filling out parent report measures were

mothers between the age of 20 and 71 years old (M_{age} = 40.67, SD_{age} = 8.51). Children were

primarily male (67.22%), which is consistent with the diagnostic distributions suggesting that

autistic males to females is a ratio of 4:1 (CDC, 2020). Child age ranged from 6.0 to 17.8 years

old (M_{age} = 11.51; SD_{age} = 3.44). The majority of children (65.98%) and parents (76.11%) were

white, the majority of parents were married (~72%) and there was a fairly even distribution of

the highest level of education among parents (ranging from less than a high school degree to

graduate work/degree). There was a bimodal distribution of household income, with nearly 25%

having an annual income less $35,000 and about 29% having an annual income above $100,000.

Recruitment for the original study was focused on neurodivergent youth (i.e., autistic

and/or ADHD). Thus, the majority of participants were classified as neurodivergent according to

parent report. A small portion of participants did *not* have a reported or confirmed diagnosis

related to ASD or ADHD. These individuals may have been neurotypical *or* may have had

another diagnosis, such as a learning disability, and were retained as a 'community' sample. In

considering the heterogeneity within both ADHD and ASD (Mottron & Bzdok, 2020), we chose

to explore autistic and ADHD-related symptoms dimensionally among our sample to more

accurately capture potential overlap in profiles of community and neurodivergent youth

(Constantino, 2021; Mottron, 2021).

Measures

Social Responsiveness Scale, Second Edition (SRS-2). The Social Responsiveness

Scale, Second Edition (SRS-2; Constantino, Aldridge, Gibbs, Schmidhofer, & Williams, 2012)

school-age form is a parent- and teacher- report measure pertaining to youth and adolescents

ages 4-18 years old. It consists of 65-items on a 4-point Likert-type scale (1: *Not True* – 4:

Almost Always True). For the purpose of this study, the parent report form was filled out for

children ages 6-17 years old. The SRS-2 is a valid measure of ASD-related symptomology and

severity and aligns with the current DSM-5 criteria.

Consistent with the DSM-5, the measure is composed of two major domains—1. Social

Interaction and Communication and 2. Restricted Interests and Repetitive Behaviors. Within the

Social Interaction and Communication scale, there are four subscales: 1. Social Awareness, 2.

Social Cognition, 3. Social Motivation, and 4. Social Communication. The total score is

calculated using the 1. Social Interaction and Communication and 2. Restricted Interests and

Repetitive Behaviors domains, and indicates 'severe' ASD when *t-scores* are ≥76, 'moderate'

ASD when *t-scores* are 66-75, and 'mild' when *t-scores* are 60-65. *T-scores* are not considered

elevated if they are lower than 60.

Although the SRS-2 originated for clinical planning purposes, it has since been

commonly extended to research settings. The SRS-2 has consistently shown to have strong

internal consistency and good interrater reliability (Constantino et al., 2012). In addition, it has

shown to have good predictive and concurrent validity (Bruni, 2014). In the current sample, the

internal consistency of the total score was excellent (α = .97).

Vanderbilt ADHD Diagnostic Parent Rating Scale (VADPRS). The Vanderbilt

ADHD Diagnostic Parent Rating Scale (VADPRS; Wolraich et al., 2003) is a parent- and

teacher- report measure pertaining to youth and adolescents ages 4-18 years old. However, for the purpose of this study, the parent-report was administered for children 6-17 years of age.

The measure consists of 55 items. The first 47 items pertain to symptoms of ADHD (i.e. inattentive-, hyperactive- and combined subtype), conduct disorder (CD), oppositional defiant disorder (ODD) and anxiety/depression, and the remaining 8-items (i.e., 'problem' subscale) pertain to functioning across various domains, such as academic performance, interpersonal relationships, and participation in organized activities. The clinical cutoff for ADHD includes scores ≥ 6 on the inattentive or hyperactive/inattentive scale, in conjunction with a score ≥ 1 on the 'problem' subscale.

The first 47-items are rated on a 4-point Likert-type scale (0: *Never* – 3: *Very Often*). The remaining 8-items are rated on a 5-point Likert-type scale (1: *Excellent* – 5: *Problematic*). CD- and ODD-related traits measured on the VADPRS are thought to best emulate 'externalizing symptoms', while anxiety and depression symptoms are thought to best emulate 'internalizing symptoms' (Becker, Langberg, Vaughn, & Epstein, 2012). Thus, consistent with what has been done in previous literature, the CD and ODD scales were combined into a sum score to indicate externalizing symptoms (Becker et al., 2012).

In the current sample, the internal consistency of the *inattentive* (α = .93), *hyperactive/inattentive* (α = .91), *CD/ODD* (α = .93), and *anxiety/depression* (α = .93) subscales were excellent. The internal consistency of the *problems* (α = .83) subscale was good.

Assessment of Bullying Experiences (ABE). The Assessment of Bullying Experiences (ABE; Morton et al., 2021) is a parent-report measure of bullying victimization in autistic youth created by the author of the larger study in which this data were pulled. Parents endorsed the frequency of their child's bullying experiences across four domains—cyber bullying, relational

bullying, verbal bullying and physical bullying on a 6-point scale (0: *Never* – 5: *At least once per week or more*). The ABE, unlike other common bullying measures, incorporates items unique to the bullying experiences of autistic youth. For instance, "Another child teasing your child about motor behavior (for example: repetitive jumping, hand flapping, self-injury, other atypical motor movement)" (Morton et al., 2021). Generally, a higher total score is indicative of more frequent experiences of bullying. However, scores ≥ 29 for neurodivergent youth and ≥ 36 for neurotypical youth are of particular concern. Scores above these thresholds are considered to be clinically meaningful, as they may be associated with current or future mental health concerns (Morton et al., 2021).

The ABE has both good convergent and discriminant validity (Morton et al., 2021). In the current sample, internal consistency of the overall ABE bullying scale was excellent ($\alpha = .94$).

GO4KIDDS Brief Adaptive Scale. The GO4KIDDS Brief Adaptive Scale is a parent-report measure of adaptive skills and independence pertaining to youth and adolescents with developmental disabilities, ages 3-20 years old (Perry, Taheri, Ting, & Weiss, 2015). For the purpose of this study, the parent report form was filled out for children ages 6-17 years old.

This measures consists of 8-items related to daily living (e.g., dressing, toileting, etc.), communication and social interaction. Items are measured on a 5-point scale, with higher scores indicating greater skill and independence. The overall Adaptive Behavior score was created from a total sum score of the 8-items. The GO4KIDDS Brief Adaptive Scale has shown to have good convergent validity (Pan, Totsika, Nicholls, & Paris, 2019; Perry et al., 2015). In the current sample, the internal consistency of the overall Adaptive Behavior score was good ($\alpha = .86$).

Demographics Questionnaire. Data pertaining to the child and parent's demographic information were also collected through parent-report. Parental demographic information included age, race, gender, education, marital status, occupation and income. Child demographic information included age, race, gender identity, and sexual orientation. School-related factors, such as school setting, time spent in general education, IEP-related services, and how often their child engages in school refusal were also collected.

