Maternal Socialisation and Infant Helping in Uganda and the UK

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Abstract

Prosocial behaviour, including instrumental helping, emerges early in development, but the role parental attitudes and practices take in shaping the emergence of early helping across different cultural contexts is not well understood. We took a longitudinal approach to investigate maternal socialisation of early helping across two different cultural groups. Participants were mother-infant dyads from urban/sub-urban York, UK (43 infants: 21 female, 22 male) and the rural Masindi District, Uganda (39 infants: 22 female, 17 male). We examined cultural variation in mother's helping-related parenting practices towards 14- and 18-month-olds and infants' actual helping in experimental tasks at 18 months. We then asked whether maternal parenting practices and socialisation goals predicted individual variation in infant helping. We found that UK mothers scaffolded infant helping using a larger range of strategies than Ugandan mothers, but expecting an infant to help was more common in Uganda than in the UK. Moreover, we found that the Ugandan infants were more likely and often quicker to help an adult in need than the UK infants. Finally, we found that maternal scaffolding behaviours positively predicted individual variation in infant helping at 18 months in the UK, but not in Uganda. In contrast, maternal alignment with relational socialisation goals at 11 months positively predicted infant helping at 18 months in the Ugandan but not in the UK sample. These results indicate that early instrumental helping behaviour varies across societies and that maternal socialisation goals and scaffolding behaviours can shape infant helping in culturally-specific ways.

 **Keywords:** Prosocial Behaviour, Instrumental Helping, Infancy, Socialisation, Cross-cultural Psychology

**Public Significance Statements**

Mothers in our samples from the UK and Uganda view and scaffold infant helping differently. At 18 months, Ugandan infants were more likely to help their mothers or an experimenter in a standardised helping task, than UK infants. In the UK, infant helping was related to mothers’ scaffolding behaviours but not to maternal attitudes, whereas in Uganda, infant helping was related to mothers’ attitudes but not to their scaffolding behaviours.

Humans engage in a variety of prosocial behaviours, which are behaviours intended to benefit other individuals (e.g., Eisenberg, 1986; Wispé, 1972). While cooperation is present across human societies (e.g., Tomasello & Vaish, 2013), previous research indicates that prosociality (e.g., sharing, helping) can vary in degree across societies, both in adults (e.g., Chopik et al., 2017; Henrich et al., 2005; Henrich et al., 2010; Levine et al., 2001) and children (e.g., Callaghan & Corbit, 2018; Coppens & Rogoff, 2021; Giner Torréns & Kärtner, 2017; House et al., 2013). Socialisation plays a large role in shaping the development of prosociality (Brownell, 2016; Dahl, Martinez, et al., 2022) and could be one of the main drivers for these differences in prosociality across cultures. It has been shown that parents can shape their children’s prosocial tendencies through a large number of socialisation factors, such as warmth (e.g., Robinson et al., 1994; Williams & Berthelsen, 2017), responsiveness (e.g., Davidov & Grusec, 2006), sensitivity (e.g., Brownell & Drummond, 2020; Newton, Laible, et al., 2014), attachment (e.g., Beier et al., 2019), inductive reasoning (e.g., Scrimgeour et al., 2013; Zahn-Waxler et al., 1979), and emotion socialisation (e.g., Brownell et al., 2013). Two aspects of socialisation that have received particular attention when trying to understand variability of children’s prosocial behaviour across cultures are parental socialisation goals and practices, as these have been found to vary across cultures (e.g., Keller et al., 2006) and have been associated with different patterns of prosocial behaviour in young children (e.g., Giner Torréns & Kärtner, 2017).

One of the earliest forms of prosocial behaviour to emerge in human development is instrumental helping, which has been defined as actions intended to facilitate the acquisition of another individual’s goal by acting on their behalf (e.g., Dahl, 2015; Rheingold, 1982; Warneken & Tomasello, 2006). Previous observational research with Western Educated Industrial Rich and Democratic (WEIRD; Henrich et al., 2010) populations indicates that by their first birthday infants help their caregivers with basic chores in everyday life and that the variety and complexity of the tasks they help with increases throughout the second year of life (e.g., Dahl, 2015; Hammond & Brownell, 2018; Rheingold, 1982). Anthropological studies with a range of Non-WEIRD populations have also observed that infants eagerly try to participate in and help adults with everyday chores (e.g., Lancy, 2018). The types and economic value of chores that young children might help with can vary across communities, for instance due to differences in the complexity of community layouts or technology (Rogoff et al., 1993).

In experimental set-ups, from about 14 months onwards, infants often retrieve out-of-reach objects for unfamiliar experimenters who indicate their need for help (e.g., by gaze alternating between the child and the object and/or verbalising the problem) but they are significantly less likely to help in control trials in which the experimenters did not indicate a need for help (e.g., Callaghan et al., 2011; Dunfield et al., 2011; Newton, Goodman, et al., 2014; Paulus et al., 2013; Warneken & Tomasello, 2006; Warneken & Tomasello, 2007). The inclusion of control trials in experimental studies is important for inferring that children help in the experimental trials because they understand and act on the adult’s instrumental need, rather than being motivated only by earlier phases of prosocial behaviour development, such as social preferences for interacting with others (Dahl & Paulus, 2019), or by prior reinforcement for retrieving objects.

Observational and experimental studies have traditionally focussed on infant helping towards different recipients; observational studies tend to focus on infants helping caregivers, while experimental studies tend to examine infants helping experimenters. However a recent study by Reschke et al. (2023) directly compared infant helping towards different recipients (i.e. caregivers *and* experimenters) in a standardised experimental task, finding that infants helped their caregivers more than unfamiliar experimenters. This highlights that infant helping towards one recipient is not necessarily generalisable to other recipients or settings, and indicates that we still know relatively little about how to broadly characterise helping in infancy across settings and types of recipients.

Given the sampling bias that is pervasive in developmental psychology (Nielsen et al., 2017), it is perhaps unsurprising that the vast majority of research on infant helping has been conducted with infants from WEIRD populations (e.g., Dunfield et al., 2011; Warneken & Tomasello, 2006). A large body of research describes prosociality and helping in early and middle childhood across different societies (e.g., Coppens & Rogoff, 2021; de Guzman et al., 2008; Eisenberg et al., 2007). However, here we focus specifically on helping in infants (defined as children aged up to 24 months old, Lancy, 2020) which to date has been examined across cultures in only a handful of experimental studies: Callaghan et al. (2011) tested Canadian infants from Antigonish, Indian infants from the Krishna District, and Peruvian infants from the Montaro Valley on a variety of instrumental helping tasks at 18 and 24 months. At 18 months, infants helped at a similar rate across the groups, but at 24 months Canadian infants helped more often than the infants in the other groups. Giner Torréns and Kärtner (2017) found that Indian 18-month-olds were more likely to help an experimenter in an out-of-reach task than German 18-month-olds. Finally, 18- to 30-month-old infants from Münster (urban Germany), São Paulo (urban Brazil) and Belém (rural Brazil) showed no societal level variation in helping towards an experimenter in a standardised out-of-reach task, but in a more naturalistic helping task with their mothers, German infants helped more than both groups of Brazilian infants (Köster et al., 2016). It has been suggested that instrumental helping in infancy develops uniformly across cultures (Callaghan & Corbit, 2018). We propose, however, that previous findings rather indicate that while there is consistency across cultures in terms of infants from different cultural settings engaging in instrumental helping, there appears to also be variation in the development of helping, that may reflect the socio-cultural settings that infants live in.

According to the Social-Interactional view (Dahl, 2015), helping emerges and develops through specific social interactions that infants experience. While infants might generally have a natural predisposition to help others, it is through socialisation, such as participation or parental requests, that this tendency abates, stabilises, or increases. Depending on the expectations and assumptions that a given society makes about how children learn to be helpful, different ways of parental socialisation of helping might be chosen or might be more or less effective. For example, Lancy (2018) proposes that in elder-focused societies (“Gerontocracy”), parents fully expect their children to participate in everyday activities and rarely assign chores to infants, as they assume that infants’ proclivity to fit in and be helpful leads them to voluntarily try to assist others. In baby-focused societies (“Neontocracy”), on the other hand, helping is generally not expected of children, as parents generally consider it to be a learned behaviour which needs to be cultivated and praised (Lancy, 2020; Rogoff & Coppens, 2024). Parenting strategies that promote prosociality, be it actively teaching infants to help in neontocracies or allowing infants in gerontocracies to participate in activities that they are not yet competent in, both of which might require vigilant supervision and/or slow down the pace of a chore, involve a great deal of parental investment. The effort that parents put into socialising infant helping will, thus, depend on their normative background and the importance that they associate with the development of infant helping (Kärtner et al., 2010). This means that besides societal and parental expectations, the goals that parents have for their children can also determine how infant helping might be socialised. The ecocultural model of child development (Keller, 2007; Keller & Kärtner, 2013) describes two prototypical eco-social contexts, which are associated with different parental socialisation goals: in rural, subsistence-based communities, socialisation is often characterised by relational goals, such as obedience and harmony, while in urban middle-class families in WEIRD populations, autonomous goals, such as independence and self-sufficiency, are more prevalent (Kağitçibaşi, 1996, 2005; Keller, 2007). Socialisation goals represent an abstract level of parental socialisation strategies as they translate the values and environmental demands that are emphasised by a particular cultural context into goals that parents want to achieve (Kärtner et al., 2007; Keller & Kärtner, 2013). These goals then manifest into specific parenting practices on a more concrete, behavioural level, for instance whether or not parents actively encourage early infant helping in everyday life. This means that when aiming to understand variation in infant helping across different cultural settings, parental expectations, socialisation goals, and parenting practices are particularly important to consider, as they reflect the values of a certain cultural context on different hierarchically interrelated levels of parenting strategies.

