**Running Head:** Explicit and implicit stigma towards peers with mental health problems

**Explicit and implicit stigma towards peers with mental health problems in childhood and adolescence**

**Claire O’ Driscoll,1 Caroline Heary, 1 Eilis Hennessy, 2 and Lynn McKeague2**

1School of Psychology, National University of Ireland, Galway, Republic of Ireland;

2 School of Psychology, University College Dublin, Republic of Ireland

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**Background:** Children and adolescents with mental health problems are widely reported to have problems with peer relationships, however, few studies have explored the way in which these children are regarded by their peers. For example, little is known about the nature of peer stigmatization and no published research has investigated implicit attitudes thus ensuring that stigma is not well understood. In order to address this issue the current study explored patterns of explicit and implicit stigmatization of peers with depression and attention deficit hyperactivity disorder (ADHD). **Methods:** The sample was 385 children (*M* = 10.21 years) and adolescents (*M* = 15.36 years). Participants completed a questionnaire assessing explicit stigma towards an age and gender matched peer with ADHD or depression and another peer with ‘normal issues’ who were described in vignettes. They also completed a modified version of the Implicit Association Test (IAT) that explored implicit attitudes towards the target peers. **Results:** Questionnaire data indicated that the peer with ADHD was perceived more negatively than the peer with depression on all dimensions of stigma, except perceived dangerousness and fear. In contrast, the IAT findings suggest that some participants had more negative views of the peer with depression than the peer with ADHD. Specifically, the findings demonstrate that adolescent males demonstrated significantly stronger negative implicit evaluations of depression compared to younger males and adolescent females. **Conclusions:** Children and adolescents demonstrate stigmatising responses to peers with common mental health problems. The nature and extent of these responses depends on the type of problem and the type of measurement used. The findings highlight the importance of using both explicit and implicit measures of stigma. **Key words:** Stigma, mental health problems, implicit attitudes, ADHD, depression. **Acronyms:** Implicit Association Test (IAT), Name-behaviour training (NB**)**

Understanding stigmatization is imperative if people with mental health problems are to enjoy an acceptable quality of life (WHO, 2003). Although few studies have explored peer stigma in childhood and adolescence, the research that exists shows that peer stigmatization is a widespread problem (Walker, Coleman, Lee, Squire, & Friesen, 2008). Research shows that rejected children with emotional and behavioural problems are at risk of experiencing adverse developmental outcomes from educational underachievement and unemployment (Woodward & Fergusson, 2000) to delinquency and problem behaviour (Ladd & Burgess, 2001; Wentzel, 2003), even after controlling for other risk factors and baseline levels of externalising behaviour. As mental health problems persist over time (Kim-Cohen, et al., 2003), people are susceptible to potential lifelong stigmatization, which may have originated in childhood. Consequently, it is imperative that the nature of peer stigma is thoroughly examined.

Stigma is an umbrella term that collectively refers to stereotypes, prejudice and discriminatory behaviour towards people with mental illness (Hinshaw & Stier, 2008). Stereotypes are cognitive schemas or beliefs about members of a social group (Hamilton, Stroessner, & Driscoll, 1994). While stereotypes are cognitive labels, prejudice involves affective laden negative attitudes that influence behaviour towards the stigmatized person or group (Weiner, Perry, & Magnusson, 1988). In the social cognitive literature, prejudice is used as an alternative term for stigma, collectively describing any negative orientation towards an individual or outgroups along the dimensions of negative attitudes, attributions and discriminatory behaviour (see Raabe & Beelmann, 2011). However, acknowledging these concepts as separate entities is essential for researchers to understand the associations between social cognition, emotion and behaviour (Hinshaw, 2007) and how they independently operate in the stigma process. Discrimination involves the differential treatment of one group/individual relative to another, which in childhood is salient in the form of peer exclusion (Brown & Bigler, 2005). Stigma also transcends this, with the stigmatized individual internalising this degradation, resulting in self-stigma (Hinshaw, 2005). However, this paper focuses on public stigma; how the affected individual is regarded by others. Stigma is a complex construct that is a challenge to assess empirically, as reflected in the literature where most studies focus on sub-aspects thus providing an incomplete understanding of the construct.

