

**"Exploring Age and Cultural Influences on Sharing Behaviour in Children: A Comparative Study in Kenya and the Netherlands"**

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### **Abstract**

Prosocial behaviours develop at a young age and are key in building trust within communities and fostering a sense of belonging and interconnectedness among individuals. This study focused on developmental and cultural variations in prosocial sharing behaviour among children aged 5 to 10 years in Kenya and the Netherlands. By comparing these two cultural contexts, the study aims to shed light on how age and cultural background influence children's prosocial tendencies. This comparison can provide valuable insights into the diversity of human behaviour, and greater understanding could contribute to more effective interventions and policies. 24 Dutch and 101 Kenyan elementary school children participated in this study. Using a quasi-experimental design, children's sharing behaviours were assessed through controlled scenarios involving sharing tasks. Generalized Linear Mixed Models were used to analyse the data. The results indicate that age has a significant positive effect on selfless sharing, suggesting that prosocial sharing behaviour increases in children aged 7.5-10 compared to children aged 5-7.5. This highlights developmental trends across different cultural settings. However, no effect is found for culture. This suggests that Kenyan children are not more prosocial in their sharing behaviour than Dutch children, despite their cultural differences considering collectivism versus individualism. However, the relation between age and culture seemed to influence sharing behaviour and age-related changes in this sample, and sharing seem more pronounced for children in the Netherlands than in Kenya. However, this interaction was non-significant, thus not generalizable. The study discusses explanations for these findings and offers recommendations for further research.

Key-words – prosocial behaviour, sharing, culture, elementary school children

### **Exploring Age and Cultural Influences on Sharing Behavior in Children**

From the tender age of just 8 months, infants already display remarkable empathy, such as soothing the cries of their peers (Liddle, Bradley & McGrath, 2015), and when around 3 years old, they exhibit indirect helping behaviours (Karasewich et al., 2019), demonstrating an early inclination towards prosocial actions. Prosocial behaviour refers to voluntary actions that are intended to benefit others, without anticipating reciprocation. These actions can include acts of kindness, cooperation, helping and sharing. Prosocial behaviours are key in building trust within communities and fostering a sense of belonging and interconnectedness among individuals. Young children do not only engage in prosocial behaviours themselves, they also prefer prosocial over antisocial others, even as infants (Holvoet et al., 2016). These early examples underscore the innate presence and relevance of prosocial behaviours in the earliest stages of life.

A current body of literature highlight the significance of prosocial behavior in positively impacting various facets of youth development. Positive outcomes include greater academic success (Caprara et al., 2000; Collie et al., 2018), social competence (Chen, Tian & Huebner, 2019) and problem-solving skills (Carlo et al., 2012). It contributes to positive peer relationships (Caputi et al., 2012), lower relational aggression (Swit & McMaugh, 2012), fewer externalizing and internalizing problem behaviours (Flouri & Sarmadi, 2016) and positive well-being (Chen et al., 2019). Given these potential benefits, it is clear that prosocial behaviour plays a crucial role in various positive health, psychological and social aspects.

The underlying motivations of prosocial behaviour such as empathy and compassion, are universal among humans (Bratman, 2020) . However, prosocial behaviour may vary a cross cultures due to differences in social norms, values, and beliefs. Published literature has suggested that cultural background and values are correlates of prosocial behaviour (Smith et al., 2019). In so-called collectivistic countries, the society fosters strong relationships, where everyone takes responsibility for fellow members of their group. Collectivistic values have been associated with reduced rates of problem behaviours in children, controlling for race-ethnicity, gender and grade (Smith et al., 2019). In individualistic countries, in contrast, individuals are expected to take care of themselves. Individualistic values have been related to children's lower prosocial and higher rates of problem and delinquent behaviour (Smith et al., 2019). In a study on sharing behaviour, German children (4-7 years) shared more with friends than non-friends, whereas Ugandan children showed no such preference. This indicates that children from collectivistic cultures tend to be more likely to share in general, while children from individualistic countries only share with acquaintances (Scharpf, Paulus & Wörle, 2017). In conclusion, the observed differences in prosocial behaviour across cultures underscore the impact of cultural values and norms on social behaviours, highlighting the importance of considering cultural context in understanding prosocial behaviour among children.

