# Peer-victimisation and Self-Worth in Children With and Without Developmental Coordination Disorder.

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**Abstract**

The relationship between peer-victimisation and self-worth was investigated in a group of children with Developmental Coordination Disorder (DCD: DSM-IV) and control children. Forty-three children aged 7 to 11 years were identified as having mild to moderate DCD as indexed by the McCarron Assessment of Neurological Development (McCarron, 1997), and were matched with 43 control children on age and gender. Peer-victimisation and self-worth were found to be negatively correlated. Although the two groups did not differ significantly on reported self-worth or peer-victimisation, the relationship between these two variables was moderated by group membership. Peer-victimisation accounted for a greater and statistically significant proportion of the variance in girls with mild to moderate DCD. Furthermore, the relationship between peer-victimisation and self-worth in girls with DCD was found to be direct, and not mediated by their perceived competencies.

## Introduction

The social significance of motor skills for school-aged children was illustrated by Chase and Drummer (1992), who found that boys in grades 4, 5 and 6 reported the main determinant of their popularity was their success in sport. Whereas high achievers in athletics do not suffer victimisation from peers (Sweeting & West, 2001), children with motor coordination problems tend to withdraw from physical play with other children (O'Beirne, Larkin & Cable, 1994), and are asked to play with other children less often and have fewer playmates than control children (Schoemaker & Kalverboer, 1994). As a result of these difficulties it has been argued that these children may be the targets of bullying, although research on this has had mixed results. For example, Kalverboer, de Vris and van Dellan (1990) found children with DCD scored significantly higher than control children on the Often Teased Scale, and Besag (1989) also found these children were verbally victimized. In contrast, Smyth and Anderson (2000) did not find a statistically significant difference on negative social contact between control children and those with DCD.

Victims of bullying have been identified as experiencing lower levels of happiness (Rigby & Slee, 1992), significantly lower scores on perceived competence in a variety of specific domains (Callaghan & Joseph, 1995; Mynard & Joseph, 1997; Neary & Joseph, 1994), greater depression (Austin & Joseph, 1996; Callaghan & Joseph, 1995; Neary & Joseph, 1994), and lower self-esteem and global self-worth (Andreou, 2000; Mynard & Joseph, 1997; Rigby & Slee, 1992; Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999; Slee & Rigby, 1993). Children with DCD have been identified as having low self-worth (Rose, Larkin, & Berger, 1997; Skinner & Piek, 2001), and other psychological problems such as lower self-perceptions than control children (Rose et al., 1997; Schoemaker & Kalverboer, 1994; Skinner & Piek, 2001), high anxiety (Schoemaker & Kalverboer, 1994; Skinner & Piek, 2001), and lower self-esteem (Kalliopuska & Kirila, 1987). A relationship between peer-victimisation and self-worth is suggested by Harter's model of self-worth (Harter, 1987). This model argues that the perceived regard of others is a strong predictor of self-worth. Since being victimized is an overt consequence of being held in negative regard, the victimized child will have lower self-worth.

Given the inverse relationship found between self-worth and peer-victimisation (e.g., Andreou, 2000), and the research that has identified lower self-worth in children with Developmental Coordination Disorder (DCD) (e.g., Skinner & Piek, 2001), this study examined whether the lower self-worth in children with movement problems is associated with peer-victimisation? This study investigated both the amount of bullying experienced by DCD compared to control children as well as differences in the impact of that bullying on self-worth across groups. According to Harter (1987), children's perceptions of their competencies in different domains impacts on their self-worth. It must therefore also be asked whether self perceptions in the domains of athletic competence, scholastic competence, social acceptance, physical appearance and behavioural conduct mediate the relationship between bullying and self-worth

## Method

### Participants

A total of 86 children aged between 7 and 11 years were included in this study. There were two groups of children, a group of 43 children (20 girls and 23 boys) with mild to moderate DCD, and a control group matched with the DCD group on gender and age (within 6 months). To be included in the DCD group, the children required a Neuromuscular Developmental Index (NDI) below 85 (McCarron, 1997). The mean age of the control group was 9.17 years (SD = .80), and for the DCD group, 9.15 years (SD = .82). Children with a verbal IQ score less than 80 were excluded from the study to ensure that children with an intellectual disability were not included in the sample.

