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**Exploring the role of facial emotional expressions
in charitable giving**

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I've never liked formalities, so this is my "Thank you" to all who made this adventure – with all its up and downs – a better place.

So long, so long and thanks for all the fish. (Adams, 1979)

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General introduction

Official sources report that the number of persons in need worldwide is increasing drastically over the years: according to the 2022 Global Report on Food Crisis (FAO, IFPRI and WFP, 2022), the population suffering from a food crisis nearly doubled between 2016 and 2022; the United Nations Development Programme and the Oxford Poverty and Human Development Initiative (2022) report that 1.2 billion of people live in an acute poverty state, across 111 countries. Drought, health conditions, but also lack of education and discrimination are widespread, causing people's suffering. In such a condition, charities and other no-profit organisations are constantly fighting to staunch the issues, but the numbers are so high that continuous donations are needed. To maximise the income of fundraising campaigns and to boost individual donations, charities recur to donation appeals, with the aim to show the state of need that many are facing, trigger empathic concern and sympathy in the viewers and urge them to help.

As such, finding good strategies to increase donations is fundamental to improve the number of people that can be helped, and to do it better and better. A wide corpus of studies dealt – and is still dealing – with the issue, trying to individuate the many factors that prompt donations, and the ones discouraging them. Building a model for charitable giving, though, can be a quite complex task, as a huge number of variables is at play. A demonstration is the variability of the existing studies on the topic (Bhati & Hansen, 2020), some of which focus on internal motivations to donations, such as empathetic dispositions (Tusche et al., 2016), religiosity (Ranganathan & Henley, 2008), the need to compensate for the distressful feelings elicited by the exposure to uncomfortable donation ads (Schaller & Cialdini, 1988), or the positive and warm feelings that follow an act of help toward the other (the so-called *warm-glow*)(Andreoni, 1990); some others focus on how the charity appeal's perceptual characteristics and emotional content, as well as the way the message is delivered (e.g. which pictures are used, how the donation request is framed, how much information about the cause is presented...), influence donor's intentions to help, by modulating their emotional state, the attitude toward the charity or the donation appeal, or the perceived efficacy of their donation and so on.

Zooming into this last group of studies, the complexity of visualising a unique model remains high, and the variety of factors studied is mirrored by the great variability of the experimental paradigms and stimuli that is used, which results, in some cases, in apparently incoherent or ambiguous outcomes. This is the case, for instance, of the effect of emotional pictures, and in particular, of emotional portraits in charity advertisements, sometimes resulting in enhanced donations in favour of appeals showing sad, or distressed children (to cite one: Small & Verrochi, 2009), some other times finding an opposite effect, with sad children decreasing the donation intentions and, on the contrary, the use of happy children improving them (see for instance Zemack-Rugar and Klucarova-Travani, 2019).

Starting from here, I designed three experiments, to try disentangle these ambiguous results through the use of a validated database of pictures, characterised by a neutral background and a common frame, which allowed to solely focus on the expressivity of the children, as the manipulated variable, and through the use of a series of coherent paradigms, logically following one another, to obtain results that are comparable and that can be used to progressively build a more and more complex model of the donation decision process. The present thesis is organised as follows: Chapter 1 introduces the inner and outer factors influencing donation behaviours, with a particular focus on the effect caused by the pictures' perceptual characteristics; Chapter 2 reviews the existing literature on emotional faces and charitable giving, and includes the first study of this project, setting a behavioural baseline for the following research; Chapter 3 proposes the use of a comparative context to improve donations to a sad child; finally, Chapter 4 explores the use of eye-tracking methods to gain a deeper insight on the attentional – and individual – components of decisional processes in the charitable giving context. In the final chapter I discuss the results and the limitations of the presented studies and explore future directions.

Chapter 1

The complex reality of donation decisions

Altruism and pro-sociality, respectively defined as an act aimed at helping another individual, with (altruism) or without (pro-sociality) a cost for one-self, are an innate tendency of many species, including the humans. Especially in the case of humans, helping can take many shapes, and does not only target the ones who are close to us – in terms of emotional and spatial proximity – but also people far away and with whom we never had a direct contact, as it is the case for charitable giving. Due to the physical distance and to the donation system (usually passing through a third party, namely a charity or another no-profit organisation) donors rarely receive any concrete benefit from their benevolence, not in terms of reciprocity, monetary or material rewards, nor in terms of gratitude from the receiver, as there is no direct interaction between the donor and the beneficiary. Nonetheless, more factors can motivate donors to give, and support donations even in the absence of an explicit reward. The most relevant are exposed in the following paragraphs; specifically, I will consider the role of inner affective motivators, such as altruism, warm-glow, empathy, guilt etc., and of social facilitators, as well as the (covert) effect of the physical characteristics of the stimuli (pictures) on donation decisions.

1.1 Affective incentives

Giving to others at a cost for oneself is considered an act of altruism, and it can be promoted by several affective reasons. First, the sight of someone in need can elicit an empathic reaction, which tunes us to what the other is feeling and, consequently, can promote helping and giving. Both affective empathy and the more cognitive perspective taking are good predictors of giving (Tusche et al., 2016). Altruism following an empathic concern for the other can be triggered by either the perspective of a positive and rewarding feeling that is generated by helping someone (warm-glow; see Andreoni, 1989-1990) or, on the contrary, by the need to alleviate our distress (e.g. caused by emotional contagion or guilt), by alleviating the other's.

1.1.1 Warming emotions

Several studies, indeed, proved that warm-glow promotes donations. For instance, Harbaugh and colleagues (2007) measured the functional activation of the *ventral striatum*, a brain area responsible for reward-processing, during either mandatory (tax-like) or voluntary donations to a charity, previously selected by each participant. While they observed an activation of the striatum both in the mandatory and in the voluntary donation trials, the activation was higher for the latter. In addition, activation of the striatum during the mandatory donation trials predicted the decision to donate during the voluntary donations. Anticipated warm-glow also predicted giving both in terms of decision to donate for a charitable cause (Dickert et al., 2010) and in terms of blood donations (Ferguson, 2021), with first-time blood donors who reported higher warm-glow continuing to donate through time, and the ones who reported low warm-glow relapsing. Warm-glow might also explain the tendency to choose time donation (i.e. volunteering) over a money donation, when both are possible and even when donating money would be more beneficial for the charity (Lilley & Slonin, 2014; Brown et al., 2019). The use of a laboratory setting, during which participants were alone when deciding how to contribute to a charitable cause (time or money), permitted the exclusion of social factors such as reputation seeking as the primary reason for choosing volunteering over charitable giving. The authors claimed that volunteering generate more positive feelings than money donations. Additionally, O'Brien and Kassirer (2018) tested the possibility of a reduction of warm-glow over time, due to a phenomenon called *hedonic adaptation*: hedonic adaptation is defined as the reduction of the pleasant feelings that are generated by a reward (e.g. money gain, good food, etc.), due to experiencing that same reward repetitively, over and over. Comparing two conditions, characterised by either a repeated gain or a repeated donation, the authors found that hedonic adaptation was slower (nearly halved) for donations compared to gains, showing how persistent warm-glow is when doing good for others.

1.1.2 Compensating for unpleasant feelings

On the other hand, some suggested that one more “egoistic” reason to donate could be to alleviate one’s own distress: when facing someone in a situation of need, we share their distress through emotional contagion; in such a situation, we are pushed to action in order to alleviate our own negative feelings by alleviating the other’s (for instance, with a donation) (Schaller & Cialdini, 1988). Ashar and colleagues (2017) found that listening to the biography of some victims elicited both empathic care and personal distress, accompanied by the activation of *nucleus accumbens* and orbitofrontal cortex, and premotor and somatosensory regions respectively. Both dimensions, self-reported and measured by the activation of the above specified brain regions, predicted giving following the listening. In another study, Piferi and associates (2006) investigated real-life giving in response to the Twin Towers tragedy. They asked participants whether they donated to support the victims of 9/11 and what the primary motives for donating were: relieving personal distress appeared to be the major self-reported motivator of giving in such a situation.

Similarly, some other researchers explored the role of guilt in donations: as suggested by Ghingold (1981), when reaching a certain threshold level of guilt, people act to reduce it. As such, using a guilt-generating message, and providing at the same time a way to reduce it (for instance, by donating) can induce giving as a coping strategy (Hibbert et al., 2007). Anticipating the guilt that would be caused by not helping the charitable cause was proved to boost donations (Massi Linsdey, 2005; Basil et al., 2006; Basil et al., 2008). Finally, Ohtsubo and Watanabe (2013) found that the sense of guilt caused by an unwanted unfair behaviour, in a modified dictator game, was also able to influence giving in a subsequent, and totally unrelated, task. Participants playing the dictator game were not given the possibility to decide how to allocate money for their offer: they were forced, instead, to draw a pre-determined combination from a card deck. Decks were assembled to either contain fair offers (50-50 share) or offers disfavoured the receiver (i.e. 80-20, in favour of the proposer). Following the dictator game, participants were informed that the task was finished. As an unrelated request, they were asked to make a donation to a charity of their choice. The unfair condition,

although not voluntary, generated guilt in participants; guilt, in turn, induced participants to donate higher amounts at the end of the experiment. As described in this paragraph, both positive (e.g. warm-glow) and negative (e.g. personal distress and guilt) anticipated emotions can have a positive impact on donation decisions. It would be interesting to explore whether a combination of both can further improve donations.

1.2 Social motivators

One own's emotions are not the only driver of altruistic behaviours. For instance, Basil and colleagues (2006) demonstrated that the presence of other observers during a charitable act, promotes donation via the activation of a “prosocial norm”, that increases the sense of personal responsibility toward the charity appeal. Moreover, donating in the presence of observers is correlated with a higher activation of the *ventral striatum* (see also Harbaugh et al., 2007, in the previous section), an area that processes rewards (Izuma et al., 2010), compared to when donating without observers. The authors suggested that deciding to donate while other people are watching can work as a social reward (social approval). More than brain activation, they found that participants donated more frequently when in the presence of others, than when they were alone. In fact, Lay *et al.* (2020) suggested that respecting social norm can function as a social reward (approval), while not respecting them potentially results in social rejection. Henceforth, when the social norm imposes to help, some people might decide to donate even when not wanting to, to comply with the norms (reluctant altruism; Ferguson, 2022). Along this line, Lay and colleagues (2020) explored how social norms, defined in their research as the typical altruistic behaviour of the close social group (family and friends) can affect donation decisions. Indeed, they found that the donation behaviours of the participants' social entourage of participants positively correlated with both past donations (self-reported) and willingness to donate. Similarly, a series of studies found that informing participants about the average donation amount of others influences the subject's donations, in that the higher the amount reported from other donors, the higher the participant's contribution (Croson et al., 2009; Shang & Croson, 2009; Hysenbelli et al., 2013).

In addition, donating in public can facilitate future social interactions: in their study, Fehrler and Przepiorka (2013) tested whether participants would perceive donors as more trustworthy and, then, trust them with higher amounts in a Trust Game. Indeed, participants expected donors to respond with higher amounts during the game, compared to non-donors. Hence, acting altruistically in front of a crowd can be used to signal trustworthiness and increase one own's reputation in the group, or to receive social approval and avoid the group's rejection.

1.3 Perceptual components of images

More intriguing, perhaps, is the potential covert influence of simple perceptual characteristics of the picture used in donation ads. While we can be aware of the components described in the two sections above (we acknowledge our distress, and the pleasant warmth in response to a help request, and we can be more or less conscious of the need for social approval guiding our decisions in front of a public), these perceptual factors can have a quite subtle and unpredicted effect on our perception, our feelings and, finally, our decisions. This section presents the existing literature on the topic, that is, unfortunately, still scarce for what concerns charitable giving, but that is slightly richer in the field of cognitive psychology and product preference. The main dimensions that are taken into consideration are the image colours and the background information.

