CHILDREN'S SOCIAL/EMOTIONAL CHARACTERISTICS AT ENTRY TO SCHOOL: IMPLICATIONS FOR SCHOOL NURSES.

ABSTRACT

Children entering school need to build healthy peer relationships; school, however, is the central place for bullying. School nurses have a growing focus on providing care for students with social, emotional, and behavioural problems. We examined the relational development of children at school entry in regard to aggression and empathy, showing that teacher-reported aggression decreased between Pre-primary and Year One, while empathy increased between Year One and Year Two classes. No gender difference was found in teacher-reported total, or covert aggression. Understanding how development of empathy can be supported in children at school entry is important, thereby supporting development of prosocial behaviour and decreasing bullying. School nurses must understand the importance of surrounding children with safety in relationships as they begin school.

Keywords. Aggression, empathy, mental health, bullying, school nurse, social regulation, emotion regulation

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Conflict of interest statement

No conflict of interest has been declared by the authors.

INTRODUCTION

As members of a multidisciplinary team, school nurses advocate to support health and learning in all children and families. Social and emotional development are as important to health and learning as physical and cognitive development, but little is known about social and emotional development at school entry (Schonert-Reichl, Stewart Lawlor, Oberle, & Thomson, 2009). These children need a great deal of support. The school nurse is able to collaborate with teachers and other professional colleagues in the school community to encourage positive responses to normal development in all children as they begin school, promoting life-long patterns of health and wellbeing (Forbes, White, Ullman, & Murgatroyd, 2007). This paper briefly reviews literature regarding children's social and emotional development and the role of school nurses in supporting social competence. The results of a cross-sectional study are presented, and implications for nurses working in primary schools are discussed.

BACKGROUND

School nurses work with teachers and parents for early identification of, and intervention for, children's health concerns, which are not only related to illness or injury, but also to somatic symptoms (no objective sign of illness or injury), school avoidance, and bullying (Ladwig & Khan 2007, Shannon et al. 2010, Vernberg et al. 2011). Students who have difficulty with social and emotional adjustment to school, and who are bullied or who bully others, present frequently to school nurses (Shannon et al. 2010). Such patterns of presentation are associated with mental health problems including depression, anxiety, and suicidal ideation (Achenbach 1982, Heyne et al. 2002, Shannon et al. 2010, Vernberg et al. 2011). School nurses have an important role in accurate identification and appropriate referral of these students (Ladwig & Khan 2007, Shannon et al. 2010), and also focus on prevention.

Increasing rates of mental health disorders in developed nations are related to societal

and cultural factors including aggression, bullying, and reduced social cohesion (Eckersley 2011). Childhood development for physical aggression usually peaks at two to four years of age (Runions 2008, Tremblay 2004). As children develop cognitive awareness within the context of their family and social relationships, they learn to take on roles in relation to behaviour. Some develop a prosocial response in which they learn to care about how other children feel and to inhibit a natural impulse to use physical aggression. Others continue to physically aggress (overt aggression), or learn more subtle forms of covert relational aggression, often purposely hidden from adults, in which the bully seeks to destroy a child's connectedness to others (Cross et al. 2007). Such relational victimization has been strongly related to depression and loneliness, more so than overt aggression (van der Wal et al. 2003). Communication via virtual social networking has caused rapid change in the nature and reach of covert relational aggression.

As children enter school they build healthy peer relationships; school however, is the central place for bullying (Barker et al. 2008, Cross et al. 2007, Runions 2008), which peaks as children enter both primary and secondary school (Commissioner for Children and Young People 2011). Cook et al. (2010) found that the success of bullying interventions has been limited, and any success has been in changing children's knowledge and perceptions, rather than behaviour. This raises the question of how to most effectively support the development of social competence at school entry as a form of preventive health. Social competence refers to social interaction that will support positive relationships. In peer relationships, social competence meets the developmental needs of the individual child and of others in the peer group. Supporting the development of empathy in school-aged children is a potential solution to bullying (Gordon 2003), but pathways of normal development of empathy and aggression remain unclear.

