



Consequences of Accommodation: Parental Perceptions of School Staff and Peer Bullying of Children with Food Allergies

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Abstract

Children with food allergies report relatively high rates of bullying compared with the general population. Scholars have raised concerns that children with food allergies may be targeted for bullying because accommodation policies can isolate the child or generate stigma among peers. Yet, few have empirically examined the extent to which accommodation policies relate to bullying victimization or considered bullying beyond that which is committed by peers. This study examines if having a 504 plan and having more serious food allergy conditions are related to bullying victimization among children with food allergies by considering bullying committed by peers and school staff. Data were collected using a web-based survey of parents of children with food allergies ($N = 613$). Results show that having a 504 plan is related to increased odds that children with food allergies are bullied by both peers and school staff.

Keywords Bullying · Food allergies · 504 plan · School staff · Peers

There have been an increasing amount of children diagnosed with food allergies in recent years (Prescott and Allen 2011). In addition to increases in the prevalence in food allergies, children are outgrowing them at a slower pace than in previous years (Savage et al. 2016). Schools are thus regularly dealing with issues pertaining to the health and safety of children with food allergies in the classroom. One way in which schools in the USA frequently manage health and safety issues for children with food allergies is through the establishment of a 504 plan (a law mandating disabled youth receive accommodations in elementary or secondary education institutions in the USA that is typically applied to “hidden” disorders or conditions). These plans specify accommodations to be in place based on the distinct needs of the child and are differentiated from an Individualized Education Plan (IEP) that focuses on a more specific set of conditions, such as autism, ADHD, and various learning disabilities.

While food accommodation policies are intended to protect children from food allergies in terms of prevention and treatment of exposures to the food allergens, there may be unintended negative outcomes as well. In particular, researchers have noted that some food accommodation policies may function to socially isolate children from their peers (Behrmann 2010; Egan and Sicherer 2016). In addition, researchers have found that some food accommodation policies may lead to bullying by marking children with food allergies as different and generating stigma (Lieberman et al. 2010; Rocheleau and Rocheleau 2019). Yet to be examined, however, is if having a 504 plan or the severity of the food allergy status can also lead to bullying. Moreover, few studies have considered other sources of bullying—such as school staff. Research is particularly needed in this area as prior studies have shown a host of deleterious outcomes for children who have experienced maltreatment or abuse from teachers (Brendgen et al. 2007; Delfabbro et al. 2006; Marlow et al. 2013).

This study advances prior research by examining the extent to which having a 504 plan and the perceived severity of the food allergy are related to bullying victimization. A unique contribution is made by focusing on both peers and school staff as being the perpetrators of the bullying experienced by children with food allergies. Data are based on an online survey of parents of children with food allergies who were members of various online support groups ($N = 613$).

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Background Literature

Bullying Victimization and Food Allergy Status

Prevalence rates of bullying victimization vary greatly study by study, largely due to the variability between studies in measurement, reporting method, and sample characteristics (Modecki et al. 2014; Thomas et al. 2015; Vivolo-Kantor et al. 2014). Meta-analyses, however, have estimated that between 14 and 36% of youth have been bullied (Modecki et al. 2014; Nielsen et al. 2010). Rates of bullying victimization have generally been declining since the late 1990s, although some researchers have noted a spike to have occurred in cyberbullying during that time frame (Chester et al. 2015; Perlus et al. 2014; Rigby and Smith 2011).

The vast majority of research on bullying focuses on bullying perpetrated by a child's peer. Fewer studies have focused on adult bullying of children. One study looking at students in 14 schools in Ireland found that 30% of students reported being bullied by teachers (James et al. 2008). Considering teacher reports of bullying, Twemlow et al. (2006) surveyed elementary school teachers in the USA and found that 45% of them reported to have previously bullied a student. Moreover, research looking more broadly at general maltreatment of students by teachers suggests that bullying by teachers may be fairly widespread (Hyman and Perone 1998; Whitted and Dupper 2008). For example, Whitted and Dupper (2008) found that alternative education students reported high rates of adult physical (86%) and psychological (88%) maltreatment. The harms of teacher bullying, harassment, and verbal abuse on children are stark. For example, research has found that children who report being verbally abused are more likely to engage in problem behaviors and poor academic outcomes regarding self-perception of scholastic competence, school performance, intention to complete school, and high school graduation (Brendgen et al. 2007; Delfabbro et al. 2006). Moreover, students with poor relationships with teachers are more likely to develop subsequent psychiatric disorders (Marlow et al. 2013).