There is limited evidence that maternal alignment with relational socialisation goals is positively associated with infant helping. In a study of children from the rural Amazon region in Brazil, Fonseca et al. (2018) found a positive association between infant helping and the maternal socialisation goal of children learning to support others. There was, however, no significant association between infant helping and other relational socialisation goals. It therefore remains unclear to what extent maternal relational socialisation goals are associated with early helping behaviour. This could be the case because cross-sectional and mono-cultural investigations into the link between socialisation goals and infant helping (e.g., Fonseca et al., 2018) may be overlooking crucial variation and thus might underestimate the strength of this link. A cross-cultural longitudinal study showing that infant helping develops differently across societies in which parents tend to hold different socialisation goals would address these issues.

As with parenting goals, certain parenting practices have also been found to be positively associated with infant helping. In WEIRD populations these include: frequent requests for assistance (Dahl, Goeltz, et al., 2022; Pettygrove et al., 2013), consistent and age-appropriate scaffolding (Hammond & Carpendale, 2015), and modelling of helping behaviour (Kärtner et al., 2021). Longitudinal research in WEIRD populations has also revealed positive associations between parental encouragement or reinforcement of helping between 13 and 15 months and infant helping three to five months later (Dahl, 2015; Kärtner et al., 2021), even though later in children’s development, negative relationships between positive reinforcement and helping have been observed (Dahl, 2015; Dahl et al., 2017; Eisenberg et al., 1992). There is evidence, however, that the efficacy of parenting practices for promoting infant helping can be culturally specific (Eisenberg et al., 2015). For instance, Giner Torréns and Kärtner (2017) found maternal use of punitive practices in an Indian sample (from Delhi) to be positively related to infant helping at 18-months, but negatively related in a German sample (from Münster). Moreover, maternal use of material rewards was negatively related to infant helping in the German sample but not in the Indian sample. Additionally, Köster et al. (2016) found that mothers’ assertive scaffolding (i.e., being serious and insistent about requests for help) positively predicted helping in 18- to 30-month-olds in Belém (rural Brazil), while deliberate scaffolding (i.e., politely asking the child for help and explaining why their help was needed) predicted infant helping in Münster (urban Germany). However, to date no study has explored the role of both parenting practices and socialisation goals in explaining cultural differences in the development of helping in infancy.

Previous research with infants across different cultural settings has only been conducted cross-sectionally, looking at how parenting goals or behaviours correlate with concurrent infant helping. However, a child’s behaviour at any specific age is not only influenced by concurrent caregiver behaviour, but also their history of interactions and socialisation with their caregivers. Parental reinforcement of helping behaviour has been found to have age-dependent effects (e.g., Dahl, 2015), highlighting the need to consider how earlier parenting practices may have influenced the child. Longitudinal data are crucial to understanding how earlier caregiver behaviours and socialisation might affect later helping behaviours in their children. In order to address the need for longitudinal studies on infant helping and parental socialisation of infant helping across different cultural contexts, we conducted a three-part study with mother-infant dyads from urban/sub-urban UK and rural Uganda[[1]](#footnote-2). Critically, the mothers in our two samples varied in their socialisation goals, with the Ugandan mothers holding more relational values than the UK mothers (Holden et al., 2022).

In Part 1, we addressed five research questions, with a mixture of directional and exploratory hypotheses (see Table 1), investigating maternal reports of infant helping and maternal socialisation of infant helping in everyday life when their infants were 14 and 18 months old. We considered two aspects of maternal socialisation of infant helping: maternal expectations and maternal scaffolding of infant helping. Previous research shows that expectations and scaffolding behaviours can vary in different ways across different communities (see Lancy, 2020), which is why we considered these two aspects of socialisation separately.

In Part 2, using an experimental out-of-reach helping task, we examined the helping behaviour of these same mothers’ 18-month-old infants, towards both an experimenter and the mothers themselves. We addressed two research questions, with a mixture of directional and exploratory hypotheses (see Table 1). We focused on infant helping at 18 months to maximise comparability with previous work (e.g., Giner Torréns & Kärtner, 2017; Köster et al., 2016).

Finally, in Part 3, we addressed four research questions, with a mixture of directional and exploratory hypotheses (see Table 1), looking at potential associations between maternal socialisation and infant helping. Parental goals and expectations often, but not always, influence parental behaviour (Keller & Kärtner, 2013; but see Holden et al., 2022), with those that influence parental behaviour having a higher chance of influencing child behaviour. Based on the ecocultural model of child development (Lancy, 2018)(Keller & Kärtner, 2013), which proposes that parenting practices reflect socialisation goals, we expected maternal scaffolding of infant helping to match maternal socialisation goals and expectations in their associations with infant helping. Mothers will express their goals and expectations through a variety of different behaviours. However, in the current study, we have only included a single measure of maternal parenting behaviours (the number of scaffolding strategies that mothers reported using). It is therefore possible, that our measures of these different levels of maternal socialisation might not match each other in how they affect infant helping.

**Table 1***Research Questions and Hypotheses of Parts 1, 2 and 3 of the Current Study. For Further Justification of Hypotheses Please See Table S1.*

|  | Research Question | Hypotheses |
| --- | --- | --- |
| Part 1 |  |
| Q1.1 | Do the Ugandan and UK mothers report everyday helping in their infants at 14 and 18 months? | We expected the Ugandan and UK mothers to report everyday helping in their infants at 14 and 18 months (in line with Callaghan et al., 2011; Hammond & Brownell, 2018; Rogoff et al., 1993).  |
| Q1.2 | Are there cultural or infant age differences in whether the infants are reported to help?  | Our approach concerning cultural differences in everyday helping was exploratory, but we expected an increase in reported help from 14 to 18 months (in line with Dahl, 2015; Hammond & Brownell, 2018).  |
| Q1.3 | What chores do the Ugandan and UK 14- and 18-month-old infants help with in everyday life? | Our approach to this question was largely exploratory. We expected there to be some overlap of chores across both cultural groups, but also expected some differences in the nature of the chores infants would help with (in line with Rogoff et al., 1993).  |
| Q1.4 | Are there cultural or infant age differences in whether mothers expect their infants to help?  | We expected that more Ugandan than UK mothers would expect their infants to help them in everyday life (in line with Lancy, 2018, 2020; Rogoff & Coppens, 2024). We took an exploratory approach concerning effects of infant age and the interaction of cultural group and infant age on maternal expectations of infant helping. |
| Q1.5 | Are there cultural or infant age differences in maternal scaffolding of infant helping? | We expected the UK mothers to use a higher number of scaffolding techniques aimed at promoting infant helping than the Ugandan mothers (in line with Dahl, 2015; Lancy, 2018; Lancy, 2020). We took an exploratory approach concerning age differences in maternal scaffolding as well as the interaction between cultural group and infant age.  |
| Part 2 |  |
| Q2.1 | Does the infants’ cultural group and the recipient of help predict the likelihood of infant helping in an experimental set-up at 18 months? | We adopted an exploratory approach to investigate whether there were differences, and the direction of any differences in the likelihood of helping across the two cultural groups. In terms of differences across the two types of recipients of help, we expected infants to be more likely to help their mothers than the experimenters (in line with Davidov et al., 2021; Knafo et al., 2008; Reschke et al., 2023). We took an exploratory approach concerning the interaction between cultural group and the recipient of help.  |
| Q2.2 | Does the infants’ cultural group and the recipient of help predict the latency of infant helping in an experimental set-up at 18 months? | Our hypothesis concerning differences in latency of infant helping across the two cultural groups was exploratory. We did not expect the recipient of help to predict the latency of infant helping (in line with Reschke et al., 2023). For the interaction between cultural group and the recipient of help, we took an exploratory approach.  |
| Part 3 |  |
| Q3.1 | Do maternal socialisation goals at 11 months predict the likelihood of infant helping at 18 months? | We expected stronger maternal alignment with relational socialisation goals at 11 months to predict higher likelihoods of infants’ instrumental helping at 18 months (in line with Fonseca et al., 2018; Kärtner et al., 2010). Our hypotheses concerning the interaction between socialisation goals and cultural group was exploratory.  |
| Q3.2 | Do maternal expectations of helping at 14 months predict the likelihood of infant helping at 18 months? | We aimed to explore the possibility that higher expectations might lead to more helping. Our hypotheses concerning the interaction between expectations and cultural group was exploratory. |
| Q3.3 | Do maternal expectations of helping at 18 months predict the likelihood of infant helping at 18 months? | See Q3.2 above |
| Q3.4 | Does maternal scaffolding of helping at 14 and 18 months predict the likelihood of infant helping at 18 months? | We expected that the use of a wider range of scaffolding behaviours would positively predict the likelihood of infants helping an adult at 18 months (in line with Dahl, 2015; Kärtner et al., 2021; Köster et al., 2016; Pettygrove et al., 2013). Our hypotheses concerning the interaction between scaffolding behaviours and cultural group was exploratory. |

Part 1

Part 1 Methods

Participants

Eighty-two mother-infant dyads participated: 39 from the rural Nyabyeya Parish, Masindi District, Uganda (22 female, 17 male infants) and 43 from urban and sub-urban York, UK (21 female, 22 male infants). One set of twins was included in the UK sample (where the mother completed the interview for each child separately). Participants were part of a larger longitudinal study on early cognition that followed Ugandan and UK mother-infant dyads for the first two years of the infants’ lives. Sample size for this study was constrained by the sample size of the longitudinal study, which was informed by a power analysis.

Ugandan families were recruited via word of mouth and announcements in village and church meetings in the rural Nyabyeya parish, Masindi District. Several criteria were considered when inviting interested mothers to join the study (see Holden et al., 2022), including that mothers must speak to their infant in at least one of the three dominant languages for which we had a translator available (Alur, Lugbara, and Swahili). The participating Ugandan mother-infant dyads were part of multilingual families (median languages spoken = 2). Ugandan families had low socio-economic status (SES; mean Hollingshead SES score = 9.12/66; Hollingshead, 2011), most were subsistence farmers, and many had no external source of income. The majority of Ugandan infants had at least one older sibling (89.74%; median number of siblings living in the same household as the infant at 18 months = 2; range = 0-7).

