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Fostering preschoolers positive behaviour and attitude towards Down syndrome by Down syndrome doll play

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ABSTRACT

The current pilot study examines pre-schooler's play behaviour involving dolls with and without facial characteristics of Down syndrome over a period of 16 weeks. Play behaviours were categorized into one of 3 behavioural categories with predefined observational scoring grids: prosocial, antisocial, or neutral/no behaviour. Participants also individually received an adapted version of the Preschool Racial Attitude Measure, to assess in- and outgroup attitudes of participants towards children with Down syndrome. Positive and negative attitudes and behaviours towards Down syndrome dolls were analysed over time with pre and post-measurements. Results showed that, whereas children showed negative behaviour towards the Down syndrome doll at the start of the experiment, this negative behaviour disappeared by the end of the experiment. Furthermore, children showed significantly more positive play behaviour during the experiment towards the Down syndrome dolls. The results of this pilot study indicate that playing with Down syndrome dolls at preschool age can potentially be used as a low cost, non-invasive prevention program to foster future positive behaviours towards Down syndrome, setting the stage for interactions with real children with Down syndrome in inclusive education. Implications for meeting the needs of children with Down syndrome and their peers in inclusive education are discussed.

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Attitude; down syndrome; exposure; inclusive education; play behaviour

Introduction

In The Netherlands, children with special needs, including Down syndrome (DS), are encouraged to participate in inclusive education (Education Act for Students with Special Needs, see also Gubbels, Coppens, and de Wolf 2017). Inclusive education is a term which refers to the situation in which pupils with special needs are taught in mainstream schools, regardless of the extent or severity of their disability. A major drive for this encouragement is the positive effects of inclusive education on children with DS. Compared to children with DS in special education, children with DS in regular education show better school performance, better academic development, better speech and overall language skills at puberty (de Graaf, van Hove, and Haveman 2013).

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Although social acceptance is of considerable importance for children's school career and well-being (Schwab and Hessels 2014; see also Huber et al. 2018), a vast majority of research shows that social acceptance of children with special educational needs (SEN) including DS is low (e.g., Frostad and Pijl 2007; Huber et al. 2018; Pijl and Frostad 2010). Already at preschool age, typically developing children are often not interested in interacting with children with DS, and show a negative attitude towards these children (Huckstadt and Shutts 2014; Lewis and Lewis 1988). As a result, preschool aged children with DS at regular schools are often at a disadvantage in social situations and are at risk of becoming socially isolated from their peers in school (Guralnick 1999; Lewis and Lewis 1988).

A proposed way of reducing (social) prejudice effectively in a low-cost manner is by using repeated mere exposure (Bohner & Dickel, 2011; Brown et al. 2007; Pettigrew and Tropp 2006). Mere exposure describes the condition in which a certain stimulus is accessible for the perception of a person. Only accessibility is required for mere exposure and the stimulus should not be forced upon the person. However, there are ethical and practical constraints of real life exposure of children with DS to elementary school children. Hence, an alternative to using real children with DS, allowing children to play with dolls with facial features of DS may be an effective strategy. Studies using dolls to reduce prejudice among children are scarce, but do show positive results. For example, in a study aimed at decreasing racial attitudes of young children, Basten (2009) found that dolls of varying skin colours can have a significant positive impact on racial schemes of children.

In this pilot study, we examined whether dolls with DS features can be used in a preschool educational setting to positively change attitudes and play behaviours. The main research question is: *Will the attitude and plays behaviour of typically developing children towards peers with DS become more positive (or less negative) by using exposure to a doll with features of DS in an inclusive educational setting?* We compared two groups of children between four and six years old in a classroom setting. In one group we placed a DS doll in the classroom, in the other group we placed a control doll in the classroom. We observed both children's play behaviour and the change in intergroup attitudes.

Method

Participants

Two classes with first-year or second-year primary school children of a public elementary school in Rotterdam participated in this study. The children were typically developing children in the age range of four to six years old (M = 5.0 years,SD = 0.68). Permission to participate in the study was obtained from the headmaster of the school and the parents. After participation, the children were rewarded with a small present. A total of 25 children participated in this pilot (12 boys, 13 girls), of which 23 children completed the attitude tasks.

Materials

Dolls

In this study, two dolls were included. Their physical features were controlled as much as possible: the dolls were of the same height (circa 42 cm), wore the same clothes, and both had a white skin colour and short blonde hair. The dolls did differ in their facial features. One doll

had facial features that are characteristic for DS: the doll had almond-shaped eyes, small ears, a flat nose and a big protruding tongue. The doll with DS also had broader hands and feet, a bigger space between the big toe and the other toes and one transverse continuous hand fold. The control doll was a typical doll with no extraordinary features (see also Figure 1).