### Measures

**McCarron Assessment of Neuromuscular Development (MAND: McCarron, 1997)**

The MAND consists of 10 motor activities, 5 measuring gross motor ability and 5 measuring fine motor ability. The scaled scores on each of these are added and the aged norms (provided for children aged 3.5 to 18 years) used to determine an NDI with a mean of 100 and standard deviation of 15. Tan et al. (2001), using an Australian sample, found the MAND to have good specificity, good sensitivity and a valid measure for the identification of motor impairment.

**Self-Perception Profile for Children (SPPC; Harter, 1985)**

This was used to determine global self-worth and the 5 measures of perceived competency, namely athletic competence, scholastic competence, social acceptance, physical appearance and behavioural conduct. Harter (1985) found the scale to be reliable with Cronbach's Alpha for the global self-worth subscale ranging from .78 to .84 over four different samples.

**Multidimensional Peer-Victimisation Scale (MPVS; Mynard & Joseph, 2000)**

This has a total of 16 questions with 4 questions for each of the separate subscales measuring physical victimisation, verbal victimisation, social manipulation and attacks on property. Each subscales is therefore scored from 0 to 8 and the total victimisation score is the sum of these (i.e., 0 to 32). The internal reliability of each subscale was found to be satisfactory with Cronbach's Alpha ranging from .73 to .85.

**Wechsler Intelligence Scale for Children-Version III (WISC-III: Wechsler, 1992)**

Verbal IQ was estimated using the vocabulary and similarities subscales of the WISC-III (Wechsler, 1991), which correlate highly with verbal IQ (r=.78 and r=.75, respectively; Sattler, 2001).

### Procedure

Five primary schools from the Perth metropolitan district agreed to participate in this study. Schools were forwarded 'parent packages' containing information sheets and consent forms that were taken home by children in the appropriate age range. Once parents returned the consent form, children were tested at their school. Of the 526 forms distributed, 182 were returned, giving a response rate of 35%.

Test administration was counterbalanced. All tests were administered to each child individually. Paper and pencil tests were read out to the children under 8 years of age as recommended by Harter (1985).

## Results

Table 1 gives the means and standard deviations for the scores on global self-worth and peer-victimisation. Univariate 2 x 2 ANOVAs investigated Group (DCD,Control) and Gender (Male,Female) differences on the dependent variables of self-worth and peer-victimisation. For global self-worth, there were no significant main effects for gender, $F(1,82) < 1$, or group, $F(1,82)=2.33$, $p=.130$, and no significant interaction between the two, $F(1,82)<1$. Likewise, for peer-victimisation, there were no significant main effects for gender, $F(1,82) < 1$, or group, $F(1,82)<1$, and no significant interaction between the two, $F(1,82)=1.79$, $p=.185$. These results indicate that there are no differences in the mean amount of bullying experienced by DCD compared to control children and also that on average these groups report equivalent levels of self-worth.

A 2 x 2 MANOVA investigated Group (DCD,Control) and Gender (Male,Female) differences on the linear combination of the perceived competency measures. PAs expected, perceived Athletic Competence, $F(1,82)=6.70$, $p=.011$, was significantly higher for the control group. There was a significant Gender effect for behavioural conduct, $F(1,82) = 8.456$, $p = .005$, with girls scoring higher than boys. Although other univariate differences between groups were suggested for other perceived competency measures the differences were not statistically significant following an adjustment for multiple comparisons.

Table 1: Means and standard deviations for the peer-victimisation score and global self for the control and DCD groups.

| Group | Global Self-Worth | Victimisation Score |
|---|---|---|
| Control | | |
| Girls (n=20) | | |
| M | 3.24 | 12.10 |
| SD | .59 | 8.66 |
| Boys (n=23) | | |
| M | 3.39 | 8.78 |
| SD | .55 | 4.93 |
| DCD | | |
| Girls (n=20) | | |
| M | 3.07 | 10.80 |
| SD | .89 | 7.53 |
| Boys (n=23) | | |
| M | 3.11 | 11.70 |
| SD | .67 | 7.76 |