1.3.1 A world in colours

Colours have been largely studied in cognitive psychology, for their high capacity to transmit meaning and emotions. Wilms and Oberfeld (2018) found that hue, saturation and brightness of colours affect arousal (for instance, brighter and more saturated colours eliciting higher arousal, desaturated colours resulting in a more relaxed states) and emotional valence. In addition, research revealed that the use of coloured pictures helps focusing on the concrete aspects of the image, while black and white colouring focuses the attention on the abstract characteristics of the same image (Lee et al., 2014). In addition, several studies proved that there is an inherent link we make with certain colours and other object properties; for instance, cold and warm colours are, in fact,

communicating cold and warm sensations at a somatic level (Michael & Rohlion, 2008). Similarly, colours are associated with specific emotions or states.

Contextualising it in the frame of product preference, a couple of studies explored the effect of colours on purchase intentions. For instance, Broeder and Scherp (2018) found that using a yellow background, vs. a red or a blue background when presenting a commercial product (e.g. a digital camera) increased purchase intentions, and that the effect of yellow was mediated by the positive feelings and the trust toward the product quality. Köteles and colleagues (2010) studied the association between medicament tablets' colours and patients' preference depending on the desired effect of the drug: when asking for an antipyretic or analgesic drug, patients preferred white pills; when in need of a sedative or hypnotic treatment they preferred blue and white pills; finally, when asking for a spasmolytic medication they preferred yellow and red pills.

Following the effects presented above, it is easy to infer that colours can deliver specific emotions and impact donations when used in the charity ads. In fact, Choi and colleagues (2020) proved that the right combination of background colour and emotional picture increases donations by attracting the focus. Interestingly, they hypothesised that the use of incongruent picture valence and colour match would be the most successful, as the incongruence attracts attention, amplifying in this way the emotional reaction to the appeal. Indeed, in a series of studies the authors verified that using an orange background with a sad picture, and a blue background with a happy picture resulted in more donations compare to the congruent option (i.e. orange background and happy picture, and blue background and sad picture). Important to the current research, they also found that a white background didn't interact with the emotional valence of the pictures. On another note, Zhou and Xue (2019), compared fully coloured, partially coloured (subject highlighted, background achromatic) and black and white (BW) pictures, depicting the protagonists of a natural disaster in a donation request ad. An interesting result was that the BW pictures elicited the highest donation intentions, empathic response and attitude toward the ad, the fully coloured pictures generated a higher empathy score and donation intentions than the partially coloured pictures, while the latter improved the attitude toward the ad compared to the

fully coloured ones. The authors claim that colour, in such a case, negatively influences the image processing by functioning as a distractor, which is coherent with the findings by Lee and colleagues (2014) cited above and with the research by Behketereva and Müller (2017), that proved that colours (compared to pictures in a grey scale) have a higher distractive effect. Critically, the pictures used by Zhou and Xue (2019) have a very rich background, containing a great amount of information, which can add a distracting effect on top of the impact of colours. On that concern, the following section illustrates a couple of studies.

1.3.2 Mirror mirror on the wall, what is pictured behind all? Influence of the background information

Intuitively, cognitive psychology tells us that more complex scenes, compared to simple ones, require more cognitive load to be processed (Löw et al., 2013). Wilkielman and colleagues (2003) reported that complex stimuli, such as background-rich pictures, can compromise perceptual and cognitive fluency (that is, the ease with which a stimulus is processed). Decreased fluency, then, influences the hedonic effect of pictures, which are perceived as less pleasant. Nonetheless, when the background is coherent with the main subject and informative it can ameliorate the visual processing of the picture: Caserotti and associates (2022), for instance, found that enriching the pictures of a donation request – depicting the room of a hospital – with medical equipment resulted in more and higher donations compared to a picture with lowly informative background, an effect that was mediated by how adequate the environment was perceived as in relation to the donation cause. Although this is, as for now, the only study considering the amount of background information in a donation context, its results are mirrored by marketing research. In their work, Maier and Dost (2017) found that, when presenting products with contextual background information, compared to presenting a product alone, the processing fluency increased, and it resulted in higher evaluations of the product itself. This was particularly true for ambiguous objects. Similar results were found by Wu and Li (2020) in a study on clothes commercials. Nonetheless, it is important to have the right equilibrium between the main subject of the picture and the background information: while having a context-coherent and informative background

can increase the pleasantness of ads, and the positive attitude of a donation appeal, by facilitating the processing of the picture, having too many elements can lead to the opposite effect, overloading attention and distracting the consumer (or donor), as found by Wang and colleagues (2018). Indeed, they found that when the picture background was too rich participants spent more time looking at it than looking at the product. Having a moderately filled background, compared to a heavily filled or an empty background resulted in higher purchase intentions.

To sum it up, it is important to thoroughly consider what colouring to use for a charity appeal to facilitate the generation of specific emotions in the viewer, which, as demonstrated and reported in the preceding paragraphs, can have a positive influence on the intentions to donate. In addition, controlling the background in a way that doesn't distract from the subject of the picture, while, if possible, adding the right amount of information on the cause possibly improves donations.

1.3.3 Considerations on the use of pictures in donation research

The research reported in the previous paragraphs clearly suggests that, when designing charity appeals every element – including the use of colours and the amount of information on the background – is important, and can help or hinder the desired impact of the request. Of course, the above cited dimensions are just a few of the potential factors contributing to the efficacy of an appeal: the number or the identifiability (Kogut and Ritov, 2004-2005), the direction of the gaze (Tong et al., 2021), or the facial expressions (examined in the following Chapter 2) of the depicted victims are just an example of other variables that can be at play. Although sometimes we find that all these factors (the colours, the background, the gaze and so on) are either actively manipulated or, at least, maintained constant in the different stimuli used, this is not always the case. Here are listed few examples, taken from the studies cited earlier in this chapter, and later in the following ones.

Starting from Choi and colleagues (2020), whose study I described earlier, the huge variability of the pictures used in different conditions can't pass unnoticed. For example, in their first study the sad appeal depicted a child in full figure, and the happy

appeal used a close-up portrait. In their second study, the sad appeal had two close-up portraits and the children look away from the camera, while the happy appeal contained two pictures of a group of happy children, all looking in-camera, similarly to the pictures they used in their fourth and fifth studies. Finally, in the third study the sad appeal depicted a full-figure photo of a child hiding his face, while the happy appeal depicted a portrait of a child looking in camera. Although they found a consistent effect of the combination of background colour and valence of the appeal, this effect might be influenced by other factors, such as: the interaction between the number of children and their facial expression (Li & Yin, 2021) and the eye-gaze of the beneficiaries (Tong et al., 2022). As another example, Västfjäll and colleagues (2015) always used portrait photos. Importantly, though, the photos differed in terms of gaze (sometimes in camera, sometimes away from camera), facial expressions (the children had a happy, a sad or a neutral expression), and background colours (in some pictures cold colours, like green, prevailed, in some others warm colours, like yellow or red, did). Again, these elements could have affected the outcomes. The appeals designed by Li and Atkinson (2019) also present some details worth noticing: in the positive appeal the child was shown with access to water (functioning fountain) and a generally neutral background (a concrete wall – uniform grey), while in the negative appeal the child was shown with empty bottles but no running water, and a second child appeared on the background – which contained, thus, more elements than in the happy condition. The presence of a second child in the negative appeal, together with the hope that could be delivered by the depiction of running water (there *is* the concrete possibility of making access to water easier) might have partially clouded the effect of the manipulation (here, the helping option: direct donation vs. cause-related gadget acquisition). Going on, Zemack-Rugar and Klucarova-Travani (2019) used neutral, happy and sad close-up portraits of children; the happy child looked in camera, the sad child looked down and the neutral child looks away from camera, in another direction. The picture background was white for the neutral child and black for the happy and sad children, while the message background was light-blue and white. Considering the findings on the combination between colours and facial expression, this might have influenced, even if slightly, the outcomes. A similar comment can apply to the research by Li and Yin (2021). The four

photos used are, in general, similar in terms of frame and number of elements present on the background. Nonetheless, two of the pictures, though have an overall warm colouring, while the other two have cold colouring, with the presence of some warmer spots.

The list could go on, but it is not the aim of this work to focus on these aspects. It is the aim of the current paragraph, though, to simply illustrate how the variability of pictures used can contribute to the seemingly contradictory findings in the field, and to highlight the importance of having a controlled set of stimuli to obtain outcomes that are, as much as possible, clean from the noise of other variables. Of course, it may be impossible to have all elements under control; nonetheless, what can be done is to keep the stimuli as simple and controlled as possible, which I tried at the best of my capacities when designing the experimental protocol and choosing the stimuli for the studies exposed in the present thesis.

Chapter 2

2.1 Of emotions, emotional display, and donations

In Chapter 1 I briefly overviewed the variability of the pictures used in different research, but sometimes even in the same set of studies, when investigating charitable giving and the impact of visual ads. This variability can generate ambiguous results, as the outcomes can be influenced by some variables that are not controlled for. In particular, studying the literature dealing with the effect of facial emotional expressions on the donation intentions, I realised that the existing results are inexplicably contradictory. Inspired by this ambiguity, in this chapter I will undergo a review of the literature on emotions and emotional expression, their evolutionary value, and their role in the expression of cooperative, prosocial, or altruistic behaviour. I will then discuss the existing studies on facial emotional expressions and donations, and present Study 1.

2.1.1 The evolution of emotions and emotional display

Emotions are a fundamental part of every individual's daily experience. We can show and infer emotions through many different modalities, from the use of facial muscles to behavioural patterns, the modulation of the voice (both verbal and non-verbal), touch (Keltner et al., 2019) and even through music (Nawrot, 2003). The immense scientific interest on affect and emotions, resulting in a wide corpus of scientific literature examining the development, expression, recognition, and communication of emotions in both human and other non-human animals, further proves how central they are in our lives. Through the years, several theories on emotions have been developed. Among the most famous we can account the evolutionary theory, according to which emotions and emotional expressions initially served as a physiological regulator, and then became, particularly in social species, an important part of the communication (Darwin, 1872; Anderson & Adolphs, 2014). Understanding the emotional state of other individuals (conspecifics, but also belonging to different species) can inform us about the surroundings (e.g. fear communicates the presence of a menace) and about the others' intentions (e.g. anger potentially prelude aggressive behaviour), guiding thus our own

behaviour (Preston & De Waal, 2002; Keltner et al., 2019). Thanks to the evolutionary advantage, the non-verbal behaviour related to specific emotions underwent a ritualisation process: they became exaggerated, more visible and distinctive, which made them more easily recognisable (Shariff & Tracy, 2011). The emotional displays, though, greatly vary across species: canids for instance mostly focus on the bodily expression of emotions (Correia-Caeiro et al., 2021), while facial expressions are largely used by all primate species (Parr & Waller, 2006; Palagi et al., 2020, Kret et al., 2020; Kim & Kret, 2022), with phylogenetically closer species displaying more similar patterns. In an extensive review, Kret and colleagues (2020) compared the facial, bodily and vocal display of emotions in human and non-human primates. Most of the basic emotions in primates share common muscular features (coded using the Facial Action Coding System, or FACS; see, for humans, Ekman and Friesen, 1978; for chimpanzees Parr and Waller, 2006) – and deliver similar social information: for instance, laughter in humans seems to derive, and is very similar to, the playful expression of other apes (showing teeth with an open mouth, accompanied by vocalisations), which is more intense and frequent when other individuals are present in both bonobos (*Pan paniscus*) and orangutans (genus: *Pongo*); smiling corresponds to showing teeth in other primates, which is used to increase social affiliation in chimpanzees (*Pan troglodytes*), Gelada baboons (*Theropithecus gelada*) and some macaques (genus: *Macaca*); the angry face is also shown by chimpanzees and bonobos to indicate aggressive intentions (which might prevent an actual fight). Interestingly, domestic dogs (*Canis lupus familiaris*) evolved the ability to discriminate and respond to human facial emotional features. As previously said, dogs mainly express and infer the emotional state of conspecifics using bodily patterns. When communicating with humans, though, they can easily read face expressions (Buttelman & Tomasello, 2013; Müller et al., 2015), and show more facial displays compared to when they are socialising with conspecifics (Kaminski et al., 2017). Moreover, humans process human and dog affective faces in a similar way (Schirmer et al., 2013). This is supposed to be a direct consequence of the domestication process (Waller et al., 2013), and further confirms the great evolutionary role of emotional expression in communication.