While some studies compared the development of prosocial behaviour across cultures, such as those conducted by Smith et al. (2019) and Scharpf et al. (2017), cross-cultural work on this topic is rare. A review by Martins et al. (2022) on the development of prosocial behaviour in children and adolescents reveals that approximately 70% of the research has been conducted in North America or Europe. This indicates that there's still much to explore to gain a deeper understanding of how prosocial behaviour develops and varies across cultures. The comparison of prosocial behaviour across different cultures and countries can provide valuable insights into the diversity and universal aspects of human behaviour. Understanding these variations can contribute to more effective interventions and policies based on scientific insights.

Furthermore, the developmental trajectory of prosocial is an important aspect to consider. As children grow up, they become more aware of social norms and expectations regarding cooperation and helping and they become more skilled in social interactions. The formation of new social connections (friendships) and the growth of socio-cognitive capabilities may create increased chances for older children to engage in prosocial behaviour (Putra, et al., 2020). In the review of Imuta et al., (2016), a stronger relation is found between Theory of Mind (perspective taking) and prosocial behaviour for children older than 6. A study with children of age 9 to 12 showed that older children told more prosocial lies for the benefit of their in-group peers compared to out-group peers (Sierksma, Spaltman & Lansu, 2019). However, there is mixed evidence as to whether prosocial behaviour is stable from the school years or increases. For instance, one study indicates an increase over both the preschool and school years (Eisenberg & Fabes, 1998), whereas another study found stability of prosocial behaviours from kindergarten (5 years old) to grade 6 (11 years old) in a large sample of American children (Nagin, 2005). For sharing, older children (6 years old) had a higher probability of prosocial allocations towards friends and strangers compared to younger children (3 years old) (Vonk et al., 2018). More research is needed to ascertain the developmental stage at which certain prosocial behaviours are most pronounced. Also, we do not yet know how this development varies across different cultures. This is fundamental to gain insight into the social and emotional growth of children.

### **Present study**

The present study will concentrate on the prosocial behaviour 'sharing'. Sharing involves the willingness to share their possessions, time or knowledge with others, without anticipating reciprocation. In the present study, we investigate the development of children's sharing behaviours across two distinct cultural contexts: the Netherlands and Kenya. Specifically targeting children aged 5 to 10, this study aims to ascertain the developmental stage at which sharing tendencies are most pronounced. We expect that children's willingness to share increases as they get older across both cultures (potentially driven by a stronger awareness of social norms). According to Hofstede (2011), Kenya exhibits a predominantly collectivistic culture, while the Netherlands leans more towards

individualism. As discussed, children from collectivistic countries tend to display greater inclinations towards sharing. Thus, considering these cultural differences, we expect that children from Kenya will engage in more sharing behaviour than children from the Netherlands.

However, it should be considered that the poverty rate is much higher in Kenya than in the Netherlands (Statista, 2023). If resources are scarce due to poverty, sharing is costly. Resource scarcity can activate a competitive orientation, which can guide decision-making towards advancing own welfare (Roux et al., 2015). A study with American children showed that past experiences of resource scarcity create distinct behavioural consequences for children and suggest that a sense of 'having less' may encourage a strategy of resource conservation, relative to a sense of 'having more' (Ahl et al., 2024). This suggest that the quantity of resources can influence prosocial behaviour. The disparity in socioeconomic conditions between the Netherlands and Kenya could influence children's sharing behaviours, potentially leading to more self-serving choices in the context of sharing. Thus, this study compares the impact of cultural and socio-economic influences.

## Method

### Participants

In the current study, we analysed existing data from a Kenyan sample and newly collected data from a Dutch sample. An a priori power analysis was conducted using G\*Power to determine the required sample size. The analysis was based on an expected odds ratio of 1.7, a significance level of .05 and a power of 0.802. The results indicated a required sample size of 184. The actual sample comprises 125 children. It was planned to collect more Dutch data initially, but data collection was concluded end of April to ensure compliance with time planning. A sensitivity power analysis was conducted, to compute the effect size that could be found. This resulted in an odds ratio of 1.921, indicating only a medium-large effect could be found.

The sample consisted of 125 elementary school children aged 5 to 10 years old, with 24 Dutch children (12 dyads), and 101 Kenyan children (51 dyads). 9 trials were removed due to missing data, removing them did not affect the age distribution. The sample consisted of 62 girls and 63 boys. The participating children had a mean age of 7.152 years old. Participants were recruited from various primary schools and after-school-care programs across different regions in the Netherlands and the Nanyuki region in Kenya.

