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Being deaf at the playground: the effects of hearing loss on children's social participation

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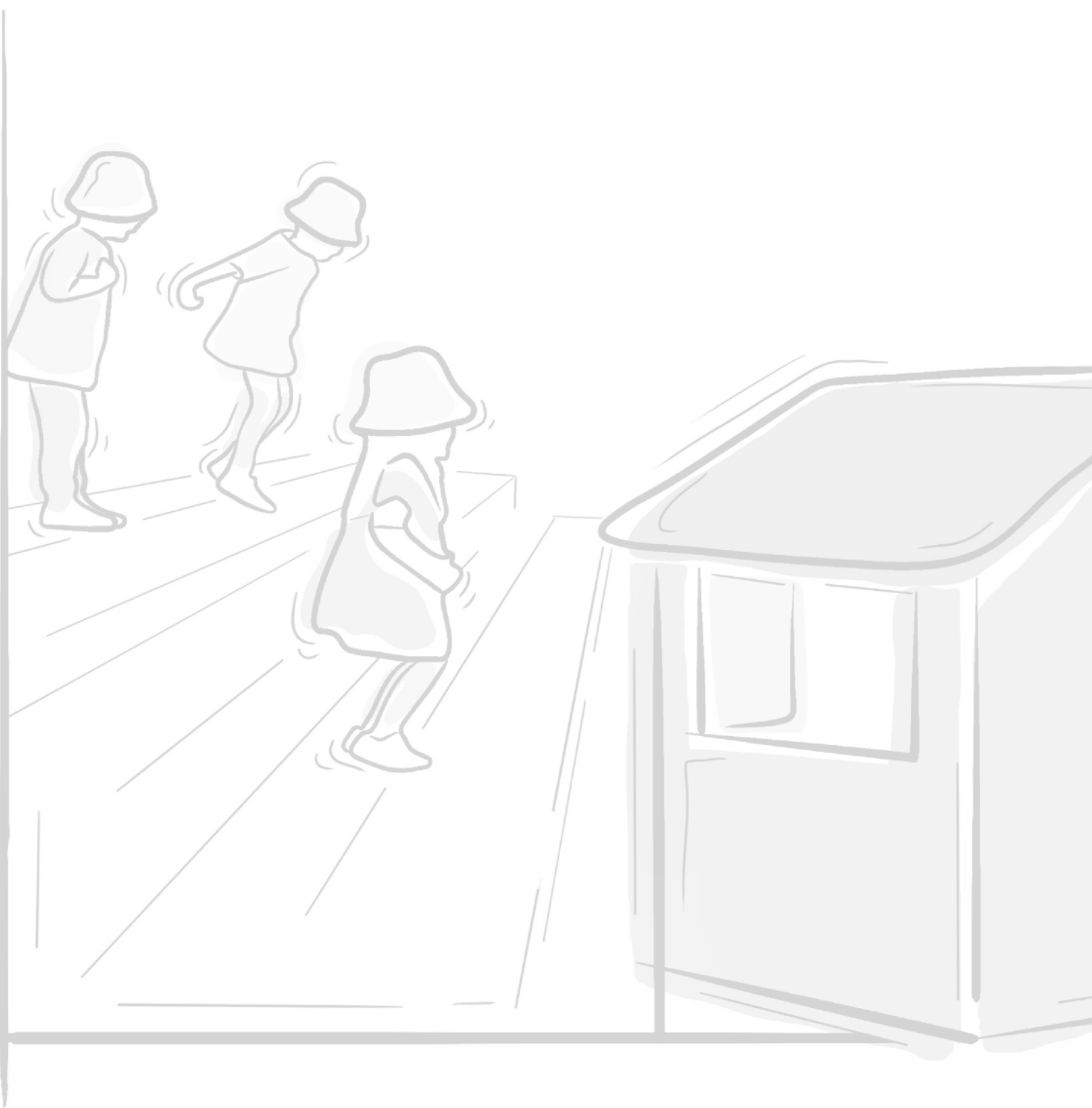
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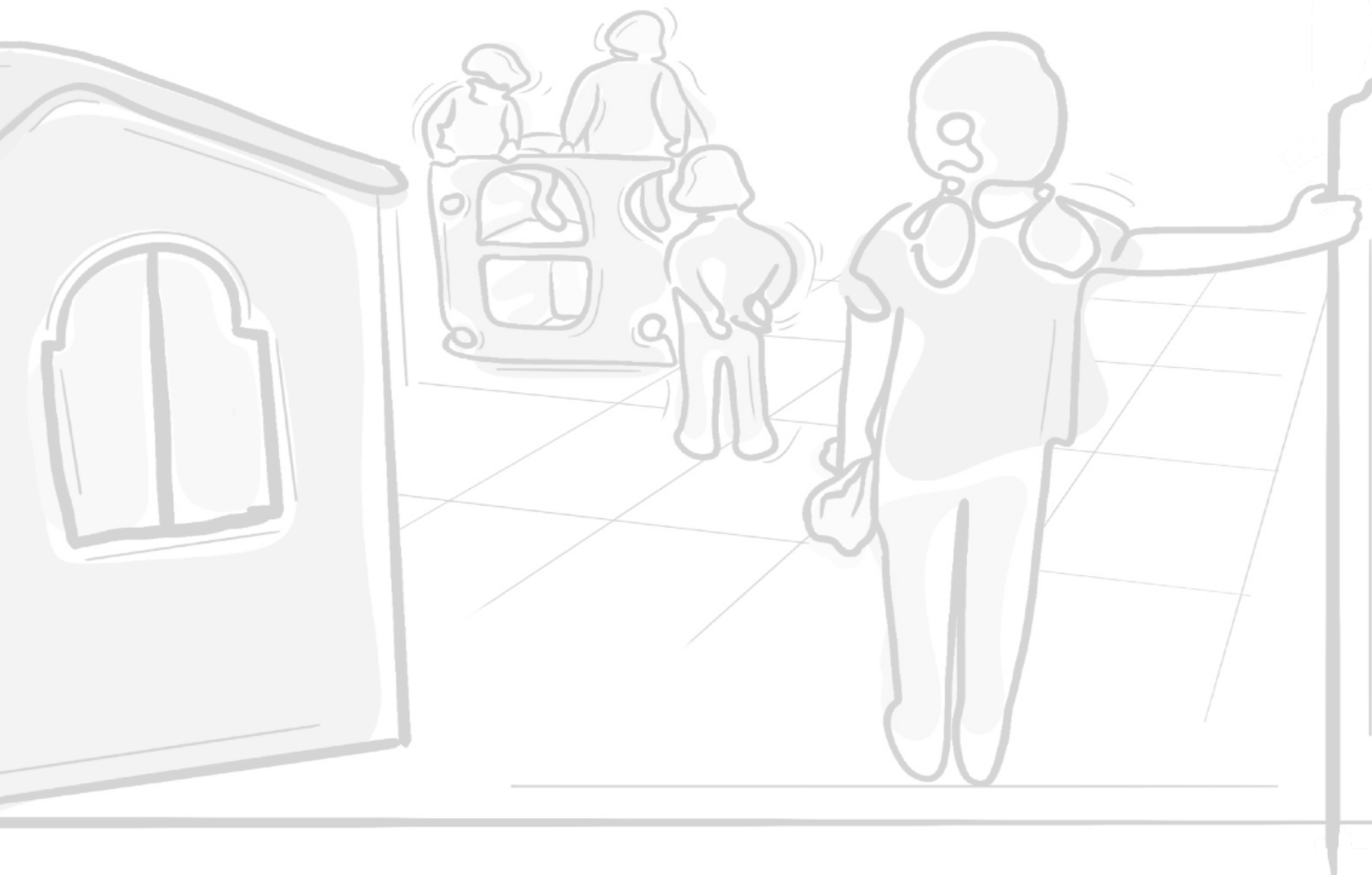
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Chapter 8