To overcome the limitations imposed by self-presentation biases implicit measures have been employed in research with adults (e.g. Teachman, Wilson, & Komarvoskaya, 2006; Rüsch, Corrigan, Todd, & Bodenhausen, 2011). Although research with children suggests that implicit attitudes form quickly (Dunham, Baron, & Carey, 2011), are independent of explicit attitudes (Dunham, Baron, & Banaji, 2006) and are predictors of behaviour (Cvencek, Greenwald, Meltzoff, 2011) no published studies have used implicit measures to assess stigmatization of psychological problems in childhood. The absence of such research is probably due to implicit measures reliance on visual representations of the target attitude object. Developing a method to assess implicit mental health attitudes is a challenge as there is no obvious way to provide a visual image to depict a specific disorder and using psychiatric labels is problematic with children who may not be familiar with them. However, the advantages of implicit measures and their potential to further our understanding of stigma warrant efforts to create a developmentally appropriate implicit stigma measure that can be used for mental health problems (Hinshaw, 2005).

Research suggests that age and gender are important factors in determining patterns of stigma. Wahl (2002) noted a developmental increase in negative attitudes and social distance towards mental illness. Recently, research showed that children become more accepting of peers with ADHD and depression with increasing age (Swords, Heary, & Hennessy 2011). However, there was an exception to this trend for boys with depression. Other research suggests that developmental differences hinge on the assessed dimension of stigma (Jorm & Wright, 2008). Some research shows that females report more positive behavioural and cognitive responses towards disordered peers (Jorm & Wright, 2008; Williams & Pow, 2007). However, others do not recognise gender as an important factor (Law, Sinclair, & Fraser; 2007; Walker, et al., 2008).

The present study investigates how children and adolescents stigmatize peers with ADHD and depression. These conditions are the most prevalent externalising and internalising disorders in childhood (Lynch, Mills, Daly, & Fitzpatrick, 2006) and therefore most socially relevant to young people. The two developmental cohorts represented in this study were chosen as evidence suggests changes in attitudes and prevalence of disorders from childhood to adolescence (Swords et al., 2011; Lynch et al., 2006). This paper explores the multiple dimensions of explicit stigma: stereotypes, prejudice, and discrimination. Firstly, it examines the hypothesis that the nature and extent of stigma varies across the age and gender of the perceiver and type of mental health problem of the target peer. It then assesses implicit attitudes towards the target peers and tests the hypothesis that implicit attitudes are contingent on fore-mentioned participant variables and the target peer’s mental health disorder.

**Method**

*Participants*

Participants were 203 children (96 boys and 107 girls) and 182 adolescents (86 boys and 96 girls) in year 7 and 12 of education in primary and post-primary public schools in the Connaught region of the Republic of Ireland (*N* =385). Ages ranged from 10-11 years (*M* = 10.21, *SD* = .72) and 15-16 years (*M* = 15.36, *SD* = .50). A proxy measure of participants’ socio-economic status (SES) was calculated from the highest level of education achieved by their consenting parent/guardian. Breakdown of SES among participants was approximately

50% low, 30% middle, and 20% high.

(INSERT TABLE 1)

*Materials*

*Strengths & Difficulties Questionnaire* (SDQ; Goodman, 1997): All participants completed the self-report SDQ. The SDQ is a 25-item scale comprising of one Prosocial Scale and five problem-specific subscales (Conduct Problems, Peer Problems, Hyperactivity, and Emotional Problems), which can be summed to produce a Total Difficulties Score. This score was dichotomised using recommended cut off scores for ‘normal/borderline’ (≤ 19) versus ‘abnormal’ (≥ 20). Internal reliability for this study was .71. Participants with an ‘abnormal’ score on the SDQ were removed from the analysis to ensure that responses obtained were limited to participants without emotional or behavioural difficulties.