School refusal behaviors were rated on a 7-point Likert-type scale (1: *at least once a month* - 7: *never*). General education frequency was rated on a 5-point Likert-type scale (1: *100%* - 5: *0%*). Thus, higher numbers on school refusal behavior and general education variables indicate *lower* school refusal and *less* general education, respectively. IEP-related services included a behavior support plan (BSP), 1:1 aide, speech, occupational therapy, and physical therapy. All IEP-related service variables were coded on a 3-point scale (0: *No, never,* 1: *Yes, in past,* 2: *Yes, this year*), with the exception of 1:1 aide, which was coded on a 4-point scale (0: *No, never,* 1: *Yes, in past,* 2: *Yes, part day,* 3: *Yes, full day*). A composite variable was created to indicate the number of services received (now or in the past) by summing scores across all IEP-related service variables. Higher numbers indicate more services or a higher likelihood services are currently being received.

After all data were collected, parental income and education were converted to *z*-scores, and a sum score was taken to better capture socioeconomic status (SES). Ordinal variables with greater than 5 levels were ran continuously (e.g., school refusal and general education frequency), for parsimony and reduction of Type I errors. All other categorical variables were recoded into binary variables when appropriate, as is suggested in the latent class analysis literature for parsimony and ease of interpretation (Weller, Bowen, & Faubert, 2020).

Procedure

　　Data were from a larger study (Morton et al., 2021). With IRB approval from Binghamton University, participants were recruited nationally through a variety of recruitment methods, including targeted posts on social media and the distribution of recruitment flyers to be posted or re-distributed by neurodiversity-focused organizations and parent organizations.

　　Both the consent form and all measures were distributed through a secure link via Qualtrics. Once parents provided consent for participation, they completed a demographic questionnaire on behalf of themselves and their child. All other measures were randomized to prevent order effects. Parents were instructed to answer all questions according to *only one* of their children between the ages of 6-17, regardless if they had multiple children who met this inclusionary criteria. There were no further instructions specifying which child to use in the case of multiple children meeting eligibility. Upon completion of the measures, parents were provided with the option to enter a raffle for $100 in remuneration in the form of a gift card by completing a separate survey with their contact information. There were a total of three $100 gift cards for parents to win.

Data Analytic Plan

　　Patterns of missingness were examined across the data, prior to running analyses. The majority of the child and school-related demographic information (i.e., gender identity, sexual orientation, grade, age, school/classroom setting, etc.) had above 95% of values present (n ranging from 467-482; *see Table 3*). As for the parent demographic information, only about 60-61% of values were present for the variables examining marital status ($n = 293$), education ($n = 293$), employment ($n = 294$), income ($n = 291$), and geographic region ($n = 294$). There were also high rates of missingness (>5%; Graham, 2009) among measures of autism-related traits

(SRS-2), ADHD-related traits (VADPRS) and bullying (ABE). Only about 67-75% of these variables were present (*n* ranging from 324-359). All data were nested within one another. In other words, participants who skipped over questions pertaining to the SRS-2 were also likely to skip over questions related to the ABE, adaptive scale, various demographic questions, and so on. Thus, data cannot be considered to be missing at random (Graham, 2009; Schafer & Graham, 2002). However, given that all variables were accounted for in the model to adjust for potential bias that may be attributed to patterns of missingness, it was deemed appropriate to use full information maximum likelihood estimation methods to account for missing data (Graham, 2009; Rubin, 1996).

A latent profile analysis (LPA) was conducted in MPlus 8.7 for a more in-depth understanding of the different profiles pertaining to school refusal behaviors among neurodivergent youth. The LPA was deemed more appropriate than latent class analysis (LCA), as there were both categorical and continuous variables in the model. LPA has also been identified as a strong exploratory approach, appropriate given the scarce literature surrounding school refusal behaviors in neurodivergent youth. Although we did not have evidence to assume local independence, it has been suggested that the need for local independence between variables is perhaps less of a necessity in LPA (Williams & Kibowski, 2016).

Continuous variables loaded into the LPA were: ADHD- (i.e., VADPRS inattentive & hyperactive/inattentive subscales) and autism- (i.e., SRS-2 total score) related traits, externalizing behaviors (i.e., VADPRS CD/ODD subscale), internalizing behaviors (i.e., VADPRS anxiety/depression subscale), academic and social difficulties (i.e., VADPRS 'problems' scale), frequency of bullying experiences (i.e., ABE total score), school refusal behavior frequency, general education frequency, number of IEP-related services, SES and age.

Categorical variables loaded into the LPA were: LGBTQ+ identity (yes/no), school setting (public/not public), parental marital status (married/not married), current employment status (1: full-time, 2: part-time/student, 3: stay-at-home parent, 4: disabled/unemployed), and geographic region (1:Midwest, 2: Northeast, 3: South, 4: West).

Given the heterogenous nature of social profiles and bullying experiences in autistic individuals (Mottron & Bzdok, 2020), we examined four different 4-class models to examine best model fit: 1. *total scores of both* autism-related traits and bullying experiences, 2. *subscales* of autism-related traits and *total score* of bullying experiences, 3. *total score* of autism-related traits *and subscales* of bullying experiences and, 4. *subscales of both* autism-related traits and bullying experiences. The model which utilized total scores of both autism-related traits and bullying experiences was the best model fit (*see Table 4*).

Best model fit was determined using AIC/BIC, entropy and Lo-Mendell-Rubin Adjusted Likelihood. As is common in the literature, models with smaller AIC/BIC statistics are typically considered to be a stronger model fit. Importantly, the AIC should be smaller than both the BIC and the adjusted BIC (Weller et al., 2020). Entropy values greater than .7 are typically acceptable, with higher entropy indicating a stronger fit to the data (Muthén, 2001). Lastly, in considering class size, Lo-Mendell-Rubin Adjusted Likelihood should be significant. Non-significant values suggest a smaller-class model may be a better fit to the data (Nylund, Asparouhov, & Muthén, 2007). Of importance, model fit statistics are considered to be a more flexible guide in choosing LPA models, and model choice may also be informed through theoretical and conceptual consideration (Nylund et al., 2007; Weller et al., 2020).

Lastly, post hoc regressions and odds ratios were utilized to explore if there were significant differences across profiles for the continuous variables, as each profile can be treated

as a 'mutually exclusive' group. Using this approach for post-hoc analyses allowed for the

continued use of FIML to account for missingness in the data. Bonferroni adjusted alphas were

utilized as appropriate for multiple post-hoc comparisons. An additional post hoc logistic

regressions were ran to explore how parent reported reasons for school refusal mapped onto the

different profiles. All preliminary data cleaning and post hoc analyses were completed in

StataBE.

Results

A 4-class solution was selected over 3-class and 5-class solutions based on the best model

fit statistics (*see Table 5*). The 4-class solution was superior compared to the three class model,

and the Lo-Mendell-Rubin Adjusted Likelihood statistic of the five class model suggested a

more parsimonious solution. The identified classes were characterized based on neurotype and

school experiences: (1) neurodivergent (ND) youth with high school refusal and frequent time in

general education (>75%), (2) ND youth with high school refusal and infrequent time in general

education (<25%), (3) ND youth with low school refusal and infrequent time (<25%) in general

education, and (4) community youth with low school refusal and frequent time (>75%) in

general education.

Conditional Probabilities, Means & Odds Ratios

Means for the continuous variables of each class can be found in Table 6. Conditional

probabilities for categorical variables are represented in Figure 1.