The UK sample were recruited through local children centres, Baby Sensory classes, and social media adverts and lived in and around the city of York. The UK mothers in our sample spoke only English with their infants and the UK sample had a high SES (mean Hollingshead SES score = 53.86/66), and all fathers and most mothers had paid jobs. Slightly more than half of the UK infants had a least one older sibling (55.81%; median number of siblings living in the same household as the infant at 18 months = 1; range = 0-3).

Data were collected during visits to participants’ homes (see Supplementary Methods Part 1 for more details). Mothers completed an interview about their infant’s prosocial behaviour in everyday life at two time points: 14 months (mean age = 13.98 months; *SD* = 0.28), and 18 months (mean age =18.12 months; *SD* = 0.28). Not all mothers participated at both time points, meaning 76 mothers completed the interview at 14 months (35 Ugandan, 41 UK) and 80 mothers completed the interview at 18 months (37 Ugandan, 43 UK).

Ethics

Ethical approval for the project was obtained from the University of York Psychology Ethics committee and the Regional Ethics Committee at the Ugandan Virus Research Institute. A research permit for conducting research in Uganda was obtained from the Ugandan National Council for Science and Technology.

Part 1 Measures

**Prosocial Behaviour Interview.** At both time points (14 and 18 months), mothers were asked (i) about their infants’ everyday prosocial behaviour in the last 3 months and (ii) about their own attitudes and behaviour in relation to their infant’s helping behaviour in the previous 3 months. Mothers were first given a brief definition of what was meant by “helping” (see Supplementary Methods Part 1) and were then asked up to nine questions about their own and their child’s behaviour in the past 3 months (Table 2). These questions were presented as two sets: The first set (questions 1-3) was presented verbally in the UK and Uganda, while the second set (questions 4-9) was presented as a survey to UK mothers (who responded on paper) and as audio recordings to the Ugandan mothers (who responded verbally). The second set of questions were presented differently in the UK and Uganda due to differences in participants’ needs (i.e., different levels of literacy and familiarity with completing forms/questionnaires in our two samples). The second set of questions was based on The Maternal Socialization Practices Questionnaire by Giner Torréns and Kärtner (2017). The procedure of how the questions were translated and delivered in Uganda is described in Supplementary Methods Part 1. Answers to question 2 were transcribed in English (in Uganda, after translation by a Ugandan research assistant fluent in English and the language spoken by the mother) and the type of activity the infant helped with was then extracted from the answers.

**Table 2***Prosocial Behaviour Interview Questions*

|  | Question |
| --- | --- |
| 1 | Does your child help you with everyday activities, for example with cooking, tidying, cleaning, shopping, or washing?  |
| 21 | In which situations does your child help you and can you describe one recent instance in which he/she helped you? |
| 3 | Do you ask your child to help you or others in everyday activities? |
| 4 | Do you expect your child to help you or others? |
| 5 | Do you show your child how he/she can help you or others? |
| 6 | When something needs to be done, do you encourage your child to participate? |
| 71 | Whenever your child has helped you or someone else, do you smile at your child acknowledgingly? |
| 81 | Whenever your child has helped you or someone else, do you praise your child and tell him/her that he/she has done this very well? |
| 91 | Whenever your child has helped you or someone else, do you reward your child by giving him/her something that he/she likes? |

*Note*. Mothers were asked to think of how they and their child had behaved over the previous 3 months. 1Questions 2, 7, 8, and 9 were only asked of mothers who reported that their infants helped in question 1.

Part 1 Measure Extraction

**Scaffolding Score.** Questions from the Prosocial Behaviour Interview regarding demonstrating or reacting to child helping (Qs 3, 5, 6, 7, 8 and 9; Table 2) were used to calculate a scaffolding score for each mother-infant dyad. For each question, ‘yes’ answers were coded as ‘1’ and ‘no’ answers were coded as ‘0’. These scores were summed, resulting in a scaffolding score between 0 and 6 for each mother-infant dyad at each of the two time points (14 and 18 months). The score could only be calculated for a subset of mothers who had reported that their infant helped them in everyday life and who were therefore asked all relevant questions for this measure: for 53 mothers at 14 months (21 Ugandan, 32 UK) and for 64 mothers at 18 months (24 Ugandan, 40 UK). We chose to create a measure that reflected the number of different strategies mothers engaged in rather than looking at strategies separately because we thought the number of strategies rather than the presence/absence of specific individual strategies would be more important. Higher scaffolding scores indicate the use of a larger variety of different strategies aimed at promoting early infant helping, while lower scaffolding scores indicate the use of fewer strategies. We used Kuder-Richardson reliability coefficients (KR-20; Kuder & Richardson, 1937) to estimate the reliability of the scaffolding score. The reliability estimate obtained for the scale was 0.812 at 14 months and 0.754 at 18 months, which indicates good to acceptable reliability (Wombacher, 2018).

**Expectation Score**. For each mother, we extracted a binary measure (yes/no) from their response to Question 4 of the Prosocial Behaviour Interview (“Do you expect your child to help you or others?”) at each of the two time points (14 and 18 months). In contrast to the scaffolding score where we had six different questions available, we only asked about maternal expectations in a single question, hence this was taken as a stand-alone measure.

Statistical Approach

Data related to Research Questions Q1.1 and Q1.3 were reported descriptively.

To understand how multiple variables and their interactions predicted maternal reports of infant everyday helping (Q1.2), maternal reports of expecting infant helping (Q1.4), and maternal reports of scaffolding infant helping (Q1.5), we ran Generalised Linear Mixed Models (GLMM; Baayen, 2008) with binomial error structures and logit link functions. The models were fitted in R Studio (version 4.0.2) using the function glmer of the R package lme4 (version 1. 1-21; Bates et al., 2015) with the optimiser “bobyqa”. Infant identity and adult identity were entered as random effects where appropriate to control for repeated sampling of some infants, mothers and experimenters. We found identifiable random slopes to include in two models in Part 1 (see supplementary Part 1 Statistical analysis), but no other models had identifiable random slopes.

 To test the overall effect of the predictor variables in each model, we used likelihood ratio tests (Dobson, 2002) to compare the full model with a null model which only included the control variables and the random effects (Forstmeier & Schielzeth, 2011). Likelihood ratio tests were used to evaluate the contribution of interaction terms and individual fixed effects to the model (Barr et al., 2013; R function drop1 with argument “test” set to “Chisq”). Whenever the full-null model comparison revealed a better fit of the full model than the null model we first considered the interaction term. If no significant interaction effect was found, we ran a reduced model which included the same fixed and random effects structure as the full model but did not include the interaction term. If a significant interaction effect with cultural group was found, our approach was to explore this interaction further by running a post-hoc model for each cultural group (Uganda UK) separately. These post-hoc models included the same fixed effect control variables and random effects as the full model, but excluded cultural group and included the other predictor variable as a main effect, rather than in an interaction term.

Variance Inflation Factors (VIF, Field, 2005) were determined for a standard linear version of each model to rule out concerning levels of multi-collinearity and all were found to be acceptable (see Supplementary Methods Part 1; Table S13). Model stability was assessed by comparing the estimates from the full model based on all data with the estimates from models that lacked one level of the random effects at a time (Nieuwenhuis et al., 2012). All models included in the results had acceptable levels of stability, unless explicitly specified. Confidence intervals were derived using the function bootMer of the package lme4, using 1000 parametric bootstraps and bootstrapping over the random effects (argument use.u set to TRUE).

Whenever we were unable to run a GLMM due to insufficient variation in the data, we considered differences between cultural groups and age-related differences separately. For between-groups comparisons of nominal data, we conducted Pearson’s chi-square tests when all expected frequencies were greater than 5 (Howell, 2006), otherwise, we used Fisher’s exact tests. For age-related comparisons of nominal data, we used McNemar tests. These analyses were conducted in IBM SPSS Statistics (Version 29). We considered two-tailed p-values in all inferential analyses.

Part 1 Statistical Analyses

**Q1.2 Cultural or Infant Age Differences in Maternal Reports of Infant Everyday Helping.**Due to a lack of variability in the data, we were unable to run a GLMM (Baayen, 2008). Therefore, we used the nonparametric approach described above (i.e. Fisher’s exact test cultural comparisons and McNemar tests for age comparisons).

**Q1.4 Cultural or Infant Age Differences in Maternal Expectations of Infant Helping.** Using the statistical approach described above, we ran a GLMM to test if maternal reports of expecting their infants to help was predicted by their cultural group or infant age. The dependent variable was whether the mother answered Yes or No to Question 3 of the Prosocial Behaviour Interview (“*Do you expect your child to help you or others?*”). The predictor variables in the model were cultural group (UK or Uganda), infant age (14 or 18 months), and the interaction between cultural group and infant age and the random effect was Infant ID. The model included data about 75 infants at 14 months (34 Uganda; 41 UK) and 78 infants at 18 months (36 Uganda; 42 UK).

**Q1.5 Cultural or Infant Age Differences in Maternal Scaffolding of Infant Helping.** We ran a GLMM toanalyse how the proportion of scaffolding strategies reported by the mothers varied with cultural group and infant age. We used a two-column matrix with the number of strategies each mother reported using and the number of strategies each mother did not report using as the dependent variable (Baayen, 2008). The predictor variables were cultural group (UK or Uganda), infant age (14 or 18 months), and the interaction between cultural group and infant age, and the random effect was Infant ID. The model included data about 53 infants at 14 months (21 Uganda; 32 UK) and 64 infants at 18 months (24 Uganda; 40 UK).