Studies on bullying indicate that not everyone is of equal risk to be bullied. Regarding basic demographic characteristics, some research has found that traditional bullying declines as youth age and enter high school (Dake et al. 2003; Nansel et al. 2001; Olweus 1994; Varjas et al. 2008; Wang et al. 2009) and that lower social class youth are more likely to be bullied than others (Jankauskiene et al. 2008; Wang et al. 2009). A number of other characteristics have been found to be related to being bullied, such as sexual orientation (Schneider et al. 2012), body weight (Jankauskiene et al. 2008; Wang et al. 2018), and low self-esteem (Berthold and Hoover 2000; Dake et al. 2003; Jankauskiene et al. 2008). Some of the correlates of bullying victimization are inconsistent in the literature, however, likely due to the same methodological

inconsistencies that have presented problems for determining reliable prevalence rates. For example, racial and ethnic correlates have received mixed findings (Spriggs et al. 2007; Wang et al. 2009). In addition, research has found that the extent and nature of gender differences depend on the type of bullying victimization being assessed (Carbone-Lopez et al. 2010; Kowalski et al. 2014; Olweus 1994; Slonje and Smith 2008).

One group that has consistently reported relatively high rates of bullying victimization is children with food allergies. Researchers have found that between 45 and 60% of children with food allergies have self-reported being bullied (Muraro et al. 2014; Shemesh et al. 2013). In one study looking at children in Italy and using a matched-sample design, Muraro et al. (2014) found that children with food allergies were twice as likely to be bullied compared with children without food allergies. While lower than child reports, parental reports of bullying victimization of children with food allergies also suggest relatively high rates. For instance, a study from a New York clinic reported 36.3% of parents reported that their child with food allergies had been bullied (Shemesh et al. 2013). Studies have also shown that approximately 80% of children with food allergies report being bullied at school and about 80% of children with food allergies report being bullied by a classmate (Lieberman et al. 2010; Shemesh et al. 2013).

The high rates of bullying victimization experienced by children with food allergies are deeply and directly connected to having the food allergy status (Annunziato et al. 2014; Lieberman et al. 2010; Shemesh et al. 2013). For example, Lieberman et al. (2010) surveyed children with food allergies and their caregivers who attended a Food Allergy and Anaphylaxis Network (FAAN) conference in New York, finding that 78.8% of children who were bullied indicated that they were bullied simply for having a food allergy. Some research has shown that the food allergy status is more likely to be the cause for the bullying among younger children compared with older children (Muraro et al. 2014). Often children with food allergies are bullied in a very distinct way that involves the actual food allergen, such as being threatened or forced to touch and even eat the food allergen (Lieberman et al. 2010). Such acts can be traumatizing for this group of children who already have low levels of mental, physical, and social health (Lieberman and Sicherer 2011; Polloni et al. 2015). Indeed, bullying victimization among children with food allergies has been related to several deleterious health outcomes (Annunziato et al. 2014; Lieberman et al. 2010; Shemesh et al. 2013).

Accommodations and Bullying Victimization

Research has suggested that the relatively high rates of bullying victimization among youth with food allergies are either directly or indirectly related to food accommodation policies