Associations of shame and guilt with externalising behaviour in deaf and hearing children

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ABSTRACT

Moral emotions evolve during the first years of life, making children aware and abiding to societal rules. Recent studies showed that guilt and shame impact social relationships differently. Guilt, aimed at avoiding harming others, associates with fewer externalising problems and (proactive) aggression. Shame, aimed at self-improvement, associates with more externalising problems and (reactive) aggression. Since these emotions rely heavily on input from the social environment and social learning, this might be more difficult for children who often face (invisible) barriers to access their social surroundings, e.g., children who are Deaf or Hard-of-Hearing (DHH). We aimed to study the relationships between moral emotions, externalizing behaviours and aggression (reactive and proactive) in DHH and hearing children. We expected shame to be positively associated with externalising problems and reactive aggression, and guilt to be negatively associated with externalizing problems and proactive aggression, in both groups. Our study included 42 DHH children and 199 hearing children (mean age 5 years, 6 months; range 37-107 months; recruited between 2017-2022). Their caregivers filled out questionnaires regarding their moral emotions, and 3 indices for externalizing behaviours (externalising problems, reactive/proactive aggression). No differences appeared between DHH and hearing children. Outcomes for the total sample showed negative associations for guilt with all indices for externalising behaviours. Shame was positively associated with reactive aggression only. The different function of shame and guilt was similar for DHH and hearing children. Early and bilateral hearing aids might have supported DHH children better access to social participation.

INTRODUCTION

Whereas basic emotions (e.g. anger or fear) are thought to be innate or at least present in the earliest stage of life, moral emotions like guilt and shame come later in development, as they are linked to what a given society or social group maintains as morally “right or wrong” behaviour. These kinds of moral emotions are important as they demarcate boundaries within interpersonal relationships. For example, guilt prohibits aggression towards ingroup members; whereas shame contributes to respect social hierarchy (Dempsey, 2017; Tangney et al., 2007). Moral emotions thus guide behaviours based on a social compass, which children need to develop through social learning.

To develop this social compass, knowledge about unwritten, often implicit social rules is required. This kind of knowledge is acquired through social learning which can be more challenging for children who may experience difficulties accessing their social environment, as is the case for Deaf and Hard-of-Hearing (DHH) children. Even with well-fitted hearing devices, conventional hearing aids as well as cochlear implants, these techniques have their limitations. To date, these aids still make it difficult to filter different simultaneous sounds. For example, a DHH child at a playground or busy classroom will have difficulties hearing a targeted person whilst ignoring or dampening other sounds, as most hearing children can automatically. To date, studies that examined shame and guilt in DHH and hearing participants focused on children and/or adolescents, and consistently showed lower levels of both guilt and shame compared to hearing peers (Broekhof et al., 2018, 2020, 2021; Ketelaar et al., 2015), emphasizing the important role of children’s access to their social environment and subsequent social learning in the development of moral emotions. Yet how these moral emotions affect interpersonal relationships seems to be different for guilt and shame.

GUILT, RESTORING THE HARM

Feelings of guilt arise when harm is done to another person, and one feels responsible for this (Tracy & Robins, 2004). Guilt evokes the urge (i.e. action tendency) to restore, to make up, which can take the form of an apology, or actual reparations (Frijda, 1986; Tangney et al., 2007). Guilt is thus focused on the other person(s), or on the relationship with that person, and efforts are made to safeguard that relationship

and/or the well-being of the harmed person (Dempsey, 2017; Tracy & Robins, 2004). In support of these theoretical assumptions, empirical studies showed how higher levels of guilt are related to more empathy, and prosocial behaviours, yet less delinquency and proactive aggression, i.e., instrumental aggression to obtain certain goals (Barón et al., 2018; Broekhof et al., 2018, 2020, 2021; Novin & Rieffe, 2015). Some of these studies also showed these associations over time, thus confirming the causal role that guilt plays in preventing aggression. Note that this pattern is found in both hearing and DHH adolescents (Broekhof et al., 2021).