As with aggression, there is a cognitive shift in the development of empathy. Affective empathy is the ability to feel with another; cognitive empathy is to use cognitive means to

understand the perspective of another (Catherine & Schonert-Reichl 2010, Hunter 2003). Cognitive aspects of empathy develop at a later age than affective or emotional aspects, possibly after five years of age (Hunter 2003). From eight years, children begin to acknowledge internal psychological states (Catherine & Schonert-Reichl 2010, Hunter 2003). Younger children may be more inclined to use external cues to understand or respond to emotions (Catherine & Schonert-Reichl 2010). There is, however, common ground to both affective and cognitive aspects of empathy, in that both concern responsiveness to others (Davis 1983).

To promote outcomes of wellbeing in children, it is necessary to understand the development of empathy, rather than focus purely on teaching children to control negative behaviour. A cognitive element exists in development of aggression and empathy, in which children understand the perspective of others rather than just responding to the emotions another child displays. The age at which this shift occurs, and its nature, is unclear. Furthering understanding of such development may provide an avenue to support prosocial behaviour at school entry. This study examines the development of covert relational aggression, and empathy, at school entry.

METHODS

Design

We conducted a cross-sectional observational study at a low fee paying private school, using a convenience sample of 155 children (students in six classrooms across Pre-primary to Year Two) in 2010. Children were educated in a structured environment with required attendance, Pre-primary students attending five full days. Pre-primary children were aged between 58 and 68 months, Year One 70 to 80 months, and Year Two 80 to 92 months. Appropriate institutional ethics approval was obtained.

Procedure

Following both university and school ethics approval, children in Pre-primary to Year Two were recruited via letter from the school to their homes. Parents completed a questionnaire containing demographic characteristics. All data were de-identified and coded.

Predictor variables were year at school of each child at the time of assessment, and gender. Potential confounding variables were the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) via postcode, in which higher deciles indicate relative advantage (Australian Bureau of Statistics 2006); mother's education level; and number of siblings living in the child's home.

Outcome measures were total aggression, covert aggression, and sympathy/empathy. The inventory of measures was compiled and adapted by researchers who are evaluating the *Roots of Empathy* intervention programme in Canada (Hymel et al. 2009). Each child and teacher questionnaire has previously been used in this age group in Western Australia (Kendall et al. 2006).

Measures

Psychometric properties of each measure:

Child completed measures

My Friends, which is the *Lack of Peer Intimacy* component of the *Relational Provisions Loneliness Questionnaire (RPLQ)* (Goossens & Beyers 2002), measures children's sense of belonging in the peer group report. The *Lack of Peer Intimacy* component of the RPLQ is reliable with a Cronbach's alpha of 0.78 in 10 and 11 year old children (Goossens and Beyers (2002), prior reliability of this tool is not established for the age group in this study.

My Feelings was adapted for use from the *Index of Empathy for Children and Adolescents* (Bryant 1982), with Cronbach's alpha of 0.73 for a similar scale in kindergarten to second grade aged children (Eisenberg et al. (1996).

My School, from the *School Sentiment Inventory* (Bogart et al. 1980), measures children's perceptions of school. All measures had moderately high levels of internal consistency, with reliability coefficient measures exceeding 0.82 in children with a mean age of 64 months. (Ladd (2000). It was important to make sure the youngest children understood that there was no wrong answer – some were inclined to answer "yes" to everything for the first few questions of the *My Friends* questions, and so misunderstandings were corrected and the questions were asked again.

Teacher completed measures

The widely used *Child Social Behaviour Scale* (CSBS) (Statistics Canada 2008), a teacher rating of prosocial behaviour and aggression has high internal consistency of each scale (alpha 0.90) (Crick & Dodge 1996).

The *Teachers Ratings of Children's Behaviour* (TRCB) measures constructs of empathy/sympathy and socially appropriate behaviour (Eisenberg et al. 1996, Harter 1982). Kendall et al. (2006) report internal consistencies of 0.87-0.92.

The *Emotion Questionnaire* short version (Rydell et al. 2003) measures fear and anger emotionality and emotion regulation, with reliability correlation coefficients for emotionality scales from 0.62 to 0.78, and for emotion regulation scales from 0.74 and 0.79 (Rydell et al. (2003). Predictive validity of the short questionnaire in relation to the long version was significant (all p values <0.001).

Analysis

Raw data from both child and teacher completed measures were organised into three outcome variables: total aggression, covert aggression, and sympathy/empathy. Overt aggression was not directly measured because the version of the CSBS used had only two direct measures of overt aggression. Total aggression included five types of aggression: overt, covert, reactive, proactive, predatory.