*Kenya* - In Kenya (East-Africa) all children were of the Kikuyu culture. The Kikuyu are Kenya's largest ethnic group, living in the central part of the country. Families usually speak a mix of Kikuyu and Swahili (the national language) at home. Traditionally, they have been small-scale farmers, cultivating maize, beans, and other vegetables and practicing animal husbandry for their

subsistence. Recently, trade and wage work have become more important, and an increasing number of Kikuyu have become part of Kenya's middle or upper class, embracing business and education (Meristo & Zeidler, 2022).

*The Netherlands* – in the Netherlands, located in northwestern Europe, children speak Dutch as their native language. Children's psychological autonomy is prioritized from an early age, providing them with high-quality pedagogical environments. Children usually start kindergarten at an early age, with primary school attendance at four years old.

In the Netherlands, schools were contacted via e-mail, telephone, or both methods. In Kenya, data was collected at schools that have participated in prior research projects. Parents were provided with informational letters in which the research project was explained in detail, along with an informed consent form. Parents who agreed to their child's participation, could fill in and return the consent form to the schools or after-school-care program. After participation, the schools/after-school-care programs received a small present. The children that participated, received individual presents (bouncy balls and stickers).

This study complied with the ethical standards of the faculty of Social Sciences at Utrecht University (FERB). The study was reviewed by a full ethical committee and got approved and filed under number 24-1077.

## **Design**

The design of this study can be characterized as a cross-cultural comparative study with a quasi-experimental design, combining elements of experimental design with practical considerations. There is no randomization, participants were matched in dyads rather than randomly assigned to conditions, allowing for control over the variables age and gender. The study compares sharing behavior in children from different cultural backgrounds (Netherlands and Kenya) to investigate potential differences between these groups. All dyads participated in two trials.

## **Procedure**

The study was part of a larger research project, however we only focus on describing relevant information for the current study. Data collection took place at the schools or after-school-care programs and was conducted by two experimenters. Children were paired in same-age (maximum one year apart), same-gender dyads. Each experiment lasted approximately 15-20 minutes. In each dyad, there was one sharer and one recipient child, the focus of the study is on the sharer. To decide which child would be the sharer, the children were asked to blindly pick beads from a sabotaged bag. The children believed to have equal chances, but one child always received a golden bead while the other received a black one. The child with the golden bead received a crown and is told to be 'the boss' (the sharer) in the game. In a next step, the sharer was given a cookie divided into two pieces - one big

piece and one small piece. Children who were not allowed to eat a cookie, participated with stickers. The sharer received two sheets with stickers – one sheet with one sticker and one sheet with the same but also an additional sticker. The sharer was asked to decide who gets which piece: one was for themselves, the other was for the other child. Then the trial was repeated.

### **Measures and coding**

Sharing: sharing behaviour was assessed through video recordings of the experiments, which were subsequently coded. Each dyad participated in two trials. For each moment, the behaviour of children was filmed and coded to determine whether they chose to give away the better share away or took it for themselves. Giving the better piece away is coded as 1 (selfless sharing), and taking the bigger cookie piece themselves is coded as 0 (selfish sharing). Culture was coded so that Dutch children are 1, Kenyan children are 2. Children's exact age was reported by the children's parents on the consent forms. The mean age of the dyad was calculated.

### **Statistical approach**

To account for the repeated measurements with two trials per dyad and to better understand the fixed effects of our predictors, we conducted a Generalized Linear Mixed Model analysis. The Generalized Linear Mixed Models (GLMM) was used in JASP (version 0.18.3). We fitted the regression model with the dependent variable sharing (selfless sharing vs. selfish sharing) and the predictor variables age and culture (Dutch vs. Kenyan). We further accounted for the repeated measurements with two trials per dyad by using the random effect of dyad ID.

## **Results**

### **Preliminary results**

We began the analysis by calculating the descriptive statistics for the key variables (Table 1). To further investigate the relationship between age and sharing choice, we defined age categories (5-7.5 years old, and 7.5-10 years old) and created new variables. Age category 1 (5-7.5) consisted of 69 children, age category 2 (7.5-10) consisted of 56 children. A contingency table was computed, to compare the distribution of sharing behaviour across the different age and culture group before further analysis (table 2).