SHAME, BECOMING A BETTER PERSON

Shame is supposed to evoke the urge to become a better person, whilst emphasizing and respecting social status (Nichols, 2015). This “better person” wants to live up to the ideal of a good citizen, showing respect towards their peers, parents, and teachers, thus doing what is morally right within their social ranking. Shame arises when a child transgresses or fails to meet the ruling social or moral standards and others have witnessed, or worse, have (publicly) named this transgression (Izard, 1977). Failures thus may result in feeling devalued, and being socially ostracized (Frijda, 1993; Nichols, 2015). Literature shows that feelings of shame are commonly related to low self-esteem and poor mental health in older children and adolescents (Tangney et al., 2007). Importantly, feeling ashamed implies that the focus is inward and negative about oneself. The shameful child will try to hide, disappear, or try to ignore, or dismiss what happened. Yet, this negative feeling about oneself, especially when exposed publicly, can easily turn into anger or aggression towards the person who “exposed” the shamed person, or it can result in reactive aggression in general (Tangney et al., 2007). Previous studies confirmed that more shame was related to more externalising problems in preschool children (da Silva et al., 2022; Li et al., 2023); more anti-social behaviours in school children (Barón et al., 2018), and more reactive aggression in DHH and hearing adolescents (i.e. aggression in response to a perceived threat or provocation) (Broekhof et al., 2021).

PRESENT STUDY

Moral emotions like shame and guilt are important milestones in early development, as children need to learn societal norms and adapt their behaviours accordingly. However, whereas the positive impact of guilt is well-documented, shame

seems to be more harmful rather than strengthening social relationships or one's position in the social (peer) group. Although studies among preschool children indeed confirmed these relationships for the moral emotions of shame and guilt with externalising problems (Li et al., 2023), this has not yet been studied in the context of peer-related aggression. Yet, studies that involved older age groups confirmed the different relationship of reactive/proactive aggression with shame and guilt in DHH and hearing adolescents (Broekhof et al., 2021).

The first aim of this study was to examine differences in levels of moral emotions (shame and guilt), externalising problems, and peer-related aggression (proactive and reactive aggression) between DHH and hearing preschool children. Based on previous studies, we expected lower levels of moral emotions, but higher levels of externalising problems and aggression in the DHH group compared to their hearing peers (Broekhof et al., 2021; Ketelaar et al., 2015).

The second aim of this study was to examine the extent to which moral emotions are related to externalising problems and both forms of aggression in the two groups. Based on previous studies, we expected that shame would be positively associated with externalising problems and reactive aggression, while guilt was expected to show a negative association with externalizing problems and proactive aggression (Li et al., 2023). We expected these associations to be similar in DHH and hearing children (Broekhof et al., 2021).

METHODS

Design

A cross-sectional study design was employed in the current study, with the data collection being conducted between 2017 and 2022.

Participants and Procedure

A total of 42 DHH (Mage = 65.21 months, SD = 17.08 months; 62% boys) and 199 hearing (Mage = 66.87 months, SD = 14.74 months; 51% boys) children participated (Table 1). DHH children were recruited through doctors from two hospitals in Lisbon. To prevent any bias in the selection of participants for the clinical group, all caregivers of eligible children were informed about the purpose of the study and asked for participation.

Caregivers who agreed were asked to fill out questionnaires and indicate the (pre)school that their DHH child attended. These schools were contacted, and to prevent any bias in the selection of children for the control group, caregivers of all children in classes with the DHH children were also asked to participate. Approval for this study was obtained from Leiden University Ethical Committee, the Portuguese Committee of Data Protection and the Portuguese Directorate of Education. This study is part of a larger study on social and emotional functioning in DHH and hearing preschool children.