at schools. For example, Lieberman et al. (2010) found that carrying an EpiPen or other medications, being socially isolated, or receiving special treatment was all related to bullying victimization among youth with food allergies. In a more comprehensive examination of the relationship between food accommodation policies and bullying victimization, Rocheleau and Rocheleau (2019) administered a survey to parents of children with food allergies, finding that both self-carry rescue medication and hand washing food accommodation policies increased the odds of bullying victimization among youth with food allergies. Moreover, Dean et al. (2016) conducted in-depth interviews with children with food allergies and their parents in Canada. They found that 75% of parents reported having negative implications of disclosing the health status of their child to their school, such as exclusion, discrimination, and bullying. Parents expressed deep concerns about the safety of their child and wished that their child did not have to receive special attention because it differentiated their child from others. Similarly, based on interviews with children with food allergies and their parents, Elliott et al. (2015) found that children with food allergies reported more positive experiences at school and reported higher quality of life when they maintained higher levels of social interaction and felt they were perceived as “normal.” These studies, and more general concerns about the unintended consequences of food accommodation policies, have led scholars to recommend that food accommodation policies should minimize isolation and encourage confidentiality and anonymity (Behrmann 2010; Egan and Sicherer 2016).

Thus, research indicates that one reason children with food allergies are being bullied by their peers is because food accommodation policies are labeling them as different and putting a spotlight on that difference in school settings while socially isolating children. An abundance of research has reported that victims of bullying are often targeted for being perceived as different in some way by their peers (Bibou-Nakou et al. 2013; Buchanan and Winzer 2001; Frisén et al. 2008; Hamarus and Kaikkonen 2008; Thornberg 2010; Varjas et al. 2008). The difference marker is often an attribute or characteristic of the child, and it can quickly become the most salient feature through which others view the child and generates social stigma (Dixon et al. 2004). The stigma associated with being different can be so strong that even those who do not engage in the bullying behavior will shun the victim, blame the victim, or not intervene (Hamarus and Kaikkonen 2008; Thornberg 2015).

This is consistent with theories dealing with labeling and stigmatization (Goffman 1963; Link et al. 1989). Goffman (1963) described stigma in terms of an individual possessing an attribute that makes him different from others, one that is deemed discrediting by a social audience. He went on to discuss how those who are stigmatized are shunned by others in

society. While focusing on individuals with mental disorders, Link et al. (1989) developed a modified labeling theory that proposed direct relationships among labeling, stigmatization, and discrimination. In subsequent work, Link and Phelan (2001) attempted to more firmly conceptualize stigma, arguing that stigma entails the following components: people identify and apply a label to mark a difference; negative stereotypes or undesirable attributes are tied to the label; those labeled are perceived in the context of “us” and “them” categories; those labeled experience a status loss and discrimination; and power differences permit stigma to be generated from labels. Food accommodation policies can function to solidify labels by magnifying “us” and “them” categories when policies isolate and differentiate food allergy children from others. The bullying victimization of children with food allergies can therefore be viewed as a discriminatory reaction to the stigma derived from having a “food allergy” label applied.

Another reason that food accommodation policies may lead to bullying victimization among youth with food allergies is that food accommodation policies can generate increased burdens and strains on teachers. The increased demands and negotiations that teachers are frequently required to do with children with food allergies can be a source of strain that leads to feelings of resentment, anger, and frustration which are then taken out on the child. This may be especially likely for kids with more severe allergies, as they likely would place even greater demands on teachers. For example, teachers may have to change lesson plans that utilize food, alter the way they have class parties, manage questions or frustrations from other parents, inspect the food that is brought in the classroom, be more vigilant about monitoring and supervision within the classroom, or take time out of their day to frequently wash hands and wipe down classroom materials. Thus, by having food accommodation policies in place children with food allergies may be at risk of being bullied by overburdened and strained teachers—the very people in charge of keeping them safe at school.

This is consistent with the general strain theory (Agnew 1992). Agnew argues that negative experiences, such as the failure to achieve goals, the presentation of negative stimuli, and the removal of positive stimuli, generate negative emotions (i.e., anxiety, anger, fear, depression, etc.) which, in turn, increase the likelihood of engaging in crime and deviance. Thus, general strain theory argues that involvement in crime and deviance, such as the perpetration of bullying, is essentially a coping mechanism to experiencing negative emotions from strains. While limited, there has been some research attempting to explain why teachers bully children that fits with this perspective. In a sample of elementary school teachers in the USA, Twemlow et al. (2006) found that teachers attributed a number of explanations for bullying children, including lacking administrative support, lacking training with respect to discipline, fear of being hurt by students,

having too large classes, and being burned out or envious of intelligent students. Also, research has found that teachers who are bullied by students or who have had a history of being bullied are more likely to bully students in the classroom (Terry 1998; Twemlow et al. 2006). Each of these explanations can be viewed as sources of strain that generate negative emotions and, as the teachers indicated, lead to bullying victimization.