**Table 1***Descriptives*

	Mean age	Culture	Sharing
Valid	125	125	125
Mean	7.152	-	-
SD	1.420	-	-
Min.	5.000	-	-
Max.	10.000	-	-

**Table 2***Contingency table*

Age-groups	Culture	Who got bigger cookie/stickers		Total	Percentage
		Sharer (0)	Recipient (1)		
<b>5-7.5</b>	Netherlands	10	0	10	14.5%
	Kenya	54	5	59	85.5%
	Total	64	5	69	100.0%
<b>7.5-10</b>	Netherlands	7	7	14	25.0%
	Kenya	32	10	42	75.0%
	Total	39	17	56	100.0%
<b>Total</b>	Netherlands	17	7	24	19.2%
	Kenya	86	15	101	88.8%
	Total	103	22	125	100.0%

*Note:* both measures are included (trial 1 and 2).



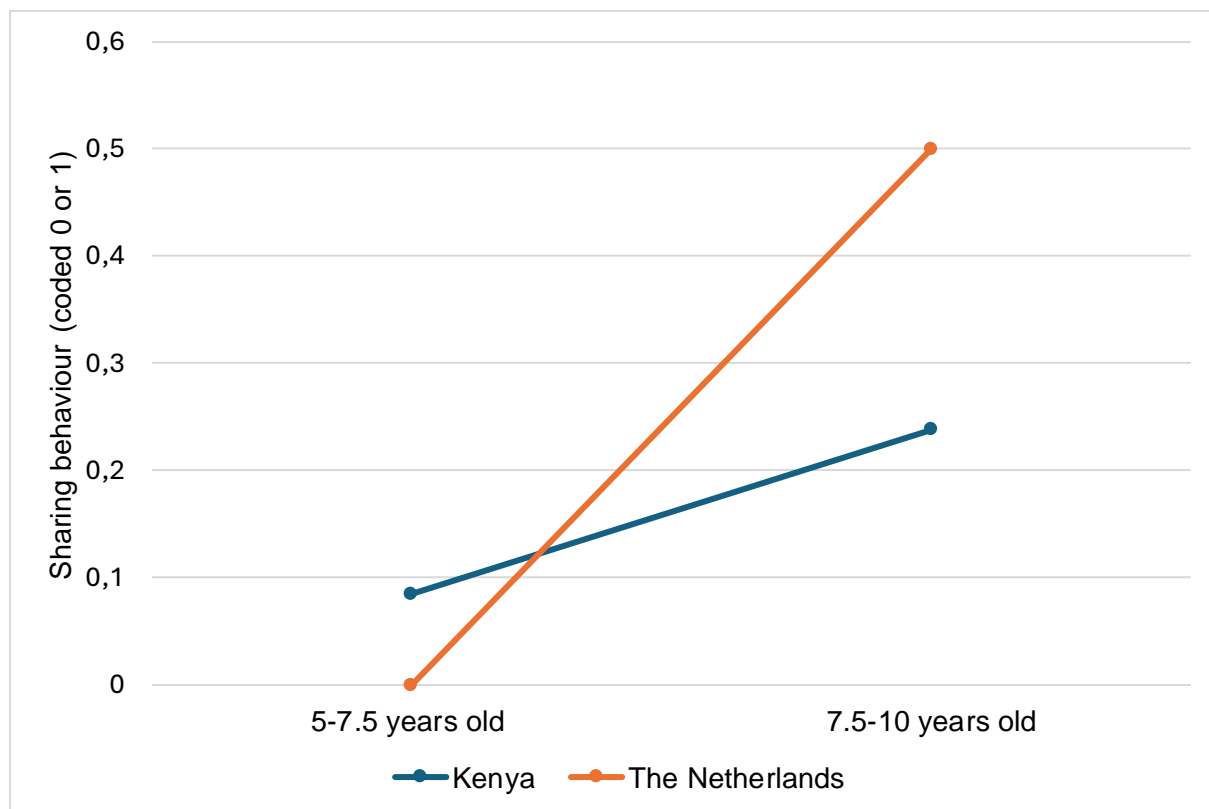
## Primary results

The results of the GLMM can be seen in Table 3 and Figure 1. Relevant assumptions of the GLMM were checked. Distribution of the random effect age was checked with distribution plots. Random effects were roughly normally distributed. Collinearity was checked by calculating Variance Inflation Factors (VIF) for the independent variables. VIF scores were 1.02, meaning collinearity was not an issue (Craney & Surles, 2002). Therefore, all relevant assumptions were met. To test the hypothesis and account for the repeated measures (trial 1 and 2), a Generalized Linear Mixed Models (GLMM) analysis was performed. The results showed a statistically significant positive effect of the age groups on sharing behaviour ( $p < .001$ ), indicating that older children are more willing to share than younger children. More specifically, we divided all children and created two age groups: children aged 5 to 7.5 and children aged 7.5 to 10 in both cultural groups. Comparing these groups has confirmed the age effect (figure 1): in Kenya as well as the Netherlands, children aged 7.5-10 share more (selflessly) than children aged 5-7.5. This is in line with the hypothesis. However, contrary to the hypothesis no significant effect was found between the cultural groups and sharing behaviour ( $p = .468$ ), indicating that culture does not have a statistically significant effect on sharing in this sample. Furthermore, even though not significant, there was a tendency for the interaction of culture and age to influence children's sharing behaviour. Specifically, the age-related increase in sharing behaviour appeared to be more pronounced in Dutch children compared to Kenyan children, but young Kenyan children seem to share more than Dutch young children (figure 1). However, this interaction was not significant and thus not generalizable ( $p = .062$ ).

**Table 3**

*Results GLMM*

<b>Effect</b>	<b>Df</b>	<b>ChiSq</b>	<b>p</b>
<b>Age-groups</b>	1	13.916	< .001
<b>Culture</b>	1	0.527	.468
<b>Age-groups x culture</b>	1	3.481	.062