One-way ANOVAs with post-hoc Bonferroni analyses were used to determine the relationship between the child's year at school and total scores in each of the child and teacher reported outcome measures. Independent samples *t* tests were used to identify associations between gender and each of the outcome measures. One-way ANOVAs with post-hoc Bonferroni analyses were also used to determine the relationship between IRSAD, mother's education, and number of siblings, and each of the outcome measures. Statistical significance was set at alpha 0.05.

The strength of relationships between predictor and response variables were assessed using linear regression models. The assumption of normal distribution for each dependant variable was not met. In assessing for outliers, the Mahalanobis distance was within acceptable limits (Allen & Bennett 2010) with little or no difference when adjusted for outliers. The assumption of multicollinearity $r >$ or $= 0.85$, was assessed by Tolerance and by Variance Inflation Factor (VIF). Each statistic showed a Tolerance measure > 0.2, and VIF < 5, and therefore all results met the assumption for multicollinearity (Allen & Bennett 2010). Transformation was, therefore, not required and the original total aggression, covert aggression, and sympathy/empathy scores were used as dependant variables in the regression models.

Dummy variables were created with comparison categories for year at school, mother's highest level of education, number of siblings, and IRSAD. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) software, Version 18.

RESULTS

Response fractions were calculated for each year group. The mean IRSAD of participants and non-participants were compared. In total, 155 children were invited to participate, and of those 80 children were consented to the study by their parents. The IRSAD of students who participated was not significantly different to those who did not ($p = 0.57$). The descriptive statistics of predictor variables are listed in Table 1.

TABLE 1 about here

TABLE 2 about here

The validity of each outcome measure was assessed. The Cronbach's alpha of the *My Friends* tool was 0.51, and *My Feelings* was 0.64, thus neither tool met a Cronbach's alpha of 0.7, which is generally considered adequate for demonstrating internal consistency (Allen & Bennett 2010). Both tools were therefore removed from further analysis. Table 2 tabulates the instruments used in final analysis.

Total aggression

TABLE 3 about here

One-way between groups ANOVA indicated a highly significant decrease in teacher reported aggression by year at school, F (2, 77) = 5.759, $p = 0.005$, $\eta^2 = 0.130$, f = 0.387. Post hoc analysis with Bonferroni ($\alpha = 0.05$) revealed that the Pre-Primary year group, (M = 6.46, SD = 6.32) had levels of aggression significantly higher than the Year One group, (M = 2.79, SD = 5.45), and the Year Two group, (M = 1.71, SD = 4.46), $p = 0.005$, $d = 0.74$. However, there was no significant difference in levels of aggression between children in Year

One and Year Two, $p = 1.000$. One-way ANOVA showed no significant effect of maternal education on total aggression ($p = 0.258$). Total aggression by gender using Independent Samples t test (two-tailed) was not statistically significant ($p = 0.339$, d = 0.19).

In combination, the variables of gender, year at school, mother's highest level of education, number of siblings, and IRSAD, accounted for 9% of the variability in total aggression, $R^2 = 0.196$, adjusted $R^2 = 0.091$, F (9,69) = 1.184, $p = 0.072$. Table 3 shows that total aggression decreased significantly between Pre-primary and each of Year One ($\beta = -0.345$, $p = 0.012$), and Year Two ($\beta = -0.428$, $p = 0.003$), with the greatest decrease in Year Two. Boys were more aggressive than girls after adjusting for year at school, mother's education, number of siblings, and IRSAD ($\beta = 0.205$. $p = 0.072$), this difference however was not statistically significant.

Covert aggression

TABLE 4 about here

The one-way between groups ANOVA showed a highly significant decrease in covert aggression between Pre-Primary and both Year groups One and Two F (2, 77) = 12.794, $p < 0.001$, $\eta^2 = 0.250$, f = 0.58. Post hoc analyses showed that Pre-primary children had higher levels of teacher reported covert aggression ($M = 2.79$, $SD = 2.75$), than those in Year One ($M = 0.83$, $SD = 1.49$), and Year Two ($M = 0.32$, $SD = 0.90$). The effect sizes for these comparisons were large, $d = 0.836$ and $d = 1.106$ respectively. As with total aggression, there was no significant difference in covert aggression between children in Year One and Year Two, $p = 1.000$. Though one-way ANOVAs did not reveal statistical significance at $\alpha = 0.05$, Cohen's *f* suggested a medium effect of mother's education on teacher reported covert aggression ($p = 0.089$, f = 0.255). No significant effect of gender was shown in Independent

Samples t test used to investigate the effect of gender on teacher reported covert aggression (p = 0.574).