*Vignettes*: The vignettes described peers with ADHD, depression and a peer with ‘normal issues’ (Appendix A). Psychiatric labels did not accompany the clinical vignettes.

*Stereotypes*: *‘*Responsibility’ and ‘Dangerousness’ were assessed using single items from the revised Attribution Questionnaire (r-AQ; Corrigan et al ., 2007*). ‘*Responsibility’: ‘It is not [Target child’s] fault that he/she acts like this’. ‘Dangerousness’: [Target child] is not dangerous’. Scores ranged from 1-7 and items were coded so that higher scores indicated stronger stereotypes*.*

*Prejudice*: Emotional responses to the peers were also assessed using modified r-AQ single items. ‘Anger’: ‘[Target child] would make me angry’. ‘Fear’: ‘I would be scared of [Target Child]’. Score ranged from 1-7 with higher scores indicating more prejudice.

*Discrimination*: The Shared Activity Questionnaire (SAQ; Morgan, Walker, Bieberich, & Bell, 1996) was used to assess participants’ behavioural intentions to engage in social, academic and recreational activities with the target peer. The SAQ consists of 24 items, and scores range from 24-72. Higher scores indicating greater behavioural intentions to include the target peer activities across the three domains. The SAQ has good internal consistency reliability ( = .95). Two indices of social distance were explored: relationship social distance and physical social distance. Relationship social distance was assessed with the Classroom Social Distance Scale (Horace Mann-Lincoln Institute of School Experimentation, 1957). Participants indicated the type of relationship he/she wanted with the peer. Responses ranged from ‘I would like to have [target child] as my best friend’ to ‘I wouldn’t want [target child] in my class’ on a scale of 1-5. Higher scores reflected greater relationship social distance. Physical social distance was assessed with a modified version of Weiss’s (1986) paper-and-pencil projective figure placement test. Participants were presented with a stick image of the peer sitting at a desk and selected a seat where they would feel relaxed working with him/her. Scores ranged from 1 to 7 with higher scores indicating more physical social distance.

*Implicit Attitudes*: A modified Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), using the recommendations by Baron and Banaji’s (2006) to use a developmentally appropriate version with children, was used to assess participants’ implicit attitudes. This computer response latency measure is a dichotomous categorisation task that requires participants to sort four types of stimuli into two response buttons. The stimuli are exemplars of two target categories (e.g. mental health condition versus no mental health condition) and two contrasting attribute categories (e.g. good versus bad). The task rests on the assumption that it is easier to sort stimuli from two categories that are associated with one another compared to categories that are not associated. In a typical IAT the stimuli are presented as images or labels. To avoid using psychiatric labels and overcome the impossibility of capturing ADHD and depression in an image, the names of the vignette peers were the target stimuli and presented in four different colours. Consistent with the condition that participants were assigned to, participants responded to the names of one of the following combinations of vignettes: ADHD and ‘normal issues’ or depression and ‘normal issues’. The attribute stimuli were chosen to reflect dimensions of stigma: *bad* (dangerous, scary, guilty, weak) and *good* (safe, friendly, innocent, strong). All stimuli were presented simultaneously as written and auditory words. Prior to completing the IAT participants were required to sort the attribute stimuli as either good or bad to ensure that valence of the words was understood.