Class 1. Class 1 (42% of the sample; $n = 203$) was composed of ND youth with ($M_{age} =$

11.13, $SE_{age} = 0.25$) with high engagement in school refusal behavior (2-3X a month). ND youth

in this class had high levels of autism- ($M = 78.23$, $SE = 0.83$) and ADHD- (Inattentive: $M =$

6.95, $SE = 0.21$; Hyperactive/Inattentive: $M = 4.78$, $SE = 0.26$) related traits. Many of these

youth were white (67%), non-LGBTQ+ (82%), and attended public school (87%). Just over half

of these youth had married parents (63%) who worked (59%). About 32% of their parents were

'stay-at-home' parents. The SES of this class was average compared to the whole sample (M = -

0.49, SE = 0.17).

Relative to community youth with low school refusal and frequent time in general

education, ND youth with high school refusal and frequent time in general education were 122%

more likely to identify as LGBTQ+ (OR = 2.22, 95% CI: 1.00 - 4.93), 62% less likely to have

married parents (OR = 0.38, 95% CI: 0.19 - 0.76) and 48% less likely that their parent will work

full-time (OR = 0.52, 95% CI: 0.28 - 0.94). ND youth with high school refusal and frequent time

in general education were 456% more likely to attend public school relative to ND youth with

low school refusal (OR = 5.56, 95% CI: 2.39 - 13.33), and 250% more likely to attend public

school relative to ND youth with high school refusal and *infrequent* time in general education

(OR = 3.50, 95% CI: 1.69 - 7.25). Community and ND youth with low school refusal were 35-

37% more likely to be of a higher SES than ND youth with high school refusal and frequent time

in general education (vs community: OR = 1.35, 95% CI: 1.19 - 1.52; vs ND: OR = 1.37, 95%

CI: 1.20 - 1.56). ND youth with high school refusal, regardless of time in general education, did

not significantly differ in SES (p > Bonferroni-adjusted alpha of .01).

ND youth with high school refusal and frequent time in general education received many

IEP-related services (M = 4.39, SE = 0.24), spent 75-100% of the school day in general

education, and experienced many difficulties in academic and social settings (M = 3.18, SE =

0.16). Relative to other classes, these youth had a moderate number of adaptive skills (M =

32.02; SE = 0.46) and experienced many externalizing behaviors (M = 4.18, SE = 0.33). They

experienced the most internalizing symptoms (M = 2.97, SE = 0.21) and the highest level of

bullying victimization (M = 37.74, SD = 1.83). They were 23-46% more likely to experience greater internalizing symptoms than ND youth with high school refusal and *infrequent* time in general education (OR = 1.23, 95% CI: 1.09 - 1.37), ND youth with low school refusal (OR = 1.36, 95% CI: 1.20 - 1.53) and community youth with low school refusal (OR = 1.46, 95% CI: 1.32 - 1.62). ND youth with high school refusal and frequent time in general education were 41-69% more likely to experience a higher frequency of bullying victimization relative to ND youth with high school refusal and *infrequent* time in general education (OR = 1.41, 95% CI: 1.27 - 1.58), ND youth with low school refusal (OR = 1.59, 95% CI: 1.42 - 1.77), and community youth with low school refusal (OR = 1.69, 95% CI: 1.55 - 1.85).

 Class 2. Class 2 (16% of the sample; n = 76) was composed of ND youth (M_{age} = 10.93, SE_{age} = 0.37) who also had high engagement in school refusal behaviors (2-3X a month). However, unlike Class 1, youth in this class were infrequently in general education (<25% of the day). ND youth in this class had high levels of autism- (M = 79.95, SE = 1.21) and ADHD- (Inattentive: M = 7.22, SE = 0.26; Hyperactive/Inattentive: M = 6.05, SE = 0.37) related traits. While ND youth with high school refusal and *infrequent time* in general education did not significantly differ in hyperactive symptoms from ND youth with high school refusal and *frequent time* in general education (p > .05), they had a 16% increased odds of being inattentive (OR = 1.16, 95% CI: 1.08 - 1.27) and experiencing autism-related traits (OR = 1.16, 95% CI: 1.08 - 1.27).

 Many of these youth were white (80%), non-LGBTQ+ (83%), attended public school (65%), and had married parents (71%). Just over half of these youth had parents who worked (55%), while about 36% of their parents were 'stay-at-home' parents. The SES of this class was average compared to the whole sample (M = -0.21, SE = 0.25) and did not significantly differ

from other classes (all *p-values* > Bonferroni-adjusted alpha of .01). ND youth with high school refusal and infrequent time in general education were 143% more likely to be white (*OR* = 2.48, 95% CI: 1.24 - 4.97), 53% less likely to go to public school (*OR* = 0.47, 95% CI: 0.23 - 0.96), and it was 57% less likely that their parent works full-time (*OR* = 0.43, 95% CI: 0.21 - 0.92), relative to community youth with low school refusal and frequent time in general education. Relative to ND youth with *low school refusal* and infrequent time in general education, ND youth with *high school refusal* and infrequent time in general education were 226% more likely to be white (*OR* = 3.26, 95% CI: 1.32 - 8.06).

ND youth with high school refusal and infrequent time in general education, on average, received a high number of IEP-related services (*M* = 6.14; *SE* = 0.34), spent 0-25% of their day in general education, and had many difficulties in academic and social settings (*M* = 4.16; *SE* = 0.28). They had the lowest adaptive skills (*M* = 28.85; *SE* = 0.94) relative to other classes, experienced many externalizing behaviors (*M* = 4.22; *SE* = 0.50), internalizing symptoms (*M* = 2.33; *SE* = 0.34) and a high frequency of bullying victimization (*M* = 26.68; *SE* = 3.30). Post hoc tests suggest that ND youth who engaged in high amounts of school refusal behavior, regardless of time spent in general education placements, did not differ in their number of IEP-related services, difficulties in academic or social settings, adaptive skills or externalizing symptoms (all *p-values* > Bonferroni-adjusted alpha of .025).

ND youth with low school refusal and infrequent time in general education are 31% more likely to have greater internalizing symptoms relative to community youth with low school refusal (*OR* = 1.31, 95% CI: 1.16 - 1.48), but were no more likely to experience internalizing symptoms relative to ND youth with low school refusal and infrequent time in general education (*p* > Bonferroni-adjusted alpha of .01). Relative to both community and ND youth with low

school refusal, ND youth with high school refusal and infrequent time in general education were 20-27% more likely to experience bullying (vs community: $OR = 1.20$, 95% CI: 1.06 - 1.35; vs ND: $OR = 1.27$, 95% CI: 1.12 - 1.43).

   Class 3. Class 3 (10% of the sample; $n = 51$) was composed of ND youth ($M_{age} = 12.45$, $SE_{age} = 0.61$) with low engagement in school refusal behaviors (i.e. 1-2X this year). ND youth in this class had low levels of autism-related traits ($M = 63.75$, $SE = 2.45$), which were just elevated over the clinical threshold on the autism measure. They had few ADHD-related traits (Inattentive: $M = 2.22$, $SE = 0.43$; Hyperactive/Inattentive: $M = 1.32$, $SE = 0.28$), which *did not* significantly differ from community youth with low school refusal and frequent time in general education ($p > .05$).