***Transparency and Openness***

We have met Level 1 requirements of the Transparency and Openness Promotion (TOP) Guidelines (Nosek et al., 2015). We report how the sample size was determined, all data exclusions, all manipulations and all measures in the study. Data were analysed using IBM SPSS Statistics (Version 26), or in R (version 4.0.2) using the function glmer of the R package lme4 (version 1. 1-21; Bates et al., 2015). The data and an example R analysis code have been made publicly available at the Open Science Framework (OSF) and can be accessed at [<https://osf.io/zfvwb/?view_only=345aee7bf9d24757aaa3a263d709e1fe>]. The study’s design and its analysis were not pre-registered.

Part 1 Results

Q1.1) Do Ugandan and UK mothers report everyday helping in their infants at 14 and 18 months?

At 14 months, 22 out of 35 Ugandan mothers (62.86%) and 34 out of 41 UK mothers (82.93%) reported that their infants helped or tried to help them in everyday life. At 18 months, 27 out of 37 Ugandan mothers (72.97%) and all 42 UK mothers (100.00%) reported that their infants helped or tried to help them in everyday life.

Q1.2) Are there cultural or infant age differences in whether the infants are reported to help?

Due to insufficient variation in the UK mothers’ responses at 18 months (100% of UK mothers reported that their infants helped), we were unable to conduct a GLMM, so we followed our alternative non-parametric approach. When looking at differences between the two cultural groups, we found that significantly more UK mothers than Ugandan mothers reported that their infants helped them in everyday life, at both time points (14 months: *χ*²(1) = 3.92, *p* = .048; 18 months: Fisher’s exact test *p* < .001). In terms of age differences as 100% of UK mothers reported that their infant helped at 18 months, we were unable to test the two cultural groups separately. Looking across both cultural groups, significantly more mothers reported helping at 18 months than at 14 months (McNemar’s test *p* = .013).

Q1.3) What chores do Ugandan and UK 14- and 18-month-old infants help with in everyday life?

At 14 months, mothers from both samples described their infants participating in chores related to washing clothes, cleaning floors, washing dishes, cooking, and fetching items. Behaviours which were commonly described in one, but not the other sample were helping with firewood collection (Uganda only), cleaning surfaces (UK only), and tidying up (UK only). Additionally, at 18 months, infants in both samples were reported to help by preparing for, or clearing up after, meals and by helping with shopping. Across both time points, the most common answer in the UK was infants assisting with tidying up. In Uganda, the most common answer at 14 months was infants attempting to help with washing clothes and at 18 months it was helping wash clothes and clean floors. Table S2 shows examples of mothers describing recent instances of their infants helping in everyday life and a full list of the chores that the mothers reported their infants to help them with can be found in Table S3.

Q1.4) Are there cultural or infant age differences in whether mothers expect their infants to help?

The percentages of Ugandan and UK mothers who reported having expected their infants to help them or others in everyday life over the past 3 months at 14 and 18 months can be found in Table 3.

**Table 3***Maternal Expectations of Infant Helping Them or Others in Everyday Life*

|  | Uganda | UK |
| --- | --- | --- |
| Expecting help at 14 months | 82.35% (N = 34) | 29.27% (N = 41) |
| Expecting help at 18 months | 86.11% (N = 36) | 35.71% (N = 42) |

The GLMM showed that the full model fit the data better than the null model (likelihood ratio test: χ2 = 38.92, *df =* 3, *p* < .001), but the interaction of cultural group\*age was not significant (Table S4). Therefore, a reduced model was fitted, which revealed a significant effect of cultural group on maternal expectations of helping (estimate=-3.02, χ2 = 38.06, *df =* 1, *p* < .001; see Table S5). More specifically, more Ugandan mothers than UK mothers reported expecting their infants to help them or others in everyday life. Infant age was not a significant predictor of maternal expectations of helping (see Table S5), indicating that there was no significant change in the mothers’ expectations of helping between 14 and 18 months.

Q1.5) Are there cultural or infant age differences in maternal scaffolding of infant helping?

 The mean numbers of scaffolding strategies Ugandan and UK mothers reported having used in everyday life over the past 3 months at 14 and 18 months old can be found in Table 4.

**Table 4***Maternal Scaffolding of Infant Helping in Everyday Life*

|  | Uganda | UK |
| --- | --- | --- |
| Scaffolding score at 14 months1 | *M =* 2.29, *SD =* 1.82 (N = 21) | *M =* 4.94, *SD =* 0.88 (N = 32) |
| Scaffolding score at 18 months1 | *M =* 2.38, *SD =* 1.38 (N = 24) | *M =* 4.98, *SD =* 0.89 (N = 40) |

*Note.* 1Scaffolding score summarising maternal scaffolding strategies (Questions 3, 5, 6, 7, 8 and 9 from the Prosocial Behaviour Interview). Possible scores were between 0 and 6. Scaffolding scores were only calculated for mothers who answered “Yes” to Question 1 of the Prosocial Interview (indicating that their child helped in everyday life) and who were therefore asked all questions necessary for calculating the scaffolding score.

The GLMM showed that the full model fit the data better than the null model (likelihood ratio test: χ2 = 52.58, *df =* 3, *p* < .001), but the interaction of cultural group\*age was not significant (Table S6). Therefore, a reduced model was fitted, which revealed a significant effect of cultural group on maternal scaffolding of helping (estimate = 2.18, χ2 = 52.34, *df =* 1, *p* < .001; see Table S7). More specifically, scaffolding scores were significantly higher in the UK than in Uganda. Infant age was not found to be a significant predictor of maternal scaffolding scores (see Table S7), indicating that there was no significant change in the number of strategies mothers used to scaffold infant helping between 14 and 18 months.

Part 2

Part 2 Methods

Participants

We tested a total of 87 children (47 from the UK and 40 from Uganda), with 80 of these infants participating in the task with two different interaction partners (mother and experimenter; see Procedure section below) and 7 infants participating in the task with only one interaction partner (trials cancelled due to personal circumstances). Eighty-two out of the 87 infants had at least one valid trial to contribute to analyses. The mothers of these 82 children had also participated in Part 1. The number of valid trials for UK and Ugandan samples for each interaction partner (mother or experimenter) is shown in Table 5 (see Trial Validity section below and Supplementary Methods Part 2 for validity criteria).

**Table 5***Number of Infants per Cultural Group and Interaction Partner Included in the Analyses Using Data from the Helping Task*

| Cultural Group | Interaction partner | Number of infants with valid trials  | Mean age in months (SD) |
| --- | --- | --- | --- |
| UK | Experimenter | 42 (20 female, 22 male) | 17.97 (0.39) |
| UK | Mother | 25 (13 female, 12 male) | 18.00 (0.32) |
| Uganda | Experimenter | 36 (20 female, 16 male) | 18.15 (0.29) |
| Uganda | Mother | 27 (16 female, 11 male) | 18.12. (0.26) |

*Note.* Overall, 43 UK and 39 Ugandan infants were included in the analyses. Fifty-nine percent of infants (48 of 82 infants) contributed data from trials with both an experimenter and the mother. The remaining 41% (34 of 82 infants) only contributed data from trials with one interaction partner (UK infants: 18 experimenter only; 1 mother only; Ugandan infants: 12 experimenter only; 3 mother only) – 5 of these 34 infants only contributed one trial because they only ever participated in one trial; the remaining 29 infants participated in both an experimenter and a mother trial but only contributed one trial because the second trial was excluded due to trial validity reasons (see Trial Validity section below and Supplementary Methods Part 2).

**Part 2 Procedure**

To assess infant propensity to show helping behaviour, we conducted a standardised out-of-reach Helping task with the infants. This task was based on the marker task from Warneken et al. (2006), which was originally designed for a Western European (German) sample. To ensure that the task was also appropriate for the Ugandan infants, we co-produced our protocol with local Ugandan research assistants. The main modifications were identifying objects that were familiar to infants in both locations (water bottle and jar with lid as opposed to marker pen in original study), location of testing (outside for Uganda, inside for UK), and the way instructions were provided to the mothers when they were the model (see below for details). These modifications ensured that our set-up resembled a naturalistic situation which could arise in an infants’ everyday life in both cultural settings.

At 18 months the infants completed out-of-reach Helping tasks during two separate research sessions at their homes (mean 9.5 days apart; range 3-21 days): one session with a local experimenter, and the other session with their mothers (counterbalancing the order of partners across participants, who were randomly allocated to the counterbalancing order). Seven infants participated in only one session (the second visit was cancelled due to illness) and, therefore, participated in the task with only one interaction partner (UK infants: 3 experimenter only, 1 mother only; Ugandan infants: 3 experimenter only).

Due to the longitudinal nature of the overall project, some infants had already met the experimenter on one or more previous experimental visits or had interacted with them outside of the study. Other infants saw their experimenters for the first time on the 18 month visit. Different degrees of familiarity with the experimenter did not, however, appear to significantly influence the infants’ helping behaviour (see “Familiarity with the Experimenter at 18 Months” in Supplementary Results Part 2; Table S11-S14).

Before the start of each trial, mothers were instructed on how to behave: in trials with the experimenter, mothers were asked to not interact with their infant and instead to engage in a distractor task that diverted their visual attention (reading in the UK or examining nails in Uganda). In trials with the mother, one experimenter trained the mother by giving a demonstration, asking the mother to practice, and giving her feedback. Ideally, this was conducted out of sight and out of earshot of the infant, however in cases where infants were reluctant to be separated from their mothers, the experimenter instructed the mothers verbally instead, making sure she was familiar with the cues that she needed to give during the trial.

Each time an infant participated in the Helping task, they participated in two conditions: an experimental condition (where help was needed) and a control condition (where no need for help was apparent). The order of experimental and control conditions was counterbalanced across participants (who were randomly allocated to the counterbalancing order). Trials in all conditions began with the infants’ interaction partner (the mother or an experimenter) sitting behind a small table and the infant sitting or standing on the floor on the opposite side of the table (see Supplementary Methods Part 2 for photos of the experimental set up [Figure S1] and details about the materials used).