Attitude towards dolls

To measure the effect of mere exposure on the attitude towards the DS doll, we used an individual attitude task derived from the 'Preschool Racial Attitude Measure II' (PRAM II; Williams et al. 1975). In the current pilot, we used Microsoft Office Power Point software, to create separate slides, each showing pictures of the two aforementioned dolls. The order and location of the pictures were counterbalanced. A short story containing four sentences with either a positive or a negative adjective was read to each child. Then, the children were asked to assign this story to either the doll with DS or to the control doll by pointing to the doll they thought represented the character in the story.[1]

The attitude task consisted of 16 positive and 16 negative words that were checked for familiarity to the children. More words were added so that we captured a larger range of possible attitudes. The positive words that were adopted from the PRAM II were: clean, good, kind, nice, pretty, smart, friendly, happy, healthy, helpful, right and wonderful. The positive words we added were: ordinary, sweet, clever and neat. The negative words that we adopted from the PRAM II were: bad, dirty, mean, naughty, ugly, stupid, cruel, sad, selfish, sick, unfriendly and wrong. The additional negative words were: annoying, angry, foolish and crazy.

The total DS attitude score was determined by counting one point for the selection of the control doll in response to a positive adjective and counting one point for the selection of the DS doll in response to a negative adjective (cf., Williams et al. 1975). Scores ranged between 0 and 32, with higher scores indicating a stronger bias towards attributing positive qualities to the control doll and negative qualities to the DS doll.

Observational scoring

Children were observed while playing with the doll once every two weeks in the classroom. The interval for the currently used observational scheme was 20 s. All the

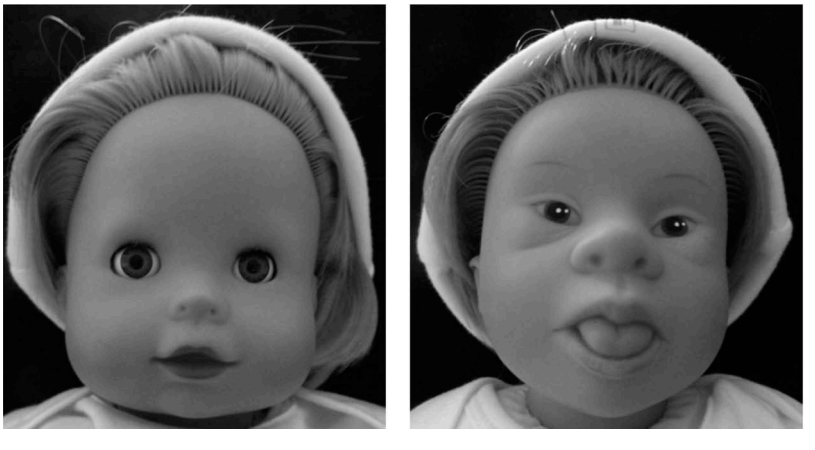

Figure 1. Pictures of the control doll (left) and the Down syndrome doll (right).

playing activities were grouped into five categories: (1) *nurturing*, such as feeding the doll, dressing the doll, and putting a diaper on; (2) *active play*, such as 'playing school', reading to the doll, playing hide and seek with the doll; (3) *negative behaviour towards the doll*, such as giving the doll punishment, laughing at the doll, not wanting to play with the doll; (4) *calm play*, including play behaviour such as letting the doll sleep, walking with the doll, holding the doll; (5) *neutral behaviour*, in which play behaviour of the children was not focused on the doll. Behavioural observation scores were calculated by counting the number of times the participant displayed pro- and antisocial play behaviour during a five minute interval.

All the participants were partnered in duos. During every observation, the children had to play with the same partner, to keep extern variables as stable as possible to be able to interpret the change in play behaviour.

Procedure

Children were asked to complete the attitude task (PRAM II) every four weeks, for 16 weeks in total. After all the children had completed the attitude task for the first time, the experimenter brought a doll into the classroom. The children participating in this study were randomly assigned to the condition with exposure to a DS doll (14 children) and to the condition with exposure to a control doll (11 children). The experimenter told the children that the doll would be visiting the class for a while and that the experimenter would sometimes come to see how the children are playing with the doll. Once every two weeks, each child was observed in couples while playing with either the DS doll or the control doll. Interrater reliability was Kappa = 0.58, which corresponds to a moderate agreement (Landis and Koch 1977).