Table 1. Demographic characteristics of participants

	Total study population		DHH study population		
	TH	DHH	Bilateral CI	Bilateral HA	Bimodal (CI&HA)
No. of children	199	42	22	15	5
<i>Age</i>					
Mean – in months (SD)	66.87 (14.74)	65.21 (17.08)	70.47 (19.40)	60 (12.02)	65.40 (22.31)
Range – in months (SD)	37 – 107	37 - 107	37 - 92	41 - 107	40 – 98
<i>Gender</i>					
Male (%)	102 (51.3%)	26 (61.9%)	13 (59.1%)	10 (66.7%)	3 (60%)
<i>Language Indices</i>					
Emotion Vocabulary***	.70 (.17)	.57 (.24)	.57 (.25)	.55 (.24)	.60 (.20)
<u>Preschoolers - n</u>	35	30	17	9	4
Comprehension***	.96 (.07)	.88 (.11)	.88 (.12)	.89 (.07)	.88 (.18)
Production***	.98 (.07)	.73 (.32)	.73 (.36)	.71 (.31)	.79 (.23)
Pragmatics***	.56 (.31)	.17 (.29)	.21 (.32)	.09 (.17)	.21 (.42)
<u>Elementary - n</u>	31	11	4	6	1
Total***	1.65 (.21)	1.13 (.61)	.87 (.61)	1.19 (.62)	1.76
<i>Degree of hearing loss</i>					
Moderate – 40 – 60 dB (%)		6 (14.3%)		6 (40%)	
Severe – 61 – 90 dB (%)		9 (21.4%)		9 (60%)	
Profound - > 90 dB (%)		24 (57.1%)	22 (100%)		2 (40%)
Severe & Profound (%)		3 (7.1%)			3 (60%)
<i>Hearing age***</i>	66.87 (14.74)	43.48 (17.25)	43.46 (10.10)	42.13 (22.85)	47.60 (25.64)

* $p < .05$; ** $p < .01$; *** $p < .001$ (after Bonferroni correction)

Measures

The Moral Emotions Questionnaire (MEQ; da Silva et al., 2022)) asks caregivers to report on their child's behavioural responses associated with shame (4 items; e.g., "My child hides when s/he has done something wrong") and guilt (6 items; e.g., "My child shows that s/he regrets something"). Items were rated on a 3-point scale (0 = never, 1 = sometimes, and 2 = often). Higher mean scores indicate higher levels of shame and guilt.

The Portuguese Strength and Difficulties Questionnaire (SDQ; Fleitlich et al., 2005; Goodman, 1997)) was filled out by caregivers. For the purpose of this study, the Behavioural Problems and Hyperactivity scales were combined to provide an Externalising Problems scale (SDQ; Goodman et al., 2010; Goodman, 1997)). Caregivers rated their child's behaviours (10 items; e.g., "Restless, overactive, cannot stay still for long") on a 3-point scale. (0 = not true, 1 = somewhat true, 2 = certainly true). Items' scores are averaged and a higher mean score indicates more externalising problems. The internal consistency was good (table 2; $\omega=.73$).

Reactive and proactive peer aggression were obtained using the Aggressive Behaviour Rating (da Silva et al., 2023; Dodge & Coie, 1987). Caregivers rated 6 items regarding reactive aggressive behaviours (e.g., "When teased, strikes back", 3 items), and proactive aggressive behaviours (e.g., "Threatens or hits other children", 3 items), on a 5-point scale (0 = (almost) never to 4 = (almost) always). Mean scores were computed per scale. Higher mean scores indicate higher levels of aggression. For both scales, the internal consistency was good (table 2; $\omega=.73$, $\omega=.73$).

Descriptives and internal consistencies per scale are presented in Table 2.