As predicted, there was a statistically significant negative correlation between global self-worth and peer-victimisation, r(84)=-.326, p=.002. A hierarchical regression investigated the impact of peer-victimisation on self-worth as a function of gender and group membership (DCD or control). The relationship between peer-victimisation and self-worth is moderated by both gender and group. The simple two-way gender by peer-victimisation interactions were therefore investigated at each group. The two-way gender by peer-victimisation interaction was statistically significant for the DCD group $F_{change}(1,39) = 9.404$, $p = .004$; R $Square_{change} = .142$, but not for the control group, $F_{change}(1,39) < 1$. Further analysis revealed that the two-way interaction for the DCD group is explained by a statistically significant simple effect of peer-victimisation on self-worth for females, $F_{change}(1,18) = 33.225$, $p = .0002$; R $Square_{change} = .649$, but not for males $F_{change}(1,21) < 1$, $p = .340$. These results suggest that the there are group differences in the effects of bullying on self-worth. Specifically it is the self-worth of the female DCD child that is affected by bullying. It should be stressed that the different effects of bullying on self-worth for the DCD female children cannot be attributed to small but statistically non significant differences in bullying in the female DCD group to start with. Statistical power of the ANOVA is not an issue. Though not statistically significant, the main effects were of no practical significance for both gender (partial $\eta^2 = .007$) and group (partial $\eta^2 = .003$). Furthermore, as can be seen in Table 1, the mean peer-victimisation for female DCD (M = 10.8; sd = 7.53) was lower than the mean peer-victimisation for male DCD (M = 11.7; sd = 7.76) and female control (M = 12.1; sd = 8.67) children.

Since it was only in the female DCD group that a statistically significant and strong relationship between bullying and self-worth was observed, the mediating effects of perceived competencies was investigated in this group only. It was found that the direct path between peer-victimisation and global self-worth remained statistically significant even after partialling out the perceived competencies..

The partial relationships with perceived competencies and bullying as the predictors, and self-worth as the criterion variable, were also investigated. For both boys and girls in the control group, and boys in the DCD group, self-worth is strongly related to physical appearance, a finding consistent with others (e.g., Skinner & Piek, 2001). Scholastic competence is also related to self-worth for the control boys. By contrast, the female self-worth as we have seen, is strongly related to the amount of bullying but also to behavioural conduct. The DCD girls are unique in that negative relationships with fellow students impact strongly on their self-worth.

## Discussion

In the current study, mean reported peer-victimisation and self-worth did not differ either statistically or practically significantly between DCD and control children or between genders. From this perspective bullying is a general problem and not specific to any group. The present results suggest however that it is not the amount of bullying that is of paramount importance but rather the impact that the bullying can have. Even low levels of peer-victimisation can have dramatic effects on the self-worth of some children. Specifically, in contrast to the other combinations of group and gender, peer-victimisation had a profound effect on self-worth for the girls with DCD. Rose et al. (1997) have also reported that this group of children is unique in terms of their self-worth. The effect of peer-victimisation on self-worth of DCD girls was found furthermore to be direct and not mediated by perceived competencies. In addition, peer-victimisation emerges as the crucial predictor of self-worth when evaluated against the effects of peer-victimisation. Indeed, the only other unique predictor of self-worth in DCD girls appears to be behavioural conduct. At issue is the direction of the relationship between bullying and behavioural conduct. These results emphasise the crucial role played by peer-victimisation as a determinant of self-worth in girls with DCD.

By contrast, there was no observed relationship between bullying and self-worth in the other groups

including male DCD children. However, as found in other studies (e.g , Skinner & Piek, 2001), physical appearance is closely linked to self-worth in both male and female control children as well as boys with DCD. For girls with DCD, physical appearance had no unique effect on self-worth. Again, this is further evidence highlighting a different outlook in girls with DCD.

In support of previous research (e.g., Andreou, 2000), a negative correlation was found between peer-victimisation and self-worth. However, we have demonstrated that this relationship is complex, and dependent on both gender and motor ability. Groups that are equivalent in the amount of bullying received may nevertheless feel the impact of that bullying differently. This was most clear in the present study for girls with DCD. It is not enough for the teacher to ensure that one group is not bullied more than another group. The teacher must be sensitive to the different consequences bullying may have for different groups.

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