First participants practiced target categorisation (the disordered peer versus the peer with normal issues) with a blue and yellow response button (20 trials). In the second block they practiced attribute categorisation (good versus bad words, 20 trials) using the fore- mentioned response buttons. After this, they completed two combined discrimination blocks during which participants mapped specific combinations of target and attribute stimuli onto the same response button. For example, if Jake (ADHD) or *bad* words were presented participants pressed the blue response button and when David (normal issues) and *good* words were presented the yellow response button was pressed (20 practice trials: 40 test trials). Next participants practiced matching names of the peers with the opposite response buttons (20 trials). If Jake (ADHD) was previously paired with the blue response button, the yellow button was pressed when presented with this name. Finally they completed two more combined discrimination blocks whereby the previous pairing of the combined blocks was reversed; for example, David and *bad* words shared the blue response button and Jake and *good* words shared the yellow response button (20 practice trials; 40 test trials). A correct response was required before progressing to the next presentation and response latencies were recorded from the presentation of the stimulus to the correct response. The initial pairing of the names of vignette peers and *good/bad* words was counterbalanced across participants. The inter-stimulus interval was 300ms. IAT *D*-scores were calculated using the improved scoring algorithm recommended by Greenwald, Nosek and Banaji (2003). A score of zero indicated a neutral attitude towards both peers, while positive scores indicated a negative evaluation of the peer with the mental health condition.

*Name-Behaviour Training (NBT)*: To ensure assessed implicit attitudes were towards the vignette peers and not name preference, a NBT procedure similar to Ranganath & Nosek’s (2008) attitude induction procedure was used. Participants read the vignettes and fourteen named behavioural descriptions on a laptop. They then identified the peers by matching the names and unnamed behavioural descriptions. Ten correct responses were required *before* completing the IAT.

*Procedure*

Participants were randomly assigned an ADHD or depression condition and provided with one of eight versions of the questionnaire booklet that comprised of the SDQ, two vignettes and a stigma questionnaire. The content of the vignettes differed across the booklet depending on the age and gender of the participant and the condition they were assigned. Specifically, participants read about an age and gender matched peer with ‘normal issues’ and a peer with a mental health disorder, either ADHD or depression. After the questionnaire, participants read the vignettes again and individually completed the NBT and the IAT in a quiet empty room on a laptop. The presentation order of implicit and explicit measures does not affect explicit and implicit mean scores (Nosek, Greenwald, & Banaji, 2005). Participants had written parental consent and verbally assented to take part. Ethical approval was granted for this study by the National University of Ireland, Galway Research Ethics Committee.

*Data analysis*

The data were analysed using PASW (SPSS) for Windows version 18. IAT *D*-scores were analysed using one sample *t* tests. All measures were analysed with 2x2x2 between subjects factorial ANOVAs with participants’ gender and age and the disorder of the vignette peer as the between group factors while implicit attitudes, explicit stereotypes, prejudice and discrimination were the independent factors. Effect sizes were calculated using partial *η2* (*pη2*)*.* Interactions were explored with simple effect *F* tests.

**Results**

*Preliminary analysis*

There were no significant differences between participants’ gender, age or SES across the two experimental conditions (see Table 1). Ten participants obtained ‘abnormal’ Total Difficulties SDQ scores and were subsequently removed from the analysis (*n* = 375). Paired sample *t* tests revealed that participants exhibited significantly more positive responses toward the peer with ‘normal issues’ compared to disordered peers across all the dependent variables, except perceived responsibility (see Table 2). Explicit findings pertaining to the peer with ‘normal issues’ were excluded from subsequent analysis.

*Explicit Stigma*

For prejudicial anger, the ANOVA revealed main effects for the disorder described in the vignette [*F*(1, 367) = 24.60, *p* < .0001, *pη2*  = .06] and participants’ age [*F*(1, 367) =17.15, *p* < 0.001, *pη2*  = .05], which were qualified by a significant disorder by age interaction [*F*(1, 367) = 5.37, *p* < 0.05, *pη2*  = .01]. As shown in Table 3 adolescents reported significantly stronger feelings of anger towards the peer with ADHD compared to the peer with depression [*F*(1, 371) = 24.06, *p* < 0.001]. In comparison to children, adolescents reported more anger towards the peer with ADHD[*F*(1, 371) = 21.06 *p* < 0.001].