As written in the previous paragraph, emotional expression is a widely shared feature in the animal world, holding at a least a small portion of genetically determined inheritance. How much of the expression and recognition of emotion is innate, though, and how much is it socially learned? Several studies examined the development of facial emotional expressions through the course of life and the existence of cultural differences in both the expression and the recognition of emotions, providing some interesting insights on both the role of nature and nurture in the maturation of the specific features of emotional displays. I would like to first make a brief disclaimer: emotional expression is a multimodal function, including – but not limited to – facial features, bodily posture, touch, vocal expression, vagal responses (blush, tears, ...) and so on (Keltner et al., 2019). Nonetheless, I will here focus on the facial expressions, as they are the most studied features, as well as they are more relevant for the research questions addressed in this thesis.

Developmental studies showed that emotional expression is partially innate, while also focusing the attention on the role of social interactions in shaping the expression of emotions. In fact, human infants display some typical facial feature (joy, fear, anger, surprise) within the first 6 months of life, starting from a variety of more generic, partially interchangeable features that get more and more specific over time (Bennet et al., 2005). In their research, Bennet and associates (2005) examined the evolution and specificity of the emotional display to pleasant or unpleasant situations, comparing 4 months old (m.o.) and 12 m.o. infants. For instance, the experimenter would play and tickle the baby (pleasant situation), would hold the baby's arm still (uncomfortable situation), make the baby taste a sour food (disgust situation), or a masked stranger would enter and exit the room (surprising situation). Four m.o. infants showed an initial variety of unspecialised negative or positive facial expressions in the different situations. With the passing of time, though, they improved the specificity of the facial features, displaying more joyful expression in the tickle situation, more anger in the arm-restraint situation, more disgust in the sour-taste situation and more surprise in the masked-stranger situation. The more specialised performance of older infants seems to be related to both the development of the underlying neural structures (Hoehl & Striano, 2010), and the quality of social interactions with adults (Malatesta et al., 1989). A very

similar result was found in young chimpanzees, who innately show a series of emotional displays at birth, which then evolve in more specific patterns with age; the process is also influenced by the social feedbacks of human carers (Bard, 2003). In particular, orphaned chimpanzee infants were either reared by human carers, specifically trained to enhance the development of species-specific behaviours, or with peers, having very little interactions with their human carers, who were only present to provide health care. While both groups showed some species-specific emotional display since birth, the humane-reared chimps developed a richer variety of emotional behaviours, and expressed them more frequently compared to the peer-reared group. Hence, both humans and chimpanzees have an innate component of emotional expression, which is later shaped and refined through social learning.

The development of facial expressivity for emotions is parallel to – and strictly connected with – the development of the ability to recognise others's facial emotional expressions. Newborns are sensitive to changes in facial expressions already at 36 hours of life, and they become able to discriminate (distinguishing one expression from another) and categorise different facial expressions between the age of 5 and 7 months (Leppänen & Nelson, 2006). At around 12 months of age, children start using the facial expressions of adults as a cue to modulate their own behaviour and to deduce information about the environment: for example, they will approach an object or a person toward which the reference adult (registered video tape of the experimenter) expressed positive emotions (via facial expressions), while they will avoid an object or a person in response to which the reference adult expressed negative emotions (Mumme & Fernald, 2003). This shows that 12 m.o. infants are able not just to discriminate difference facial expressions, but also to attribute them a meaning. In addition, the ability to recognise emotional faces keeps developing and becoming more and more accurate with time (Chronaki et al., 2015). To study so, Chronaki and colleagues (2015) tested facial emotion identification in children ranging from 4 to 11 y.o., and adults. They found that the recognition accuracy was scars in pre-schoolers compared to the other groups, and that it improved with age, reaching an adult-like accuracy level at around the age of 11. Interestingly, they also found that the recognition of happiness and anger preceded the recognition of sadness. The recognition of emotional expression,

thus, seems to lay on an innate ability to discriminate changes in the facial features, that develops through childhood, probably supported by socialisation and social feedbacks, until the age of 11.

Importantly, research has unearthed the existence of cultural differences in both the expression and recognition of emotions, including some basic emotions which should be, by definition, universal. In fact, while the existence of such universally shared emotions is not in doubt, the intensity and frequency with which they are felt and the way they are externalised is shaped by the cultural and social norms. For example, in the Japanese culture expressing anger or fear is not well accepted; consequently, Japanese children are less exposed to fearful or angry faces (Kitayama et al., 2006), which results in a poor recognition of the characteristic features of those emotions, compared to people from the US and irrespective of the perceived intensity of the emotional expressions (Shioiri et al., 1999). Finally, differences are found not only between different countries, but even between different ethnicities within a same country (Matsumoto, 1993). In an emotion identification task, American citizens of African origin, compared to Caucasian and Asian origin, reported emotional expressions to have higher intensities; similarly, higher intensities were perceived by Hispano-Americans compared to Asian Americans.

To sum up, emotions and emotional displays are widespread among mammals, including, of course, humans. While generating from physiological and survival needs, emotions grew to serve a social need, through the use specific behavioural, vocal and vagal reactions to internal states (i.e. emotions), that are used to communicate one own's inner state and intentions, as well as to infer the inner state and intentions of others. Developmental, cultural and comparative studies support the existence of inherited patterns of emotional expressivity, that are, though, refined by social interactions and behavioural feedbacks from adult conspecifics.

2.1.2 Emotional expressivity and empathy as a mean to cooperation and pro-sociality

It is easily understandable how emotions can be of a great evolutionary value: they prevent individuals from facing recursive negative – and potentially dangerous – experiences and push them to look for positive and rewarding ones; they support survival by triggering the appropriate reaction to dangerous encounters (fight, flight, or freeze) and so on. Similarly, emotional displays deliver information about the individual's internal state and intention, thus, recognising others' emotions can increase social affiliation (playful displays and smiling), it can help prevent useless fights (for instance, by avoiding angry individuals), it can even inform about what is and is not morally accepted in a context: morally wrong actions provoke a sense of disgust, exactly as a food we don't like or a bad smell (Schnall et al., 2008; Danovitch & Bloom, 2009). Henceforth, emotions and emotional expression have a fundamental role in society and in the relationship with others; but do they also facilitate cooperation, and how?

One of the key factors at the base of cooperation, pro-sociality and altruistic behaviour is without any doubt, empathy. Empathy is not a monolithic construct: some scientists separate cognitive and affective empathy, defining as “affective empathy” the ability to share the emotional state of others, and as “cognitive empathy” the ability of understanding their experience and perspective (Davis, 1983). Personally, I prefer to use de Waal's definition (2007; de Waal & Preston, 2017), which considers empathy as formed by different levels of growing cognitive complexity – what he calls the “Russian Doll model”. According to de Waal, the very first, most antique layer of the empathic “Russian doll” is *emotional contagion*, which consists in the automatic reproduction of physiological and emotional activation at the sight of a distressed individual. Emotional contagion promotes altruistic acts in order to calm one's own distress by calming the other's but doesn't imply any form of concern for the other. The second layer is represented by *sympathetic concern*, including emotional contagion but also implying the appraisal of the other's state and concern for the distressed comrade. For instance, consolation behaviours are a form sympathetic concern. Third comes *perspective-*

taking. This is considered to be the most complex empathic level, as it implies the capability of putting oneself into the other's shoes, and understanding their specific situation and needs.

One of the proximal mechanisms for empathy seems to be related to the muscular imitation of one another's facial expression. A great number of studies have demonstrated that we respond automatically to emotional faces, with very early brain activations (Eimer & Holmes, 2002; Batty & Taylor, 2003) and with spontaneous facial mimicry, reproducing the other's facial expression (Dimberg et al., 2011), a behaviour that is also found in other non-human primates (Palagi et al., 2020). Mimicking another's facial expression facilitates the understanding of their emotions and improves empathic responses (Pfeifer et al., 2007; Braadbaart et al., 2013; Drimalla et al., 2019). Moreover, when spontaneous mimicry is present, we perceive social interactions as being of a higher quality (Zhou & Fischer, 2018). This gives us a first insight on how emotional displays can contribute to prosocial behaviours and cooperation, by physiologically promoting the understanding of the other's emotional state.

Considering a higher cognitive level, de Melo and colleagues (2014) proposed that we retrieve information about others' appraisals from their emotional expressions, which then lead to inferences about their mental and emotional states. Van Kleef (2008; Van Kleef et al., 2010) proposed a model to explain how emotional expressions are used in social contexts: the Emotion as Social Information (EASI) model. According to this model, we account for others' emotional expressions in decision making, but we use different paths according to the situation: when in a cooperative context, where goals are shared by the group and trust is high, we tend to use affective reactions to guide our behaviour. In other words, we align with others' emotional state and base decisions on the resulting emotions. When in a competitive context, instead, where goals are not shared and trust is low, we use others' emotional expressions to infer their intentions, and base decisions on their predicted behaviour. In addition, the same emotions might have opposite effect in cooperative vs. competitive situations: the expression of happiness or sadness improves cooperation in cooperative contexts and of competition in competitive contexts. The opposite pattern appears for anger, which decreases

cooperation in cooperative settings and increases cooperation, or push toward inaction, in competitive settings (Van Kleef, 2010). In line with it, de Melo and colleagues (2014) proved how smile induces positive emotions in a cooperative situation, while it provokes negative emotions when in a competitive situation. Very interesting is the finding that emotional displays of others influence decision-making even when trying to consciously ignore them (Alguacil et al. 2015): in an iterated Trust Game, players were seeing either happy or angry game partners. Although instructed to completely ignore the emotional expression, all players were faster in cooperative decisions in the happy condition, and faster in non-cooperative decisions in the angry condition. Beyond cooperation, research demonstrated that specific emotional displays (in particular fear and sadness) can also facilitate pro-sociality and helping behaviours. For instance, Newton and colleagues (2014) tested toddlers between 18 and 20 months in a helping paradigm: an actor staged several situations both in an experimental condition (i.e. the actor expressed the need for help) or in a control condition (i.e. the actor didn't express the need for help). In both conditions, the actor displayed either a sad or a neutral face. Toddlers helped the actor significantly more in the experimental condition, proving their understanding of the situation, and, more interestingly, they helped more the sad vs the neutral actor. In a different study, Marsh and Ambady (2007) asked their participants to read a scenario, describing a situation of mild distress for the protagonist, and then to express their sympathy toward the protagonist and their willingness to help. Participants had been primed either with a neutral or a fearful face before being presented with the scenario. Participants in the fearful condition expressed higher sympathy and higher willingness to help compared to participants in the neutral condition. Moreover, both indices positively correlated with the individual ability to discriminate fear (separately measured in a different task). Thus, participants better at recognising fearful expressions responded more to the fearful priming and showed greater sympathy and willingness to help the protagonist of the story.

When not having sufficient information about the social context, others' emotional displays are also used to infer it. In their study, Van Doorn and colleagues (2012) had their participants read about a not better-defined social interaction first between two people, and later between a group of people, providing either a written description or a

picture of the facial expression of one of the interacting parties, that could be happy (sign of affiliative and prosocial intentions) or angry (sign of negative and hostile intentions). Then, they asked participants to infer the nature of the interaction (cooperative or competitive) and the cooperative intentions of the described – or displayed – subject. Both for dual and group interactions, participants described the situation as cooperative in the happy face condition, and as competitive in the angry face condition, and attributed a more cooperative intention to the happy subject compared to the angry subject.

Interestingly, facial expressivity seems to be related to pro-sociality and cooperation not just for the communicative role of cooperative intents in a specific moment and by the use of specific facial displays (such as smiling), but also as a more general sign of a cooperative trait. A higher expressivity correlates with higher latent empathy in young children and pre-adolescents – which in turns predicts pro-social behaviours (Roberts & Strayer, 1996), and with higher cooperation rates in adults (Schug et al., 2010). Schug and colleagues (2010) video-recorded participants during an Ultimatum game.

Participants played both in the role of the proposer and the receiver, which allowed the researchers to have a behavioural measure of cooperativeness. As receivers, players only received unfair offers. The video recordings were coded in different moments, and only for the receiver condition: pre-game (10-20 seconds, the monitor displayed instructions), game (15-20 seconds, starting from the moment the offer was made by the proposer and finishing when the receiver made the decision to accept or refuse the offer), and post-game (30-second waiting period after the decision was made).

