

Adolescents' Self-Report of School Satisfaction: The Interaction between Disability and Gender

Abstract

School satisfaction is a critical indicator of well-being for every child and adolescent. Yet studies have rarely investigated whether school satisfaction varies depending upon participant characteristics and school-related social factors. Here we investigated whether disability and gender moderate adolescents' self-report of school satisfaction. We also explored the role of mediating variables such as teacher support, parent support, and relationships with peers (including friendships and also bullying). Our analysis of data from 3,830 adolescents revealed a significant interaction between disability and gender. Disabled girls with disabilities reported the lowest school satisfaction, an effect which appeared to be more strongly mediated by perceived lack of teacher support than other variables. Our findings are novel in disaggregating school satisfaction data by both disability and gender to reveal and showing a striking interaction between these variables and in investigating the role of mediating variables relating to school-related social factors.

Impact and Implications

School satisfaction is vital for well-being yet we know little about how school satisfaction varies depending upon participant characteristics and school-related social factors. Our analysis of 3,830 adolescents has revealed a striking interaction between disability and gender in self-reported school satisfaction. ~~G~~Disabled girls with disabilities report the lowest satisfaction, an effect that appears to be more strongly mediated by teacher support than parent support or peer experiences.

School satisfaction is a critical indicator of child and adolescent well-being and a key component within the broader construct of quality of life. ~~“A positive school experience is considered a resource for health and well-being, while a negative one may constitute a risk factor, affecting mental and physical health. Liking school consequently has been identified as a protective factor against health-compromising behaviors, and not liking—or not feeling connected to—school is associated with health-risk behaviors, low self-rated health and increased somatic and psychological symptoms.” (World Health Organization, 2016, p. 51). This view aligns with psychological theories of how well-being relates to school satisfaction in children and adolescents (e.g., Baker et al., 2003; Forrest et al., 2012).~~

Yet, school satisfaction data are rarely disaggregated by multiple participant characteristics.

This is a missed opportunity in terms of enriching theory, illuminating areas of need, and informing policy to enhance child and adolescent well-being. Indeed, appropriate disaggregation of data is now recognized as a pressing issue in international and national efforts to monitor well-being (United Nations Economic and Social Council Statistical Commission, 2016) with particular focus on disability, gender, ethnicity, indigenous status, and household poverty (UNICEF, 2016). In the current study, we examined the possibility that disability and gender might moderate adolescents' self-report of school satisfaction and explored potential mediating variables such as teacher support, parent support, friendships with peers, and bullying.

Quality of life, well-being, and school satisfaction

The literature on quality of life includes both objective measures and subjective measures and there is ongoing debate about the benefits and limitations of these different measures (Binder, 2014). Subjective measures often pertain to an individual's sense of well-being derived from a range of life experiences which may include school experiences depending on the age of the participant.

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While there is no single agreed-upon definition of school satisfaction, it is clear that school experiences contribute in an important way to child and adolescent well-being, and their broader sense of quality of life, given the amount of time spent at school and the way that schooling can shape educational, vocational, social, and health life outcomes (e.g., McCabe, Bray, Kehle, Theodore, & Gelbar, 2011; Slee & Skrzypiec, 2016). From a health perspective, it has been noted that: “A positive school experience is considered a resource for health and well-being, while a negative one may constitute a risk factor, affecting mental and physical health. Liking school consequently has been identified as a protective factor against health-compromising behaviors, and not liking – or not feeling connected to – school is associated with health-risk behaviors, low self-rated health and increased somatic and psychological symptoms.” (World Health Organization, 2016, p. 51). This view aligns with psychological theories of how well-being relates to school satisfaction in children and adolescents (e.g., Baker et al., 2003; Forrest et al., 2012).

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Defining Disability

Article 1 of the UN Convention on the Rights of Persons with Disabilities defines disability as including ‘...those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.’ However, operational definitions of disability vary widely across surveys and administrative data collections (Madans, Loeb & Altman, 2011; Madans, Mont & Loeb, 2016; Mont, 2007; Sabariego et al, 2015; Sabariego et al, 2016). While most surveys rely on self-report of disability status (using a wide variety of question formats), administrative data collections typically rely on external assessment of disability status within the context of the determination of eligibility for specific services or supports. At present there is no ‘gold standard’ for operationally defining disability in a manner consistent with the UN Convention (Sabariego et al, 2016).

Self-report of school satisfaction in children and adolescents with disabilities

~~The monitoring of school satisfaction, like other aspects of quality of life, can be investigated via student is enhanced when individuals are able to self-report their experiences.~~

This fits with a ~~more~~ general shift away from viewing children and adolescents as objects of research to viewing them as agents (Clavering & McLaughlin, 2010), a shift that also applies to those with disabilities (Bailey et al., 2015; Savage et al., 2014). However, self-report of school satisfaction among ~~disabled~~ students with disabilities has received ~~very~~ little attention.

Of the handful of studies that have been conducted, there have been reports of lower school satisfaction for ~~disabled~~ students with disabilities compared with students who do not have disabilities. For instance, Watson and Keith (2002) assessed 140 American school children in grades K-12 (aged 5-19 years) using the Quality of Student Life Questionnaire (Keith & Schalock, 1994). While the questionnaire is not specifically designed to explore school satisfaction some of the questions do relate to this topic (e.g., "How do people treat you at school?" is a question within the Social Belonging factor). They found that children with disabilities who were receiving special education services reported lower satisfaction by comparison with children without disabilities on the factors of Satisfaction, Well-being, and Social Belonging (there was no statistically significant difference between groups for the factor of Empowerment/Control). By contrast, some studies have reported ~~non-disabled peers (Watson and Keith, 2002), reports of~~ no differences in school satisfaction between children with and without disabilities these groups (Gilman et al., 2004; Ginieri-Coccosis et al., 2012; McCullough & Huebner, 2003), while others have reported as well as reports of higher satisfaction for ~~disabled~~ students with disabilities (e.g., Brantley, Huebner, & Nagle, 2002 ~~Brantley, Huebner and Nagle, 2002~~). All of the above mentioned investigations included modest sample sizes (n < 200) and, none examined the intersection between disability and gender. Moreover, these previous studies used instruments that included only a single

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question, or a very small number of questions, about school satisfaction and/or school-related social factors.

