

Strabismus-related prejudice in 5–6-year-old children

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ABSTRACT

Aims There is a general consensus that individuals with conspicuous strabismus are perceived more negatively with respect to physical appearance, personality and capability. Such social biases can potentially lead to social alienation and negative psychosocial development, particularly when experienced at a young age. This study aims to explore young children's perception of peers with noticeable exotropia.

Methods 128 children, 5–6 years old, took part in this cross-sectional within-group study. The sample viewed four paired images of peers with orthotropia and exotropia, and chose the image they LIKED and the image they would SHARE their favourite toy with. All images were created using digital morphing technique.

Results Single proportion tests showed that a significantly greater proportion of the sample chose the orthotropic images as the ones they like ($z=5.74$, $p<0.001$) and the ones they would share their favourite toy with ($z=4.90$, $p<0.001$). Phi coefficient analysis further demonstrated an association between the choice to like and the choice to share ($\phi(504)=0.34$, $p<0.001$).

Conclusions Children as young as 5 years old are found to have negative social reactions towards peers with noticeable exotropia. These findings imply that children with noticeable strabismus may be subjected to social alienation at an early age.

In children, strabismus can cause visual problems such as amblyopia, loss of binocular vision and loss of depth perception. In addition to problems relating to visual function, children with conspicuous strabismus are perceived more negatively with respect to physical appearance, personality and capability.^{1–7} Having a noticeable ocular misalignment can negatively affect one's self-esteem and social interactions.

One of the treatments for strabismus is corrective strabismus surgery. This procedure is often performed to improve visual functioning by restoring binocular vision and by removing the amblyopic stimulus caused by the ocular misalignment. There is also evidence to suggest that adverse psychosocial impact associated with strabismus can be reduced with corrective surgery.^{8–11}

It is important to examine the behaviours associated with strabismus-related prejudice as well as to establish the age at which psychosocial impact of strabismus becomes a significant issue. This knowledge will influence the timing of strabismus surgery particularly if the surgery was performed solely for cosmetic reasons.

To date, there is little systematic research that investigates strabismus-related prejudice in very young children. Paysee *et al*¹² attempted to determine the age of emergence of negative attitudes

towards strabismus in 34 children between 3 and 7 years old. When exposed to dolls manipulated to have eyes that were esotropic, exotropic and orthotropic, children as young as 5³/₄ years old elicited more negative responses towards the strabismic doll. As the reactions of these children were targeted towards dolls, it is difficult to extrapolate that children will behave similarly when interacting with their peers who have noticeable strabismus. Subsequently, Johns *et al*¹³ conducted a study to investigate the effect of strabismus on a child's selection of playmate. The study consisted of 100 children, 3–8 years old, who were asked to select a playmate by looking at paired strabismic–orthotropic images. Contrary to what is expected, the presence of strabismus did not appear to influence the choice of playmates.

Given the conflicting findings of the aforementioned studies, it remains unclear if very young children exhibit strabismus-related prejudice. Similarly, little is known concerning when young children with strabismus receive such prejudices. Therefore, the aims of this study are (1) to investigate the presence of strabismus-related prejudice in 5–6-year-old children and (2) to explore the relationship between the presence of prejudice and behaviours associated with social alienation.

SUBJECT AND METHODS

A total of 128 children attending kindergartens in Kuala Lumpur were recruited to participate in this cross-sectional within-group study. The children were 5 and 6 years old. There were an equal proportion of boys ($n=64$) and girls ($n=64$). However, there were more children who were 6 years old ($n=85$). At the time of study, no child was observed to have noticeable strabismus. Informed consent was obtained from the children's parents as well as the kindergartens' principals. Ethical approval to conduct this study was granted by the ethical review board of the Department of Psychology at HELP University College.

Coloured images of a girl and a boy aged between 5 and 6 years old were generated using digital morphing technique. The whole image, not just the eyes, was created from a combination of different facial parts taken from images of children between the age of 5 and 6 years. As such, no image was of a child in real life. The completed images consisted of two exotropic (one male and one female) and two orthotropic (the same male and female) children. The rationale for choosing to create exotropic as opposed to esotropic images was based on the finding that there is a higher prevalence of exotropia compared to esotropia in the Malaysian population.¹⁴ Altogether, there were four images. These images were presented to the participants in pairs; that is, an orthotropic image and an exotropic