For relationship social distance, the ANOVA revealed main effects for the vignette disorder [*F*(1, 367) =11.97, *p* < .001, *pη2*  = .03] and participants’ age [*F*(1, 367) = 9.00, *p* < .01, *pη2*  = .03], which were superseded by a significant disorder by age by gender interaction [*F*(1, 367) = 4.57, *p* < 0.05, *pη2*  = .01]. As depicted in Figure 1 greater relationship social distance from the peer with ADHD compared to the peer with depression was reported among adolescent males [*F*(1, 367) = 6.06, *p* < 0.05] and adolescent females [*F*(1, 367) = 4.78, *p* < 0.05] and 10-11 year old females *[F*(1, 367) = 10.11, *p* < 0.001]. Among 10-11 year olds, boys reported significantly greater relationship social distance from the peer with depression [*F*(1, 367) = 5.18, *p* < 0.05] compared to girls. Furthermore, among males in the ADHD condition, adolescents wanted more relationship social distance compared to children [*F*(1, 367) = 12.56, *p* < 0.001]. Descriptive statistics for responses on the stigma variables across the participants’ age and gender and the type of disorder depicted in the vignettes are presented in Table 3.

(INSERT FIGURE 1)

(INSERT TABLE 2 & 3)

No significant interactions emerged on the other explicit stigma variables (*p* > 0.05). Significant effects for the disorder described in the vignettes were found for physical social distance [*F*(1, 367) = 8.90, *p* < .01, *pη2*  = .03], perceived responsibility [*F*(1, 367) = 14.1, *p* < .01, *pη2*  = .04] and behavioural intentions [*F*(1, 367) =10.64, *p* < .01, *pη2*  = .03], such that the peer with ADHD was perceived as being more personally responsible for his/her condition and discriminated more than the depressed peer. Significant age effects emerged for physical social distance [*F*(1, 367) = 4.97, *p* < .05 *pη2*  = .01] and behavioural intentions [*F*(1, 367) = 14.14, *p* < .001, *pη2*  = .04] and perceived fear [*F*(1, 367) = 7.60 , *p* < .05 *pη2*  = .01]. Adolescents wanted less physical social distance from the peers but excluded them from activities more. Adolescents also reported being more afraid of the peers compared to younger participants. Significant main effects for gender were found for behavioural intentions [*F*(1, 367) = 15.95, *p* < .001 *pη2*  = .04] and perceived responsibility [*F*(1, 367) = 6.20, *p* < .05 *pη2*  = .01], such that males were less inclusive of the peers and perceived them as being more responsible for their disorders. All descriptive statistics for the between subject variables on the dimensions of stigma are described in Table 2 above.

*Implicit Attitudes*

Four participants were excluded from the analysis as more than 10% of response latencies were less than 300ms (Greenwald et al., 2003). A further five did not complete this phase due to other school commitments (*n* = 366). A one way *t* test revealed that IAT scores significantly differed from zero, indicating that participants displayed negative implicit evaluations of the disordered peers [*D* = .23, *SD* = 61, *t*(323) = 6.89 , *p* < 0.001]. The ANOVA revealed a main effect for participants’ gender [*F*(1, 366) = 12.25, *p* < 0.01, *pη2*  = .03] which was qualified by a disorder by age by gender interaction [*F*(1, 366) = 4.25, *p* < 0.05, *pη2*  = .01, Figure 2]. Male adolescents’ implicit attitudes towards depression were significantly more negative than comparative implicit responses towards ADHD [*F*(1, 358) = 5.62, *p* < 0.05], younger males’ [*F*(1, 358) = 8.37, *p* < 0.01] and female adolescents’ implicit attitudes towards the depression [*F*(1, 358) = 23.32, *p* < 0.001].

(INSERT FIGURE 2)

**Discussion**

This study investigated how children and adolescents stigmatize peers with mental health problems. In doing so, it examined whether the nature of implicit and explicit stigma are contingent upon the type of mental health condition experienced by the target peer and the age and gender of the perceiver.