   About half of these youth were white (55%), attended public school (54%) and had a parent who worked (54%). The majority of these youth were non-LGBTQ+ (87%) and had married parents (87%). The SES of this class was average compared to the whole sample ($M = 0.74$, $SE = 0.35$). There were no significant differences in SES, parent employment status, parent's likelihood to be married, child's likelihood to be white, or child's likelihood to identify as LGBTQ+, relative to community youth with low levels of school refusal and frequent time in general education (all p's $ > .05$). ND youth with low levels of school refusal and infrequent time in general education were, however, 71% less likely to go to public school relative to community peers ($OR = 0.29$, 95% CI: 0.12 - 0.70).

   ND youth with low levels of school refusal and infrequent time in general education, on average, received a moderate number of IEP-related services ($M = 4.02$, $SE = 0.59$), spent 0-25% of their day in general education, and had few difficulties in social and academic settings ($M = 1.37$, $SE = 0.27$). Although they were 61% more likely to receive a greater number of IEP-related

services than community youth who similarly had low school refusal (OR = 1.61, 95% CI: 1.47 - 1.76), they were 28% less likely to receive IEP-related services compared to ND youth with high levels of school refusal who similarly spent less than 25% of the day in general education (OR = 0.72, 95% CI: 0.65 - 0.79). There were no significant differences in the number of IEP-related services between ND youth with low school refusal and ND youth with high school refusal and frequent time in general education (p > Bonferroni adjusted alpha of .01). Relative to community youth with low school refusal and frequent time in general education, ND youth with low school refusal behavior and infrequent time in general education were 40% more likely to experience greater difficulties in social and academic settings (OR = 1.40, 95% CI: 1.26 - 1.56). However, ND youth with low school refusal were 60-62% *less likely* to experience as many difficulties in social and academic settings relative to ND youth with high school refusal and frequent (OR = 0.62, 95% CI: 0.56 - 0.70) and infrequent (OR = 0.60, 95% CI: 0.54 - 0.66) time in general education.

Relative to *both* of the other ND groups, ND youth with low school refusal behavior and infrequent time in general education had the highest adaptive skills (M = 35.93, SE = 0.73), fewest externalizing behaviors (M = 1.20, SE = 0.32), fewest internalizing symptoms (M = 1.04, SE = 0.37), and experienced the lowest levels of bullying victimization (M = 12.45, SE = 1.76; all $p's$ < Bonferroni adjusted alphas of .01). Notably, ND youth with low levels of school refusal behavior and infrequent time in general education were 21% more likely to experience greater externalizing symptoms (OR = 1.21, 95% CI: 1.07 - 1.36) and 46% more likely to have poorer adaptive skills (OR = 1.46, 95% CI: 1.31 - 1.62) relative to community youth with low school refusal and frequent time in general education, but they did *not* differ in internalizing symptoms or bullying victimization (all $p's$ > Bonferroni adjusted alphas of .01). Although ND youth with

low school refusal behavior and infrequent time in general education were *no more likely* to experience internalizing symptoms or refuse school compared to community youth with low school refusal and frequent time in general education, when they did refuse school, there was a 21% increased likelihood that it was due to mental health concerns ($OR = 1.21$, 95% CI: 1.04 - 1.40).

  Class 4. Class 4 (32% of the sample; $n = 152$) was composed of 'community' youth ($M_{age} = 11.91$, $SE_{age} = 0.33$) with low engagement in school refusal behaviors (~1-2X a year). Their average scores were below clinical cutoffs for ADHD (Inattentive: $M = 2.16$, $SE = 0.29$; Hyperactive/Inattentive: $M = 1.22$, $SE = 0.18$) and autism ($M = 56.24$, $SE = 1.29$). Many of these youth were white (60%) and most were non-LGTBQ+ (91%), attended public school (80%), and had parents who were married (80%) and working (70%). The SES of this class was average compared to the whole sample ($M = 0.56$, $SE = 0.18$).

  On average, youth in this class received few IEP-related services (1 or 2 services in the past), spent 75-100% of the school day in general education and had little to no difficulty in social or academic settings ($M = 0.85$, $SE = 0.14$). These youth had high adaptive skills ($M = 38.07$, $SE = 0.28$), few externalizing behaviors ($M = 0.91$, $SE = 0.16$) or internalizing symptoms ($M = 1.11$, $SE = 0.19$), and low levels of bullying victimization ($M = 15.56$, $SE = 1.62$).

Discussion

  This study explored the profiles of school refusal behaviors among ND youth and revealed four profiles of youth that varied across multiple domains. Both Class 1 and Class 2 consisted of ND youth with high school refusal, but Class 1 spent more than 75% of their day in general education, while Class 2 consisted of youth who spent less than 25% of their school day in general education. Class 3 was composed of ND youth with low school refusal and Class 4

was composed of community youth with low school refusal. ND youth with low school refusal, similar to Class 2, spent <25% of their day in general education. Notably, both groups of ND youth who spent <25% of their day in general education were also less likely to be in public school, relative to both community and ND youth frequently in general education. This suggests that perhaps classroom placement is an indicator for likelihood to engage in school refusal behavior, specific to ND youth in public school settings.

In considering parent demographics, parents of community youth with low school refusal were more likely to work full-time, relative to both groups of ND youth with high school refusal. Although it is possible that children may be more likely to engage in school refusal behaviors if they have the opportunity to stay home (i.e., parent is home), it may also be that parents are unable to hold a full-time position if their child is frequently engaging in school refusal behaviors. Contrary to previous literature (Adams, 2021; Kearney, 2008), none of the groups differed in their likelihood to have a parent who was unemployed or disabled. Nonetheless, differences in the likelihood to be employed full-time may also relate to SES.

Consistent with previous findings (e.g., Chu et al., 2019; Kearney, 2008; Tonge & Silverman, 2019), youth more likely to be from a higher SES and have married parents appear to engage in less school refusal behaviors. ND and community youth with low school refusal did not differ in SES *or* the likelihood to have married parents. However, both groups were more likely to be of a higher SES than ND youth with high school refusal and frequent general education. Parents of community youth with low school refusal were also more likely to be married, relative to the parents of ND youth with high school refusal and frequent general education. It may be that youth of lower SES who do not have married parents are under significantly more environmental stressors, such that they may have more familial

responsibilities and/or less parental involvement in school-related factors (Kearney, 2008). Nonetheless, school absenteeism has also been strongly correlated with income, such that youth from lower income families have significantly higher rates of school absenteeism across a number of countries (Adams, 2021). Given that school refusal behavior is often a precursor for school absenteeism, SES may be particularly important in indicating school refusal risk.

ND youth with low school refusal and infrequent time in general education were also more likely to receive a higher number of IEP-related services relative to community youth with low school refusal and frequent time in general education. Although it may be expected that youth in a less restrictive environment (i.e., more time in general education) would have fewer services and supports, ND youth with high school refusal and *frequent time in general education* did not significantly differ in the likelihood to receive IEP-related supports compared to ND youth with low school refusal and *infrequent time in general education*. ND youth with low school refusal and infrequent time in general education were, however, less likely to receive as many IEP-related services relative to ND youth with high school refusal and similar time in general education. Importantly, the number of IEP-related services received by students may also differ across school settings. As aforementioned, ND youth with low school refusal and infrequent time in general education were *less likely* to be in public schools than both community and ND youth in general education. Although the number of IEP-related services does not seem to directly map onto likelihood for school refusal behavior, it may remain an important consideration in conjunction with classroom (i.e. % of time in general education) and school (i.e. public versus other) setting.