The combined variables of gender, year at school, mother's highest level of education, number of siblings, and IRSAD accounted for 21% of the variability in covert aggression, R^2 = 0.298, adjusted R^2 = 0.207, F (9,69) = 3.256, p = 0.002. Table 4 shows that there was a statistically significant decrease in covert aggression between Pre-primary and both Year One (β = -0.451, p = 0.001), and Year Two (β = -0.525, p < 0.001). The one-way ANOVA revealed no significant decrease in covert aggression between Year One and Year Two (p = 1.000). In linear regression, children of mother's with a bachelor's degree or higher were reported to show less covert aggression (β = -0.274, p = 0.084) than children of mothers who had completed a maximum of Year 12 education.

Sympathy/empathy

TABLE 5 about here

The one-way between groups ANOVA of teacher reported sympathy/empathy was highly significant, F (2, 75) = 6.590, p = 0.002, η^2 = 0.149, f = 0.419, indicating that teacher reported sympathy or empathy increased by year at school. Post hoc analyses showed no significant increase in sympathy/empathy between children in the Pre-primary (M = 17.18, SD = 4.8) and Year One (M = 17.42, SD = 4.6) groups, p = 1.000. There was however a significant increase in sympathy/empathy between Year One and Year Two (M = 20.96, SD = 3.01), p = 0.012, d = 0.76. In one-way ANOVA there was a moderate effect of maternal education on empathy (p = 0.096, f = 0.253). Independent Samples t test showed no significant effect of gender on teacher reported sympathy/empathy (p = 0.241).

Gender, year at school, mother's education, number of siblings, and IRSAD, accounted for 16% of the variability in teacher reported sympathy/empathy, R^2 = 0.256,

adjusted $R^2 = 0.156$, F (9,67) = 2.565, $p = 0.013$. Table 5 shows that male gender was associated with lower reported sympathy/empathy than female gender ($\beta = -0.226$, $p = 0.042$). A significant increase in sympathy/empathy occurred between Pre-primary and Year Two ($\beta = 0.466$, $p < 0.01$), but not between Pre-primary and Year One ($\beta = 0.062$, $p = 0.636$). Children of mothers who had completed a degree or post graduate qualification were reported by teachers to be higher in empathy than those whose mothers had completed Year 12 or lower, but this result did not reach statistical significance ($p = 0.066$).

Correlations between aggression and empathy

Kendall's tau-b indicated that the correlation between teacher report of sympathy or empathy and total aggression was moderate and negative, $\tau = -.46$, $p = .00$, two-tailed, N = 78. This indicates that children with higher levels of aggression also tend to have lower levels of sympathy or empathy. The correlation between teacher report of sympathy or empathy and covert proactive aggression was moderate and negative, $\tau = -.41$, $p = .00$, two-tailed, N = 78, indicating that children with higher levels of aggression also tend to have lower levels of sympathy or empathy.

DISCUSSION

School nurses play a vital role in promoting the emotional, social and psychological wellbeing of children (Council on School Health Services 2008). This study reveals information that can be used by school nurses to inform practice. After adjusting for potential confounding variables, total and covert aggressions were found to have decreased between Pre-primary and Year One, and sympathy/empathy were found to have increased between Year One and Year Two. Girls were reported by teachers to have more empathy than boys.

The results of this Australian study are consistent with others: children's aggressive behaviour diminishes progressively in the first years of school (Shaw et al. 2003, Tremblay 2004); while empathy increases; girls are more empathetic than boys (Catherine & Schonert-

Reichl 2010, Hunter 2003); boys slightly more aggressive than girls. In our study, this was not significant, concurring with others in the United States that showed little evidence of gender differences in emotional or social function in similar aged children (Barker et al. 2008, Sallquist et al. 2009). We found no gender difference in covert aggression, but girls are generally expected to be more socially competent than boys (Knight et al. 2002, Raaijmakers et al. 2008, Rotenberg et al. 2008, Sallquist et al. 2009). At school entry, however, girls have higher verbal skills than boys and learn alternatives to physical aggression more rapidly (Bowie 2007, Kimura 2002, Zubrick et al. 2007). Thus, teacher-reports suggesting higher empathy and lower physical aggression in girls at this age may reflect differences in cognitive development.