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Why focus on gender as well as disability?

Health research rarely explores gender-specific experiences even though some services, interventions, health promotion strategies, and policies relating to public health may well be strengthened by a gender-specific focus (Eckermann, 2000). As disability is often seen as a health issue, it is perhaps not surprising that there has been relatively little attention to the possibility that gender and disability may interact in moderating aspects of quality of life such as self-reported school satisfaction. Regardless, there are reasons why it is important to examine the possibility of such an interaction. As Meekosha (2006) stated “People with impairments operate in worlds where gendered roles apply and gendered expectations abound...” (p. 169-170). Meekosha provided examples such as disabled males experiencing questioning of their masculinity in relation to issues of sexual access and other aspects of social participation.

Nosek and Hughes (2003) suggested that gender is of central importance in disability research and discussed a number of reasons why this is the case ~~(e.g., disabled females’ increased risk of harassment and abuse)~~. One example they discussed pertains to females’ risk of harassment and abuse. Like females without disabilities, females with disabilities face increased risk of harassment and abuse compared to male counterparts (e.g., sexual and physical violence) but may experience additional disability-related risk of abuse that is linked with reliance on others for assistance with personal needs. Such issues may arise in a variety of settings including school settings.

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Viewing the interaction of disability and gender from a different angle, that of adolescents’ recreational and sporting activities, Anderson, Wozencroft and Bedini (2008) emphasised the dual disadvantage facing females with disabilities. These individuals not only

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contend with the general lack of encouragement to participate in sport often faced by females, but also the stigma and physical barriers associated with disability. It is conceivable that these kinds of issues could arise in schools. Interestingly, studies of students without disabilities have highlighted that gender may interact with the link between physical activity and self-report of life satisfaction (e.g., Zullig & White, 2011).

Possible mediating effects of teacher support, parent support, and peer relationships

A number of factors may relate to a student's sense of subjective well-being and potentially mediate relationships among disability, gender, and school satisfaction. These include the age of the individual (Lin et al., 2011; Strózik, Strózik & Szwarc, 2016) and school-related social factors such as support from teachers, parental support, and relationships with peers. There is some evidence to suggest that of these school-related social experiences, teacher support carries particular importance for students liking school and feeling satisfied at school. A large study of almost 40,000 American students in 6th, 8th, and 10th Grades found that even after peer friendships and other school-related factors had been taken into consideration, teacher characteristics of caring, respecting, and praising contributed to how much students liked school (Hallinan, 2008). Similarly, Jiang, Huebner and Siddall (2013) reported that teacher-student relationships were the most important factor for explaining variance in self-reported school satisfaction over time. A German study of students in over 100 schools distinguished between teacher-student interpersonal activities relating to classroom management versus social support (Aldrup, Klusmann, Lüdtke, Göllner, & Trautwein, 2018). In addition, analyses revealed that students' and teachers' perceptions of classroom management by teachers converged whereas there were differences in students' and teachers' perceptions of social support provided by teachers. Students' perceptions of social support provided by teachers was strongly related to students' self-reported school satisfaction. Unfortunately, noneither

of these studies reported on included students with disabilities and there has been little attention given to effects of gender.

The current study

Previous studies of self-report of school satisfaction among children and adolescents with disabilities are few in number and generally include modest sample sizes. Furthermore, the possibility that factors such as support provided by teachers and parents, as well as peer relationships (including friendships and/or bullying), might mediate the relationship between disability, gender, and school satisfaction have not been investigated previously.

In the current study we addressed these gaps in the research by undertaking secondary analyses of the *2014 Australian Child Wellbeing Project (ACWP)*. We explored the following four research questions:

1. Are there any differences in school satisfaction between adolescents with and without a disability?
2. Is the magnitude of any differences in school satisfaction moderated by student gender?
3. Which school-related social experiences mediate the relationships among disability, gender, and school satisfaction?
4. Do the school-related social experiences which mediate the association between disability and school satisfaction vary by student gender?

In view of the mixed findings among the few studies that have been conducted we did not have directional hypotheses regarding the possible moderating effects of disability and gender. However, we anticipated that school-related social experiences would likely mediate any relationships among disability, gender, and self-reported school satisfaction and anticipated that teacher support might emerge as a stronger mediator than other variables.

Method

We undertook secondary analysis of data collected in the ACWP, a national survey of young people's subjective well-being conducted by researchers at Flinders University, The University of New South Wales, and the Australian Council for Educational Research with funding from the Australian Research Council and partner organizations including the Australian Government Department of Education and Training, the Australian Government Department of Social Services, the Australian Institute of Health and Welfare, and the Australian Bureau of Statistics.

The survey was designed after initial qualitative research with young people. It contained questions from a variety of existing surveys and some questions developed specifically for the ACWP survey covering a wide range of domains (family, friends, school, community/neighbourhood, health, money and material well-being, demographics, and other cross-cutting domains).

The survey was trialed in co-operation with 10 schools which elicited survey responses from 177 participants. During the main survey administration phase the survey was delivered online and students were able to log in and out as many times as they wanted to in order to complete the survey. The completion rate was high with only 5.5% of participants failing to complete the survey.

Full details of the materials and methods are available in the project's final report (Redmond, Skattebol, Saunders et al., 2016), a technical report (Lietz, O'Grady, Tobin et al., 2015), and associated study documentation. These documents detail key methodological issues such as sampling weights and can be accessed at this website:

www.australianchildwellbeing.com.au. -In addition, a recently published journal article reporting some results from analysis the ACWP dataset outlines many of these key methodological issues (Redmond, Huynh, & Maurici, 2018).