Given that previous literature has suggested that certain IEP-related services (e.g., BSP) may exacerbate school refusal (McClemont et al., 2021; Munkhaugen, Torske, et al., 2017),

while other services (e.g., 1:1 aide) may buffer against school refusal (McClemont et al., 2021),

the *types* of IEP-related services received may provide more insight into likelihood to engage in

school refusal behavior than the *number* of services. A child with more externalizing behaviors

may be more likely to receive specific types of IEP-related services, such as a BSP (DuPaul,

Chronis-Tuscano, Danielson, & Visser, 2019; McClemont et al., 2021). Therefore, even though

IEP-related services may be related to school refusal behaviors, it remains difficult to disentangle

from other variables that also seem to be associated with school refusal.

Although ND youth with low school refusal had the fewest difficulties in academic or

social settings, greatest adaptive skills and least externalizing behaviors relative to *both* ND

groups with high school refusal, they were more likely to have more difficulties in academic or

social settings, poorer adaptive skills and more externalizing behaviors, relative to community

youth with low school refusal. Thus, looking at difficulties in academic or social settings,

adaptive skills and externalizing behaviors of ND youth relative to scores normed on community

youth may not provide the best insight into likelihood to engage in school refusal. Rather,

looking at difficulties in academic or social settings, adaptive skills and externalizing behaviors

relative to other ND youth may provide more insight into likelihood for school refusal behavior.

It is perhaps unsurprising that *both* ND groups with high school refusal were more likely

to have greater externalizing behaviors than ND youth with low school refusal, given that autistic

youth with more ADHD-related traits tend to have more externalizing behaviors (Hong et al.,

2021). Our findings suggest that ND youth with high school refusal, regardless of time spent in

general education, had high levels of *both* ADHD- and autism-related traits. ND youth with low

school refusal, on the other hand, were *no more* likely to experience ADHD-related traits than

community youth with low school refusal. Rather, ND youth with low school refusal primarily

experienced autism-related traits. These findings support previous literature suggesting that autistic individuals with greater externalizing behavior and more ADHD traits have higher rates of school refusal (McClemont et al., 2021; Munkhaugen, Torske, et al., 2017).

ND youth with high school refusal also had a higher likelihood of experiencing more internalizing symptoms than both groups of youth with low school refusal (i.e., community and ND). ND youth with high school refusal and frequent time in general education also had a higher likelihood of experiencing more internalizing symptoms compared to ND youth with high school refusal and infrequent time in general education. This is perhaps consistent with the finding that ND youth with high school refusal and infrequent time in general education experienced bullying victimization just below the threshold for clinical concern related to mental health, while ND youth with high school refusal and frequent time in general education experienced bullying above the threshold for clinical concern (Morton et al., 2021). Although there were no significant differences in internalizing symptoms between ND youth with low school refusal and community youth with low school refusal, when ND youth with low school refusal *did* engage in school refusal behaviors, it was more likely to be due to mental health concerns.

Given that mental health comorbidities and concerns have repeatedly shown to be associated with both bullying and school refusal (McClemont et al., 2021; Munkhaugen, Torske, et al., 2017), it is perhaps not surprising that the frequency of bullying victimization across profiles reflected patterns of internalizing symptoms. Consistent with previous findings (e.g., Astor et al., 2002; Bitsika et al., 2021; Havik et al., 2015), bullying was associated with school refusal. Community and ND youth with low school refusal *did not* differ in terms of bullying frequency, and both had mean scores of bullying well below the threshold for clinical concern (Morton et al., 2021). Both groups of ND youth with high levels of school refusal were more

likely to experience a higher frequency of bullying than community and ND youth with low school refusal. Furthermore, ND youth with high school refusal frequently in general education were more likely to experience higher levels of bullying than ND youth with high levels of school refusal not frequently in general education. Given that ND youth with high school refusal appear to have high levels of autism- and ADHD-related traits, externalizing behaviors and difficulty in academic and social settings, it may particularly difficult for this group of youth to form relationships within the school setting. Although bullying has been consistently associated with school refusal, Kearney (2008) also highlighted the importance of peer and teacher relationships more generally in considering school refusal behavior. ND youth with high school refusal who spend frequent time in general education with community peers may be particularly susceptible to difficulties with peer relationships, due to challenges ND and neurotypical youth may face in interpreting and understanding the social nuances of peers outside their 'neurotype' (Mitchell, Sheppard, & Cassidy, 2021).

Limitations

Although this study has its strengths in providing insight into diverse profiles of school refusal behavior among ND youth, there are a number of limitations to consider. All measures were collected via parent-report. The limitations are two-fold, as 1) parent-report measures are subject to possible bias and 2) there can be discrepancies between parent- and child-report, specifically among ND populations (Lerner et al., 2012). That being said, parent-report remains a common method of data collection in this population despite the limitations. Furthermore, although, the wide range of geographic regions in which our participants resided in may allow for some generalization of findings, it may have also limited the ability to draw conclusions from the SES variable. SES may not be entirely informative, as income relative to cost of living varies

extensively throughout the United States (Shrider, Kollar, Chen, & Semega, 2021). In addition, there are limitations to *both* our education and employment variables, as both variables were specific to only the parent completing the survey.

As a result of being an online self-report study, diagnoses could not be confirmed through 'gold-standard' observational tools, such as the Autism Diagnostic Observation Schedule, Second Edition (ADOS-2; Lord et al., 2012). Another important consideration is that the participants were a convenience sample, as recruitment methods were distributed and redistributed through organizations, parent groups, and social media platforms. Although this online recruitment method, paired with the online nature of the study was a strength in that it could reach a wide array of participants, it may have also biased the sample. In other words, convenience sampling may limit the ability to fully generalize findings. Online recruitment was also targeted to a ND population. Although there was a small sample that had ADHD- and autism-related symptoms below clinical threshold and/or lacked a parent-reported diagnosis, it is unclear if this community sample is representative of neurotypical youth more broadly or of youth with other disorders (e.g., learning disabilities, etc.). Lastly, missingness of the data was not at random. Although all variables were accounted for in the model, which allowed for the use of FIML, there is the possibility that systematic patterns of missingness also biased the data.

Implications and Future Directions

Regardless of there being a large body of evidence concerning the negative consequences related to school refusal behavior, factors associated with likelihood for school refusal are poorly understood, making it difficult to identify 'at-risk' students. Given that school refusal behaviors are higher in ND students compared to neurotypical students (Munkhaugen, Gjevik, et al., 2017), the findings of this study provide important insight into the profiles of ND youth who are more

likely to engage in school refusal. Being able to identify these youth may allow for earlier intervention and prevention measures to take place. Ideally, early intervention measures would, in turn, assist in preventing chronic absenteeism, which commonly follows school refusal behavior (Totsika et al., 2020).

Future studies should seek to confirm the accuracy of the abovementioned profiles in identifying youth more likely to engage in school refusal behaviors. Longitudinal studies exploring the correlates of school refusal found in the current study may provide further insight into causal factors. Establishing causal relationships may be useful in improving the ability to identify and intervene in school refusal early on. It is also essential, given the abovementioned discrepancies between parent- and child-report (Lerner et al., 2012), that future studies incorporate multimethod assessment to protect against bias (Blakeley-Smith, Reaven, Ridge, & Hepburn, 2012). Instead of relying solely on parent report, it may be important, but costly, to also consider teacher- and child-report, along with more objective measures (e.g., behavioral observations of autism- and ADHD-related behaviors, bullying, etc.). Having multimethod assessment may be the basis for a more accurate understanding of possible factors associated with school refusal. In addition, being able to confirm diagnoses through 'gold-standard' tools will allow for increased confidence in the data and population being examined.