Table 2 Psychometric properties for Shame, Guilt, Externalising Problems and Peer Aggression

	No. items	Range	McDonald's Omega	Cronbach's Alpha	Mean inter- item correlation	Mean (SD)			
						Hearing (n = 199)	DHH (n = 42)	HA (n = 15)	CI (n = 22)
Shame	4	0 – 2	.66	.66	.33	.64 (.41)	.72 (.44)	.83 (.36)	.69 (.48)
Guilt	5	0 – 2	.60	.61	.28	1.36 (.35)	1.36 (.41)	1.40 (.45)	1.35 (.43)
Externalising Problems	10	0 -2	.73	.71	.20	.66 (.32)*	.77 (.35)*	.81 (.36)	.72 (.39)
Reactive Aggression	3	0 – 4	.73	.70	.44	1.39 (.75)	1.37 (.86)	1.49 (.91)	1.36 (.84)
Proactive Aggression	3	0 - 4	.73	.67	.40	.38 (.53)	.36 (.42)	.53 (.51)	.29 (.35)

* $p < .05$; ** $p < .01$.(after Bonferroni correction)

STATISTICAL ANALYSES

The current study was registered prior to data analyses. This registration can be assessed through OSF. For the translation of the MEQ into Portuguese, we followed the procedure introduced by Brislin (1986). To assess construct validity of the Portuguese shame and guilt scales, we performed a CFA where the originally proposed model (da Silva et al., 2022) was tested. Since the data was not normally distributed and was categorical in nature, we used the weighted least-squares means and variance adjusted (WLSMV) estimation (Brown, 2006). Items were considered appropriate within their designated scale if their factor loading was higher than .300. The model was considered as appropriate if the χ^2/df was lower than 3 (Bollen, 1989); the root mean square error of approximation (RMSEA) was equal or lower than .060 (Hu & Bentler, 1999); the comparative fit index (CFI) was higher than .900 (Bollen, 1989); and the standardised root mean square residual (SRMR) was lower than .080 (Little, 2013). The CFA was conducted using R's (version 4.4.1) Lavaan package (version 0.6-18; Rosseel, 2012)).

The CFA with the originally proposed items for the Moral Emotions Questionnaire Indicated a poor fit ($\chi^2/df = 2.183$; RMSEA = .072; CFI = .687; SRMR = .100). To improve the model we sequentially deleted items with a factor loading that did not exceed .300. Following this step-wise method, items 16, 23, 20, 18, 12, 10 were deleted in this specific order, resulting in Model 2 (table 3). Model 2, showed a robust goodness of fit, since all the fit indices reached their desired cut-off values ($\chi^2/df = 1.838$; RMSEA = .063; CFI = .903; SRMR = .076). Shame and guilt scales showed acceptable internal consistencies after item deletion (table 2; $\omega = .66$, $\omega = .62$).

Table 3 Shame and Guilt items and CFA factor loadings

	Shame	Guilt
1 – My child hides when they have done something wrong	.79	
4 – My child does not look at me when they have done something wrong	.41	
9 – My child quickly walks away when they have done something that is not allowed	.52	
17 – When my child has broken something, they try to hide it from me	.55	
3 – When my child does something that is not allowed, they to make up for it (e.g., saying sorry)		.30
6 – My child shows when they regret something		.40
13 – When my child breaks something of someone else, they try to repair it		.65
21 – When my child does something wrong (e.g., spill something), they try to fix it (e.g., fetches a cloth)		.46
24 – When my child breaks something of someone else, they want to make up for it		.64

McDonald's omega and inter-item correlations were used to assess internal consistencies. Few missing values occurred. Little's MCAR test showed missing values (<2.2%; 13 participants) were missing at random ($p > .05$). Listwise deletion was used for the cases with missing values.

T-tests were conducted to test for group differences between DHH and hearing; and within the DHH group (bilateral CI versus bilateral HA). Significant correlations were found for age x guilt ($r = .232$; $p < .001$), thus age was controlled for in all correlations. Fisher r-to-Z transformations were used to examine the strength of the correlations per group. To correct for multiple testing, the Bonferroni procedure was applied, and the significance level of the main analyses was adjusted.