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Sampling

The ACWP survey was distributed to a nationally representative two stage probability sample of students in Years 4, 6 and 8.¹ In stage one, 449 schools were sampled, and at the second stage, students were sampled within schools. Of the schools sampled, 180 provided data (40%). Within-school student sampling involved either including the whole year level, or one intact class group from the year level. A total of 5,440 students participated. Within responding schools, the student response rate was 31%, giving an overall response rate of 12%.

Consent

The study was approved by the University of New South Wales Human Research Ethics Committee and the Social and Behavioural Research Ethics Committee at Flinders University. It also received ethics approval from relevant jurisdictional authorities and community service organizations (Redmond, Skattebol, Saunders et al., 2016). Informed consent was provided by individual participants and their parents and participation was entirely voluntary.

~~Data collection procedures~~

~~Data collection was undertaken via an online questionnaire. Participants were able to log in and out as many times as needed until they finished the survey.~~

Inclusion criteria

Our secondary analysis was undertaken on a sub-sample of children who met two criteria. First, they responded 'yes' or 'no' to a disability identifier question (see Appendix A). Second, they were a member of the Year 8 sub-sample. We focused on Year 8 children given

¹ The ACWP dataset does not contain the age of students – only their year of schooling. In Australia, formal schooling begins at around age 5 or 6 in Kindergarten. Elementary school comprises Kindergarten and Years 1-6. High school comprises Years 7-12.

concerns over pooling results across year groups and statistical power (Year 8 students formed 72% of the total unweighted sample). The selected subsample included information on 3,830 students (89% of the unweighted Y8 sub-sample) [in 101 schools](#). [The number of children nested in schools ranged from 1 to 118 with a median of 31](#). In Australia Year 8 primarily covers the age range 13-14 years.

Measures

The survey instrument includes questions ~~from a variety of sources including that were selected to be comparable wherever possible with~~ the international *Health Behaviour in School Aged Children* study (www.hbsc.org) and/or the international *Children's World's* study (www.isciweb.org). ~~Self-report of school satisfaction was measured by six items taken from the Longitudinal Study of Australian Children (<http://www.growingupinaustralia.gov.au/>).~~ Information on ~~these sources and the~~ psychometric properties ~~of~~ scales used in ACWP are provided by Lietz et al., (2015). See Appendix A ~~of the current paper~~ for measures, ~~and their sources, -relating to-referred to as:~~ disability, child demographics, school satisfaction, teacher support, parental support for school, close friendships, bullied at school.

Approach to analysis

~~To address our first research question In the first stage of analysis~~ we estimated the unadjusted statistical significance and effect size of differences in school satisfaction between students with and without disabilities. For ordinal scales we used ordinal regression to estimate the statistical significance of the association between disability and school satisfaction and cumulative odds ratios to estimate effect sizes. For binary measures we used adjusted F, a variant of the second-order Rao-Scott adjusted chi-square statistic, to estimate statistical significance and prevalence rate ratios (PRR) to estimate effect sizes. These analyses were undertaken using the complex sample routines in SPSS 22 to take account of the non-random sampling strategy used in the survey, ~~including the clustering involved in~~

sampling schools) and used post stratification weights to ensure that the sample was representative of the Australian school population with regards to State/Territory jurisdiction, school sector (Catholic, Government, Independent), participant sex, geographic location (metropolitan, provincial and remote), and relative socio-economic disadvantage of the suburb where the school is located (Redmond et al. 2016). The use of complex sample routines in SPSS (or equivalent svyset and svy: commands in STATA) are widely recommended for the analyses of complex survey data (e.g., Jones & Ketende, 2010).

To address our second research question ~~In stage 2~~ we estimated the moderating effect of student gender on the relationship between disability and school satisfaction. To address our third research question ~~In stage 3~~ we estimated the extent to which four contextual variables (teacher support, parental support, number of close friends, bullying) may have mediated the relationship between disability and school satisfaction. To address our final research question ~~In stage 4~~ we estimated the extent to which student gender may have moderated the effects of any significant mediating variables.

Moderation was examined by estimating a moderated ordinary least squares (OLS) regression model. Mediation was examined using standard path-analytic approaches derived from OLS regression to estimate indirect effects through potentially mediating variables. Moderated mediation (~~stage 4~~ research question four) was examined by estimating the indirect effects apparent in the previous stage of analysis 3, but conditioned on the moderator (student gender), again using OLS regression to estimate all effects of interest. In all stages bootstrapping procedures (involving 5,000 samples) were used to estimate the 95% confidence intervals of coefficients. Sensitivity analyses were undertaken using a binary outcome and logistic regression. All analyses ~~in stages 2-4~~ addressing research questions two to four were undertaken using the PROCESS procedure written for IBM SPSS (Hayes, 2013).

Results

Characteristics of students

The analytic sub-sample included information on 3,830 students. Of these: 1,947 (50.8% were male and 1,883 (49.2%) were female; 182 (4.8%) were of Aboriginal or Torres Strait Islander heritage; 253 (6.6%) were of culturally and linguistically diverse (CALD) status ([commonly used to refer to all of Australia's non-Indigenous ethnic groups other than the English-speaking majority](#)); 494 (12.9%) lived in a single parent headed household; and 87 (2.3%) lived in a household in which no adult was in paid employment.