Current Study

Despite reporting relatively high rates of bullying victimization, research attempting to explain why children with food allergies are bullied by their peers has been sparse. The few existing studies, however, indicate that food accommodation policies either directly or indirectly are related to bullying victimization by isolating children with food allergies and identifying them as different from their peers (Dean et al. 2016; Lieberman et al. 2010; Rocheleau and Rocheleau 2019). Few have previously examined the extent to which children with food allergies are bullied or harmed by their teachers or other school staff (see Shemesh et al. 2013 for exception). Prior research, however, indicates that when teachers generally bully or harm students they often do so as a response from experiencing a strain or negative emotions (Terry 1998; Twemlow et al. 2006).

This study expands on existing research of bullying victimization among children with food allergies by looking at the role of accommodation policies and the perceived severity of the food allergy status play in bullying youth with food allergies by their peers and school staff. Although there is great variability both between countries and within the USA in terms of how schools receive and implement accommodation policies (Behrmann 2010), research has demonstrated that such accommodation policies can serve to differentiate, isolate, or discriminate against children with food allergies (Behrmann 2010; Dean et al. 2016; Egan and Sicherer 2016; Elliott et al. 2015; Lieberman et al. 2010). For those who have a 504 plan established, it serves as the source for many of the accommodation policies a child will have in place and may therefore be related to bullying by peers. Having a 504 plan may also be a direct source for bullying by serving as a status marker. While fellow peers at school will not have direct information about if a student has a 504 plan or not, administrators, teachers, nurses, and other staff are typically made aware of the plan or, in some cases, involved in the development or approval of the plan. Similarly, perceived severity may also contribute to bullying victimization by making the food allergy status more visible and by placing even greater strains on teachers and school staff. Thus, the *first hypothesis* is that having a 504 plan will be related to having higher odds of bullying victimization committed by peers and school staff among youth with food allergies. The *second hypothesis* is

that higher levels of perceived severity of the food allergy status will be related to having higher odds of bullying victimization committed by peers and school staff among youth with food allergies.

Methods

Data and Sample

Data were collected by administering an online survey to parents of children with food allergies over a 4-month period in 2016. Various online social network sites that served as support groups for parents of children with food allergies were initially targeted to participate in this study. Moderators of the online social network sites were first contacted to grant permission to post a link to the survey in the forum. The moderators were then asked to generate follow-up posts or “bump up” the survey link in the discussion forum on a weekly basis for approximately 1 month following the initial post. Ultimately, eight social network groups, varying by type of allergy (i.e., milk, nut, egg, soy, sesame, or general), activity, and membership size (ranging from 851 to 13,809 members), granted permission to post the survey. While no direct questions regarding country of residence were asked, group members appeared to largely reside in the USA based on the number of responses to questions relevant to US school systems and laws. However, a handful of members disclosed that they resided in other countries in response to open-ended questions.

There were 1009 parents with 1218 children with food allergies in total. Parents were asked questions pertaining to the food allergies and experiences of up to three specific children. Those with more than three children with food allergies (3 parents of the 1009 indicated that they had four or more children with food allergies) were asked to report on just their first three children with food allergies. The sample was restricted to looking at children who were between the ages of 4 and 18 and who were in school, reducing the sample to 730 children. This sample was also restricted by randomly selecting only one child per household when respondents reported on multiple children to minimize potential clustering effects by household or school. This further reduced the sample to 622 children. Finally, the sample was further restricted by removing 9 cases where children were homeschooled. This resulted in an analytic sample size of 613. A few variables had missing data between 10 and 15% (504 plan, perceived severity, child age, child female, and parent married) and parent social class had 35% missing cases (largely due to missing data on household income). Thus, missing data were multiply imputed using the ICE software in Stata that uses chained equations for imputation.