Conclusion

School refusal is a pervasive issue that negatively affects a large number of youth and families across the United States (Fremont, 2003; Kearney, 1996, 2008; Thomas et al., 2015). There is greater prevalence of school refusal behaviors among ND youth compared to neurotypical youth. Despite this, little is known about the factors associated with risk for school refusal, posing a challenge to the ability to identify and intervene on 'at-risk' students. Given the

little information known, the findings delivered by this LPA provide important insight into the

different profiles that may emerge in ND individuals that are at higher risk for school refusal,

and in turn, may serve as a means for earlier intervention and support.

References

Adams, D. (2021). Child and Parental Mental Health as Correlates of School Non-Attendance and School Refusal in Children on the Autism Spectrum. *Journal of Autism and Developmental Disorders*. doi:10.1007/s10803-021-05211-5

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington, DC.

Astor, R. A., Benbenishty, R., Zeira, A., & Vinokur, A. (2002). School climate, observed risky behaviors, and victimization as predictors of high school students' fear and judgments of school violence as a problem. *Health Educ Behav, 29*(6), 716-736. doi:10.1177/109019802237940

Becker, S. P., Langberg, J. M., Vaughn, A. J., & Epstein, J. N. (2012). Clinical utility of the Vanderbilt ADHD diagnostic parent rating scale comorbidity screening scales. *J Dev Behav Pediatr, 33*(3), 221-228. doi:10.1097/DBP.0b013e318245615b

Berg, I., Nichols, K., & Pritchard, C. (1969). School phobia--its classification and relationship to dependency. *J Child Psychol Psychiatry, 10*(2), 123-141. doi:10.1111/j.1469-7610.1969.tb02074.x

Bitsika, V., Heyne, D. A., & Sharpley, C. F. (2021). Is Bullying Associated with Emerging School Refusal in Autistic Boys? *J Autism Dev Disord, 51*(4), 1081-1092. doi:10.1007/s10803-020-04610-4

Black, L. I., & Zablotsky, B. (2018). Chronic School Absenteeism Among Children With Selected Developmental Disabilities: National Health Interview Survey, 2014-2016. *Natl Health Stat Report*(118), 1-7.

Blakeley-Smith, A., Reaven, J., Ridge, K., & Hepburn, S. (2012). Parent–child agreement of anxiety symptoms in youth with autism spectrum disorders. *Research in Autism Spectrum Disorders, 6*(2), 707-716. doi:https://doi.org/10.1016/j.rasd.2011.07.020

Bottema-Beutel, K., Kapp, S. K., Lester, J. N., Sasson, N. J., & Hand, B. N. (2021). Avoiding ableist language: Suggestions for autism researchers. *Autism in Adulthood, 3*(1), 18-29.

Bradshaw, C. P., Waasdorp, T. E., & Johnson, S. L. (2015). Overlapping verbal, relational, physical, and electronic forms of bullying in adolescence: influence of school context. *J Clin Child Adolesc Psychol, 44*(3), 494-508. doi:10.1080/15374416.2014.893516

Bruni, T. P. (2014). Test Review: Social Responsiveness Scale–Second Edition (SRS-2). *Journal of Psychoeducational Assessment, 32*(4), 365-369. doi:10.1177/0734282913517525

Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2012). Bullying experiences among children and youth with autism spectrum disorders. *J Autism Dev Disord, 42*(2), 266-277. doi:10.1007/s10803-011-1241-x

Chu, B. C., Guarino, D., Mele, C., O'Connell, J., & Coto, P. (2019). Developing an Online Early Detection System for School Attendance Problems: Results From a Research-Community Partnership. *Cognitive and Behavioral Practice, 26*(1), 35-45. doi:https://doi.org/10.1016/j.cbpra.2018.09.001

Constantino, J. N. (2021). Response to 'A radical change in our autism research strategy is needed: Back to prototypes' by Mottron et al (2021). *Autism Research, 14*(10), 2221-2223. doi:10.1002/aur.2529

Constantino, J. N., Aldridge, F. J., Gibbs, V. M., Schmidhofer, K., & Williams, M. (2012). Social Responsiveness Scale. *Investigating the clinical usefulness of the Social Responsiveness Scale (SRS) in a tertiary level, autism spectrum disorder specific*

assessment clinic, 42, 294-300. Retrieved from

http://proxy.binghamton.edu/login?url=https://search.ebscohost.com/login.aspx?direct=tr
ue&db=hpi&AN=HaPI-375551&site=ehost-live

DuPaul, G. J., Chronis-Tuscano, A., Danielson, M. L., & Visser, S. N. (2019). Predictors of
receipt of school services in a national sample of youth with ADHD. *Journal of Attention
Disorders, 23*(11), 1303-1319. doi:10.1177/1087054718816169

Egger, H. L., Costello, E. J., & Angold, A. (2003). School refusal and psychiatric disorders: a
community study. *J Am Acad Child Adolesc Psychiatry, 42*(7), 797-807.
doi:10.1097/01.Chi.0000046865.56865.79

Fremont, W. P. (2003). School refusal in children and adolescents. *Am Fam Physician, 68*(8),
1555-1560.

Glew, G. M., Fan, M. Y., Katon, W., Rivara, F. P., & Kernic, M. A. (2005). Bullying,
psychosocial adjustment, and academic performance in elementary school. *Arch Pediatr
Adolesc Med, 159*(11), 1026-1031. doi:10.1001/archpedi.159.11.1026

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of
Psychology, 60*, 549-576. doi:10.1146/annurev.psych.58.110405.085530

Havik, T., Bru, E., & Ertesvåg, S. K. (2015). School factors associated with school refusal- and
truancy-related reasons for school non-attendance. *Social Psychology of Education,
18*(2), 221-240. doi:10.1007/s11218-015-9293-y

Heyne, D., Sauter, F. M., & Maynard, B. R. (2015). *Moderators and mediators of treatments for
youth with school refusal or truancy*.

Hicks, J., Jennings, L., Jennings, S., Berry, S., & Green, D.-A. (2018). Middle School Bullying: Student Reported Perceptions and Prevalence. *Journal of Child and Adolescent Counseling, 4*(3), 195-208. doi:10.1080/23727810.2017.1422645

Hong, J. S., Singh, V., & Kalb, L. (2021). Attention Deficit Hyperactivity Disorder Symptoms in Young Children with Autism Spectrum Disorder. *Autism Res, 14*(1), 182-192. doi:10.1002/aur.2414

Kearney, C. A. (1996). The Evolution and Reconciliation of Taxonomic Strategies for School Refusal Behavior. *Clinical Psychology: Science and Practice, 3*(4), 339-354. doi:https://doi.org/10.1111/j.1468-2850.1996.tb00087.x

Kearney, C. A. (2008). School absenteeism and school refusal behavior in youth: a contemporary review. *Clin Psychol Rev, 28*(3), 451-471. doi:10.1016/j.cpr.2007.07.012

Kearney, C. A., Spear, M., & Mihalas, S. (2014). School refusal behavior. In L. Grossman & S. Walfish (Eds.), *Translating psychological research into practice.* (pp. 83-88). New York, NY: Springer Publishing Company.