**Figure 1***Plot GLMM*

### Discussion

The goal of this study was to provide valuable insights into the development of prosocial sharing behavior in children from different cultural backgrounds, specifically comparing Kenya and the Netherlands. We hypothesized that older children would show greater selfless sharing behaviour compared to younger children, because of an increased awareness of social norms and expectations regarding cooperation. This hypothesis is supported, indicating that older children are more willing to share than younger children. Additionally, based on cultural differences in collectivism and individualism, we expected that children from Kenya would show greater selfless sharing behaviour compared to children from the Netherlands. This hypothesis is not supported: no effect was found for culture. Besides that, variations between age and culture were observed in relation to sharing behaviour in this sample. However, this observation did not reach statistical significance. This discussion will explore these findings in depth, consider their implications and propose directions for further research.

**Age and sharing behaviour** - As was expected, a significant positive effect of age on sharing behavior was found, meaning that older children (aged 7.5 to 10) are more likely to share prosocially than younger children (aged 5 to 7.5). This means that some prosocial behaviours might

increase over the preschool and school years, which is in line with the meta-analysis from Eisenberg & Fabes (1998). The study of Vonk et al. (2018) with children aged 3 to 6 showed an increase in prosocial sharing behaviour with age, the current study demonstrates that this increase continues at least up to the age of 10. This could be explained by an increased awareness of moral reasoning and awareness of social norms. Social desirability plays a role in older children (Eisenberg & Fabes, 1998). Based on the finding that older children (7.5 to 10) share more prosocially, policymakers and educational institutions might consider implementing social-emotional learning programs at an early age to promote the development of prosocial behaviour and its positive outcomes.

Interaction – In this sample, the relation between age and culture appeared to influence sharing behaviour. Specifically, age-related changes in sharing were more pronounced for children in the Netherlands compared to those in Kenya, meaning older children seem to share less in Kenya than in the Netherlands in this sample. Resource scarcity in Kenya versus resource availability might influence how age affects prosocial behaviour in each context. As mentioned before, resource scarcity can guide decision making towards advancing own welfare and a feeling of ‘having less’ may encourage a strategy of resource conservation (Roux et al., 2015; Ahl et al, 2024). The items used in this experiments (stickers and cookies) are scarce for the participating children in Kenya, which is not the case for the Dutch children. This suggests that resource scarcity in Kenya might have interfered with the sharing choice of the participating Kenyan children, potentially explaining why older Kenyan children sometimes still share selfishly compared to the older Dutch children. However, the observed interaction between age and culture is not generalizable outside of the sample due to its lack of significance. Further research is needed to draw definitive conclusions and provide implications for policy.