The explicit results suggest that youth are not as negative towards disordered peers as expected. Other research notes similar findings (Watson et al., 2004; Schulze, Richter- Werling, Matschinger, & Angermeyer, 2003), however, in the present study when compared to ‘typical’ peers responses are significantly more negative. This study found that ADHD is more explicitly stigmatized than depression. However, the extent of stigmatization is often dependent on the perceivers’ age and gender or the measure of stigma. Compared to children, adolescents were less accepting and more prejudiced towards both disorders, especially ADHD. This could be explained by adolescents’ preference for social order within the peer group and their tendency to advocate exclusion of peers who might impinge on successful group functioning (Horn, 2003). However, adolescents also reported less physical social distance from the target peers, highlighting that they acutely differentiate between the social consequences of interacting with peers across contexts. The differences noted across the discrimination measures emphasize the importance of assessing multiple dimensions of stigma.

In contrast to previous research, dangerousness stereotypes were not dependent on socio-demographic variables or the type of mental health disorder (Reavley & Jorm, 2011). Differences did emerge for responsibility stereotypes, such that the peer with ADHD was viewed as being more responsible for his/her condition compared to the depressed peer. Consistent with previous research, males believed that the peers were more responsible for their illness (Williams & Pow, 2007). Males were also less accepting of disordered peers which could be explained by gender norms as boys tend to perceive peer rejection as more acceptable than girls (Killen & Stangor, 2001; Park & Killen, 2010).

This study demonstrated that implicit mental health stereotypes that are free from potentially contaminating labeling effects (Haris, Milich, Corbitt, Hoover, & Brady, 1992) and confounding effect of mental health literacy (Wahl, 2002) can be measured by incorporating a NBT procedure into the IAT. Specifically, this study created a novel way of assessing implicit stereotypes towards peers who are not explicitly labeled as outgroup members but who by nature of their behaviour are perceived as socially deviant. This method is potentially useful for research on implicit cognition towards other ostracised groups such as aggressive peers, or peers with developmental disabilities.

The findings that children, particularly boys, were more positive towards peers with ADHD could be explained by the fact that ADHD is more prevalent among boys in childhood (Agency for Health Care Policy and Research, 1999) and some of the symptoms associated with this condition such as hyperactivity may be more characteristic of the child male gender role. Thus the symptoms associated with ADHD may be perceived as normative behaviours among young boys. Likewise, depression is more prevalent among adolescent girls than adolescent boys or children of either sex (Twenge & Nolen-Hoeksema, 2002) and some symptoms of depression may be more normative behaviours of the female gender role. These factors might explain adolescent females’ neutral implicit evaluation of depression. The implicit results suggest that children and male adolescents are motivated to inhibit their explicit negative evaluations of depression. The difference in negative implicit attitudes towards depression between younger and older males is worthy of consideration as it indicates changes in the acceptability of emotional symptoms from childhood to adolescence. Suicide is the second leading cause of death among male adolescents and depression is a major risk factor (Centre for Disease Control, 2009). In addition, young people report peers as vital sources of social support when distressed (Swords, Hennessy, & Heary, 2010). It is possible that negative implicit evaluations of depression could influence the quality of support young male provided to such peers. Research should investigate possible relationships between implicit mental health attitudes and behaviour.

Although this research has addressed important gaps in the stigma literature, the results are in response to hypothetical peers and thus caution must be exercised when generalising the findings. Another limitation of this study is the use of single item measures. While practical, the psychometric properties of these measures may be questionable as they are vulnerable to random measurement error. The discrimination measures utilised in this study were self-report and not actual behaviour. While capturing incidents of peer discrimination in real-life situations is challenging, experimental behavioural techniques that attempt to capture proxy measures of actual behaviour (e.g. Cyberball; Williams, Cheung, & Choi, 2000) should be utilised. Although this study highlighted the important role of gender in the stigma process, this research would be enhanced by exploring implicit and explicit responses towards different sex peers. Future research should also investigate the reasons children provide for excluding peers with mental health problems. This work may expose the cognitive processes involved in discrimination and further our knowledge on the nature of stigma. Finally, an understanding of stigma is incomplete without addressing the internalisation of stigma in affected individuals. Research has explored explicit self stigma in childhood, however, no published studies have assessed implicit self stigma among this group.