Characteristics of students with self-reported disability

A total of 421 Y8 students (11.0% of the weighted sub-sample) reported that they had a disability. [Compared with students who did not self-report a disability, students self-reporting a disability were significantly more likely to: be of Aboriginal or Torres Strait Islander heritage \(9% vs. 4%; prevalence ratio \(PRR\)=2.00 \(1.13-3.60\), \$p<0.05\$ \); and to be living in a household in which no adult was in paid employment \(5% vs. 2%; PRR=2.50 \(1.11-5.62\) \$p<0.05\$ \). There were no statistically significant differences between the percentage of students with/without disability with regard to: gender \(female 46% vs. 50%; PRR=0.94\(0.84-1.04\)\); CALD status \(6% vs.7%; PRR=0.81 \(0.53-1.23\)\); and living in a single parent headed household \(16% vs. 13%; PRR=1.30 \(0.90-1.88\)\).](#)

Is disability associated with lower school satisfaction?

[Median scores for school satisfaction and potential mediators disaggregated by disability status and student gender are presented in Table 1.](#)

[\[insert Table 1\]](#)

Self-reported disability was associated with significantly lower satisfaction on each of the six items of the scale (Table [2+](#)), the overall school satisfaction scale (cumulative [odds](#)

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[ratio\(OR\)](#)=0.30 (0.19-0.47), $p<0.001$), and scoring in the bottom population decile on the overall scale (OR=2.68 (1.88-3.82), $p<0.001$).

[Insert Table 24](#)

Does the association between disability and school satisfaction vary with student gender?

The association between disability for each scale item and overall scale score is presented separately for male and female students in [Table 32](#). For each item and the overall scale score, the strength of the effect size was significantly greater for female students than male students. The results of OLS regression indicated significant main effects for disability (model coefficient -0.27, 95% CI 0.11-0.43, $p<.0001$) and a significant disability by gender interaction (model coefficient -0.26, 95% CI 0.05-0.47, $p<.05$). The R^2 increase due to the inclusion of the interaction term was also significant (R^2 change $F=5.65(1, 3663)$, $p<0.05$).

[Insert Table 32](#)

Estimated marginal means of standardized school satisfaction were -0.01 for girls and -0.02 for boys without disabilities, and -0.54 for girls and -0.30 for boys with disabilities. [This interaction is displayed in Figure 1](#). Sensitivity analyses using a binary outcome gave very similar results.

[Insert Figure 1](#)

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Which school-related social experiences mediate the association between disability and school satisfaction?

Estimated unstandardized path coefficients for the mediation analysis are presented in Figure 24. Note that the analyses reported in this section are collapsed across gender. Path *a* estimates the association between disability status and exposure to putative mediators. In the analysis, disability was significantly associated with increased severity of bullying, reduced teacher support, reduced parental support for school, and having fewer close friends. Path *b* estimates the strength of association between exposure to the putative mediators and school satisfaction. All four variables were independently associated with school satisfaction. We tested all *b* paths for the possibility of moderation by disability status. No moderating effects were observed indicating that exposure to the mediating variables had a similar strength of association with school satisfaction for students with and without disability. Overall, these results suggest that: (1) students with disabilities are more likely to be exposed to low levels of each of the four putative mediating variables; and (2) the effects of exposure on school satisfaction are similar for students with/without disabilities (i.e., there is no evidence to suggest that students with disabilities are more or less resilient or vulnerable to the impact of exposure than their peers).

Insert Figure 2

Estimated effect sizes for the total 'indirect effect' of disability on school satisfaction through the putative mediators (i.e., combining the effects of both the *a* and *b* paths) were as follows: -0.10 (se = 0.03) for teacher support, -0.08 (se = 0.01) for bullying, -0.03 (se = 0.01) for parental support, and -0.01 (se = 0.01) for number of friends. All paths and overall estimates of indirect effects were statistically significant. However, the indirect effects

through teacher support and bullying were markedly stronger than the indirect effects through either parental support or number of friends. Sensitivity analyses using a binary outcome gave similar results.

Do the school-related social experiences which mediate the association between disability and school satisfaction vary by student gender?

In the final stage of analysis we examined whether student gender moderated (changed) the mediating relationships described in the preceding section. At its simplest, gender moderation of the mediating relationships between disability and school satisfaction could occur in two ways: (1) gender could change the relationship between disability and exposure to the mediating variable (path *a* in Figure 3-2); (2) gender could change the relationship between exposure to the mediating variable and subsequent school satisfaction (path *b* in Figure 3-2).

Moderation of the relationship between disability and exposure to mediating variables

Significant evidence of moderated mediation was present for teacher support (Index of moderated mediation = -0.19, se = 0.05) and number of friends (Index of moderated mediation = -0.01, se = 0.01), but not for parental support or bullying. In both instances the strength of the mediating relationship was greater for female students. Teacher support appeared to be more important in understanding these gender differences than friendships. Sensitivity analyses using a binary outcome gave broadly similar results.

Moderation of the relationship between exposure to the mediating variable and subsequent school satisfaction

Significant evidence of moderated mediation was present only for number of friends (Index of moderated mediation = -0.02, se = 0.01), with the mediation effect being stronger for female

students. While statistically significant, the effect size is very small. No significant moderated mediation effects were evident when the analyses were repeated with a binary outcome. Given these marked gender differences in the mediating pathways, we repeated the mediation analysis separately for girls and boys (Figure 2). For girls the total indirect effects of disability on school satisfaction were highly statistically significant for all four pathways ($p < 0.004$), with the effect sizes associated with teacher support (0.18, $se = 0.03$) and bullying (0.11, $se = 0.02$) being markedly greater than those for parental support (0.05, $se = 0.01$) and number of friends (0.03, $se = 0.01$). For boys, only the indirect effect through bullying was significant (0.06, $se = 0.01$).

[Insert Figure 3](#)

Discussion

School satisfaction is a critical indicator of well-being for every child and adolescent. Yet studies have rarely considered whether self-reported school satisfaction varies depending upon participant characteristics such as disability and gender. No previous research has examined whether school-related social experiences such as support provided by teachers and parents, as well as peer relationships, might mediate the relationships among disability, gender, and school satisfaction. Our analysis of data from the *2014 Australian Child Wellbeing Project (ACWP)*, examined these issues in a sample of 3,380 Year 8 students in Australian mainstream schools.