Measures

Dependent Variables

Both dependent variables were based on the question “Who has ever bullied your child?” Responses to the original question included the following: child’s peer; parent of child’s peer; school staff; and other. The variable *child bullied by peers* is therefore created where 1 = child’s peer perpetrated a bullying incident and 0 = child’s peer did not. Similarly, the variable *child bullied by school staff* is created such that 1 = school staff perpetrated a bullying incident and 0 = school staff did not.

Independent Variables

There are two key independent variables in this study used to predict peer and school staff bullying. First, the variable *child has 504 plan* is based on the question “Does your child have a 504 plan?” Responses are coded 1 = yes and 0 = no. Second, the variable *perceived food allergy severity* is from the question “On a scale of 1 to 10, how severe would you say your child’s food allergies are?” Responses range from 1 = not very severe to 10 = very severe.

Control Variables

This study controls for several demographic characteristics that have been found to be related to bullying (Berthold and Hoover 2000; Chapell et al. 2006; Jankauskiene et al. 2008; Olweus 1994; Perlus et al. 2014; Wang et al. 2009). The variables *child age* (ranging from 4 to 18) and *child female* (1 = female; 0 = other sex) capture the age and sex of the respondent’s child. There were no direct questions about the child’s race, but the survey did ask about the responding parent’s race. While recognizing that a parent’s race and child’s race do not always match up, a control variable capturing parental race is used. Due to the distribution of responses, the variable *parent White* is created where 1 = respondent is White, non-Hispanic, and 0 = other race or ethnicity. The family social class background of the child is measured with the variable *parent social class*. This variable is created by taking the mean of questions gauging the annual household income (8-point scale ranging from “\$0 – \$10,000” to “Over \$250,000”) and the highest level of education of the responding parent (8-point scale ranging from less than high school to doctorate). Finally, models also controlled for the dummy variable *parent married* (1 = yes and 0 = no) to gauge the marital status of the responding parent.

Results

Descriptive statistics are reported in Table 1. According to the table, 32.63% of parents reported that their child had been

bullied by the child’s peer. This is somewhat lower than other studies where children with food allergies are reporting bullying victimization (Muraro et al. 2014; Shemesh et al. 2013). Considering staff bullying, just 7.67% of parents reported that their child had been bullied by a school staff member. A little over a third (36.84%) of parents responded that their child had a 504 plan in place at their school, and the mean level of perceived food allergy severity of the child’s food allergy was fairly high at 8.25. Also, the mean age of the child was 8.52 and 40.28% of the children were female. With respect to parent characteristics, 90.66% of responding parents were White, the mean social class was 5.52, and 93.30% of responding parents were married.

Prior to formally testing the main hypotheses, supplemental analyses (not shown) were conducted to explore potential collinearity issues among the main independent variables. Specifically, the Pearson correlation revealed that the variables child has 504 plan and perceived food allergy severity had a relatively weak but significant association of 0.25. Moreover, the variance inflation factors for the variables in the regression models were no higher than 1.09 (perceived severity), and no variable reported a tolerance of less than 0.92 (perceived severity). Collectively, the supplemental analyses thus indicate no significant issues with collinearity.

Table 2 uses logistic regression in Stata to examine if having a 504 plan and perceived food allergy severity are related to bullying perpetrated by peers and school staff. According to the table, having a 504 plan is significantly related to peer bullying. Specifically, having a 504 plan is related to the increase in odds of being bullied by a child’s peer by 173%. Child’s age is also significantly related to peer bullying, where higher levels of age increase the odds of being bullied by a child’s peer.

Models examining the extent to which having a 504 plan and perceived food allergy severity are related to school staff bullying are reported in Table 3. As before, the table shows that having a 504 plan is significantly related to school staff bullying, where having a 504 plan is associated with an increased odds of being bullied by school staff by 230%. Child’s age is again a significant and positive predictor of school staff bullying. Interestingly, and unlike peer bullying, parental social class is significantly related to bullying by school staff such that higher levels of social class are associated with decreased odds of being bullied.