**Conclusions**

This study showed how children and adolescents implicitly and explicitly stigmatize peers with ADHD and depression. Stigma is contingent upon the disorder in question and gender and age of the perceiver. The unique patterns of stigma demonstrated by the implicit findings highlights the importance of utilising both implicit and explicit measures. When designing educational and anti-stigma interventions, researchers and practitioners should employ implicit measures and attempt to promote positive implicit and explicit cognitions and associated behaviour.

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**Correspondence to**

Caroline Heary, School of Psychology, National University of Ireland, Galway, Newcastle, Galway, Ireland; Tel +35391-495059; Email: caroline.heary@nuigalway.ie

**Key points**

* Few studies have explored the nature of peer stigma and no published research has investigated implicit attitudes.
* This study suggests that children stigmatize peers with ADHD more than depressed peers. The nature of stigma is influenced by the age and gender of the perceiver with older youth and males displaying more explicit stigma. Both disorders are implicitly perceived negatively. However, implicit attitudes of depressed peers are stronger among older than younger males.
* The results further understanding of explicit stigma and lay foundations for our knowledge of implicit attitudes. Findings provide important information for the development of anti-stigma interventions.

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**Table 1** Characteristics of participants in each condition

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Depression |  | ADHD |  |  *χ2* |
|  |  |  |  |  |  |
| Gender |  |  |  |  |  |
|  Male | 88 |  | 94 |  |  |
|  Female | 106 |  | 97 |  | .57 |
| Age |  |  |  |  |  |
|  10-11 years | 102 |  | 101 |  |  |
|  15-16 years | 92 |  | 90 |  | .004 |
| SES |  |  |  |  |  |
|  Low (*second level completion only*) | 75 |  | 93 |  |  |
|  Middle (*post-second level diploma or certificate*) | 52 |  | 48 |  |  |
|  High (*degree or higher*) | 38 |  | 29 |  | 3.22 |

*Note.* A proxy measure ofSES is calculated by the highest level of education achieved by the consenting parent

**Table 2** Mean main and standard deviations for comparative vignettes across the two experimental conditions and participants factors age and gender as a function of stigma variables

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Experimental Condition |  | Age |  | Gender |
|  | Depression/Normal Issues | ADHD/Normal Issues |  | 10-11 years | 15-16 years |  | Male | Female |
|
| Stereotypes |  |  |  |  |  |  |  |  |
|  Dangerousness | 3.28 (2.26)/2.84 (2.30)\* | 3.51 (2.17)/2.64 (2.25)\* |  | 3.27 (2.31) | 3.53 (2.11) |  | 3.45 (2.16) | 3.35 (2.27) |
|  Responsibility | 3.67 (2.00)/3.84 (2.00) | 4.48 (2.02)/3.95 (1.96)\*\* |  | 4.09 (2.01) | 4.11 (1.81) |  | 4.36 (2.01) | 3.86 (2.00) |
| Prejudice |  |  |  |  |  |  |  |  |
|  Fear | 1.74 (1.10)/1.51 (1.00)\* | 1.95 (1.18)/1.52 (1.03)\*\* |  | 1.70 (1.16) | 2.01 (1.10) |  | 1.86 (1.13) | 1.84 (1.15) |
|  Anger | 2.50 (1.40)/2.17 (1.58)\* | 3.34 (2.01)/1.92 (1.33)\*\* |  | 2.56 (1.81) | 3.32 (1.77) |  | 2.91 (1.86) | 2.91 (1.80) |
| Discrimination |  |  |  |  |  |  |  |  |
|  Behavioural Intentions | 52.20 (12.5)/59.66 (10.70)\*\* | 47.76 (13.55)/61.50 (10.0)\*\* |  | 52.25 (14.27) | 47.44 (11.24) |  | 47.15 (13.17) | 52.75 (12.75) |
|  Relationship Social Distance  | 2.31 (1.07)/1.56 (.81)\*\* | 2.72 (1.9)/1.58 (.83)\*\* |  | 2.35 (1.35) | 2.7 (1.00) |  | 2.60 (1.20) | 2.60 (.92) |
|  Physical Social Distance | 2.55 (1.77)/1.67 (1.32)\*\* | 3.16 (2.03)/1.75 (1.65)\*\* |  | 2.81 (2.14) | 2.00 (1.63) |  | 3.00 (2.15) | 3.00 (2.13) |
| Implicit attitudes | .24 (.61) | .20 (.60) |  | .21 (.56) | .24 (.64) |  | .33 (.60) | .13 (.58) |