Our results showed that: (1) students with disabilities reported significantly lower levels of school satisfaction than their non-disabled peers; (2) the association between disability and school satisfaction was moderated by gender, with significantly larger decrements in school satisfaction for ~~disabled~~ female students with disabilities; (3) the

association between disability and low school satisfaction was mediated independently by four variables (increased rates of bullying, lower levels of reported teacher support, lower levels of reported parental support for school, lower number of close friends); (4) these mediating pathways were characterized by increased risk of exposure of ~~disabled~~ students with disabilities -to the mediating variables – there was no evidence to suggest that ~~disabled~~ students with disabilities were more or less vulnerable or resilient to the effects of exposure on subsequent school satisfaction; (5) the mediating pathway associated with teacher support was moderated by student gender, with significantly larger decrements in teacher support reported by ~~disabled~~ female students with disabilities.

This study adds to the sparse and somewhat inconsistent literature on the relationship between disability and school satisfaction. Findings have been mixed with some studies reporting no effect of disability on school satisfaction (Gilman et al., 2004; Ginieri-Coccosis et al., 2012; McCullough & Huebner, 2003) while other studies have found an effect of disability but in opposing directions (Brantley et al., 2002, found higher school satisfaction in those with disabilities; Watson & Keith, 2002, found lower school satisfaction in those with disabilities). These previous studies included modest sample sizes (140-160 students) and used instruments that did not comprehensively examine school satisfaction and school-related social factors. The current study reports on a large sample that completed a survey with multiple questions relating to various aspects of school satisfaction.

Second, this is the first study to examine the extent to which gender moderated the relationship between disability and school satisfaction. The moderation effect of gender observed in the current study was striking –~~disabled~~ female students with disabilities reporting markedly lower levels of school satisfaction than ~~disabled~~ males with disabilities and ~~non-disabled~~ students without disabilities. Student gender also moderated the association

between disability status and teacher support, with significantly larger decrements in teacher support reported by ~~disabled~~-female students with disabilities.

Third, our findings suggest that lower school satisfaction may be primarily related to lower satisfaction with teacher support, higher rates of exposure to bullying and, to a much lesser extent, lower levels of parental support and lower number of close friendships. As noted, gender-based differences in perceived levels of teacher support may account for the much lower levels of school satisfaction reported by ~~disabled~~-female students with disabilities. Broadly speaking, this finding is in line with previous studies of ~~non-disabled~~ students without disabilities that have indicated that teacher support is a key contributor to school satisfaction (e.g., Hallinan, 2008; Jiang, Huebner, & Siddall, 2013; Kim & Kim, 2013).

The findings reported here can assist in enriching our theoretical perspectives, illuminating possible areas of need, and, in the longer term, informing policy to protect against low school satisfaction in adolescents at risk (e.g., ~~disabled~~ girls with disabilities). For example, in discussing their developmental-ecological perspective on healthy school environments, Baker et al. (2003) suggested that there may be relatively small associations between ~~participant characteristics such as~~ gender and school satisfaction. However, the results of the current study suggest a striking interaction between disability and gender with regard to school satisfaction – something to consider when developing or revising our theoretical frameworks.

Limitations and future directions

The final overall response rate for the survey used to collect the data in the ACWP was 12%. This may be considered low, however ~~However~~, this rate reflects the combined decisions of school managers to allow their schools to take part in the project, the willingness of whole

year levels or intact classes to take part, and the requirement for informed consent by response rate for individual students and their parents. Another limitation is that the ACWP survey did not differentiate among different types of disability. It is possible that the relationships between school satisfaction, disability, gender, and mediating variables might differ depending on the nature of the adolescent's disability (cf., Jones et al., 2012). Unfortunately, there is no way to know whether that is the case based on the ACWP dataset.² Another point to consider is that ~~Finally, some view self-reported disability status as problematic because it may be erroneous and may result in under-reporting or over-reporting. While self-report of disability is used in most health and social surveys. While independent assessment of disability is not necessary for some forms of disability we acknowledge that independent assessment of disability status is typically used within the context of the determination of eligibility for specific services or supports in an administrative context. At present there is no 'gold standard' for operationally defining disability in a manner consistent with the UN Convention (Sabariego et al, 2016). Our results need to be carefully considered in the context of a particular operational definition of disability. can be valuable in some cases. Having said that we believe~~ However, we adhere to the view that it is empowering for individuals to self-report their disability status and would suggest that future surveys combine self-report of disability status with independent confirmation. ~~Finally, if this research were to be undertaken in~~ It may be valuable in other geographical locations it may be useful to add survey questions as appropriate. For example, in a US setting it may be appropriate to ask students "Are you in Special Education?" or "Do you have an IEP (Individualised Education Program)?" In addition, where collection of data relating to Aboriginal or Torres Strait Islander heritage and CALD status is the norm in the Australian context (Sawrikar & Katz, 2009), researchers in

² A report by the Australian Institute of Health and Welfare (AIHW, 2004) reported on disability in Australian children aged 0-14 years of age in 1998. That report noted that the most common disability was physical/diverse disability followed by intellectual/learning disability, followed by sensory/speech disability, followed by psychiatric disability, followed by disability related to acquired brain injury which was the least common disability.

other settings may wish to collect other data regarding the ethnicity of participants. On the whole, we feel that these limitations do not substantially weaken the findings of the results that we report here. However, we suggest that additional research examining the interaction between disability and gender with regard to adolescents' school satisfaction ~~the nature of adolescents' disability might consider, perhaps by obtaining~~ converging sources of evidence regarding assessment of disability status and type from the student and others involved in caring for that student, and including questions that may be pertinent in particular geographical locations would be valuable in gaining a better understanding of the interaction between disability and gender.