Results

Preliminary test

Results showed no gender difference in pro-social and anti-social bias towards the control dolls, $t = .10$, $p = .923$. Gender was therefore not included as a covariate.

Prosocial and anti-social play behaviour at baseline

To test whether children showed more prosocial play behaviour, and less anti-social play behaviour towards the control doll at baseline compared to children playing with the DS doll, we conducted two independent sample *t*-tests. The independent variable was the Doll condition (DS vs control) and the dependent variable was the score on the observations. Results showed no differences for pro-social behaviour at baseline between children who played with the control doll ($M = 3.30$, $SD = 3.34$), versus children who played with the DS doll ($M = 4.08$, $SD = 3.97$), $t(21) = -0.50$, $p = .624$. Although the children playing with the DS doll showed more anti-social behaviour towards the doll ($M = 1.92$, $SD = 2.75$) compared to the control group ($M = 0.20$, $SD = 0.42$), this difference did not reach statistical significance $t(12.73) = -2.22$, $p = .106$.

Attitude towards DS

We also examined whether children exposed to the DS doll would have a smaller bias in attributing positive qualities to the control doll and negative qualities to the DS doll at the end of the exposure period compared to children without exposure. An ANCOVA was performed with the post-test measure on Attitude task as dependent variable, Doll condition (DS vs control) as an independent variable, and Time as a covariate. Results showed no between-group effect, $F(1,15) = 0.02$, $p = .886$. The children playing with a DS doll showed a similar attitude towards DS ($M = 27.75$, $SD = 3.19$) compared to the control group ($M = 24.36$, $SD = 5.92$).

Prosocial and anti-social play behaviour after exposure

We finally tested whether after 16 weeks of exposure to the DS doll, children would show more prosocial or less anti-social play behaviour. An ANCOVA was performed with the post-test measure on the Behavioural observations as dependent variable, Doll condition (DS doll vs control doll) as independent variable, and baseline scores as a covariate.

Prosocial behaviour

Results did not show an effect of Time on prosocial behaviour: compared to the baseline measurement ($M = 3.74$, $SD = 3.65$), children did not increase their prosocial behaviour at the post-measurement ($M = 5.78$, $SD = 5.86$), $F(1,13) = 1.18$, $p = .297$, $\eta_p^2 = .083$. However, we did find a significant effect between Doll condition, $F(1,13) = 7.60$, $p = .016$, $\eta_p^2 = .369$. Children playing with a DS doll showed more pro-social behaviour towards the doll on the post-measurement ($M = 9.00$, $SD = 5.78$) compared to the control group ($M = 3.20$, $SD = 4.73$). Hence, after playing with a DS doll for 16 weeks, children showed more pro-social behaviour.

Anti-social behaviour

When analysing antisocial behaviour, the normality assumption was violated: except for one child, all children scored zero on anti-social behaviour, meaning we cannot analyse the data for the anti-social behaviour component. However, note that at the beginning of the experiment, children did show antisocial behaviours in the DS doll group ($M = 1.92$, $SD = 2.75$) whereas the mean values in the control condition indicate that children did not appear to behave anti-socially towards their doll ($M = 0.20$, $SD = 0.42$). Hence, our results show the pattern that by the end of the 16-weeks, antisocial behaviour decreased to negligible proportions for children in the intervention group.

Discussion

In this pilot study, we examined the long-term effects of exposure with a DS doll in an inclusive educational setting. Results show that children did differ in their pro-social behaviour and we also see a pattern of decreased anti-social play behaviour towards either a control doll or a doll with DS features at base-line, contradicting prior research showing that children have a negative bias towards children with DS (Frostad and Pijl

2007; Huber et al. 2018; Pijl and Frostad 2010). An explanation for our findings could be that children were simply not negatively biased towards DS. This would be very promising as this would mean that in pre-school – the moment children with DS ideally enter regular education – they would receive equal social chances compared to any other kid. Unfortunately, from our data, we do see that preschool-aged children behaved differently towards a typical doll versus a doll with DS features. Means indicate that children showed more anti-social behaviour towards the doll showing DS features compared to the control group. Furthermore, during the observations at the start of the exposure period, we saw that the children did not like the doll, as they were, for example, throwing the doll to the wall, laughing at the doll, saying *'it was ugly'*, and making remarks about the doll's tongue and fingers. None of these behaviours were recorded when children played with the control doll. It, therefore, seems that our study with a relatively small sample did not have enough power to show the difference between the control and the DS condition. Hence, we encourage future research to repeat our study with a larger sample.