A finding of this study not reported in the literature, is that the increase in empathy was not progressive, rather occurring between Years One and Two, whereas aggression and covert aggression did not decrease significantly between Years One and Two. Others suggest that children begin to use cognitive means to surmise others' feelings from five years of age, and acknowledge internal psychological states from eight years (Catherine & Schonert-Reichl 2010, Hunter 2003). In this study, Year Two students were at or nearing eight years of age. Questions on the TRCB such as "This child often feels sorry for others who are less fortunate" and "This child usually feels sorry for other children who are being teased" may require children to be aware of internal psychological states, with the increase in sympathy/empathy reflecting cognitive development.

In this study there was no gender difference in teacher-reported covert aggression, and contrary to expectations, covert aggression did not increase with age, perhaps reflecting the view that relational aggression can be hidden from adults, and not be reported by teachers as children age (Bowie 2010). If there is an overlap in overt and covert aggression in children at a similar age (Crick et al. 1997), these results may not accurately represent developmental patterns of covert aggression; rather, the behaviours that teachers can see reflect children's

cognitive awareness to hide them. Because students who have difficulty with peer relationships are known to present more frequently to school nurses, nurses must be aware of age-related changes in covert aggression. Teachers may not be aware of covert aggression in students from eight years, and frequent visits to nurses may represent difficulty in peer relationships or school adjustment.

An association between lower levels of mother's education and physical aggression in children exists (Campbell et al. 2010, Tremblay 2004). However, no literature showed relationships between covert or relational aggression and mother's level of education in children at entry to primary school. Though not statistically significant, maternal education in this study was moderately associated with increased empathy and lower rates of covert aggression. The lack of statistical significance may reflect underpowering, however, covert aggression may have been hidden from adult reporters. In a study by Werner and Grant (2009) in which 69% of mothers had at least a bachelor's degree, mothers were more accepting of relational than physical aggression, and less likely to attribute responsibility to their children for perpetrating relational aggression than physical. A recent increase of disorders of mental health among children of high socio-economic status (Eckersley 2011) may be related to the widening reach of relational aggression through mobile technology, and research must focus on supporting family predictors of prosocial behaviour in this milieu.

School nursing is a specialised practice supporting healthy development in children, and school nurses work actively with families and students to build their capacity to adapt and learn (Council on School Health Services 2008). Children are likely to internalise the values of their parents, and education informs and empowers parents (Werner & Grant 2009, Zubrick et al. 2000). It is important that school nurses work with school staff to support parents in their understanding of the significant harm perpetuated by relational aggression.

Limitations.

Comprehensive child, as well as teacher outcome measures, were used and children's data were collected in an environment familiar to them. The researcher was independent of the children and families. Every question was read individually to each child, and children were able to ask questions and receive feedback throughout the process. Results were adjusted for key family sociodemographic characteristics. Some sociodemographic data were available for both participants and non-participants to assess sample bias. This Australia study establishes baseline normative behaviour for Australian children at school entry.

However, a convenience sample was used and the 52% response rate was low; IRSAD by postcode of students was not significantly different between those who participated and those who did not, suggesting that in terms of socioeconomic status participants and non-participants live in similar areas of advantage and disadvantage. Furthermore, the study is possibly underpowered, giving a medium effect in some measures, with no statistically significant result at $p = 0.05$. The CSBS included reactive, proactive, overt, covert, and predatory aggression, with only two direct measures of overt aggression and six measures of covert aggression. Hence, statistical analysis used two measures of aggression: total, and covert. The study would have been strengthened by comparison of overt aggression and covert relational aggression, rather than comparison of total aggression and covert aggression. Finally, the child report measures of peer-related loneliness and empathy did not meet an adequate Cronbach's alpha to demonstrate internal consistency, and were not included. Further research could include a valid and reliable child report measure of empathy and of children's tendency toward covert aggression, or beliefs regarding relational aggression, with a measure of cognitive or language development (Bonica et al. 2003).

Implications for nursing practice.