Cooperators (i.e., participants choosing the fair offer as a proposer) showed a much higher expressivity – in terms of frequency of emotional displays – during the response phase of the game. Observing a higher emotional expressivity for both positive and negative emotions in others, thus, can be used as a cue for individuating more cooperative individuals (and looking for affiliation with those individuals).

In conclusion, the display of emotional state correlates with cooperation and prosocial behaviour in various ways. Firstly, through emotional contagion we can share the other's emotional state, which facilitates prosocial behaviour. Secondly, from the

emotional expressions of others we can infer their intents, and this can guide social decisions: for instance, smiling promotes cooperation and helping by communicating affiliative intents, and anger communicates aggressive intentions, thus discouraging cooperation and helping. Finally, emotional displays deliver information about individual traits: more cooperative people are more expressive, using facial displays of emotions more often than their fewer cooperative counterparts. Thus, we can use the expressivity of others to infer whether they are inherently cooperative or not (modifying our behaviour accordingly).

2.1.3 About the use of emotional faces in charity ads

In the previous sections I illustrated the evolution of emotional expressions and their role in facilitating cooperation and pro-sociality. Because of their potential in eliciting empathic responses and prosocial behaviour, emotional faces are largely used by charities in donation ads. As briefly outlined in the introductory chapter, their effect is, though, still debated. Looking into the eyes of a sad child, while reading a charity appeal for a donation, we can empathise with the poor kid's suffering, and moved by their needs we can feel the urge to help. Nonetheless, sometimes the negative emotions aroused by the sad face can do the opposite and discourage donations. Looking at a happy child, on the other hand, can tune us to positive emotions that favour feelings of closeness and pro-sociality, but at the same time, a happy child is not perceived as needy as a sad one. I will here review the main literature on the topic, presenting both studies suggesting a positive effect of sad faces and the ones suggesting a positive effect of happy faces on donations. In Table 1 are summarised the papers discussed in the following sections.

TABLE 1. Overview of the studies cited in the present section, reporting the facial expression that was found to be favoured in donations. The brackets indicate that the advantage for that expression was weaker than for the other expression (for instance, only emerging under specific conditions). The table also reports the main dependent variables measured in each study.

Authors	Year	Happy face	Sad face	Variables
Barberini, et al.	2015		x	Sympathy, willingness to donate
Cao, Jia	2017	x	x	Willingness to donate, efficacy of donation
Genevsky, Knutson, & Yoon	2018	x	(x)	Willingness to donate, amount donated
Jang	2021		x	Willingness to donate
Kang, Lelivel, & Ferraro	2022	(x)	(x)	Willingness to donate, manipulative intent, sympathy, attitude toward the charity
Li, & Atkinson	2019	x		Willingness to donate, amount donated
Li, & Yin	2022	x	x	Willingness to donate, efficacy of donation
Pham, & Septianto	2019	x	x	Amount donated, sympathy, hope
Septianto, & Paramita	2021	(x)		Volunteering, amount donated
Small, & Verrochi	2009		x	Sympathy, amount donated
Tong, et al.	2021	x	x	Willingness to donate
Zemack-Rugar, & Klucarova-Travani	2018	x		Willingness to donate, efficacy of donation

2.1.3.1 Sad faces overrun happy faces

One of the most cited works on the effect of facial expressions in donation appeals is, most certainly, the one wrote by Small and Verrochi (2009). The authors presented a donation appeal for cancer research, using the pictures of kindergarten children with either a happy, a sad or a neutral face. They measured both the amount donated and the sympathy toward the child. Donations were higher for the ad using a sad child, compared to the ones using a happy or a neutral child, and no difference was found between the latter two. This effect was fully mediated by sympathy: participants expressed a much higher sympathy for the sad child, compared to both the happy and the neutral children. Again, sympathy toward the happy and the neutral child was the

same. In a similar fashion, Barberini and colleagues (2015) found that sad children elicit higher sympathy than happy children, in addition participants experienced a higher degree of emotional convergence when looking at the sad (vs. happy) child: participants exposed to the sad child reported more negative affect than participants exposed to the happy child, while in both groups there was no difference in the reported positive affect. As in the study by Small and Verrochi (2009), to higher sympathy corresponded more donations (in this case, measured as willingness to donate to the child). Also finding a higher willingness to donate to a sad child, compared to a happy child, Jang (2021) tested donation preferences as a function of the emotional display of the child. Participants were asked to assume they received a mail from a charity, asking for a donation. According to the condition, the email asked for either a one-time donation, a monthly donation, or a sponsorship, either classical (implying both monthly donations and mail correspondence between the sponsored child and the donor) or a “pen-pal” sponsorship (only implying monthly correspondence as a long-distance support). Participants could choose one of eight recipients (4 for each facial expression: happy or sad). In the one-time donation and in the monthly-donation conditions, sad children were chosen more often than happy children, while no difference between emotions was found in either of the sponsorship condition. The possibility of having a direct contact with the beneficiary of help through a mail exchange, thus, significantly decreased the difference between the happy and the sad children. In one more study (Kang et al., 2022), the effect of a sad vs. a neutral and a happy face on donation, through elicited sympathy, was tested. In addition, the authors measured the impression of manipulative intent (IMI), as a potential mediator, and the attitude toward the charitable campaign, as another dependent variable. In line with previous research, they found that sympathy was higher for the sad child, compared to both the happy and the neutral child. Again, sympathy predicted the intent to donate. Interestingly, though, they reported that the use of sad faces significantly increased the perception of a manipulative intent from the charity, and consequently it caused more negative attitudes toward the campaign and had a negative effect on the willingness to help, compared to the happy and neutral faces, unveiling one dark side of using sad children to boost donations.

2.1.3.2 Happy faces overrun sad faces

Adding on it, Zemack-Rugar and Klucarova-Travani (2018) suggested that the picture of a child in distress can generate, in the viewers, the idea that a donation wouldn't make any difference. On the contrary, a happy face can help the donors envisage the good they can do. To test the hypothesis, they presented either a sad or a happy face, together with a charity advertisement. They measured both the donation intentions and the perceived efficacy of the donation. Participants in the happy condition expressed a higher willingness to donate than participants in the sad condition. Moreover, the perceived effectiveness mediated the effect: donations to the happy child were perceived as more effective than donations to the sad child, confirming the authors' intuition. In another study, Li and Atkinson (2019) explored the effect of emotional expressions and its interaction with the helping modality. They used pictures of either happy or sad children and a brief sentence, asking for help. Participants could either make a direct donation or help by buying campaign-related products (between subjects). When making a direct donation, participants showed a higher willingness to donate in the happy vs. sad condition. No difference was found in the campaign-related product sell condition. The same pattern was found for the amount donated, which was higher for the happy (vs. sad) child in the direct donation and was around the same for the happy and sad children in the product-buy condition. In a series of three studies Septianto and Paramita (2019) investigated the effect of facial emotional expression (sad vs. happy) in combination with a sad-valence charity appeal (weak vs. strong appeal). The weak message only contained a brief description of the victim's situation (i.e., "was born with a disability"), while the strong message contained more information on how their situation affected the victim's life. The authors found that combining a happy face with a strong, sad appeal optimises the prosocial behaviours of the participants. Prosocial behaviour in the weak message didn't differ for the happy and the sad faces. This result was replicated when asking for volunteering (study 1), or a donation (study 2 and 3). Moreover, the authors measured the perceived effectiveness of donations (study 3), which mediated the results in the strong, but not in the weak sad message condition.

2.1.3.3 Research with ambiguous findings

Finally, several studies found that both happy and sad faces can elicit higher donations compared to the other expression, under certain circumstances. For example, Pham and Septianto (2019) tested the interactive effect of emotional expression and type of message, using pictures sad and happy children and adults, in two different studies, and using either a request message (i.e. “Please help”) or a recognition message (i.e. “Thank you”). Additionally, they measured participants’ sympathy and hope, through a series of questions, and tested their mediation effect on donations. For both children and adult beneficiaries, happy faces received higher donations in the recognition message condition, while sad faces received higher donations in the request message condition. Moreover, participants seeing a happy beneficiary reported higher levels of hope, and participants seeing a sad beneficiary reported higher levels of sympathy, in line with the research described in the above paragraphs. Hope and sympathy, then, mediated the effect of the emotional expression on donations, for the recognition and the request messages respectively. Genevsky and colleagues (2018) also studied the interaction between facial expression and message. In particular, in a series of experiments they analysed whether the coherence, in valence (positive or negative), of the message and the picture would improve donations, compared to when the picture and the message have different valences. They generally found a main effect of emotional expression, with happy beneficiaries receiving more and higher donations than sad beneficiaries, and a coherence effect, in that, when the message was positively framed, happy beneficiaries received more, and when the message was negatively framed, sad beneficiaries received more. While the coherence effect always emerged, though, the main effect of emotion was only significant in 3 out of 5 studies. Cao and Jia (2017) focused their attention on the psychological involvement of the donor, and how it would mediate the effect of facial expression. Participants would see a charity advertisement, including a picture of a sad or a happy child. After expressing their intention to donate, they would answer to a question regarding the level of psychological involvement in the cause. No main effect of the facial expression emerged, but its interaction with psychological involvement was significant: when the psychological involvement was

low, the sad beneficiary received more donations than the happy beneficiary, while the reverse was true when the psychological involvement of participants was high. Tong and colleagues (2021) tested whether the gaze direction could influence the effect of the emotional display. They tested four conditions, in a 2 (sad vs. happy) x 2 (direct gaze vs. averted gaze) design. In the direct gaze condition, the child was directly looking in the camera (and thus, at the participant), while in the averted gaze the child was looking away from it. The eye-gaze moderated the effect of emotional expression, in that the donation intentions of participants were higher for the happy child in the direct-gaze condition, and for the sad child in the averted gaze condition. Finally, Li and Yin (2022) tested how the number of beneficiaries affected the effect of the emotional display on donations. The effect of the number of victims on donations has been extensively studied (Kogut & Ritov, 2005; Västfjäll et al., 2015; Sharma & Morwitz, 2016; Harel & Kogut, 2021), but its interaction with the emotions displayed by the victim was not. In their study, Li and Yin tested this effect in a 2 (happy vs. sad) x 3 (1, 8, 12 beneficiaries) paradigm. They found that, in the sad condition, increasing the number of beneficiaries decreased the willingness to donate; in the happy condition, on the other hand, donation intentions followed an inverse u-shape, in that donation intentions were higher for the eight beneficiaries, compared to both the one-beneficiary and the 12-beneficiary conditions. This effect was mediated by the perceived effectiveness of the donation, which followed the same pattern, linearly decreasing with an increasing number of beneficiaries in the sad condition, and resulting in the same u-shaped curve in the happy condition.

The paragraphs above show how variable are results on the effect of happy or sad faces in raising donations. Many variables are at play, that could moderate the influence of emotional expressions and help explain the difference in outcomes. Nonetheless, even when only considering the main effect of emotions, results are contradictory. One observation worth making is that paradigms and, in particular, the photographs' characteristics differ from one study to the other. For instance, the beneficiary of help are sometimes pictured in portraits (Kang et al., 2022; Tong et al., 2021; Barberini et al., 2015) and sometimes in full figure (Tong et al., 2021). Sometimes the gaze is not controlled for (Zemack-Rugar & Klucarova-Travani, 2018). Sometimes the background

is almost not present (Kang et al., 2022; Barberini et al., 2015), and some others it occupies a big portion of the picture (Septianto & Paramita, 2021; Li & Atkinson, 2019). As illustrated in Chapter 1, all those elements could have a (covert) impact on the decisional process, and can interact with the effect of the emotional expression depicted in the appeal. The variability of the stimuli used in the different research paradigms listed above could partially contribute, thus, to the contradictory outcomes. Being emotional expression a variable strongly influenced by a number of mediators, it is fundamental to thoroughly consider the details of the pictures used in the experimental designs. This need led to the first study presented in this thesis, for which I searched, and used, a validated database containing a wide number of children's pictures, all taken with the same background (white) and frame (portrait), and represented with different facial expression, later described in the Method section.