Our results indicate that several months of exposure positively influenced the play behaviour towards the DS doll. In regards to the display of anti-social play behaviour towards the DS doll, we observed a decline in which children did not show any anti-social play behaviour towards the DS doll at the end of the exposure period. These results suggest exposure positively affects the negative way children interact with individuals with DS, which is in line with prior research (e.g., van Reijmersdal, Neijens, and Smit 2007). Furthermore, in contrast to their anti-social behaviours at baseline (e.g., kicking the doll, laughing at the doll), at the end of the exposure period, the children were clearly more positive towards the doll. Examples of our observations are that the children were feeding the doll, dressing the doll, and saying they '*didn't want to throw the doll anymore*'. These findings can be explained by that repeated exposure to the doll made the children feel more comfortable and less hostile towards this doll, which fostered more prosocial play behaviour with the doll.

Limitations and future directions

Overall, the current pilot study is innovative and uses a new methodology to assess and intervene with the aim to positively alter children's attitude and play behaviour towards classmates with DS. Our results indicate that children's play behaviour towards children with DS can improve after having been exposed to for several months. This is a very promising finding that has important implications for the social acceptance towards children with DS. However, our study also had some limitations.

A first and foremost limitation is that we cannot be certain as to how our results based on playing with dolls would generalise to actual children. Our results promisingly show that children can become more positive regarding DS features, and we hope that our pilot study inspires future research on how exposure can be used to improve attitudes towards out-groups. To do so, future research could, for example, ask children to fill in the PRAM II with pictures of actual children with DS. A second limitation is that by using dolls, this study focuses primarily on the characteristic facial appearance of children with DS. This means that we excluded behavioural differences and social skills between children with and without DS. Isolating the facial characteristics is an

advantage, as the facial appearance of individuals with DS is the most common factor of the syndrome (Chapman and Hesketh 2000) and the most stable and characteristic feature of children with DS. Hence, by isolating these facial characteristics, this study increases the potential of generalisation to children with DS. At the same time, it is important for future research to examine how other characteristics, including behavioural characteristics, of children with DS influence play behaviour and overall attitude of typically developing peers. Especially when aiming to generalise results in actual children with DS, including such characteristics of DS is essential to shed a light on the interplay between child characteristics and behaviours of children towards peers with DS in a preschool context.

Another direction for future research entails the inclusion of teacher behaviour when examining children's play behaviour and attitude towards dolls with DS. Teachers can play a key role in special education and can influence children's acceptance towards their peers (Huber et al. 2018). In the current study however, teachers were not informed about the aims of the study, nor were they specifically instructed to comment or react to children's play behaviour in a particular manner. However, it is possible that teachers may influence the effect of the current exposure and interaction with the dolls. For example, it is possible that if teachers would tell the children that playing with the doll with DS features would be very nice and fun (cf. Huber et al. 2018), positive play behaviour may increase more strongly and/or quickly. We encourage future research to shed more light on the way in which teacher behaviour and/or attitudes affect child's play behaviour and attitudes towards dolls with DS and how teacher characteristics and behaviour might be used to improve children's play behaviour.

Further directions for future research should also include more in-depth examination as to what statements in the PRAM II can best be used for preschool ages children. In the current study, extra items were added to describe a broader range of attitudes. However, to get a clearer overview of how children typically/naturally describe their peers, future research could ask the children directly to describe their friends or ask the teachers how children would refer to or describe their peers. Doing so can provide a more valid way to mimic child language.

Another direction for future research regards exploring if other ways of exposure with DS yield the same outcome. Although playing with dolls can have a significant impact on children their scheme and progression (Basten 2009), exposure methods in the form of posters with children with DS, stories about children with DS, and the use of video images could, for example, also be considered. We encourage future research to further examine how simple exposure may be beneficial in reducing negative attitudes.

Conclusion

To conclude, the results of the current pilot imply that exposure with dolls with physical characteristics of DS can positively influence the play behaviour of children in an inclusive educational setting. This result has important implications as the use of DS dolls in the classroom could provide an easy, inexpensive, and quick way to improve the conditions for children with DS in mainstream schools in the future. Hence, we encourage future research on this topic.

Note

1. We checked whether all children were able to discriminate between the typical doll and the doll with DS features. All children could do so without making mistakes.

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Geolocation information

The study was performed in the rural area of Rotterdam, The Netherlands.

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