The American Academy of Pediatrics identify common roots in health, learning, and behaviour in childhood as precursors to adult health, and recommend a coordinated effort to

change health care from a “sick-care” to a “well-care” model (Shonkoff et al. 2012). The Academy call for health care workers to be “front-line guardians” of healthy child development using science based strategies to build strong foundations for health and education, and ask what the optimal time is to implement interventions (Shonkoff et al. 2012). The current research which shows a significant decrease in aggression between Pre-primary and Year One, and an increase in empathy between Year One and Year Two suggests that this is a sensitive period for modifying aggressive behaviour. This is an important finding for school nurses, who are front-line guardians for supporting health and education in all school children. School entry is a critical period in development, in which there is separation from primary caregivers, with the added stress of building new relationships with peers and adults, and in which bullying peaks (Commissioner for Children and Young People 2011). At the same time children of this age are still learning to regulate their behaviour within the context of supportive adult relationships.

As members of a multidisciplinary team, nurses care for young children at a critical period in their social, emotional, and cognitive development. This has implications for the nursing process. In the assessment phase of care, it is important for the school nurse to identify potential problems related to social and emotional stressors when children present without objective sign of illness or injury (Shannon et al. 2010). Assessment should also include the tracking of presentation patterns of children so as to identify frequent presenters. The nurse’s care plan should always be holistic and include objectives relating to psychological and social wellbeing, as well as physical health. In implementing the care plan it is imperative that nurses develop a supportive relationship with the child demonstrating compassion and empathy. Through ongoing evaluation the nurse should reassess the child’s functioning and aim to step back from the supportive relationship as the child becomes socially competent.

Furthermore, there is potential for nurses to promote the introduction of evidence-based interventions in schools that support the development of social and emotional regulation. An example of such a program that has involved the partnership of nurses, teachers, and members of the community is "Roots of Empathy" (Cain & Carnellor 2008, Gordon 2005). The long-term evaluation of such programs will be important, because the effects are likely to be felt over many years and impact adolescent and adult health and wellbeing (Forbes et al. 2007, Kendall et al. 2006, Shonkoff et al. 2012).

CONCLUSION

School nurses are pivotal in promoting psychosocial health and wellbeing in pupils. This study, by a school nurse, provides evidence about emotional development and potential for bullying that other school nurses can use to shape their practice delivery. From school entry at Kindergarten to Year Two, social competence is seen in positive peer relationships and successful school adjustment. These in turn facilitate school success and wellbeing. Children's school success however, can be encumbered by relational aggression causing children to present to the nurse with somatic symptoms, and increasing the risk of loneliness, depression, and anxiety. Though current literature recognizes the importance of schools and school nurses in enhancing the wellbeing of children through health promotion and early intervention, the literature also highlights that the way to do this is unclear (Runions 2008, Shonkoff et al. 2012). Furthering the understanding of children's development of aggression and prosocial behaviour may provide an avenue to support prosocial behaviour at school entry, by teachers and school nurses alike.

This project aimed to establish baseline age, gender, and sociodemographic differences in the development of children at school entry, particularly in regard to aggression and to empathy. Extant literature suggested that the age at which children begin to use covert relational aggression is unclear, and this study did not clarify the age of onset of relational

aggression. It did, however, show a decrease in aggression between Pre-primary and Year One, and an increase in empathy between Year One and Year Two by teacher report, suggesting that this is a sensitive period for modifying aggressive behaviour. If there is a relationship between cognitive development and the development of covert aggression and empathy, the first years of school provide an opportunity for children's social and emotional regulation to be supported at an important time of transition in children's understanding.

This research demonstrates the importance of not labelling children who behave badly at school entry as "naughty children", but rather acknowledging that they are simply behaving badly. School nurses and teachers understand that behaviour occurs as a result of developmental processes that combine social, biological and neurological pathways. Aggression is naturally higher at school entry, and prosocial behaviour is a developmental milestone. Consequently it is important to surround children with safety in relationships as they begin school, thereby supporting developmental pathways of protection.

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TABLES

Table 1: Descriptive Statistics of Exposure Variables

Predictor variable	Frequency	Percent of total number
IRSAD		
IRSAD 3,4,5	25	31.25%
IRSAD 6,7,8	17	21.25%
IRSAD 9,10	37	46.25%
Missing	1	1.25%
Year Group		
Pre-primary	28	35%
Year One	24	30%
Year Two	28	35%
Gender		
Female	40	50%
Male	40	50%
Highest level of education completed by mother		
Year 12 or Less	12	15%
Certificate, Diploma or Associate Degree	39	48.75%
Bachelor or Post Graduate	29	36.25%
Number of siblings living at home		
No siblings	7	8.75%
One or two siblings	60	75%
Three or more siblings	13	16.25%

Note. IRSAD higher score indicates relative advantage.