Discussion

This study advances prior research on bullying victimization among children with food allergies by examining the extent to which having a 504 plan and the perceived severity of a food allergy status were related to bullying victimization among youth with food allergies. This study makes a distinct

Table 1 Descriptive statistics
(*N* = 613)

Variable	Mean or %	SD	Minimum	Maximum
Child bullied by peers	32.63%	–	0.00	1.00
Child bullied by school staff	7.67%	–	0.00	1.00
Child has 504 plan	36.84%	–	0.00	1.00
Perceived food allergy severity	8.25	0.09	1.00	10.00
Child age	8.52	0.16	4.00	18.00
Child female	40.28%	–	0.00	1.00
Parent White	90.66%	–	0.00	1.00
Parent social class	5.52	0.07	1.00	8.00
Parent married	93.30%	–	0.00	1.00

SD standard deviation

contribution by considering bullying victimization perpetrated by both peers and school staff. Results supported the first hypothesis, as having a 504 plan was related to higher odds of bullying victimization committed by both peers and school staff. The second hypothesis, that perceived food allergy severity would be related to bullying victimization, was not supported in this study.

The findings that children with a 504 plan report higher odds of bullying victimization perpetrated by peers are consistent with prior research on food accommodation policies and bullying among children with food allergies (Lieberman et al. 2010; Rocheleau and Rocheleau 2019). Researchers have expressed concerns that specific accommodation policies, such as the carrying of an EpiPen or sitting at separate lunch tables, can serve to isolate children with food allergies and draw attention to their food allergy status among peers (Behrmann 2010; Egan and Sicherer 2016). In essence, policies can label children as different, which leads to the

development of a stigmatized identity that is often a source of bullying (Rocheleau and Rocheleau 2019). This study shows that the 504 plan itself, or a ramification of having one, is also a potential cause for bullying victimization among youth with food allergies.

One reason that having a 504 plan, regardless of the specific policy it entails, is related to bullying perpetrated by peers is because schools may take a more proactive, consistent, and aggressive approach in implementing the accommodation policy when a 504 plan is present. Perhaps this approach is more likely to draw attention to the food allergy status of the child to their peers. On the other hand, it could be that there are specific policies that are typically part of having a 504 plan for children with food allergies that are driving the association to bullying. For example, prior research has found that youth with food allergies who self-carry an EpiPen are more likely to be bullied compared with those who do not (Lieberman et al. 2010; Rocheleau and Rocheleau 2019). It could also

Table 2 Logistic regression of child bullied by peers on child has 504 plan and perceived food allergy severity (*N* = 613)

Variable	Child bullied by peers		
	Exp (<i>b</i>)	<i>b</i>	SE
Child has 504 plan	2.73***	1.00	0.20
Perceived food allergy severity	1.04	0.04	0.05
Child age	1.20***	0.18	0.03
Child female	1.20	0.18	0.20
Parent White	0.79	– 0.23	0.32
Parent social class	0.89	– 0.12	0.09
Parent married	0.82	– 0.20	0.40
Intercept		– 2.08**	0.79

† *p***p* < 0.05***p* < 0.01****p* < 0.001

SE standard error

Table 3 Logistic regression of child bullied by school staff on child has 504 plan and perceived food allergy severity (*N* = 613)

Variable	Child bullied by school staff		
	Exp (<i>b</i>)	<i>b</i>	SE
Child has 504 plan	3.30**	1.19	1.18
Perceived food allergy severity	1.12	0.11	0.12
Child age	1.15**	0.14	0.05
Child female	1.69	0.52	0.57
Parent White	0.60	– 0.51	0.30
Parent social class	0.56***	– 0.58	0.09
Parent married	0.64	– 0.44	0.36
Intercept		– 1.82	1.30

† *p***p* < 0.05***p* < 0.01****p* < 0.001

SE standard error

be that certain types of children are more likely to seek out a 504 plan are also more likely to be bullied, such as those with more serious food allergy conditions. Future research should examine explanation for why having a 504 plan is related to bullying victimization among youth with food allergies, such as identifying specific policies in 504 plans that may drive the relationship to bullying, exploring the extent to which 504 plans “out” the food allergy status of the child, and examining if characteristics of the types of children or families who employ 504 plans affect the relationship to bullying.