The interaction partner tried to get the infant’s visual attention and once the infant looked at them, they (a) opened the water bottle, drank from it, and closed it again; or (b) unscrewed the lid of the jar. Both objects were used in the UK and Uganda - and for each individual infant, each interaction partner used only one of these objects; for example, the mother used the bottle in both the experimental and control conditions, while the experimenter used the jar lid (counterbalanced across infants who were randomly allocated to the counterbalancing order). They then performed a target action: in the experimental condition, they pretended to accidentally drop the bottle or the lid of the jar on the floor on the opposite side of the table while saying “Oops” and then reached across the table towards the object, while giving a series of cues aimed at prompting the infant to retrieve the object (see Table 6). In the control condition, the interaction partner purposefully dropped the object on the floor saying “There” (or translation of), and then read something (UK) or looked at their nails (Uganda) for ~ 30 seconds (see Table 6). The word “There” was included to ensure both types of trial started with dropping an object and a verbal signal and to emphasize the deliberate nature of the adult’s action in the control trial, as previous research has shown that words like “Oops” and “There” can help 18-month-old infants to distinguish between accidental and intentional actions (Carpenter et al., 1998).

A trial ended either a) as soon as the infant retrieved the object (i.e., gave it to the adult or put it on the table and let go of it for more than one second) or b) shortly after all adult cues had been given (Table 6). At the end of any trial in which the infant had not retrieved the object, the interaction partner got up and retrieved the object themselves.

**Table 6***Actions/Utterances made by the Mother/Experimenter During the Experimental and Control Condition*

| Time in seconds from start of trial | Experimental condition | Control condition |
| --- | --- | --- |
| 0 sec | Drop the object and say “Oops!”1 | Drop the object and say “There” 1 |
| 2 sec | Look and reach towards dropped object2 | Uganda: Examine nails / UK: Read sheet of paper |
| 6 sec | Alternate looking at the object and infant’s face whilst reaching for object2 | Continue looking at nails/ reading |
| 13 sec | Say “Look, I can’t reach it”1,3 (verbal prompt 1) whilst looking at infant and reaching for object2 | Continue looking at nails/ reading |
| 15 sec | Look at object or infant and reach for object2 | Continue looking at nails/ reading |
| 19 sec | Say “Can you get that please?”1,3 (verbal prompt 2) whilst looking at infant and reaching for object2 | Continue looking at nails/ reading |
| 21 sec | Look at object or infant and reach for object2 | Continue looking at nails/ reading |
| 27 sec | End of trial | End of trial |

*Note.* 1 All verbal cues and prompts for trials in Uganda were translated and back-translated into Alur, Lugbara, and Swahili. Cues were given in the language the mother normally spoke to her infant in.

2If an infant brought the object within the adult’s reach, the adult stopped reaching for it and instead put their hand next to the object with their palm facing up, i.e., making a requesting gesture.

3 If the object was clearly within their reach, the adult did not give the verbal prompts as these did not make sense anymore, but instead continued to gaze alternate between the object and the infant’s face.

To standardise the timing of the cues in the experimental condition across participants, a recording played over a Bluetooth earpiece instructed the adult what to do and when to start each cue (see Table S8). A second research assistant started the recording as soon as the experimenter or the mother had dropped the object. Mothers in the UK and experimenters in both samples wore the Bluetooth earpiece themselves. In Uganda, mothers did not wear the earpiece because the local Ugandan research assistants advised that mothers would find this disturbing, due to their lack of experience with this type of technology. Instead, the Ugandan mothers were instructed by a research assistant who listened to the recording and then quietly repeated the instructions.

Part 2 Video Coding

**Trial Validity.** Infants participated in a Helping task trial with their mother and in a Helping task trial with an experimenter. Each of these trials consisted of an experimental and a control condition. To extract the infants’ helping behaviour towards an interaction partner, they had to have a valid experimental and control condition with this interaction partner (see section Helping Behaviour below). Whenever an infant had a valid experimental and a valid control condition for one interaction partner (e.g., the experimenter) but a missing or invalid condition in the trial with the other interaction partner (e.g., the mother), their trial with one interaction partner (e.g., the experimenter) was included in the analyses but their trial the other interaction partner (e.g., the mother) had to be excluded from analyses (i.e., we did not use listwise deletions of participants with only one invalid trial). This meant that some infants contributed two trials to analyses (the mother and the experimenter), some infants only contributed one trial (mother or experimenter), and some infants did not contribute any trials to analyses.

Validity coding revealed that a total of 37 trials from 34 participants were invalid. Eight trials with the experimenter as the interaction partner (4 Ugandan, 4 UK) and 29 trials with the mother as the interaction partner (10 Ugandan, 19 UK) needed to be excluded from analyses for reasons such as experimenter errors or the child fussing (see Table S9 and Table S10 for more details). For 5 infants this meant that they were completely removed from analyses because either both of their trials were invalid (1 Ugandan, 2 UK) or because they had only ever participated in one trial, which was then deemed invalid (2 UK). For 29 infants, this meant that they only had data from either the mother or experimenter condition to contribute to analysis because the other trial was invalid. This resulted in 48 infants being included who participated with both partners and 34 infants who participated with only one partner (total N = 82 infants).

We conducted an analysis to understand more about possible patterns in our missing data (see Supplementary Methods Part 2 for more details; Table S15) and found that trials with the mother had to be removed significantly more often than trials with an experimenter (Table S16). Cultural group, however, was not found to be a significant predictor of whether or not a trial had to be excluded from analyses (Table S16; see Supplementary Materials Part 2 for more detailed results and a discussion of the pattern).

**Helping Behaviour.** All valid trials were coded for whether the infant helped the adult by retrieving the object or not. Retrieving the object was defined as either handing it to the adult or putting it on the table and letting go for at least 1 second. Clear attempts to hand the object to the adult that were unsuccessful because of poor motor coordination (e.g., looking at the adult or reaching out to the adult, but dropping the object just short of their hand) were still counted as handing over the object. Putting the object on the table without letting go for at least 1 second was not counted as helping as it was unclear whether the infants were doing this to help the adult or if they were simply using the table as a surface on which to play with the object.

We then identified all helpers – infants who retrieved the object in the experimental condition and not in the control condition (see ‘competent helping’ in Paulus et al., 2013). This was done to identify infants who helped in response to the adult’s need or desire for assistance, as opposed to infants who handed over the objects regardless of the adult’s need or infants who did not help at all.

**Latency of Helping.** In experimental trials where infants were identified as helpers, the infants’ latency of helping was categorised as either ‘before’ or ‘after’ the first verbal prompt (“Look I can’t reach it”), to distinguish ‘quicker’ and ‘slower’ helpers respectively. For two UK infants, their mothers waited until the very end of the trial to accept the object even though the infant very clearly tried to give the object to them much earlier in the trial, resulting in a total of 43 infants (26 Uganda; 17 UK) contributing data from 55 trials to this analysis.

**Video Coding Training and Inter-Observer Reliability (IOR).** One observer coded all videos of the Helping task. A second observer coded 15.32% of the total number of trials. This revealed a Cohen’s Kappa scores of 1.00 for type of helping behaviour (N = 51) and 0.81 for the adult cue that occurred just before helping behaviour (N = 15 trials in the IOR set where helping occurred), indicating excellent Interobserver Reliability (Cohen, 1960).

Part 2 Statistical Analyses

Using the statistical approach described in Part 1, we ran GLMMs (Baayen, 2008) to examine whether (Q2.1) the likelihood and (Q2.2) the latency of infant helping in the Helping task at 18 months was predicted by their cultural group (UK or Uganda), and/or by the identity of their interaction partner. For Q2.1, the dependent variable was whether the infant was identified as a helper (yes or no). For Q2.2, the dependent variable was whether the infant helped before or after the first verbal prompt (“Look I can’t reach it”). The predictor variables in each of the models were cultural group (UK or Uganda), interaction partner (mother or experimenter), and the interaction between cultural group and interaction partner. Infant sex (female or male) was included as a control variable. Infant ID and adult ID were included as random effects.

The Q2.1 model included data from 78 Helping tasks with an experimenter and data from 52 Helping tasks with the mother. The Q2.2 model focussed on the latency of responses exclusively in the infants who had been identified as helpers (i.e., infants who retrieved the object in the experimental but not in the control condition). This resulted in a relatively small sample of infants with 31 Helping tasks with an experimenter and 24 Helping tasks with the mother. This model is reported, but was unstable. Therefore, we ran an additional model, including all infants who retrieved the object in the experimental condition (regardless of how they behaved in the control condition), which included data from 41 Helping tasks with an experimenter and data from 34 Helping tasks with the mother.

Part 2 Results

***Q2.1) Does the infants’ cultural group and the recipient of help predict the likelihood of infant helping in an experimental set-up at 18 months?***

Overall, the full model fit the data better than the null model (likelihood ratio test: χ2 = 12.15, *df =* 3, *p* = .007), but the interaction of cultural group\*interaction partner was not significant (Table S17). Therefore, a reduced model was fitted, which revealed a significant effect of cultural group on helping (estimate = -1.43, χ2 = 10.81, *df =* 1, *p* < .001; see Table S18). More specifically, more Ugandan than UK infants were identified as helpers in the Helping experiments at 18 months (Figure 1). The identity of the interaction partner (mother vs. experimenter; Figure 1), on the other hand, was not found to be a significant predictor of the infants’ helping behaviour (see Table S18).

**Figure 1***Likelihood of Helping per Cultural Group*



*Note.* The bars illustrate raw data, whilst the horizontal lines with error bars show the estimates from the fitted model and their 95% confidence intervals with infant sex and interaction partner being centred.

Infants were identified as helpers if they retrieved the object in the experimental but not in the control condition. As some previous studies have not included control conditions, Table 7 shows infant behaviour separately for the experimental and control condition – to aid comparability of these results with those in previous studies (e.g., Giner Torréns & Kärtner, 2017; Pettygrove et al., 2013).