Lerner, M. D., Calhoun, C. D., Mikami, A. Y., & De Los Reyes, A. (2012). Understanding parent-child social informant discrepancy in youth with high functioning autism spectrum disorders. *J Autism Dev Disord, 42*(12), 2680-2692. doi:10.1007/s10803-012-1525-9

Lord, C., Rutter, M., DiLavore, P., Risi, S., Gotham, K., & Bishop, S. (2012). *Autism Diagnostic Observation Schedule Second Edition (ADOS-2) Manual (Part 1): Modules 1–4.* Torrance, CA: Western Psychological Services.

Mattila, M.-L., Hurtig, T., Haapsamo, H., Jussila, K., Kuusikko-Gauffin, S., Kielinen, M., . . . Moilanen, I. (2010). Comorbid Psychiatric Disorders Associated with Asperger Syndrome/High-functioning Autism: A Community- and Clinic-based Study. *Journal of*

Autism and Developmental Disorders, 40(9), 1080-1093. doi:10.1007/s10803-010-0958-2

McClemont, A. J., Morton, H. E., Gillis, J. M., & Romanczyk, R. G. (2021). Brief Report: Predictors of School Refusal Due to Bullying in Children with Autism Spectrum Disorder and Attention-Deficit/Hyperactivity Disorder. *Journal of Autism and Developmental Disorders, 51*(5), 1781-1788. doi:10.1007/s10803-020-04640-y

Mitchell, P., Sheppard, E., & Cassidy, S. (2021). Autism and the double empathy problem: Implications for development and mental health. *British Journal of Developmental Psychology, 39*(1), 1-18. doi:10.1111/bjdp.12350

Montes, G., & Halterman, J. S. (2007). Bullying among children with autism and the influence of comorbidity with ADHD: a population-based study. *Ambul Pediatr, 7*(3), 253-257. doi:10.1016/j.ambp.2007.02.003

Morton, H. E., Gillis, J. M., Zale, E. L., Brimhall, K. C., & Romanczyk, R. G. (2021). Development and validation of the assessment of bullying experiences questionnaire for neurodivergent youth. *Journal of Autism and Developmental Disorders*. doi:10.1007/s10803-021-05330-z

Mottron, L. (2021). A radical change in our autism research strategy is needed: Back to prototypes. *Autism Research, 14*(10), 2213-2220. doi:10.1002/aur.2494

Mottron, L., & Bzdok, D. (2020). Autism spectrum heterogeneity: fact or artifact? *Molecular Psychiatry, 25*(12), 3178-3185. doi:10.1038/s41380-020-0748-y

Munkhaugen, E. K., Gjevik, E., Pripp, A. H., Sponheim, E., & Diseth, T. H. (2017). School refusal behaviour: Are children and adolescents with autism spectrum disorder at a higher

risk? *Research in Autism Spectrum Disorders, 41-42*, 31-38.

doi:https://doi.org/10.1016/j.rasd.2017.07.001

Munkhaugen, E. K., Torske, T., Gjevik, E., Nærland, T., Pripp, A. H., & Diseth, T. H. (2017).

Individual characteristics of students with autism spectrum disorders and school refusal

behavior. *Autism, 23*(2), 413-423. doi:10.1177/1362361317748619

Muthén, B. O. (2001). Latent variable mixture modeling. In *New developments and techniques in

structural equation modeling* (pp. 21-54): Psychology Press.

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the Number of Classes in

Latent Class Analysis and Growth Mixture Modeling: A Monte Carlo Simulation Study.

Structural Equation Modeling: A Multidisciplinary Journal, 14(4), 535-569.

doi:10.1080/10705510701575396

Pan, X., Totsika, V., Nicholls, G., & Paris, A. (2019). Validating GO4KIDDS as a brief measure

of adaptive skills in special education settings for children with severe intellectual

disability. *Journal of Applied Research in Intellectual Disabilities, 32*(2), 280-287.

doi:10.1111/jar.12524

Perry, A., Taheri, A., Ting, V., & Weiss, J. (2015). The GO4KIDDS Brief Adaptive Behaviour

Scale. *Journal of Applied Research in Intellectual Disabilities, 28*(6), 594-597.

doi:10.1111/jar.12143

Rose, C. A., Monda-Amaya, L. E., & Espelage, D. L. (2010). Bullying Perpetration and

Victimization in Special Education: A Review of the Literature. *Remedial and Special

Education, 32*(2), 114-130. doi:10.1177/0741932510361247

Rubin, D. B. (1996). Multiple Imputation after 18+ Years. *Journal of the American Statistical

Association, 91*(434), 473-489. doi:10.1080/01621459.1996.10476908

Schafer, J. L., & Graham, J. W. (2002). Missing data: our view of the state of the art. *Psychol Methods, 7*(2), 147-177.

Shrider, E. A., Kollar, M., Chen, F., & Semega, J. (2021). Income and poverty in the United States: 2020. *Current Population Reports. US Census Bureau*.

Thomas, H. J., Chan, G. C. K., Scott, J. G., Connor, J. P., Kelly, A. B., & Williams, J. (2015). Association of different forms of bullying victimisation with adolescents' psychological distress and reduced emotional wellbeing. *Australian & New Zealand Journal of Psychiatry, 50*(4), 371-379. doi:10.1177/0004867415600076

Tonge, B. J., & Silverman, W. K. (2019). Reflections on the Field of School Attendance Problems: For the Times They Are a-Changing? *Cognitive and Behavioral Practice, 26*(1), 119-126. doi:https://doi.org/10.1016/j.cbpra.2018.12.004

Totsika, V., Hastings, R. P., Dutton, Y., Worsley, A., Melvin, G., Gray, K., . . . Heyne, D. (2020). Types and correlates of school non-attendance in students with autism spectrum disorders. *Autism, 24*(7), 1639-1649. doi:10.1177/1362361320916967

Trammell, B., Wilczynski, S. M., Dale, B., & McIntosh, D. E. (2013). ASSESSMENT AND DIFFERENTIAL DIAGNOSIS OF COMORBID CONDITIONS IN ADOLESCENTS AND ADULTS WITH AUTISM SPECTRUM DISORDERS. *Psychology in the Schools, 50*(9), 936-946. doi:https://doi.org/10.1002/pits.21720

Vidourek, R. A., King, K. A., & Merianos, A. L. (2016). School bullying and student trauma: Fear and avoidance associated with victimization. *Journal of Prevention & Intervention in the Community, 44*(2), 121-129. doi:10.1080/10852352.2016.1132869

Vivolo-Kantor, A. M., Martell, B. N., Holland, K. M., & Westby, R. (2014). A systematic review and content analysis of bullying and cyber-bullying measurement strategies. *Aggression and Violent Behavior, 19*(4), 423-434. doi:https://doi.org/10.1016/j.avb.2014.06.008

Wallace, G. L., Dudley, K., Anthony, L., Pugliese, C. E., Orionzi, B., Clasen, L., . . . Kenworthy, L. (2017). Divergence of Age-Related Differences in Social-Communication: Improvements for Typically Developing Youth but Declines for Youth with Autism Spectrum Disorder. *J Autism Dev Disord, 47*(2), 472-479. doi:10.1007/s10803-016-2972-5

Weller, B. E., Bowen, N. K., & Faubert, S. J. (2020). Latent Class Analysis: A Guide to Best Practice. *Journal of Black Psychology, 46*(4), 287-311. doi:10.1177/0095798420930932

Williams, G. A., & Kibowski, F. (2016). Latent class analysis and latent profile analysis. *Handbook of methodological approaches to community-based research: Qualitative, quantitative, and mixed methods*, 143-151.