2.2 Study 1

2.2.1 Introduction

Study 1 focuses on the simple effect of the facial emotional expression of the target of donation (a female child). As described earlier in this chapter, literature is still controversial regarding the effect of displayed emotions on the donors' behaviour. The aim of the study is, thus, to disentangle the controversy on the use of sad and happy faces in charity ads, testing how the two specified emotions (happiness or sadness), compared to a neutral expression, can influence donations. The use of a validated set of stimuli, with the same framing and neutral background (white), aims to reduce potential noise in the behavioural data derived by the covert influence of characteristics of the pictures not strictly related to the main variable (i.e. emotional expression).

I hypothesised that:

H1. Both the happy and sad child would elicit more, and higher donations compared to the neutral child.

Due to the inconclusive results of the existing literature, I didn't have an hypothesis on which of the two emotional expressions (happy or sad) would elicit more and higher donations. This question was considered in an exploratory analysis.

2.2.2 Methods

Participants. Participants located in the US were recruited online via MTurk, in exchange for \$.50, after giving their consent online. I recruited a total of 256 participants (41% females; mean age = 37.6 years \pm 10.5).

Materials and procedure. The visual stimuli used in this study come from a validated dataset, namely the Children Affective Facial Expressions Dataset (CAFE – LoBue & Thrasher, 2015; LoBue et al., 2018). This dataset provides close-up photos of children of different ethnicities displaying several affective facial expressions (e.g. happiness, sadness, anger, disgust, fear, neutral...). All the pictures included in the dataset share a common framing and a neutral white background. Children in all pictures also directly

look at the camera. The choice of this dataset was strongly determined by the richness of pictures, and their rigour, making it ideal for an experimental design specifically looking at the sole effect of emotional expression.

To build and host the experiment I used Qualtrics software (<https://www.qualtrics.com>). Participants were randomly assigned to one of three conditions, manipulated between-subjects. The conditions only differed by the facial expression displayed by the child: happy (n = 86), sad (n = 86) or neutral (n = 84)(see Figure 1). In all conditions, a picture of a child (CAFE dataset, described above) appeared in the top centre of the screen with a text description below it. The text briefly described the health and economic situation of the child (here named Nayani), as follows:

“This is a picture of Nayani. Nayani suffers from immunodeficiency, a disease that makes her particularly vulnerable to bacterial and viral infections. Because of her condition, she needs continuous treatment and expensive drugs. Her family is poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.”

After the presentation of the stimulus (picture and text), the participants decided whether to donate to the child (yes/no) and if so, reported an amount up to \$100 using a slider. At the end of the experiment, we collected basic demographic information. Full materials including scenarios, pictures and questions are reported in the Appendix 1.

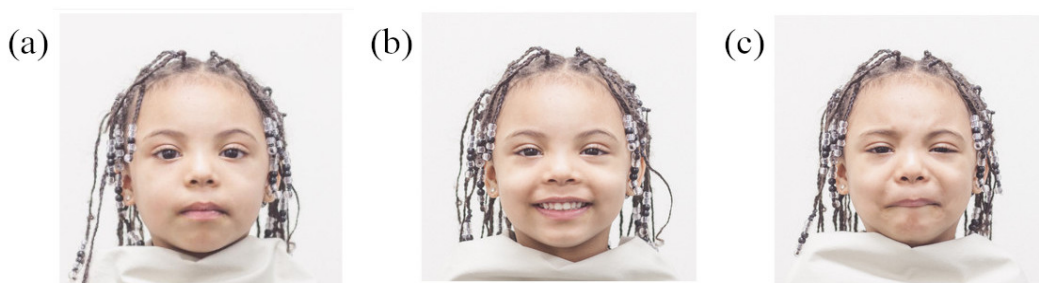


Figure 1: The picture shows the three photos used in the three different conditions. Specifically: the neutral face (a), the happy face (b) and the sad face (c).

2.2.3 Results

Descriptive statistics. Table 3 displays the descriptive statistics, namely the proportion of people willing to donate (WTD) and the average donations per condition.

TABLE 3. Willingness to donate (%), and donated amount (mean, SD) in each condition of Study 1.

	Conditions					
	Neutral	N	Happy	N	Sad	N
WTD	60.71%	84	56.98%	86	60.47%	86
Amount	\$39.90	51	\$55.00	49	\$44.79	52
Mean (SD)	(\$2.29)		(\$35.50)		(\$30.10)	

Willingness to donate. To test for the influence of emotional on the willingness to donate, I ran a logistic regression with emotional expression as independent variable and willingness to donate as dependent variable. No effect emerged ($b = -.004$, $SE = .16$, $p = .98$; McFadden: 0.001).

Amount donated. For the amount donated, participants who were not willing to donate were removed from the analysis, leaving a final sample of 152 participants. I conducted a linear regression with the emotional expression as the predictor. Results showed that participants donated more money to the happy child compared to the neutral child, $b = 15.20$, $SE = 6.33$, $t = 2.40$, $p = .02$), while there was no difference between the neutral and the sad children ($t = .79$; $p = .43$). No difference emerged between the happy and sad child ($t = 1.63$, $p = .10$).

2.2.4 Discussion

I did not find differences regarding willingness to donate to children expressing different emotions. However, participants donated higher amounts to the happy beneficiary compared to the neutral one, but not to the sad compared to the neutral one. My initial hypothesis is, thus, only partially confirmed. Interestingly, although no significant difference emerged when comparing the amount donated to the happy and the sad children, the results pointed toward a slightly higher donation to happy children

than sad ones. Yet, the difference between the sad and the happy face remains unclear. One possibility for this could depend on other factors that were not measured. For instance, different people may have a different perception of the effectiveness of the donation and this perception could shape how they decide to help children expressing different emotions, as suggested by previous studies (Västfjäll et al., 2015; Cao & Jia, 2017; Zemack-Rugar, & Klucarova-Travani, 2018). To investigate this point, in Study 2 I tested whether the perceived effectiveness of the donation could mediate the results. In addition, although Study 1 showed that happy faces are, somehow, favoured to sad, this may not be the case when each of these facial expressions is presented in a comparative setting. Study 2 also addresses this question.

Chapter 3

3.1 Enhancing perceived donation efficacy to improve giving

In this chapter I will zoom in on one of the factors, previously mentioned, that has a big role in charitable giving: the perceived efficacy of the donation. I will describe the relation between perceived efficacy – and pseudo-inefficacy – and the decision to donate. It will follow a section introducing the concept of reference point and evaluation mode in the context of prospect theory, then applied to the donation setting and to my research. Study 2, investigating the joint effect of emotional expression and evaluation mode on donations, and including perceived efficacy as a mediator, will close the chapter.

3.1.1 Efficacy, pseudo-inefficacy and donation intentions

Self-efficacy is defined as the beliefs about the efficacy of one own's actions in producing the desired result. Self-efficacy strongly influences the initiation of action, and the effort put into that action (Perrykkad et al., 2022). As Perrykkad and colleagues (2022) stated, when confronted with the suffering of others, beliefs on how efficient an action can be in alleviating others' condition is likely to play a role in how we respond, and in deciding whether to help or not. Applied to charitable giving, perceived efficacy of the donation is a proven and strong factor guiding donation decisions. In their study, Iyer and colleagues (2012) investigated the effect of the attitude to help, as a personality trait, and the perceived efficacy of the donation, on willingness to donate. They found that perceived efficacy of donating had a strong positive effect on the decision to donate, even when controlling for the personal attitude to help. In addition, their participant pool consisted of regular donors, proving that even individuals who have a general prosocial tendency and donate regularly rely on how efficient they think their contribution would be, when making donation choices, further validating its role in charitable decisions. Efficacy can also be actively manipulated in order to increase donations. For instance, Hershberger and Hair (2022) asked their participants to make a (hypothetical) donation and presented them with a donation request which either

included or not information about the efficacy of donations (i.e., when the information was present, they specified how every dollar raised by the campaign would be used to fund a medical exam for a child). When the efficacy information was present, donation amount was higher. Furthermore, Sharma and Morwitz (2016) studied how boosting perceived efficacy can help overcome the negative trend of lower donation intentions when asked to help more than one beneficiary. While presenting a high number of potential beneficiaries of donation usually decreases donation intentions (Kogut & Ritov, 2005a; Västfjäll et al., 2015; Harel & Kogut, 2021), Sharma and Morwitz proved that by increasing perceived efficacy it is possible to enhance donations to multiple beneficiaries. In addition, several studies presented in the previous chapter demonstrated the role of perceived efficacy in mediating the effect of emotional faces in charitable giving, and again showed that to an increased perceived efficacy of the donations corresponded higher donation intentions (Cao & Jia, 2017; Zemack-Rugar & Klucarova-Travani, 2018; Li & Yin, 2022). In particular, Zemack-Rugar and Klucarova-Travani (2018) showed how happy faces can help donors foreseeing the positive effect of helping, boosting their perception of the efficacy of donating, while, on the contrary, sad faces can work against it, by eliciting negative emotions, decreasing the perceived efficacy and, consequently, donations. Supporting this findings, Västfjäll and colleagues (2015) found that negative feelings, elicited by negative-valence pictures, can cause a decrease in donations even when not strictly correlated to the donation cause itself. To investigate it, they first tested whether seeing the beneficiary of the donation alone vs also seeing several children who can explicitly not be helped affects the positive feelings of donating and, consequently, donations. Results showed that an increasing number of children who can't benefit from the donation decreases the positive feelings of donating to the single child who can benefit from it, and the number of donations decreases accordingly. Secondly, they tested whether this effect was specifically caused by the impossibility to help all the children, or whether feeling negative emotions, even unrelated to the task, can trigger the same effect. They used the same paradigm of their first study, showing the photo of the beneficiary of help, but pairing it not with "un-salvageable" children but with other negative-valence pictures (e.g., scary pictures, like a gun or an aggressive dog, or disgusting pictures). They

obtained the same results: to an increasing number of negative pictures corresponded decreased positive feeling toward the donation and, consequently, a decreased number of donations. The authors named this effect “pseudo-inefficacy”, stating that eliciting negative feelings when asking for a donation can decrease the perceived efficacy of the donation, and thus reduce donation intents.

To sum up, perceived efficacy of one own’s donation has an important role in donation decisions, increasing giving intentions when the donation is perceived as having a positive impact (high efficacy) or decreasing them when the donation is perceived as having a low or null impact (low efficacy). Perceived efficacy mediates the effect on donation of several factors, including facial expressions. Study 2 explores one possible way to improve perceived efficacy using facial expressions in a comparative setting. The following sections introduce the theoretical framework of this comparative context and its application to the experimental paradigm.

3.1.2 Brief introduction to Prospect Theory, the concept of reference point, and its application to the donation context

Most of the concepts used here are borrowed from behavioural economics, and specifically from Prospect Theory. First theorised in 1979 by Kahneman and Tversky, Prospect Theory describes the perception of gains and losses in the context of risky decision making. The fundamental idea on which the theory is based, and that finds confirmation in many experimental results, is that losses are weighted more than gains, or, in other words, a same amount is perceived differently when we lose it and when we gain it; specifically, it’s perceived as higher when it’s a loss, compared to when it’s a gain. When plotting the value function, then, we can see that the curve relative to losses is steeper than the curve for gains (Figure 2). The flexing point of the curve is referred to as *reference point*; outcomes falling above this reference point are coded as gains and those below as losses. Importantly, the reference point is not pre-determined and absolute (Werner & Zank, 2018), but is relative to the context (van Osch et al., 2006; Wang et al., 2015) and can be based on the previous conditions (Small, 2010; Sautua, 2022) and goals (Heath et al., 1999). For instance, when setting a specific goal gains

and losses are determined by reaching (and surpassing) the goal or by not reaching it, respectively, and irrespective of the absolute value of the outcome (Heath et al., 1999). Reference point can also be actively manipulated, for example by redirecting the attention to past or future losses, shifting the reference point either to the past condition (past losses), or the current condition (future losses) in evaluating a risky decision (Schwartz et al., 2008).