RESULTS

Independent sample t-tests (Table 2) showed no differences between hearing and DHH children. Also, exploratory analysis within the DHH group revealed no differences

between the bilateral CI and bilateral HA users (Table 2). Correlations analyses, controlled for age, showed positive associations for shame with externalising problems ($r = .138$, $p = .033$) and both types of aggression (proactive: $r = .152$, $p = .018$; reactive: $r = .260$, $p < .001$). However, after Bonferroni correction (.008) shame was only associated with reactive aggression. Regarding guilt, negative associations were found for externalising problems ($r = -.348$, $p < .001$) and both types of aggression (proactive: $r = -.225$, $p < .001$; reactive: $r = -.223$, $p < .001$). After Fisher r -to- Z transformations were applied, no group differences between the strengths of the correlations appeared.

DISCUSSION

Moral emotions guide interpersonal human actions towards socially acceptable or “correct” behaviours, respecting societal rules and hierarchies. This study confirmed that young children already have some understanding of these often implicit societal rules, as even at this young age, their caregivers are able to distinguish between their shame and guilt behaviours in their children. The outcomes of this study further confirmed the positive function of guilt on social relationships with both adults (fewer externalising problems) and peers (lower levels of peer related aggression, both reactive and proactive), although we had expected proactive aggression to uniquely relate to guilt (Broekhof et al., 2021). Shame, however, seemed uniquely related to more reactive aggression (after we corrected for multiple testing), which further confirms the assumed underlying anger as a reaction to being exposed and publicly devaluated (Broekhof et al., 2021).

Importantly, this study showed no differences between the two groups (DHH and hearing), contradicting previous studies that showed lower levels of moral emotions in DHH children (Broekhof et al., 2021). Note that most children in our study had an earlier age of implantation, and bilateral hearing devices, whereas previous studies involved at least 50% unilateral hearing aids. For obvious reasons, bilateral hearing aids give children an advantage over children with unilateral aids, as sound can be detected now from more angles, but also the direction of the sound can be located. This makes it easier to locate the speaker, and will give better opportunities to react, and thus effectively participate in the peer group. In sum these outcomes emphasise the importance of auditory access for

informal learning situations, as children can thus better benefit from social learning within the peer group like their hearing peers.

LIMITATIONS AND FUTURE DIRECTIONS

The current study contained certain limitations which may give directions to future studies. First, the design of this study was cross-sectional, which prohibits drawing conclusions regarding causality. Longitudinal studies could further explore the differential functions of shame and guilt, and their subsequent contribution to the development of different forms of aggression and/or behavioural problems, such as oppositional behaviours or conduct problems. Second, children's emotional functioning in this study was assessed through parent reports, possibly causing single-informant bias. Therefore, future studies may use a multi-method and multi-informant design to have a broader view on childrens' development. Including teachers' and peers' reports, and playground observations may provide valuable insights into the specific contexts in which peer aggression occurs. Third, the current study did not fully examine individual differences within the clinical population, e.g. the age of detection. The outcomes may thus not accurately reflect the heterogeneity of the DHH population, which is important in future studies to provide more exact information on how hearing related factors exactly contribute to morality.

CONCLUSION AND CLINICAL IMPLICATIONS

Besides the importance of improved care for DHH children so that they can better access their social world, another main finding in this study is the differential function of shame and guilt, already observed now in young children. Whereas shame is supposed to make "a better person", respecting social ranking, it seems that levels can easily go up to an extent that the shamed person feels possibly humiliated and wants to strike back or act out. Guilt, on the other hand, is not self-focused like shame, but other-focused instead, which seems to improve relationships rather than harming them. Yet, also too much guilt may become dysfunctional, as this can relate to internalising symptoms, like depression (Ghatavi et. al., 2012). Nevertheless, also for shame, although harmful in the moment and shortly thereafter (Broekhof et. al., 2020), in the long term both emotions are expected to increase awareness regarding social rules and ranking, enhancing a society that can

function without physical force (Frijda, 1993; Nichols, 2015). It thus seems clinically relevant to better understand when certain levels, or perhaps different modes of communication, become dysfunctional instead to the individual. For example, the (public) exposure of shameful behaviour might be damaging, evoking aggression, whilst a more subtle, implicit form of communication might still denote the mishap, but be less harsh on the person's feelings of self-worth.

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