The findings with respect to bullying victimization by school staff are especially noteworthy, as prior research has largely only considered peers as the source of bullying among children with food allergies (see Shemesh et al. 2013 for exception). While a relatively small percentage of parents reported knowledge of their child being bullied by school staff, having a 504 plan in place was associated with higher odds of bullying victimization perpetrated by school staff. One reason school staff are more likely to bully children with 504 plans and with more severe food allergy statuses may be the extent to which the accommodation policies and oversight of children with more severe food allergies create additional demands on school staff. Prior research has found that teachers who bully children often attribute strains and negative emotions as sources for their bullying, such as lacking administrative support, lacking training with respect to discipline, and having too large classes (Twemlow et al. 2006). Thus, it could be that teachers and school staff are resentful of or experience increased strains from having to implement accommodation policies that can disrupt their routine, force them to change the way they teach, create additional work and responsibility, and create problems with other parents. More research is needed to explore why school staff are more likely to bully children with food allergies who have a 504 plan and more severe food allergies. In particular, research that examines the extent to which teachers experience strain by implementing policies associated with a 504 plan would be fruitful, as well as research that more carefully considers the causal ordering as children and parents may seek out 504 plans to protect themselves against bad experiences with teachers or schools.

These particular findings regarding the bullying of children with food allergies by school staff are alarming and raise a number of concerns. Most readily, one concern is about the extent to which children with a 504 plan are supported by school staff—the very people in charge of the care and management of the child. If school staff are more likely to bully children with 504 plans because they are resentful about having to provide extra work, then it is possible that they are less likely to vigorously enforce the accommodation policy in place. Thus, there are basic health and safety concerns that may arise. Another concern is that when school staff bully children with food allergies, they are setting the tone for other children. Not only might other children model the bullying

behavior they witness from school staff but by bullying children with food allergies school staff may be reinforcing the stigmatized identity that children with food allergies already frequently have. Finally, another set of concerns is with respect to the consequences of being bullied by school staff. Children with food allergies already have relatively low levels of self-esteem, high levels of anxiety, high levels of depression, and other mental and social health issues (Lieberman and Sicherer 2011; Polloni et al. 2015). Moreover, many children report being afraid of attending school (Dean et al. 2016; Elliott et al. 2015). Being bullied by teachers and staff may worsen already poor mental and social health conditions and reinforce a dislike or fear of school. Future research should carefully examine the short-term and long-term consequences of being bullied by school staff among children with food allergies.

Although this study found substantial support for the first hypothesis, it should be discussed that this study failed to find support for the second hypothesis as perceived food allergy severity was related to neither peer bullying nor school staff bullying. At first glance, this is surprising as it was expected that perceived food allergy severity would significantly relate to bullying since children with more severe food allergy statuses would necessitate more drastic food accommodation policies and higher workloads for school staff. However, closer consideration as to how the variable was measured and how the mean and standard deviation were examined could explain the null findings. In particular, a recall that there was limited variability in the perceived food allergy severity variable as responses was clustered at the high end of the scale—meaning that most parents perceived the food allergy condition as fairly severe. Supplemental analyses (not shown) measuring perceived food allergy severity as binary using different cut-offs were explored but did not affect the results. Future research should reconsider food allergy severity using a more objective measure, such as indicated by a professional’s diagnosis or by the skin and blood testing.