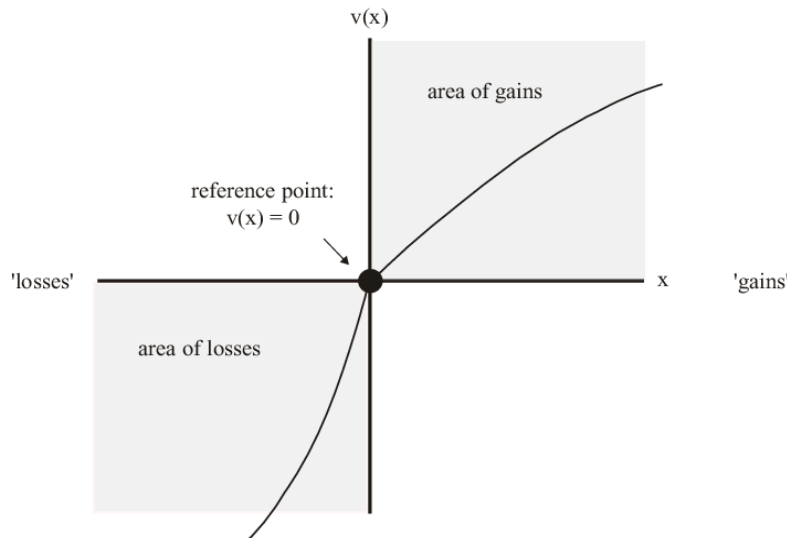


Figure 2: Visual representation of the value function. The loss curve (below the reference point) is steeper than the gain curve (above the reference point).

Applied to charitable giving, losses can be framed as the cost for oneself (i.e. the resources spent to help), while gains can be framed as the benefit for the receiver (i.e. the improvement of their condition, as a consequence of the donation) or for the donors themselves (in terms of positive emotions following donations, i.e. warm glow) (Ferguson & Lawrence, 2019; Rubaltelli et al., 2020; List et al, 2021). Again, costs and benefits are relative to a reference point, which is, also in the context of charitable giving, not fixed or absolute, but context-dependent. For instance, Small (2010) showed participants a text about either someone with a chronic condition (e.g. born blind) or someone experiencing a sudden condition (e.g. loss of sight following an accident). The victim of a sudden loss elicited higher sympathy, and was thought of as suffering more than the victim of a chronic condition, the reference point being, in this case, the

previous condition of the victim. Moreover, they were also perceived as more deserving of help compared to victims of a chronic condition. As such, victims of a sudden loss were perceived as experiencing a bigger loss compared to victims of a chronic condition, the difference between the previous state (reference point) and the current state being larger for the former than the latter. Interestingly, Small found that when evaluating both an acute and a chronic condition together, in a joint evaluation, while still reporting the perception of a higher suffering for the victims of a sudden loss, both victims were considered equally deserving of help. The author explains this change in the following way: when evaluating the victims' conditions in a separate setting (either just the chronic condition or the sudden condition), participants overweight the attributes that are easily evaluated (i.e. the loss compared to the previous condition of the victim) and ignore, or underweight other attributes, more important but harder to evaluate without an explicit reference point. This explanation follows the Evaluability Hypothesis (Hsee, 1996), which is better explained in the next section.

3.1.3 Evaluation mode and the Evaluability Hypothesis

Hsee (1996; Hsee et al., 1999) introduced the Evaluability Hypothesis to explain preference reversal when choosing between products: when evaluating two (or more) items separately (separate evaluation: SE), people show a preference for one, while when evaluating the same two (or more) items together (joint evaluation: JE), people show a preference for the other item. This phenomenon is attributed, by Hsee, to the difficulty of evaluating some important attributes of the product without a reference point (in SE), which become easier to evaluate when the two products are compared. As such, when evaluating an item alone, we base our judgement on attributes that are easy to evaluate, although they might not be very salient to the quality of the item itself, and we tend to ignore, or weight less, more important attributes that are, though, harder to evaluate (Hsee, 1996; Hsee et al., 1999; Gonzalez-Vallejo & Moran, 2001). To illustrate a classical example (Hsee, 1996): participants could evaluate two music dictionaries and had to decide how much they would be willing to pay for one or the other (between subjects). The dictionaries were presented with either one of the two dictionaries (SE), or with both dictionaries together (JE). Information about the two items was provided,

concerning the number of entries and the maintenance condition (dictionary A: 10.000 entries, perfect conditions; dictionary B: 20.000 entries, cover ruined). When presented separately, the dictionary with less entries but with an undamaged cover was valued more (in terms of how much people would spend to buy it) than the dictionary with more entries, but the cover slightly ruined. The pattern was reversed when presenting both dictionaries at the same time. In this example, the number of entries would be a fundamental attribute for the dictionary, while the conservation state (not compromising the function of the dictionary) is irrelevant. Nonetheless, in a separate evaluation it is hard to determine the actual value of the number of entries (10.000 entries, compared to what?), thus the damage on the cover gains more weight in judging the item. On the contrary, when having the possibility of comparing the two items, the attribute which was hard to evaluate (the entries) becomes easily evaluable, and judgement is based on it – being a more salient characteristics for determining the quality of the item. A joint evaluation, thus, can facilitate judgement by providing a reference, when the information is not enough to evaluate the item alone.

In the next paragraph I will illustrate some examples of the use of evaluation mode in the context of charitable giving, reproducing a preference reversal (or a preference change) when the options are presented in a comparative mode vs. when they are presented individually.

3.1.3.1 Evaluation mode and donation studies

Research on evaluation mode and charitable giving is not yet particularly diffuse, but the existing studies show promising results. For instance, Caviola *et al.* (2014) found that overhead costs drove participants' decision to donate to a charity in SE, whereas charities' efficacy (e.g., how many people were saved for every \$1000 donated) drove decisions in JE. In this case, being the costs more salient than the benefits (see the paragraph about Prospect Theory) and the benefits (here, the efficiency of the charity) hard to evaluate without a reference (is the number of people helped with \$1000 a big number, or a small number?), costs are used as the main factor in judging where to allocate a donation when no comparative information is provided (SE), while the efficacy of the charity is used when a comparison is possible, in JE. In another study,

Caserotti and colleagues (2019) showed that presenting two donation appeals in JE increased participants' perceived benefits and decreased the perceived costs of the most important cause compared to when the same cause was presented in SE. Some other studies used evaluation mode to try reduce the single-victim effect (Kogut & Ritov, 2005b; Garinther et al., 2019). This effect, which is recurrent in donations, reflects donors' preference for helping single victims, compared to a group of victims (Kogut & Ritov, 2005a; Slovic, 2007; Västfjäll et al., 2014; Lee & Feeley, 2016). Clearly, this becomes problematic when the number of people in need increases (for instance, as a consequence of a natural disaster or a war), as the help they receive will be reduced. To test whether changing evaluation mode could help reduce the single-victim effect and increase donations for groups, Kogut and Ritov (2005a) designed an experiment with two separate evaluation conditions, and a joint evaluation condition. In the SE conditions, participants would either see the picture of a single person in need or of a group needy. In the JE condition, participants saw both the single person and the group together, and they could decide to allocate help to either the single person, or the group. The single-victim effect was replicated in the SE condition; in the JE condition, as predicted, the donation preference was reversed, and participants donated more to the group compared to the single victim. The same results were obtained in a very similar paradigm by Garinther and associates (2022). Finally, Erlandsson (2021) examined how evaluation mode impacts some helping effects, such as the identifiable victim effect and the proportion dominance effect. The main result was that these effects were either amplified or reduced in JE, depending on what attribute was easier to evaluate. For instance, concerning the proportion dominance effect, the proportion of people helped was easier to evaluate in SE while the total number of people helped was easier to evaluate in JE, resulting in a weaker proportion dominance effect.

The above cited research shows how using a joint evaluation can improve giving: a comparative setting can help evaluating some attributes that are harder to consider when there is nothing to compare them to (i.e., a reference point). In the frame of the present work, I decided to manipulate the evaluative setting to try shape the effect of emotional expression on donations.

3.1.3.2 Setting the ground for the next experimental study

As stated earlier, perceived efficacy is a strong drive in charitable giving. Some research has proven that a negative emotion, for instance triggered by a sad face, can negatively affect perceived efficacy and lower donations (Västfjäll et al., 2015; Li & Yin, 2022), while a positive emotion, as delivered by a happy face, can increase perceived efficacy and, consequently, donations (Zemack-Rugar & Klucarova-Travani, 2018; Li & Yin, 2022). Based on Prospect Theory, these results could mean that a sad face, delivering the information that donations wouldn't make a difference, represents the "loss" part of the function, while the happy face, represents the "gain" part of the function. The absence of explicit information on the actual efficacy of a donation, though, can make it harder for participants to evaluate how much they can really help the child. Not having any hint to base their evaluation on, they can only rely on the emotional reaction to the child's face (representing here the easy-to-evaluate attribute), which, as previously stated, can be tricky.

Maintaining a similar setting (that is: not specifying the efficacy of the donation) while providing at the same time the possibility of a comparison, could help participants evaluate the child's condition, and the effect of a potential donation, differently. More in detail, the idea here presented is to mimic a joint evaluation condition by pairing the beneficiary of the donation (either sad or happy) with a neutral-faced child. Doing so might help set a new reference point (the neutral face) and might allow people to overcome the pseudo-inefficacy caused by seeing the sad child alone, reducing the negative effect of the sad child on willingness to donate (similarly to Small, 2010; see paragraph 3.1.2). A consideration is needed, though: will the presence of a second child not reduce donations? Previous research proved that having multiple victims, especially when they are not the beneficiaries of help, can hinder donations (see Kogut & Ritov, 2004-2005, Västfjäll et al., 2015). I argue that, using the above-proposed setting, this should have a low impact. In fact, what emerges from the studies by Västfjäll and colleagues (2015) is that the proximal cause of pseudo-inefficacy, resulting in lower donations, can be found in the negative emotions triggered in the donors, no matter if they are elicited by not helping the other children, or by unrelated negative pictures. In

addition, the photos of the children not helped also include pictures of very sad children, which might enhance the negativity of the viewer. On the contrary, in my study the child that can not be helped holds a neutral expression, while the sad child is the target of help. This, as suggested above, might help decrease the negative emotions connected to not being able to help the other child and, the associated pseudo-inefficacy. Thus, I hypothesised that with the inclusion of a child with a neutral expression (JE), people should perceive a donation to a sad beneficiary as more effective in improving the recipient's life conditions than in a SE, and they should not be conditioned by emotions too negative in the presence of the second child. Hence, evaluation mode would indirectly affect people's decisions through the perception of the effectiveness of the donation.

On an important note, the joint evaluation here proposed is not "pure": participants didn't see the sad and happy child together, as it would happen in a strict joint evaluation, but they saw either the sad or the happy child paired with the neutral child. Moreover, donations were possible to the emotional child only, the neutral child serving solely as a comparison. For practical reasons, though, I will keep the use of the terms "separate evaluation", when the children are presented alone, and "joint evaluation" when the children are presented in the comparative setting. The next section describes Study 2 in detail.

3.2 Study 2

3.2.1. Introduction

Following Study 1, I was interested in both understand why sad children receive lower donations and trying to fill the gap between happy and sad beneficiaries. In order to do so, and in line with existing literature, I measured the perceived efficacy of the donation to both the happy and the sad beneficiary and manipulated evaluation mode – by presenting the target child either alone or paired with a second child – to study if, and how, it would modify donors' behaviour.

I hypothesised that:

H1. Evaluation mode should moderate the effect of emotional expression on perceived efficacy. Specifically, participants should perceive their donation toward sad faces as more efficient in JE than in SE. This effect should be weaker (or eliminated) for happy faces.

H2. Perceived efficacy, in turn, should lead to a higher willingness to donate (yes/no) and a higher amount donated.

3.2.2 Methods

Participants. Participants located in the US were recruited online via MTurk, in exchange for \$.50, after giving their consent online. I recruited a total of 267 participants from the United States (55% females, mean age = 39.4 years \pm 12.3).