*Note.* Standard deviations are in parenthesis. In the ‘Experimental Condition’ column data presented to the right of the slash represent means and standard deviations on the stigma measures towards the peer with ‘normal issues’ while data presented to the left represent means and standard deviations towards the peer with a mental health problem. \*p < 0.05, \*\*p < 0.001

**Table 3** Means and standard deviations for all possible interactions across the between subject variables; vignette characters mental health condition, age and gender of participants as a function of the stigma variables.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Depression |  | ADHD |
|  | 10-11 years | 15- 16 years |  | 10-11 years | 15-16 years |
|  | Male | Female | Male | Female | Male | Female | Male | Female |
| Stereotypes |  |  |  |  |  |  |  |  |  |
|  Dangerousness | 2.96 (2.34) | 3.00 (2.32) | 3.72 (2.18) | 3.54 (2.16) |  | 3.73 (2.32) | 3.39 (2.34) | 3.40 (1.83) | 3.50 (2.30) |
|  Responsibility | 3.97 (1.88) | 3.30 (2.24) | 4.00 (1.81) | 3.70 (1.70) |  | 4.86 (2.21) | 4.28 (2.10) | 4.55 (2.03) | 4.22 (1.65) |
| Prejudice |  |  |  |  |  |  |  |  |  |
|  Fear | 1.70 (1.14) | 1.38 (.76) | 1.87 (1.10) | 2.08 (1.24) |  | 1.94 (1.36) | 1.84 (1.29) | 1.93 (.86) | 2.11 (1.15) |
|  Anger | 2.42 (1.76) | 2.24 (1.50) | 2.44 (1.21) | 2.88 (1.51) |  | 2.90 (2.15) | 2.71 (1.83) | 3.88 (1.78) | 4.05 (2.00) |
| Discrimination |  |  |  |  |  |  |  |  |  |
|  Behavioural Intentions | 50.07 (14.67) | 56.23 (12.33) | 47.10 (11.24) | 54.62 (9.73) |  | 50.35 (13.20) | 51.67 (16.2) | 40.58 (10.2) | 47.41 (10.11) |
|  Relationship Social Distance | 2.50 (1.14) | 2.00 (1.21) | 2.51 (1.05) | 2.34 (.77) |  | 2.30 (1.10) | 2.67 (1.18) | 3.12 (1.00) | 2.84 (1.01) |
|  Physical Social Distance | 3.30 (2.12) | 2.42 (1.83) | 2.42 (1.83) | 2.12 (1.33) |  | 3.04 (2.20) | 3.53 (2.30) | 3.00 (1.80) | 2.91 (1.70) |
| Implicit Attitude | .23 (.61) | .21 (.62) | .61 (.54) | -.01 (.62) |  | .23 (.58) | .16 (.51) | .30 (.61) | .14 (.66) |

*Note.* Standard deviations are in parenthesis.

**Figure 1** Vignette mental health disorder by participants’ age and gender interaction for relationship social distance

**Figure 2** Vignette mental health disorder by participants’ age and gender interaction for implicit attitude