Wolraich, M. L., Lambert, W., Doffing, M. A., Bickman, L., Simmons, T., & Worley, K. (2003). Psychometric properties of the Vanderbilt ADHD diagnostic parent rating scale in a referred population. *J Pediatr Psychol, 28*(8), 559-567. doi:10.1093/jpepsy/jsg046

Table 1

Child Demographic Descriptives

Variable	Child (Overall)
Sample Size (N)	482
Male	324
Female	150
Age *M(SD)*	11.51(3.44)
Race *(%)*	
White	65.98
BIPOC	34.02
LGBTQ+ *(%)*	
Yes	14.63
No	85.37
SRS-2 *M(SD)*	70.21(13.86)
VADPRS *M(SD)*	
Inattentive Scale	4.99(3.27)
Hyperactive/Inattentive Scale	3.49(3.02)
CD/ODD Scale	2.09(2.32)
Anxiety/Depression Scale	2.86(3.29)
Problems Scale	2.42(2.06)
ABE *M(SD)*	26.66(21.21)
Adaptive Scale *M(SD)*	33.77(5.72)
School Setting *(%)*	
Public	77.80
Other	22.20
Number of IEP-Related Services *M(SD)*	3.72(3.17)
Time in General Education (%)	
100%	43.22
75%	27.14
50%	5.22
25%	10.44
0%	13.99
School Refusal Frequency *(%)*	
At least once a week	29.12
About once a month	8.57
2-3 times a month	9.85

Every few months	6.64
1-2 times this school year	9.21
Had in past (not currently)	14.99
Never	21.63

Note. SRS-2=Social Responsiveness Survey, Second Edition; VADPRS=Vanderbilt ADHD Diagnostic Parent Rating Scale; ABE=Assessment of Bullying Experiences

Table 2

Parent Demographic Descriptives

Variable	
Sample Size (N)	482
Age *M(SD)*	40.46(8.90)
Race *(%)*	
White	76.11
BIPOC	23.89
SES *M(SD)*	0.00(1.76)
Employed *(%)*	
Full Time	42.86
Part Time/Student	19.73
Stay-at-home parent	29.59
Disabled/Unemployed	7.82
Marital Status *(%)*	
Married	72.35
Not Married	27.64
Geographic Region *(%)*	
Northeast	33.67
Midwest	15.31
South	25.51
West	25.51

Table 3

Missingness Among Data

Variable	*f*	%
General Parent Demographics		
Age	0	0.00
Race	189	39.21
SES	189	39.21
Employment	188	39.00
Marital Status	189	39.21
Geographic Region	188	39.00
General Child Demographics		
Age	0	0.00
Race	164	34.02
LGBTQ+	31	6.43
SRS-2	161	33.40
VADPRS		
Inattentive Scale	126	26.14
Hyperactive/Inattentive Scale	127	26.35
Depression/Anxiety Scale	140	29.05
CD/ODD Scale	134	27.80
Problems Scale	141	29.25
ABE	149	30.91
Adaptive Scale	136	28.22
School-Related Child Demographics		
School Setting	0	0.00
IEP-Related Services	0	0.00
Time in General Education	1	0.21
School Refusal Frequency	15	3.11

Note. SRS-2=Social Responsiveness Survey, Second Edition; VADPRS=Vanderbilt ADHD Diagnostic Parent Rating Scale; ABE=Assessment of Bullying Experiences

Table 4

Preliminary Model Fit Statistics for Examined Latent Profile Models

Variables	Total Scores of SRS-2 & ABE	Subscales of SRS-2 & Total Score of ABE	Total Score of SRS-2 & Subscales of ABE	Subscales of SRS-2 & ABE
AIC/BIC				
AIC	**28,339.48**	35,243.25	33,832.59	43,401.24
BIC	**28,790.70**	35,757.14	34,346.47	43,998.68
Adjusted BIC	**28,447.91**	35,366.75	33,956.08	43,544.81
Entropy	**0.89**	0.74	0.79	0.78
LMR LRT (*p*-value)	**305.00(<.001)**	227.40(0.44)	307.29(0.28)	307.19(0.14)

Note. N = 482. Bold-faced values indicate the best fitting model. AIC = Akaike information criterion; BIC = Bayesian information criterion; LMR LRT = Lo–Mendell–Rubin likelihood ratio test; SRS-2 = Social Responsiveness Scale, Second Edition; ABE = Assessment of Bullying Experiences

Table 5

Model Fit Statistics for Different Class Sizes of the Chosen Model

Variables	3-Class	**4-Class**	5-Class
AIC/BIC			
AIC	28,598.63	**28,339.48**	28,206.30
BIC	28,949.58	**28,790.70**	28,757.79
Adjusted BIC	28,682.97	**28,447.91**	28,338.83
Entropy	0.87	**0.89**	0.84
LMR LRT (*p*-value)	223.20(0.37)	**305.00(<.001)**	179.96(0.63)

Note. N = 482. Bold-faced values indicate the best fitting model. AIC = Akaike information criterion; BIC = Bayesian information criterion; LMR LRT = Lo–Mendell–Rubin likelihood ratio test

Table 6

Continuous Descriptives of Youth by School Refusal Profile

Variables	ND Youth High Refusal, High Gen. Ed *M(SD)*	ND Youth High Refusal, Low Gen. Ed *M(SD)*	ND Youth Low Refusal, Low Gen. Ed *M(SD)*	Community Low Refusal, High Gen. Ed *M(SD)*
Age	11.13(0.25)	10.93(0.37)	12.45(0.61)	11.91(0.33)
SES	-0.49(0.17)	-0.21(0.25)	0.74(0.35)	0.56(0.18)
General Education Freq.	1.66(0.05)	4.60(0.08)	4.25(0.14)	1.19(0.04)
Services	4.39(0.24)	6.14(0.34)	4.02(0.59)	1.51(0.24)
School Refusal Behavior	**2.96(0.17)**	**2.90(.32)**	**5.36(0.30)**	**5.14(0.21)**
Adaptive	32.02(0.46)	28.85(0.94)	35.93(0.73)	38.07(0.28)
ABE	37.74(1.83)	26.68(3.30)	12.45(1.76)	15.56(1.62)
SRS-2	78.23(0.83)	79.95(1.21)	63.75(2.45)	56.24(1.29)
VADPRS				
Inattentive	6.95(0.21)	7.22(0.26)	2.22(0.43)	2.16(0.29)
Hyperactive/Inattentive	4.78(0.26)	6.05(0.37)	1.32(0.28)	1.22(0.18)
CD/ODD	4.18(0.33)	4.22(0.50)	1.20(0.32)	0.91(0.16)
Problems	3.18(0.16)	4.16(0.28)	1.37(0.27)	0.85(0.14)
Anxiety/Depression	2.97(0.21)	2.33(0.34)	1.04(0.37)	1.11(0.19)

Note. ABE = Assessment of Bullying Experiences; SRS-2 = Social Responsiveness Survey, Second Edition; VADPRS = Vanderbilt ADHD Diagnostic Parent Rating Scale

Figure 1

Conditional Probabilities of Child and Parent Demographics