Materials and procedure. To build and host the experiment I used Qualtrics software (<https://www.qualtrics.com>). I used a 2 (emotion: sad vs. happy) x 2 (evaluation mode: joint vs. separate) between-subjects factorial design. After giving their consent online, participants were randomly assigned to one of the four conditions. The stimuli for this study were taken from the same picture database used for Study 1, the CAFE database. The stimuli used in the four conditions are represented in Figure 3. In SE, the picture of either a sad or a happy child (Nayani) was displayed in the centre of the computer screen, together with a text stating the child's name and health condition, as in Study 1:

“This is a picture of Nayani. Nayani suffers from immunodeficiency, a disease that makes her particularly vulnerable to bacterial and viral infections. Because of her condition, she needs continuous treatment and expensive drugs. Her family is poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.”

After reading the paragraph, participants were asked whether they would be willing to donate to Nayani (yes/no). Those who said yes chose any amount up to \$100 on a slider. Next, they answered questions about how effective the perceived their donation was – or would have been, in helping Nayani (5-point Likert scale, from 1 = *not at all effective* to 5 = *very effective*). In JE, participants saw the pictures of two children (Nayani and Oya). Nayani either displayed a sad or a happy face, while Oya always displayed a neutral expression. The position (left-right) of the beneficiary of help, Nayani, was counterbalanced between participants to control for order effects. The text described the situation of both children, but participants could only help Nayani. The text description was the following:

*“The picture on the left is a photo of [Oya/Nayani], the picture on the right is a photo of [Nayani/Oya]. Oya and Nayani suffer from immunodeficiency, a disease that makes them particularly vulnerable to bacterial and viral infections. Because of their condition, they need continuous treatment and expensive drugs. Their family are poor, and cannot afford the costs of the treatments. If you wish, you can help **Nayani** with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.”*

Then, participants answered the same questions as in the SE conditions. At the end of the experiment, basic demographic information were collected. Full materials can be found in the Appendix 2.

Separate Evaluation



sad

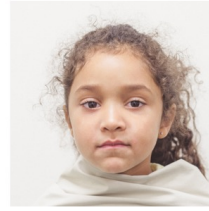


happy

Joint Evaluation



sad vs. neutral



happy vs. neutral

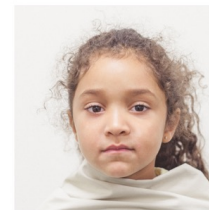


Figure 3: The picture shows the different stimuli used in the four experimental conditions. On the left, the sad and happy SE conditions, on the right the sad and happy JE conditions. Here, both JE conditions have the target child on the left, but the target side was counterbalanced between participants throughout the experiment.

3.2.3 Results

Descriptive statistics. Table 3 displays the descriptive statistics, namely the proportion of people willing to donate, the average perceived efficacy of the donation, and the average donations per condition. In Table 4 are reported the correlation values between the main variables of interest.

Mediation analysis. To test for Hypothesis 1 and 2, I conducted a moderated mediation analysis using the *lavaan* package in R (Rosseel, 2012). I tested whether the interaction between emotional expression and evaluation mode predicted the decision to donate through perceived efficacy. The effect of the emotional expression on perceived efficacy was moderated by evaluation mode ($b = -.48$, $SE = .22$, $p < .05$). Specifically, the perceived efficacy associated with the sad face was higher in JE than SE ($b = -.53$, $SE = .23$, $p < .05$), whereas that associated with the happy face did not change between the two evaluation modes ($b = .28$, $SE = .23$, $p = .23$)(see Figure 4). In turn, perceived

efficacy predicted the decision to donate ($b = .16$, $SE = .02$, $p < 0.001$), thus showing a significant indirect effect ($b = -.08$, $SE = .04$, $p < .05$). I ran the same mediation model on the amount donated, which, on the other hand, didn't reveal a significant direct or indirect effect ($b = -2.29$; $SE = 2.95$; $p = .44$). As for Study 1, participants deciding not to donate were excluded from the analysis when testing the donated amount as the dependent variable. Data for the two regressions models are reported in Table 5.

TABLE 3. Willingness to donate (WTD) (%), perceived efficacy (mean, SD), and donated amount (mean, SD) in each condition of Study 2.

	Conditions							
	SE happy	N	SE sad	N	JE happy	N	JE sad	N
WTD	61.40 %	44	48.80%	41	65.20%	89	58.10%	93
Perceived efficacy Mean (SD)	3.48 (1.30)	44	2.85 (1.33)	41	3.20 (1.22)	89	3.39 (1.18)	93
Amount Mean (SD)	\$30.80 (26.70)	27	\$38.80 (36.30)	20	\$35.20 (31.10)	58	\$36.20 (31.10)	54

TABLE 4. Correlations of perceived efficacy with willingness to donate and amount of the donation in each condition of Study 2.

	SE		JE	
	Happy	Sad	Happy	Sad
WTD	.48**	.40*	.39***	.41***
Amount⁺	.19	-.13	.47***	.30*

NOTE: * $p < .05$, ** $p < .01$, *** $p < .001$; ⁺The correlations with the donated amount are calculated on a reduced sample, only considering the participants who decided to make a donation.

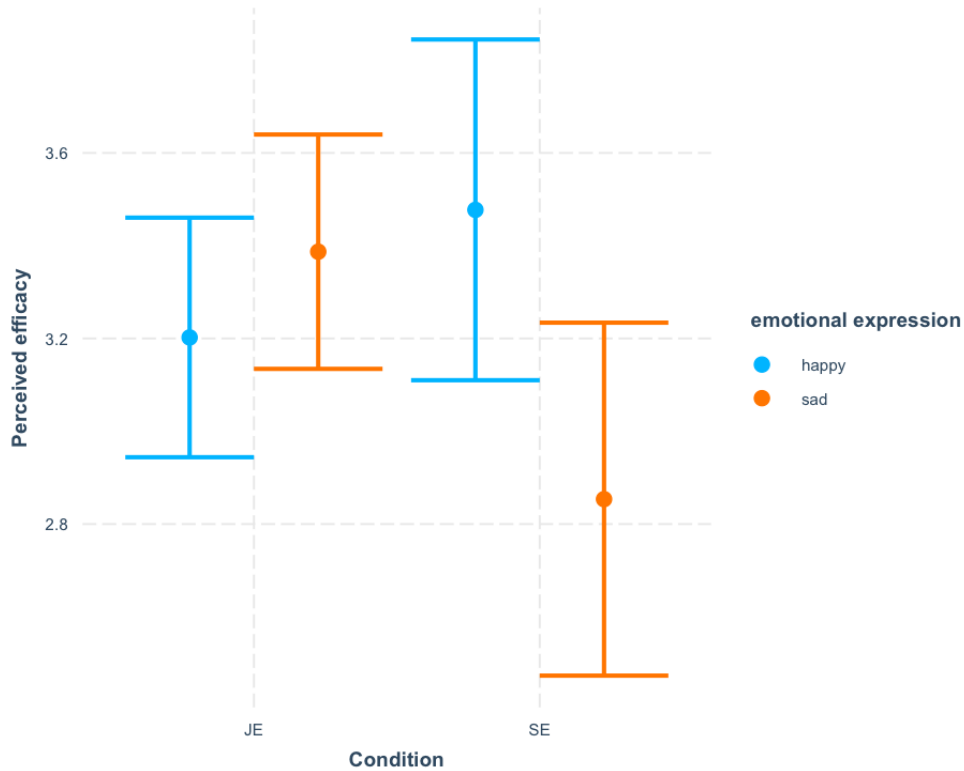


Figure 4: The figure shows the interactive effect of emotional expression and evaluation mode on the perceived efficacy of the donation.

TABLE 5. Regression coefficients for the moderated mediation model with willingness to donate as the DV are reported in panel (A), whereas the coefficients for the model with amount donated as DV are reported in panel (B).

(A)			
DV: Perceived efficacy			
	<i>B</i>	<i>SE</i>	<i>p</i>
Evaluation mode x Emotional expression	-0.48	0.22	0.03*
DV: Willingness to donate			
	<i>B</i>	<i>SE</i>	<i>p</i>
Perceived efficacy	0.16	0.02	<0.001***
Evaluation mode x Emotional expression	-0.05	0.08	0.52

(B)			
DV: Perceived efficacy			
	<i>B</i>	<i>SE</i>	<i>p</i>
Evaluation mode x Emotional expression	-0.21	0.26	0.41
DV: Amount donated			
	<i>B</i>	<i>SE</i>	<i>p</i>
Perceived efficacy	10.78	2.25	<0.001***
Evaluation mode x Emotional expression	6.39	7.36	0.39

3.2.4 Discussion

Both hypotheses were partially verified, in that perceived effectiveness was found to positively influence the willingness to donate, and its effect was, in turn, influenced by the interactive action of the evaluation mode and the emotional expression. Indeed, donating to the sad child, in SE, was perceived as less effective in terms of help delivered compared to donating to the happy child; nonetheless, when the sad child was paired with the neutral child in JE, the perceived effectiveness of the donation increased, reducing considerably the difference between the happy and the sad children. The mediation effect was not found, though, for the amount donated. The different effects of the main manipulated variables on the donation intents and the donated amounts reflect the ambiguous results of past studies, sometimes finding an effect on the willingness to donate (see, for instance: Barberini et al., 2015; Genevsky et al, 2018; Li & Yin, 2022), and sometimes on the amount donated (among the others: Genevsky et al, 2018; Li & Atkinson, 2019; Pham & Septianto, 2019). The different experimental designs used by different researchers might be one of the causes for it. Despite not being the main focus of this research, this constitutes an important factor that needs to be further addressed in the future.

Overall, the results of the present study are in line with past research on perceived effectiveness (see Västfjäll et al., 2015; Zemack-Rugar and Klucarova-Travani, 2018; Li & Yin, 2022), and add more proofs that positive and – especially – negative emotions, can affect the perception of how much help we can give – and consequently how much we are willing to donate. This effect can be triggered even by the view of a happy or a sad child, and with no explicit cue on how impactful the donation will be. Importantly, using a comparative setting succeeded in reducing the difference between the two children, improving the sad child’s condition. The presence of the neutral face, then, might have helped participants set a new reference point, reducing the perception that a small donation cannot possibly make a difference: if another child, in the same condition of the potential beneficiary of the donation, is not as sad as our donation target, it is maybe not so hard to improve the sad child’s life.

The current research strengthens past results, presenting more data in support of the advantage of using a happy child when asking for donations, and confirming the important role of efficacy. Nonetheless, it remains obscure how the different findings on emotional expressions and donations, sometimes favouring a happy child and some others a sad child, can be explained. A deeper layer could play a role in it: the variability in individual reactions to empathy, stress, and so on. In Study 3 I introduced the measure of one individual trait. In addition, to tried unveiling the cognitive processes underlying the decisional process, I used an eye-tracking technology to monitor the attentional patterns toward the different pictures. Importantly, the experimental paradigm on Study 3 was changed to better fit the research question, introducing a third JE condition, comparing the happy and sad children, and using a standard JE paradigm, in which participants could choose who to donate to.

Chapter 4

4.1 Far from eye, far from heart: exploring emotional and visual avoidance in response to sad charity appeals.

This chapter explores the variability of individual traits in the context of charitable giving. Personality and individual differences are often put aside in the search for general models and universal cognitive mechanisms guiding human behaviour. While this approach can be useful when looking at some basic or very diffused processes, considering individual traits can reveal subtle but important differences in other contexts, such as social behaviour and, specific to this work, charitable giving. The next section illustrates the existing literature on individual differences and prosocial behaviour, with a stress on a specific trait, namely experiential avoidance. In addition, an overview of eye-tracking technology is exposed, as a means to explore the attentional components of both donation decisions and experiential avoidance.