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Despite these limitations the ACWP survey has a number of strengths. Notably, multiple questions relating to school satisfaction were asked. Moreover, questions avoided terms such as 'satisfaction' and 'satisfactory' that children and adolescents might find difficult to conceptualize (as per the recommendations of Taylor et al., 2010). In addition, the ACWP survey contained questions related to school-related social experiences that enable analyses of mediating variables as reported here.

~~Further, we~~ hope that our findings will stimulate research on a number of issues. For example, it would be valuable to obtain additional independent measures of teacher support to investigate whether there is a correlation between students' disabled adolescent girls' and boys' perceived support in these domains and independent reports. And it would be valuable to canvass teachers' views on how the interaction between disability and gender might affect adolescents' school satisfaction (e.g., see the special issue edited by Pugach, Blanton & Florian, 2012). However, as noted, recent research has highlighted that students' and teachers' perceptions of social support by teachers do not necessarily align and that students appear to be especially sensitive to the social support they receive from teachers by comparison with their peers (Aldrup et al., 2018).

In future studies, it would be valuable to explore other sources of gender related differences in school satisfaction. As noted, research on disability and gender has raised issues such as increased risk of sexual and physical abuse and increased barriers to physical activity experiences by females with disabilities (Anderson et al., 2008; Nosek & Hughes, 2003). It would be worthwhile examining these issues in school settings and in relation to self-reported school satisfaction.

More generally, our results suggest that it is important to consider the broader implications of an interaction between gender and disability for future ~~research~~, policy, and practice (see also Eckermann, 2000; Gaub & Carlson, 1997; Thompson, Caruso & Ellerbeck, 2003). Denny and colleagues (2010) investigated the role of schools in promoting students' well-being, however, their focus was not on the interaction between disability and gender. It would be valuable to consider how schools might focus on strategies targeting disability and gender issues to protect against low school satisfaction. For example, might it be possible to offer school managers and teachers support in better understanding gender-related disability issues? Might it be possible for students, themselves, to actively participate in these kinds of discussions? Although it is beyond the scope of the current study to outline specific strategies we hope that our research might initiate relevant conversations among stakeholders within schools.

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Figure 1: Unstandardised path coefficients for mediation analysis

Figure 2: Unstandardised path coefficients for mediation analysis for girls (a) and for boys (b)