**Table 7***Percentage of Infants Who Retrieved the Object in the Experimental and Control Condition per Cultural group and Interaction Partner*

|  |  |  |
| --- | --- | --- |
|  | Experimenter | Mother |
|  | Uganda(N = 36) | UK(N = 42) | Uganda(N = 27) | UK(N = 25) |
| Retrieved the object in the experimental condition | 63.89% | 47.62% | 74.07% | 72.00% |
| Retrieved the object in the control condition | 11.11% | 23.81% | 11.11% | 56.00% |

To aid comparability with other studies we report additional details about infants’ behaviour in the Helping task in Supplementary Results Part 2, such as whether they helped by putting the object on the table or by handing it to the experimenter (see Table S19) and about the behaviour of the infants who were not identified as helpers across both conditions (see Table S20).

***Q2.2) Does the infants’ cultural group and the recipient of help predict the latency of infant helping in an experimental set-up at 18 months?***

Overall, the full model fit the data better than the null model (likelihood ratio test: χ2 = 11.13, *df =* 3, *p* = .011), but the interaction of cultural group\*interaction partner was not significant (Table S21). Therefore, a reduced model was fitted, which revealed a significant effect of cultural group on the latency of helping (estimate = -1.66, χ2 = 6.13, *df =* 1, *p* = .013; see Table S22). More specifically, more Ugandan than UK infants helped before the first verbal prompt “Look, I can’t reach it”. The identity of the interaction partner (mother vs. experimenter), on the other hand, was not found to be a significant predictor of the latency of infant helping (see Table S22).

Due to the relatively small number of infants identified as helpers in the UK, the model reported above was not very stable. Therefore, we also checked if this pattern of results held when including all infants who retrieved the object in the experimental condition (regardless of whether they also retrieved the object in the control condition or not). After exclusions (see Supplementary Part 2 Method for details), this model was stable and revealed a similar pattern of results: The full model fit the data better than the null model (likelihood ratio test: χ2 = 12.92, *df =* 3, *p* = .005), but the interaction of cultural group\*interaction partner was not significant (Table S23). Therefore, a reduced model was fitted, which revealed a significant effect of cultural group on the latency of helping (estimate = -1.39, χ2 = 6.32, *df =* 1, *p* = .012; see Table S24). This meant that more Ugandan than UK infants retrieved the object before the first verbal prompt “Look, I can’t reach it” (Figure 2). The identity of the interaction partner (mother vs. experimenter) was not found to be a significant predictor of the latency of object retrieval (see Table S24)

**Figure 2**
*Likelihood of Retrieving Object Early (Before the First Verbal Cue) per Cultural Group*



*Note.* The bars illustrate raw data, whilst the horizontal lines with error bars show the estimates from the fitted model and their 95% confidence intervals with infant sex and interaction partner being centred.

Part 3

Part 3 Methods

Participants

To be included in analyses for Part 3, participants needed to have valid helping data (Part 2) and relevant interview / questionnaire data (Part 1/3) as detailed in Table 8. The data participants contributed to analyses split by Helping task trial type and interview/questionnaire type is detailed in Table S26.

**Table 8***Number of Participants Who Contributed Data for Each Questionnaire or Interview and who had Valid Helping Task Data for at Least one Interaction Partner*

|  |  |  |
| --- | --- | --- |
|  | UK | Uganda |
| Prosocial Behaviour Interview |  |  |
| at 14 months | 41 (20) | 35 (18) |
| at 18 months | 43 (21) | 37 (21) |
| Socialisation Goals Questionnaire at 11 months | 43 (21) | 37 (20) |

*Note.* Number of female infants in each sample shown in brackets

Part 3 Measures

**Socialisation Goals Measure.** We used relational socialisation goal scores previously calculated by Holden et al. (2022) who worked with the same sample of Ugandan and UK mother-infant dyads. When the infants were 11 months old, Holden et al. (2022) gave the mothers a questionnaire based on the Socialisation Goals Questionnaire developed by Keller (2007). The questionnaire aimed to assess the importance that mothers attributed to autonomous and relational socialisation goals and was presented as a forced choice task. Mothers were given pairs of statements consisting of one relational and one autonomous goal at a time and were then asked to select the more important one of the two (see Table S25). Holden et al. (2022) used the mothers' choices to calculate a relational socialisation goal score for each mother. A positive relational goal score indicates a stronger alignment with relational than with autonomous socialisation goals.

**Prosocial Behaviour Interview.** As detailed in Part 1, when infants were 14- and 18-months-old, mothers were interviewed about their attitudes and behaviours in relation to their infant’s helping behaviour.

 ***Expectation Score***. We used the same binary measure of whether the mother expected her child to help (yes/no) that had been extracted from Question 4 (see Methods Section of Part 1) at each of the two time points (14 and 18 months).

 ***Scaffolding Score.*** We used the 0-6 scaffolding scores that were derived in Part 1 of this study (see Methods Section of Part 1). Higher scaffolding scores indicate the use of a larger variety of different strategies aimed at promoting early infant helping. For mothers with data at both time points (N = 47; 16 Ugandan; 31 UK), Kendall's Tau rank correlations indicated that their scaffolding scores at 14 and 18 months were significantly positively correlated (Across both cultures: τb = .69, *p* < .001; Uganda only: τb = .46, *p* = .034; UK only: τb = .54, *p* = .001). On the basis of not detecting any significant differences with infant age in Part 1 (see Results Section of Part 1) and the positive correlations between the scores at both ages, we took an average across the two ages for participants who had scaffolding scores at both time points. For mothers who had only received a scaffolding score at one time point, we used that one score in subsequent analyses. This resulted in scaffolding scores being available for a total of 70 mothers (29 Ugandan, 41 UK).

**Out-of-Reach Helping task.** In Part 2 we detailed infants’ helping in an out-of-reach Helping task at 18-months-old. Infants were identified as helpers when they retrieved the object (i.e., either handed it to the adult or let go of it on the table for at least 1 second) in the experimental condition but not in the control condition. The order in which infants participated in the two conditions (experimental or control condition first) was counterbalanced across participants, which was important for drawing inferences about infant helping on the sample level in Part 2 of this study. We needed to be cautious, however, and consider whether the order of conditions might have an effect on individual performance before looking at associations between infant helping and the different measures of maternal socialisation on an individual level in the current part of the study. We found that the order of conditions was not significantly associated with infant helping behaviour (see Supplementary Methods, Results, and Discussion Part 3; Table S28) and were therefore able to proceed with the analyses below.

Part 3 Statistical Analyses

To investigate maternal socialisation predictors of individual variation in infant propensity to help at 18 months, we ran four GLMMs (Baayen, 2008), using the statistical approach described in Part 1. Due to the sample size of our study (and therefore issues with model convergence), we were not able to include all four predictors into the same model but had to instead conduct four separate models. The dependent variable in all models was infant helping in the Helping task at 18 months (was the infant identified as a helper? – yes or no), so all models were run with binomial error structure and logit link function. Each of the four models tested one of the following maternal socialisation predictors: (Q3.1) maternal socialisation goals (Relational goal scores), (Q3.2) maternal expectations of helping at 14 months (Question 4 on the Prosocial Behaviour Interview: yes or no), (Q3.3) maternal expectations of helping at 18 months (Question 4 on the Prosocial Behaviour Interview: yes or no), and (Q3.4) maternal scaffolding of helping (Scaffolding scores: 0-6). The primary predictor in each model was included in an interaction with cultural group (UK or Uganda). The remaining model structure was identical for all four models: type of interaction partner (mother or experimenter) and infant sex (male or female) were included as fixed effect control variables; and Adult ID and Infant ID as random effects. As the main effect of culture on infant helping in the experimental task 18 months has already been established in Part 2, this result section will only focus on the main effects of socialisation predictors, and not report main effects of culture again, to reduce repetition and redundancy with Part 2.

Variance Inflation Factors (VIF, Field, 2005), model stability, and confidence intervals were determined as in Part 2 and are reported in Supplementary Methods Part 3 (Table S27).

Part 3 Results

Q3.1) Do maternal socialisation goals at 11 months predict the likelihood of infant helping at 18 months?

Overall, the full model investigating whether maternal socialisation goals at 11 months predicted infants’ helping at 18 months fitted the data significantly better than the null model (likelihood ratio test: *χ2* = 20.46, *df =* 3, *p* < .001; see Table S29). The interaction between cultural group and maternal socialisation goals was significant (estimate = -3.77, *χ2*= 10.00, *df =* 1, *p* = .002; Figure 3). Post-hoc models exploring this interaction revealed that infants of Ugandan mothers who aligned more strongly with relational socialisation goals were more likely to help their mothers or an experimenter (likelihood ratio test: *χ2*= 7.61, *df =* 1, *p* = .005). In the UK sample, there was no significant association between alignment with relational goals and likelihood of infants helping (likelihood ratio test: *χ*2 = 2.91, *df =* 1, *p* = .088).

**Figure 3**Likelihood of Helping at 18 Months as a Function of Maternal Relational Goal Scores



*Note*. This figure shows the likelihood of helping the interaction partner (experimenter or mother) in the Helping task at 18 months as a function of maternal relational goal scores at 11 months, shown separately for Ugandan (orange) and UK participants (green). The area of the dots depicts the proportion of total observations included in the main model (N = 126). The solid lines show the main model predictions for each cultural group and the greyed-out areas depict the corresponding 95% confidence intervals (based on interaction partner and infant sex having been dummy coded and centred). Note that a binomial model was conducted and that even though the UK fitted model might appear to be linear, it is in fact a relatively flat sigmoid with a negative slope.