Table 2: Descriptive Statistics for Each Tool and Subscale Used in Final Analysis (Dependant Variables)

	Construct Description	Number of cases with valid results	Alpha
Child Report			
My School	Attitude to school	80	0.79
School liking	School liking	80	0.83
Teacher Report			
CSBS			
Prosocial	Prosocial behaviour	79	0.92
Aggression	Overt, covert, proactive and reactive aggression	80	0.93
Covert aggression	Covert aggression	80	0.85
TRCB			
Socially appropriate behaviour	Socially appropriate behaviour	80	0.88
Sympathy / empathy	Sympathy or empathy	78	0.90
Emotion	Emotion regulation and emotionality	80	0.79

Table 3: Linear Regression on Dependant Variable *Total Aggression*.

Descriptive variable	*B* [95%CI]	β	*t*	*p*
Gender (cf. male)	7.250	0.205	1.825	0.072
Year Group (cf. Pre-primary)				
Year One	-4.322	-0.345	-2.593	0.012
Year Two	-5.151	-0.428	-2.593	0.003
Mother's Highest Level of Education (cf. Year 12 or less)				
Certificate or Diploma	-1.525	-0.132	-0.803	0.425
Degree or Post Graduate	-3.070	-0.257	-1.535	0.129
Number of Siblings (cf. no siblings)				
One Sibling	0.113	0.010	0.048	0.962
Two or More Siblings	-0.284	-0.024	-0.119	0.906
IRSAD (cf. IRSAD 3,4,5)				
IRSAD 6,7,8	0.611	0.044	0.313	0.755
IRSAD 9,10	0.258	-0.024	-0.119	0.865

Note. cf. = comparative category; *B* = unstandardised regression coefficient; β = standardised regression coefficient; *t* statistic = proportion of unique variance in criterion

Table 4: Linear Regression on Dependant Variable *Covert Aggression*.

Descriptive variable	*B* [95%CI]	β	*t*	*p*
Gender (cf. male)	0.324	0.075	0.720	0.474
Year Group (cf. Pre-primary)				
Year One	-2.109	-0.451	-3.627	0.001
Year Two	-2.357	-0.525	-4.054	<0.001
Mother's Highest Level of Education (cf. Year 12 or less)				
Certificate or Diploma	-0.257	-0.060	-0.387	0.700
Degree or Post Graduate	-1.223	-0.274	-1.753	0.084
Number of Siblings (cf. no siblings)				
One Sibling	0.082	0.019	0.098	0.922
Two or More Siblings	-0.014	-0.003	-0.017	0.987
IRSAD (cf. IRSAD 3,4,5)				
IRSAD 6,7,8	0.622	0.119	0.914	0.346
IRSAD 9,10	0.042	0.010	0.079	0.937

Note. cf. = comparative category; *B* = unstandardised regression coefficient; β = standardised regression coefficient; *t* statistic = proportion of unique variance in criterion

Table 5: Linear Regression on Dependant Variable *Sympathy/Empathy*.

Descriptive variable	*B* [95%CI]	β	*t*	*p*
Gender (cf. male)	-1.970	-0.226	-2.073	0.042
Year Group (cf. Pre-primary)				
Year One	0.578	0.062	0.475	0.636
Year Two	4.287	0.466	3.492	0.001
Mother's Highest Level of Education (cf. Year 12 or less)				
Certificate or Diploma	1.878	0.216	1.355	0.180
Degree or Post Graduate	2.774	0.304	1.871	0.066
Number of Siblings (cf. no siblings)				
One Sibling	-0.671	-0.077	-0.386	0.701
Two or More Siblings	-0.994	-0.113	-0.572	0.569
IRSAD (cf. IRSAD 3,4,5)				
IRSAD 6,7,8	0.962	0.092	0.669	0.506
IRSAD 9,10	0.720	0.083	0.641	0.525

Note. cf. = comparative category; *B* = unstandardised regression coefficient; β = standardised regression coefficient; *t* statistic = proportion of unique variance in criterion