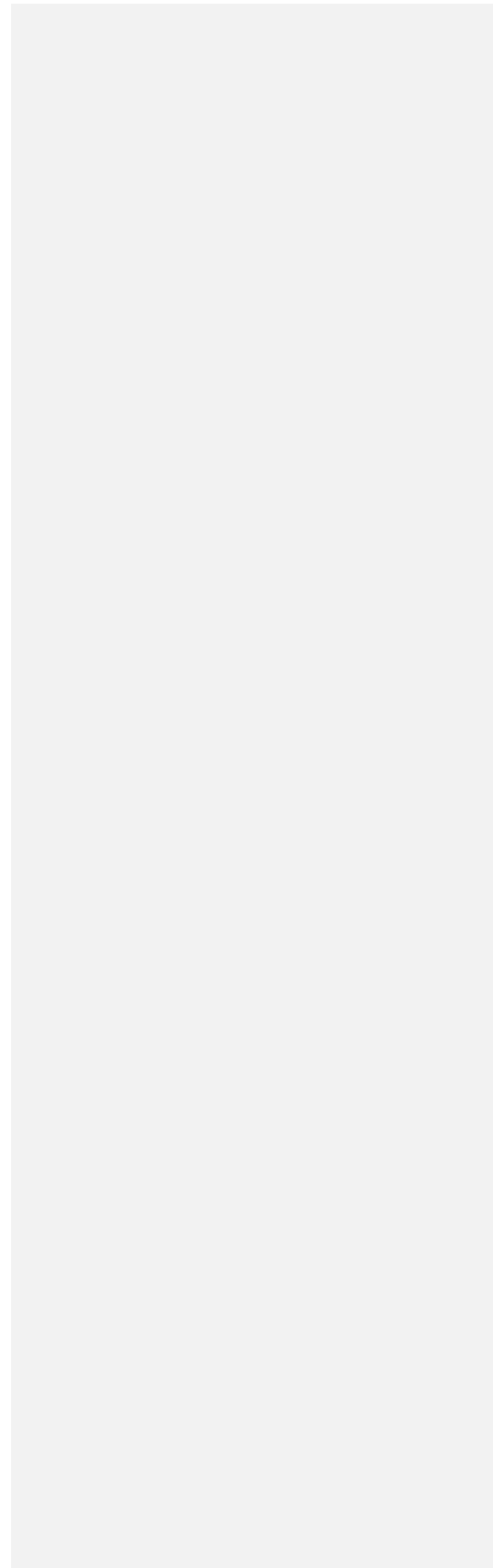


Figure 1

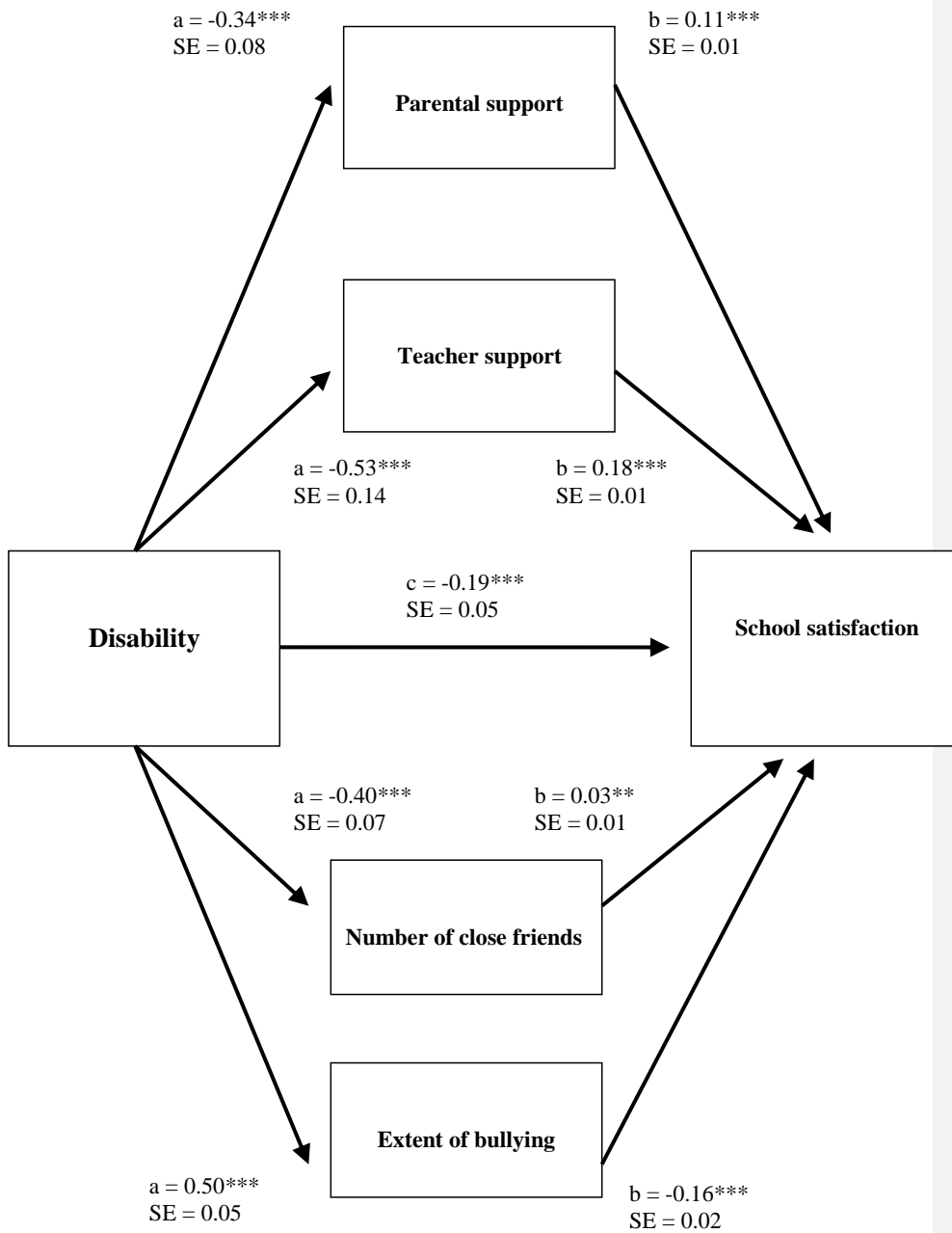
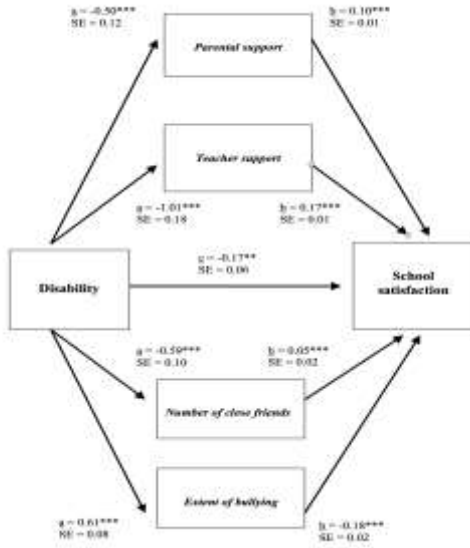
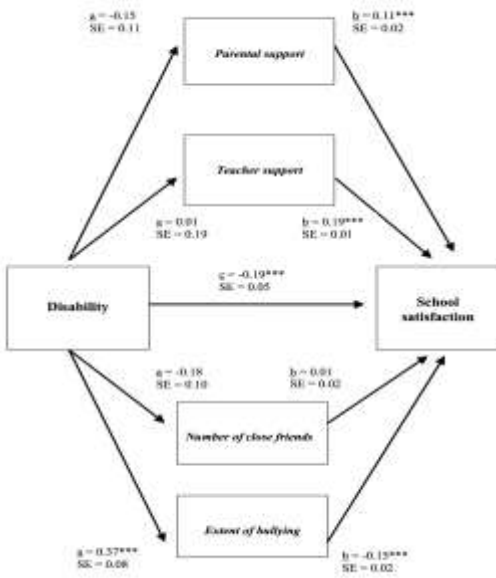


Figure 2

GIRLS



BOYS



<u>Table 1: Median scores on outcome (school satisfaction) and potential mediators by disability status and student gender</u>				
	<u>Participants with a Disability</u>		<u>Participants without a Disability</u>	
	<u>Boys</u>	<u>Girls</u>	<u>Boys</u>	<u>Girls</u>
<u>School satisfaction</u>	<u>11</u>	<u>9</u>	<u>12</u>	<u>12</u>
<u>Parental support</u>	<u>6</u>	<u>6</u>	<u>7</u>	<u>7</u>
<u>Teacher support</u>	<u>6</u>	<u>4</u>	<u>7</u>	<u>7</u>
<u>Number of friends</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>
<u>Extent of bullying</u>	<u>2</u>	<u>4</u>	<u>0</u>	<u>0</u>

Table 24: School satisfaction among Y8 students with and without self-reported disability