Q3.2) Do maternal expectations of helping at 14 months predict the likelihood of infant helping at 18 months? The full model investigating whether maternal expectations of infant helping at 14 months predicted infants’ helping at 18 months fitted the data marginally better than the null model (likelihood ratio test comparing full and null model: *χ2* = 7.50, *df* = 3, *p* = .058; see Table S30). As the interaction between cultural group and maternal reports of expecting the infant to help at 14 months was not significant, a reduced model was fitted without the interaction term (see Table S31). The reduced model did, however, not reveal a significant main effect of expecting the infant to help at 14 months on infant helping at 18 months (estimate = 0.03, *χ2* = 0.003, *df =* 1, *p* = .953).

Q3.3) Do maternal expectations of helping at 18 months predict the likelihood of infant helping at 18 months? The full model investigating whether maternal expectations of infant helping at 18 months predicted infants’ helping at 18 months fitted the data significantly better than the null model (likelihood ratio test comparing full and null model: *χ*2 = 12.20, *df* = 3, *p* = .007; see Table S32). However, the interaction between cultural group and maternal reports of expecting the infant to help at 18 months was not significant, and therefore, a reduced model was fitted without the interaction term (see Table S33). The reduced model did, however, not reveal a significant main effect of expecting the infant to help at 18 months on infant helping at 18 months (estimate = -0.07, *χ2* = 0.02, *df =* 1, *p* = .898).

Q3.4) Does maternal scaffolding of helping at 14 and 18 months predict the likelihood of infant helping at 18 months? Overall, the full model investigating whether maternal scaffolding of early helping predicted infant helping at 18 months fitted the data significantly better than the null model (likelihood ratio test: χ2 = 14.12, *df =* 3, *p* = .003; see Table S34). The interaction between cultural group and maternal scaffolding scores was significant (estimate = -1.01, χ2 = 4.01, *df =* 1, *p* = .045; Figure 4). Post-hoc models exploring this interaction revealed that in the Ugandan sample, maternal scaffolding scores were not significantly associated with infant helping at 18 months (likelihood ratio test: χ2 = 0.01, *df =* 1, *p* = .092). In contrast, in the UK sample, higher scaffolding scores were associated with a higher likelihood of helping in the Helping task – meaning that infants of UK mothers who used more strategies to scaffold early helping were more likely to help their mother or an experimenter at 18 months (likelihood ratio test: χ2 = 6.40, *df =* 1, *p* = .011).

**Figure 4**Likelihood of Helping at 18 Months as a Function of Maternal Scaffolding Scores



Note. This figure shows the likelihood of helping the interaction partner (experimenter or mother) in the Helping task at 18 months as a function of maternal scaffolding scores, shown separately for Ugandan (orange) and UK participants (green). The area of the dots depicts the proportion of total observations included in the model (N = 113). The solid lines show the predicted likelihood from fitted models for each cultural group. The greyed-out areas depict the corresponding 95% confidence intervals (based on interaction partner and infant sex having been dummy coded and centred). Note that a binomial model was conducted and that even though the Ugandan fitted model appears to be linear, it is in fact a very flat sigmoid with a negative slope.

General Discussion

In the present study, we investigated how instrumental helping in infancy might be shaped by maternal socialisation across participants sampled from two cultural groups: rural Uganda and urban/sub-urban/rural UK. First, we found that more Ugandan than UK mothers expected everyday helping from their infants at 14 and 18 months, and that UK mothers reported using a larger variety of strategies to scaffold everyday helping in their infants than the Ugandan mothers, with the maternal expectations and scaffolding behaviours not significantly changing from 14 to 18 months. In the second part of the study, we found that, at 18 months, Ugandan infants were significantly more likely than UK infants to help an experimenter or their mother retrieve an out-of-reach object and that Ugandan infants were also faster to help an experimenter than UK infants. Finally, we found that while individual variation in maternal expectations of helping did not appear to predict infant helping in either of the samples, socialisation goals and parenting practices predicted infant helping in culture-specific ways: in Uganda, infant helping was related to mothers’ underlying socialisation goals but not to their parenting behaviours. In contrast, in the UK, infant helping was related to maternal parenting behaviours (i.e., directly scaffolding their helping) but not to maternal goals.

The present study is the first to explore the role of parenting practices and socialisation goals in explaining cultural differences in the development of helping in a longitudinal manner. The UK sample, in which mothers reported using more scaffolding strategies to support their infants to help with everyday tasks compared to Uganda, had less helpful infants in the experimental task, compared to the Ugandan sample where fewer scaffolding strategies were reported. While this might appear counterintuitive at first, it may be in line with a general pattern observed by anthropological research: In neontocratic societies, in which parents treat helping as a learned behaviour that needs to be scaffolded, children appear to be generally less helpful than children in gerontocratic societies, in which parents expect their children to help but do not actively scaffold infant helping (e.g., Lancy, 2018; Rogoff & Coppens, 2024). Although we did not directly measure the extent to which our UK and Ugandan samples were neontocratic or gerontocratic, if future work characterises the UK sample as neontocratic and the Ugandan sample as gerontocratic, this may offer an explanation for the observed pattern of results. Although this anthropological research might suggest that scaffolding techniques aimed to promote helping in everyday life could be counterproductive and discourage infant helping, we found that within the UK sample, maternal scaffolding *did* positively predict infant helping. Given that the UK infants in this study appear to grow up with mothers who place greater value on autonomous goals (Holden et al., 2022), more maternal scaffolding might be necessary for them to learn to be helpful. Moreover, in a society in which overall expectations of helping are low, active encouragement of infant helping appears to be important for promoting helping behaviour.

The Ugandan infants, on the other hand, have been found to grow up in a setting that highly values connectedness and caring for the well-being of others in general (Holden et al., 2022). Such a socio-cultural environment might mean that explicit scaffolding of everyday helping is less necessary. Moreover, the higher expectations of helping that the Ugandan mothers reported are not incongruent with lower scaffolding – you might be less likely to elaborately encourage helping from your child if it’s something that you expect of them. This could explain why we found fewer scaffolding behaviours in Uganda and why maternal scaffolding was not related to the Ugandan infants’ helping behaviour. Another possible explanation for these findings could, however, also be the types of strategies that we included in our scaffolding measure, which were generally more typical of WEIRD populations. There might be other parenting practices, more typical of mothers from non-WEIRD populations, that would be more common in Uganda and would predict infant helping in Uganda, such as allowing infants to participate in everyday activities without actively encouraging their participation, putting an emphasis on infants observing their caregivers and siblings in completing chores, or providing infants with scaled-down or old implements for practising chores (Lancy, 2020; Rogoff et al., 1993).

Anthropological work suggests the following explanation for the lower rates of helping behaviour that have been observed in neontocratic societies: When their children are very young, parents in these settings have been found to discourage their children from helping with everyday activities because they view their infants’ attempts to help as interference (Lancy, 2018). Instead, they try to complete chores while their infants nap or give their infants “mock work”, which distracts the child and gives them a feeling of being helpful without actually contributing to the chores that parents are engaged in (Rheingold, 1982; Rogoff & Coppens, 2024). This behaviour is said to extinguish children’s natural motivation to be helpful and therefore makes it necessary for parents to heavily scaffold helping later on (Lancy, 2018). This was, however, not necessarily a pattern observed in the present study, as more UK mothers than Ugandan mothers reported that their infants helped them with chores in everyday life. It might also be that UK mothers, if they had neontocratic expectations that children need to learn and improve their helping, were more generous in ascribing helpful behaviour to their infants even if the helping was not effective. We did not measure though, how baby- or elder-focused our two samples were, so we do not know how they fit into the two categories proposed by Lancy (1996). In future work, it would be helpful to assess this as well as ask mothers about how much they might prevent their infants from helping in everyday life. In the present study, we found no evidence of UK mothers suppling their infants with “mock work” or Ugandan mothers allowing their infants to contribute more meaningfully. Instead, we found considerable overlap in the types of chores infants were reported to help with, such as washing clothes or dishes, which differed across the two samples only in terms of the technology involved (Rogoff et al., 1993). However, at 14 and 18 months little actual meaningful help was possible for the infants of either cultural group and most instances of infant help would have been attempts to help rather than being actually helpful. We did find some group-specific chores, which might lay the groundwork for more pronounced differences between the groups at later ages. For instance, the Ugandan children might become more involved in chores with economic value, such as gardening (e.g. production of food crops), or might help more with chores that benefit the whole household like collecting firewood, while the UK children might assist more with chores related to their own personal things, such as tidying up toys (Coppens & Rogoff, 2021; Rogoff & Coppens, 2024).

Based on the ecocultural model of child development (Keller, 2007; Keller & Kärtner, 2013), we would have expected different levels of maternal socialisation to influence infant helping in matching ways: Societal norms and expectations should shape maternal socialisation goals, which in turn should be reflected by the mothers’ parenting practices. Therefore, they should theoretically all predict individual variation in infant helping in similar ways. In the current study, however, this was not the case. We found that maternal expectations did not predict individual variation in infant helping in either sample, while maternal alignment with relational socialisation goals was associated with helping only in Uganda, and maternal scaffolding was related with helping only in the UK. One possible reason for this could be that the scales we used for measuring the different levels of maternal socialisation were not comparable. Expectations were assessed using a single item, the score for socialisation goals indicated the degree to which mothers aligned more with relational goals than with autonomous goals, and our measure of scaffolding represented the number of different strategies mothers reported using. Hence, the possible variability in these measures, which is important for finding predictive relationships, was not the same. It is also possible that our data was noisy because we did not control for individual variation in helping tendencies at earlier ages when looking at associations between maternal socialisation and helping at 18 months. Future research should aim to have multiple experimental tests of helping, so that performance of the first experimental task can be used to control for individual variation in helping. Another possible explanation for our findings could be that in order to influence their children’s behaviour, parental expectations and goals need to influence parental behaviour first. The maternal expectations of helping that we measured in the current study might have reflected some aspect of societal norms at the sample level, but individual variation in mothers’ expectations might not have manifested as differential maternal interactions with their infants. Moreover, maternal expectations and socialisation goals are unlikely to manifest as scaffolding behaviours alone, but rather as a variety of different behaviours. Alignment with relational goals promoted infant helping in our Ugandan sample but the Ugandan mothers did not seem to express these goals through the scaffolding strategies we asked them about. As mentioned above, they might have used other scaffolding strategies or they might have expressed their goals through others forms of behaviour that we did not measure. Future research needs to probe the mechanisms by which maternal socialisation goals have an influence on maternal behaviours and identify mediating factors between maternal goals and behaviours, for instance maternal belief about how children learn, which might also differ across different cultural settings (Keller & Kärtner, 2013). Furthermore, maternal socialisation goals and scaffolding are not the only factors that are likely to influence children’s prosociality. Future studies across different cultural contexts should also aim to look at a broader range of factors, which have previously been found to be associated with prosociality, such as sensitivity (Brownell & Drummond, 2020) and attachment (e.g., Beier et al., 2019).