Culture and sharing behaviour – despite the hypothesized differences based on collectivistic versus individualistic cultural values, the results did not show significant differences between the sharing behaviours of Kenyan versus Dutch children in both age groups. This finding challenges the assumption that children growing up in more collectivistic countries are more prone to share and behave prosocial than children growing up in more individualistic countries. A possible explanation for this could be that the impact of cultural factors is not bigger than the impact of socio-economic factors, thereby negating any observable effect. As mentioned, resource scarcity in the Kenyan sample may have significantly influenced the results of this study. Another possible explanation could be that prosocial sharing behaviour in young children in these two countries develops not as differently as expected. This could be explained by acknowledging that the statements on collectivistic versus individualistic cultures from Hofstede (2011) are based on extremes. Hofstede mentions that the association of a statement with a dimension is always statistical, never absolute (Hofstede, 2011). In reality, the spectrum of collectivism-individualism is nuanced and varied. Therefore, characterizing Kenya solely as a collectivistic culture, and assuming that collectivistic cultures inherently exhibit

more prosocial behavior, may be an oversimplification and not necessarily applicable to the specific sample assessed in the present study.

### **Strengths and limitations**

This study has several strengths. Firstly, this study has a cross-cultural design. A comparative analysis of prosocial behaviour in children from two distinct cultural backgrounds is performed, which is relatively rare in the existing literature (Martins et al., 2022). The current study contributes to the understanding of prosocial behaviour and counters the WEIRD bias in psychology. This refers to the fact that the vast majority of psychological research has been conducted on populations that are unrepresentative of human culture more globally, namely Western, Educated, Industrialized, Rich and Democratic societies, limiting the universal applicability of research findings (Nielsen et al., 2017). This study also includes young children from a wide age range to examine the development of sharing behaviour as children grow older. This provides relevant insights into the complex trajectory of prosocial behaviour. Besides that, the quasi-experimental design of this study allows to control over the variables age and gender. No randomization is used, but children are matched in dyads. This enhances the internal validity of the findings. However, there are also a few limitations in this study. First, the study has a relatively small sample size, particularly the Dutch sample of 24 children. This limits the generalizability of the findings. The a priori power analysis indicated that a larger sample size was required for robust conclusions. Another limitation is that in this sample, there was not enough variance in children aged 5 in the Netherlands. By creating the age groups this issue was addressed, allowing for analysis and visualization. Nevertheless, to confidently generalize the findings concerning age in this study, additional research with more participants is needed. Also, this study relies on a binary coding system (selfish versus selfless sharing, 0 or 1). This might be an oversimplification of the complexity of children's prosocial behavioural decisions. More detailed measures could capture a broader range of prosocial behaviours.

### **Recommendations**

For further research, it is recommended to perform these experiments again, but with utilization of different sharing items in Kenya that are not scarce but abundant. This could give more information considering age disparities and enable more nuanced comparisons at closer intervals. This approach would facilitate a more robust comparison between Kenya and the Netherlands, where the influence of socio-economic factors are minimalized. This could aid in gaining deeper insights into the role of culture in shaping prosocial behaviour in children, and provide policymakers with more information for developing effective interventions to promote prosocial behaviour. Additionally, it is recommended to include a greater sample, allowing to include age as a continuous variable in the analysis. Besides that, future research could focus on other prosocial behaviours to provide valuable

insights. For example, focussing on helping behaviour in young children excludes socio-economic factors and concentrates on exploring cultural differences. By examining a broader range of prosocial behaviours beyond sharing, researchers can better understand the nuances of cultural influences on children's social behaviour. This expanded focus could contribute to more comprehensive interventions and policies aimed at fostering prosocial behaviour across diverse cultural contexts. Additionally, exploring multiple cultural contexts besides Kenya and the Netherlands could offer a more extensive understanding of cultural differences in prosocial behaviour across different societies. This could counter the WEIRD bias in psychological research and help the development of more culturally sensitive interventions and policies.

### **Conclusion**

In conclusion, this study offers valuable insights into the development of prosocial sharing behaviour in young children from Kenya and the Netherlands. Age appeared to have a positive effect on sharing behaviour, meaning older children are more likely to share than younger children, but for culture no significant effect was found. However, the relation between age and culture seemed to influence sharing behaviour and age-related changes in sharing seem more pronounced for children in the Netherlands than in Kenya in this sample, possibly caused by differences in resource availability. However, this interaction was non-significant, thus not generalizable. This study underlines the need for further research to examine the complexities of the development of prosocial behaviour across different contexts with larger, more culturally diverse samples and different types of prosocial behaviour. Ultimately, understanding the complex interplay of age, cultural differences and socio-economic factors on prosocial behaviour, could create more effective strategies for promoting prosocial behaviour and its positive outcomes in children worldwide.

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