<i>My school is a place where</i>		strongly disagree	disagree	agree	strongly agree	Cumulative OR odds ratio and p
<i>... I feel happy</i>	With disability Disabled	11.9%	25.3%	50.4%	12.4%	0.42 (0.31-0.58), p<0.001
	Without disability Not	4.5%	14.2%	61.2%	20.0%	
<i>... I really like to go to each day</i>	With disability Disabled	20.6%	33.0%	37.4%	9.0%	0.48 (0.37-0.64), p<0.001
	Without disability Not	7.4%	30.7%	49.8%	12.0%	
<i>... I find that learning is a lot of fun</i>	With disability Disabled	17.2%	35.0%	38.2%	9.7%	0.56 (0.43-0.73), p<0.001
	Without disability Not	8.4%	29.2%	51.2%	11.1%	
<i>... I feel safe and secure</i>	With disability Disabled	8.8%	16.9%	56.6%	17.6%	0.46 (0.35-0.59), p<0.001
	Without disability Not	3.9%	9.4%	56.0%	30.7%	
<i>... I like learning</i>	With disability Disabled	11.8%	25.5%	51.0%	11.8%	0.59 (0.46-0.76), p<0.001
	Without disability Not	6.9%	18.8%	56.6%	17.6%	
<i>... I get enjoyment from being there</i>	With disability Disabled	15.0%	25.6%	45.8%	13.5%	0.48 (0.36-0.65), p<0.001
	Without disability Not	6.2%	17.4%	57.9%	18.5%	

Table 32: The association between disability and school satisfaction for male and female Y8 students

<i>My school is a place where</i>	Male Cumulative odds ratio OR and p	Female Cumulative OR-odds ratio and p
<i>... I feel happy</i>	0.61 (0.40-0.93), p<0.05	0.28 (0.17-0.47), p<0.001
<i>... I really like to go to each day</i>	0.67 (0.43-1.05), n.s.	0.32 (0.19-0.53), p<0.001
<i>... I find that learning is a lot of fun</i>	0.69 (0.50-0.96), p<0.05	0.44 (0.28-0.69), p<0.01
<i>... I feel safe and secure</i>	0.61 (0.40-0.94), p<0.05	0.33 (0.22-0.48), p<0.001
<i>... I like learning</i>	0.75 (0.57-1.00), n.s.	0.45 (0.29-0.68), p<0.001
<i>... I get enjoyment from being there</i>	0.71 (0.45-1.11), n.s.	0.31 (0.19-0.49), p<0.001
<i>Overall satisfaction</i>	0.63 (0.44-0.89), p<0.05	0.29 (0.18-0.46), p<0.001

Appendix A

Disability

Self-reported disability was measured by a single item: *Have you had a disability for a long time (more than 6 months) (such as hearing difficulties, visual difficulties, using a wheelchair, mental illness)?* Response options were: yes, no, not sure.

Child demographics and family socio-economic status (SES)

Self-report information was collected on the student's self-reported age, sex, culturally and linguistically diverse (CALD) status, and indigenous status. Child self-report was also collected on two indicators of family SES: (1) living in a household in which no adult was in paid employment; (2) living in a single parent headed household.

School satisfaction

Self-report of school satisfaction was measured by six items taken from the Longitudinal Study of Australian Children (<http://www.growingupinaustralia.gov.au/>); *My school is a place where ...*

1. ... *I feel happy.*
2. ... *I really like to go to each day.*
3. ... *I find that learning is a lot of fun.*
4. ... *I feel safe and secure.*
5. ... *I like learning.*
6. ... *I get enjoyment from being there.*

Each item was rated on four point Likert scale (strongly agree ... strongly disagree). The six items demonstrated good internal consistency ($\alpha = 0.91$) in the selected sub-sample and were combined into a single (additive) scale. Overall satisfaction scores were tri-modally distributed (with small peaks at both extremes) and demonstrated significant skew and

kurtosis. In addition to deriving a total scale score, we derived binary measures for each item (very dissatisfied vs. other responses) and the overall scale (scoring in the lowest population decile vs. not).

Teacher support

Three items, each reported on a four point Likert scale, were used from the *California Healthy Kids Survey* (Constantine & Bernard, 2001, <http://chks.wested.org/>). 'At my school there is a teacher or other adult who really cares about me... who believes that I will be a success... who listens to me when I have something to say.' Response options were: 'Not at all true', 'A little true', 'Pretty much true', 'Very much true'. The three items demonstrated good internal consistency in the selected subsample ($\alpha = 0.84$) and were consequently combined into a single (additive) scale.

Parental support for school

Three items, each reported on four point Likert scale, were used to evaluate parental support for school. 'How often do the following things happen My parents ask me what I am learning in school... My parents make sure that I sat aside time for my homework... My parents talk to my teachers(s).' The first two items were taken from the *Progress in International Reading Literacy Study* (Martin et al., 2007). Response options were: 'Every day or almost every day', 'Once or twice a week', 'Once or twice a month', 'Never or almost never'. The third item was developed by the ACWP team. Response options were: 'At least every week', 'Once or twice a term', 'Once or twice a year', 'Never or almost never'. The items, which showed moderate to poor internal consistency in the selected sub-sample ($\alpha = 0.51$), were combined into a single (additive) scale.

Close friendships

A single item adapted from the HBSC was used; *How many close friends do you have?*

Bullied at school

Six items, taken from the *Australian Covert Bullying Prevalence Study* (Cross et al., 2009) were used to assess the prevalence of exposure to being bullied.

1. *Students deliberately ignored me or left me out of a group to hurt me.*
2. *I was teased in nasty ways.*
3. *I had a student tell lies about me behind my back, to make other students not like me.*
4. *I have been made to feel afraid I would get hurt.*
5. *I had secrets told about me to others behind my back, to hurt me.*
6. *A group decided to hurt me by ganging up on me.*

Response options were: 'This did not happen to me this term'; 'Once or twice'; 'Every few weeks'; 'About once a week'; 'Several times a week'. The six items demonstrated good internal consistency ($\alpha = 0.90$) in the selected sub-sample and were combined into a single (additive) scale.