Another cultural difference that the present study revealed was the way in which infants behaved across the two conditions of the Helping task (experimental and control) when interacting with their mothers. The majority of the infants from the Ugandan sample retrieved the out-of-reach object for their mothers when she indicated a need for help (experimental condition) but they did not help when the mother did not signal any need or desire for the object (control condition). This is in line with how 18-month-olds have behaved towards experimenters in experimental and control conditions in previous studies (e.g., German infants in Warneken & Tomasello, 2006). The UK infants, however, were much more likely to retrieve the object for their mothers in both the experimental and the control condition, which meant that we did not identify them as “helpers” (or “competent” helpers as defined by Paulus et al., 2013). A total of 14/25 infants retrieved the object in a control condition with their mothers, a far higher proportion of infants than previous studies with control conditions have reported (e.g., Dunfield et al., 2011; Paulus et al., 2013). It is unclear what motivated these UK infants to retrieve the object in the control condition. Whilst these children may have had a lower sensitivity to the needs of their mother, it is perhaps more likely that this reflected a pre-established prosocial routine of picking up dropped objects (e.g., Dahl & Paulus, 2019), in line with the much higher number of UK mothers reporting that their children helped with ‘tidying up’ chores in everyday life compared to Ugandan mothers. Even though any retrieval of objects in the experimental condition (regardless of behaviour in the control condition) may reflect a social preference for interacting with others, which is theorised to be a fundamental early step towards altruistic helping (Dahl & Paulus, 2019), a control condition allows us to identify an understanding of others’ needs, which is needed for later phases of altruistic helping where children help fulfil others’ goals and actions (Dahl & Paulus, 2019). Many recently published studies on infant instrumental helping have not included control conditions (e.g., Giner Torréns & Kärtner, 2017; Grossmann et al., 2020; Köster et al., 2016), arguing that previous research has sufficiently demonstrated that infants’ helping rates are very low in control conditions. However, our results highlight that the inclusion of a control condition might be important for understanding the cognitions or motivations underpinning helping behaviour. If we are interested in understanding the developmental roots of adult-like helping where consideration of the needs of others is paramount, it is important to distinguish between competent helpers who are sensitive to the needs of others and those whose surface behaviour resembles competent helping but may be the product of earlier stages of prosocial development, such as social preferences for interacting with others (Dahl & Paulus, 2019). For instance, the high levels of maternal scaffolding of helping at 14 and 18 months reported in the UK might mean that UK mothers develop prosocial routines with their infants (like retrieving or tidying objects) regardless of the circumstance and this might not necessarily teach them to understand and consider the needs of others. The Ugandan mothers on the other hand reported using fewer scaffolding strategies, which could have required their infants to develop a better or earlier understanding of need. It is unclear whether the behaviour of the Ugandan mothers would have also been successful in the UK, given that there might be fewer opportunities for UK infants to participate in adult activities (Rogoff et al., 1993) or to observe or imitate older siblings’ involvement in everyday household chores, as the UK infants had fewer older siblings than the Ugandan infants (Holden et al., 2022).

Overall, we found Ugandan infants were more likely, and often faster, to help than infants from the UK, which is in line with previous studies showing more prosocial behaviour in infants whose mothers placed a stronger emphasis on relational socialisation goals (Giner Torréns & Kärtner, 2017). Our results are contrary, however, to the suggestion from Callaghan and Corbit (2018) that early instrumental helping develops uniformly across cultures, which was based on two studies finding evidence for similar instrumental helping rates in 18- to 30-month-old infants from differing cultural settings (Callaghan et al., 2011; Köster et al., 2016). Whilst we cannot know why some studies, like the present study, have found differences in early instrumental helping across cultures, while others have not, the current study highlights the importance of considering the influence of parenting practices and attitudes, which might shape early infant helping in culturally specific ways. Our findings also indicate that we might need to move beyond questions about universality or cultural variation in the development of infant helping. Instead, we should aim to understand how infant helping might be constructed differently across societies that vary in parental goals and practices, and in society-level expectations about prosocial behaviours (e.g., in societal norms about helping others). Moreover, our samples do not represent the entirety of the UK or Uganda, but local cultural groups within these countries. There are likely familial, community and regional norms that impact parenting beliefs and practices, and we encourage the development of methods that consider more nuanced societal and individual variation.

Furthermore, the two samples also differed on several demographic characteristics, not only their country of residence, which makes it difficult to know whether other sample characteristics than the ones we examined in the current paper might have also driven the observed difference in infant helping. For instance, the Ugandan sample had a lower SES and lived in a more rural environment than most of the UK sample. Previous research indicates that children from rural populations can be more prosocial than those from urban populations and that differences between rural and urban populations within the same country can be bigger than differences in prosociality across different countries (e.g., Rochat et al., 2009). Moreover, it has been found that lower social class can be associated with higher propensities to show prosocial behaviour (Piff & Robinson, 2017), and this can already be observed in early to middle childhood (e.g., Chen et al., 2013; Miller et al., 2015; but see Benenson et al., 2007). Whether these factors are already influencing behaviour in infancy remains to be empirically tested, and future research should aim to examine infant helping across a larger number of samples within each cultural context that vary on SES and rural/urban environment to help disentangle the relative influence of these factors on early prosocial behaviour. Additionally, the UK and Ugandan samples differed in terms of their household structures and the number of caregivers who interacted with the infants: Holden et al. (2022) found that the Uganda households were larger than the UK households and that the Ugandan infants from 3-15m old had a larger number of different carers compared to UK infants at 3-15m, as Ugandan infants were more frequently cared for by non-mothers (i.e., other adults or children) than the UK infants. To date, very little is known about the role non-mothers play in infants’ early life experiences (Holden et al., 2022), but it is likely that socialisation processes beyond the mother-child relationship will shape infant development, and hence might also impact the development of early helping. Given that the value placed on having multiple caregivers and the importance of creating opportunities for infants to interact with different types of caregivers have both been found to vary across different cultural settings (e.g., Keller & Kärtner, 2013; Leyendecker et al., 1995), the influence of socialisation processes beyond maternal attitudes and behaviours on infant prosociality should be considered in future research.

In addition to interesting cultural differences, we also found evidence of important similarities between our two samples. In both the UK and Uganda, children were equally likely and equally fast to help their mother and a less familiar experimenter. This contrasts the recent finding by Reschke et al. (2023) who found a preference for infants to help their mothers over experimenters, but is in line with their finding that infants of this age do not seem to differ in the latency of helping experimenters versus the their mothers. In previous studies, which found higher helping rates towards a familiar experimenter, being familiar with an experimenter meant that the infants had played with them shortly before the helping task, while being unfamiliar meant never having met the experimenter before at all. In experimental set-ups in which the infants interacted very briefly with the unfamiliar experimenter or saw their parents interact with them, no differences between familiar and unfamiliar experimenters were observed (Allen et al., 2018; Hepach et al., 2017). In the present study, all infants had interacted with the experimenter at the beginning of the experimental visit (in warm-up games and other experimental tasks that were not part of the present study). Moreover, due to the longitudinal nature of our study, most experimenters had met the infant at least once before. Therefore, it could be that most experimenters in our study had passed a minimum threshold of familiarity that supported the infants to help them.

Taken together, our findings highlight the importance of moving away from monocultural research, and specifically looking at the development of prosociality across different cultural contexts where the use of socialisation goals and parenting practices differs. We found that in Uganda, mothers’ underlying values but not parenting behaviours predicted infant helping, while in the UK infant helping was related to mother’s parenting behaviours but less to their values and beliefs. This indicates that depending on the cultural context that a child is brought up in, different aspects of parental socialisation (e.g., goals and practices) can shape their development and behaviour in specific ways. This extends our previous understanding of the role that maternal attitudes and behaviours can play in shaping instrumental helping in infancy.

In conclusion, mothers from our UK and Uganda samples had different expectations and ways of scaffolding early helping in their infants. Although UK mothers engaged in a larger number of scaffolding behaviours, the UK infants were less likely and sometimes slower to help an adult in need than Ugandan infants. Infants across the two samples were equally likely to help an experimenter and their mother in the out-of-reach Helping task. Whilst maternal expectations of infant helping were more common in Uganda, matching the more helpful performance of the Ugandan infants, individual variation in expecting infants to help did not predict individual variation in performance on the experimental task. Finally, we found evidence of culturally-specific predictors of individual variation of helping at 18 months: in the UK, more maternal scaffolding strategies, and in Uganda, greater alignment with relational socialisation goals, positively predicted the likelihood of infant helping in the out-of-reach task. Taken together, these results demonstrate that to understand the emergence of helping in infancy we need to consider the details of the socio-cultural context that infants are raised in, through studies of development in different cultural contexts. This is crucial for gaining a full understanding of the nuanced ways in which culture can shape infant helping in its early development.

**Word Count:** **17633 (Including Reference List)**

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1. A number of different terms could be applied to our two samples. We are from here on referring to them as cultural groups - as did Holden et al. (2022). But we acknowledge that there is likely diversity within these cultural groups. [↑](#footnote-ref-2)