Other noteworthy findings also warrant some discussion. First, this study found that age was related to bullying victimization, where higher levels of age were associated with higher odds of bullying. This is counter to other studies using samples of children with food allergies that find a negative relationship between age and bullying (Muraro et al. 2014; Polloni et al. 2015). The discrepancy in findings is likely due to the fact that the age characteristics are vastly different in this study compared with others. Particularly, this study has a much younger age range compared with other studies by considering all school-aged children; whereas other studies looking at age have focused on those in middle school or high school. Second, it is interesting that higher levels of social class were related to lower odds of bullying victimization perpetrated by school staff. One interpretation of this finding is that teachers perceive the hardships differently based on the

social class of the child. This would be consistent with other research that finds teachers perceive youth from lower social class backgrounds less favorably and with lower expectations than those from higher social class backgrounds (Auwarter and Aruguete 2008; Hauser-Cram et al. 2003; Ready and Wright 2011; Rist 1970). However, another interpretation could be that teachers are more emboldened to bully youth from lower social class backgrounds because the parents of these children have less social capital and less presence in schools (Horvat et al. 2003; Lareau 1987). These findings thus present an avenue for future research to explore further.

There are limitations to this study. The first is that this study relies on parental reports of bullying victimization rather than self-reports from children. Parents are not always aware of the bullying that occurs at school (Shemesh et al. 2013) and thus this study likely undercounts the actual prevalence of bullying victimization, especially considering research using self-reports of bullying victimization (Muraro et al. 2014; Shemesh et al. 2013). However, the prevalence of bullying in this study does approximate other studies that have also examined parental reports of bullying victimization among children with food allergies (Lieberman et al. 2010; Shemesh et al. 2013). That being said, given the more affluent sample there may also be a number of parents who over-report incidents of bullying as they may mischaracterize unpleasant experiences, perceived unfair treatment, or dissatisfaction as bullying.

A second limitation is with respect to the measurement of the perceived severity and 504 plan variables. The perceived severity is measured according to parental perceptions of the severity of food allergies among their child. While a parent may perceive the food allergy to be severe, this perception may be different from the perception of a certified allergist or from medical tests. Also, the 504 plan measure does not specify the reason for the 504 plan. While it is likely that the 504 plan is due to the food allergy status of the child given that this is a sample of parents of children with food allergies and that IEP's are used for many of the other common disabilities (autism, ADHD, learning disabilities, etc.), there are other potential sources for the 504 plan, such as diabetes, epilepsy, or some forms of heart disease. In addition, being cross-sectional, it is difficult to ascertain the causal ordering between obtaining a 504 plan and staff bullying. As previously mentioned, it may very well be that those motivated to implement a 504 plan for their food allergy status are doing so in response being victimized or having their needs neglected by school staff or administrators.

Thirdly, there are likely selection biases in place with this sample. For example, parents of children who have food allergies who join online support groups may be different from others in a number of ways, such as being from more privileged backgrounds. Moreover, the bullying of their child may be the very reason some parents of children with food

allergies join online support groups. Therefore, the sample may not generalize to all parents of children with food allergies. Relatedly, while this study did not account for country of residence, the vast majority of respondents likely resided in the USA based on responses to questions pertaining directly to US educational systems and laws. As prior research has shown that cultural differences could have an effect on the nature and interpretation of bullying (Fong et al. 2017), results should not be generalized beyond the USA.

Limitations aside, this study makes a unique and important contribution to research on bullying victimization in finding that children with food allergies have higher odds of being bullied by peers and school staff if they have a 504 plan than if they do not. Given the health concerns, children with food allergies already face an uphill battle when it comes to having positive experiences in school. Those children with food allergies who may very well need the most accommodations are also more likely to be targets of bullying by peers and school staff, and may make that uphill climb to positive school experiences insurmountable. More research is needed to examine the reason peers and school staff bully children with food allergies, as well as the consequences of bullying for children with food allergies in order to establish effective ways to intervene. In addition, health care professionals and school officials should be more cognizant of the potential unintended consequences of food accommodation policies for children. For example, health care professionals could more frequently address psychological and social concerns of children with food allergies (or their parents) and can emphasize the importance of inclusion when filling out paperwork or otherwise discussing allergy-related accommodation plans for schools. Similarly, school officials should make sure staff have proper education about the seriousness of food allergies and should consider inclusivity when determining what policies to implement or how to implement them. Schools should be a place where children with food allergies can feel safe, comfortable, and eager to learn—not a place where they have to worry about being bullied.

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