4.1.1 The impact of individual differences

4.1.1.1 Regulatory focus, social value orientation and dispositional empathy

One more way to address the incoherent findings on charitable giving is, as suggested, by taking into consideration how single individuals (or better, how specific individual traits) react to donation ads. As a first example, Choi and Park (2021) studied how a different regulatory focus (prevention vs. promotion) changes the individual reaction to charity appeals. People with a prevention regulatory focus live their goals as an obligation, and to pursue them they tend to avoid losses and mismatches to their desired state; on the other hand, people with a promotion regulatory focus see their goals as opportunities and aspirations, and to pursue them the approach matches to their desired state. Prevention-focused individuals tend to have high vigilance to what could threaten their personal control, such as manipulative intent: they're more sensitive to manipulation intention and, when perceiving it (e.g. in product advertisements) they become sceptical toward the product (Kirmani & Zhu, 2007). Similarly, the authors

(Choi & Park, 2021) suggested that presenting a sad face in a charity appeal can raise the vigilance toward manipulation attempts in prevention-focused individuals. Indeed, the authors found that presenting a sad child increased skepticism and, as a consequence, decreased donation intentions in this population compared to promotion-focused individuals. Using a happy face, or an appeal triggering guilt (instead of sadness) didn't increase skepticism in neither promotion- nor prevention-focused participants.

Another example is constituted by differences in social value orientation (SVO, Murphy, Ackermann & Handgraaf, 2011). According to the theory of SVO, people can be broadly divided into pro-social and pro-self individuals: the former valuing common good and equal goods distribution over personal gain, the latter aiming at maximizing their own gain (Bogaert, Boone & Declerck, 2008). Previous work showed that pro-socials are more likely to give than pro-selves (see, Van Lange et al., 2007 for a study with real donations and Van Andel et al., 2016 for a study on organ donation; McClintock & Allison, 1989, and Manesi et al., 2019 for a study on volunteering).

Another and more intuitive trait that can strongly influence helping behaviour is dispositional empathy. Dispositional empathy differs from state empathy, in that the latter is triggered by a specific context or situation, while the former is considered as a trait, a general inclination to empathise with others (Eisenberg et al., 1994; Mooradian et al., 2011). It is not surprising that highly empathetic individuals express higher donation intentions, and contribute with higher amounts (Fisher et al., 2008; Kim & Kou, 2015; Smith et al., 2019). Nonetheless, facing emotionally moving ads not only tunes people to the others' emotion and helps sympathising, but can also generate a wide range of distressing emotions. This emotional mix can produce different reactions in donors, that can act either approaching behaviour to compensate for the negative emotions (such as giving help; see Chang and Lee, 2010; Taute et al., 2011), or avoidance behaviours (Passyn & Sujan, 2006; Ramanathan & Williams, 2007). Bennet (2015) examined how the use of ads generating mixed emotions impact giving, by considering four different individual traits: empathic disposition, affect intensity, duality acceptance (the capability of feeling and accepting both negative and positive emotions

at a time) and sensitivity to stress. To assure the emergence of mixed emotions a series of ads was pre-tested, and the three arising the highest level of both negative and positive emotions were selected. All the examined four components positively influenced donation intentions, but through apparently different mechanisms: empathic disposition positively correlated with the attitude toward the appeals, while sensitivity to stress and affect intensity negatively correlated with the attitude toward the appeals (higher sensitivity to stress and affect intensity caused a worse attitude toward the appeals). Bennet proposed, thus, that high affect intensity and sensitivity to stress enhance giving as a way to alleviate distressful emotions.

4.1.1.2 Experiential avoidance

Experiential avoidance is defined as the unwillingness of a person to remain in contact with particular experiences, that could be thoughts, emotions, memories etc., and determines an active avoidance of situations that can trigger those experiences (Hayes et al., 1996; Hayes et al., 2004). It can be further classified as cognitive avoidance or as emotional avoidance, according to which experiences are the object of avoidance.

Experiential avoidance was largely studied in the clinical context (see, for instance: Hayes et al., 2006; Tull et al., 2004; Giorgio et al., 2010), but is a trait that is also present, with a different intensity, in the non-clinical population. Some studies showed that people with high experiential avoidance have a bias for negative emotions: they report higher ratings of negative emotions in response to negatively valence video clips (Sloan, 2004) and they infer negative emotions from written text with higher frequency (Pikett & Kurby, 2009) compared to people with low experiential avoidance scores. Moreover, they show a higher physiological reactivity to negative stimuli, as measured by heart rate and skin conductance (Leonidou & Panayiotou, 2021). Kashdan and colleagues (2005) found that experiential avoidance correlates with the use of suppression and reappraisal strategies to cope with distressful emotions.

Applied to prosocial behaviour, Ash and Yoon (2020) studied the effect of experiential avoidance on victim derogation. Participants first watched some videos depicting innocent victims of a natural disaster, and then answered to some questions including a victim derogation scale and a measure of positive and negative affect following the

view of the shorts. Finally, they completed a questionnaire measuring the experiential avoidance: the Brief Experiential Avoidance Questionnaire (BEAQ, Gámez et al., 2014). Experiential avoidance moderated the effect of negative emotions on victim derogation, in that: people low in experiential avoidance would derogate victims less when feeling more negative emotions, while victim derogation would not decrease with increased negative emotions for highly avoidant people. Victim derogation can be thought of as a strategy to cope with the negative emotions elicited by the videoclips.

Considering the relation of this trait with an increased reactivity to negative stimuli, and its negative effect on victims' perception, it would be of great interest to investigate whether it could also affect peoples' reaction to charity appeals eliciting negative emotions, such as the ones using pictures of sad children. It is possible that, in addition to the previous findings, high experiential avoidance also contributes to a lower willingness to donate to sad recipients (eliciting bad emotions) in favour of happy recipients (eliciting positive emotions). Moreover, experiential avoidance could possibly be accompanied with visual avoidance of the "unpleasant" stimulus. To test it, in Study 3 I measured the trait experiential avoidance of participants while collecting eye-gaze data during the presentation of the children's pictures. The following paragraphs overview the link between overt attention, eye-gaze, and preference for an item, and the way emotional stimuli influence attentive patterns.

4.1.2 Eye-gaze: a measure for (overt) attention and preference

Eye-gaze has been long considered a cue for overt visual attention allocation. Although being possible to process information both from the centre and the periphery of the visual field (Fischer & Breitmayer, 1987, Müller & Rabbit, 1989), and to allocate attentional resources to the periphery (Eriksen & Yeh, 1985; Warner et al., 1990; Cate et al., 2009), visual attention is, in most cases, closely connected to eye-gaze, thus, mostly directed to the object(s) at the very centre of the visual field (Parkhurst et al., 2002; Engelke & Le Caller, 2015). This makes the use of eye-trackers particularly suitable for studying stimuli salience and overt visual attention (Parkhurst et al., 2002; Oyekoya & Stentiford, 2004; Engelke & Le Caller, 2015; Borys & Plechawska-Wójcik, 2017). Visual attention can be both driven by bottom-up (e.g. the salience of the stimuli)

and top-down processes (e.g. selective attention) (Betz et al., 2010; Noudoost et al., 2010; Engelke & Le Callier, 2015). This is particularly the case for emotional imagery, as exposed in the following section.

4.1.2.1 Attention to emotional cues

As mentioned in Chapter 2, emotional stimuli have an evolutionary adaptive value, in that recognising them can optimise the responses to the environment. This value is reflected in the preferential processing of emotional stimuli (Pessoa et al., 2002; Schupp et al., 2003-2007; Calvo & Lang, 2004; Carretié et al., 2004, Kulke et al., 2021) and in the automatic redirection of attention to emotional stimuli (Pessoa et al., 2002; Vogt et al., 2008).

Specific to emotional faces, all research findings confirm a preferential processing of emotional vs neutral faces, but results concerning preferential attention allocation to either positive or negative facial cues are mixed: some studies found an attentional preference for positive faces (positive bias), while others found it for negative faces (negative bias) (for an extensive review see: Xu et al. (2021).

For example, Bradley and colleagues (1997) tested participants in a simple attentional task. First, a pair of faces appeared at the two sides of the screen, one emotional (happy or threatening) and one neutral; immediately following the onset of the faces presentation, a cue appeared on either side of the screen, and participants had to answer to what side it appeared on. The effect of the emotional faces was measured as the reaction time (RT) to the cue. Results showed that participants tended to move the attention away from the threatening face and toward the happy face: RT was longer when the cue was on the side of the negative stimulus, and shorter when it was away from it; the opposite was true for the positive stimulus. Along the same line, Sanchez and affiliates (2013-2014) used an eye-tracker to test fixation preference for either positive (happy) or negative (sad or angry) faces compared to a neutral face in a free visual exploration paradigm. Fixation times for all emotional faces vs the neutral face were longer, but the effect was larger for the happy face, compared to the two negative faces. In addition, Gupta and Srinivasan (2015) used irrelevant sad and happy faces as

distractors in a letter visual search task; after completing the task participants were unexpectedly asked to recall the emotional expression of the face (which was, importantly, irrelevant to the instructed task): the correct emotion recall for the sad face was below chance, while it was above chance for the happy face. Finally, Kulke and colleagues (2021) compared saccadic latencies toward happy, angry, and neutral faces, finding shorter latencies for happy, compared to both neutral and angry stimuli.

On the other hand, some studies showed evidence of longer disengagement time from negative emotional faces (either sad or angry). Srivastava and Srinivasan (2010) designed a task to measure the so-called “attentional blink”, which is defined as the attentional engagement on a stimulus at time T1, prolongating in time after the stimulus disappearance. If a second stimulus appears at time T2, in a different location than the first stimulus) and before attention is disengaged from the first stimulus, its processing will be impaired. In their study, Srivastava and Srinivasan used either sad or happy faces as the T1 stimuli, and letters as the T2 stimuli; participants were instructed to identify the faces expressions and the letters. Following a happy face, and after short onset times (less than 200 ms), participants identified letters better than after seeing a sad face. Similarly, Maratos (2011) found longer attentional blinks for angry vs happy faces. In another study Blagrove and Watson (2010) proved that sad faces are harder to ignore compared to neutral and happy faces, when used as distractors in a visual search task, slowing down the reaction times.

Additionally, some studies bring evidence that internal states, either trait-like or induced, as well as mood disorders (such as depression or anxiety disorders) can affect attention allocation to emotional cues. For instance, Sanchez and colleagues (2013) demonstrated that attention disengagement was longer for depression-related (i.e. a person crying) faces than for happy or neutral ones in subjects with a diagnosed major depressive disorder, in contrast to healthy individuals. Similarly, Georgiou and associates (2015) reported longer fixation times to fearful, compared to sad, happy or neutral faces in anxious subjects. Mansell and colleagues (1999) found that socially anxious individuals show an attentional bias away from emotional (both positive and negative) faces, compared to neutral faces. On the other side, both trait and induced

optimism produces a positive bias: individuals with high optimism look longer at joyful faces than angry faces, compared to individuals low in optimism (Peters et al., 2015).

To sum up the presented results, all emotional faces attract more attention than neutral faces in healthy individuals; moreover, while positive emotional expression tends to attract early attention, negative emotions are harder to disengage from. In addition, internal dispositions (such as dispositional or induced optimism) or mood alterations (such as trait or clinical anxiety and depressive disorder), can affect the attentional patterns toward emotional faces. It is reasonable to hypothesise that, in a similar way, trait experiential avoidance could operate a top-down control on attention allocation to the emotional stimuli, and drive attention away from the emotionally arousing and unpleasant stimulus (in the frame of this research work: the sad child).

4.1.2.2 Eye-gaze and consumer's behaviour

This paragraph briefly exposes the link between gaze and product preference, with the aim to ground the hypothetical connection between the two in the new context of charitable giving on existing literature.

In marketing, understanding which product attributes consumers value the most in their buying choices is fundamental. Tracking the eye-gaze has proven a valid technique to identify which elements are more important for consumers. For instance, Van Loo and colleagues (2015) explored gaze fixation patterns for different coffee brands, and in particular for the sustainability labels present on the products, and their relation to willingness to pay for the specific item. They then asked participant to attribute value to the single sustainability labels. Findings showed that fixation duration and attribute's value strongly correlated; in addition, participants were more willing to buy the product they looked longer at. Similarly, van der Laan and colleagues (2015) found that longer fixation times predicted product choice, and that fixation is related to preference formation. More studies provide evidence for a positive relation between fixation time and product choice (Harwood and Jones, 2011; Krajbich et al., 2012; Ares et al., 2013; Sari et al., 2018).

Although the two fields (namely, marketing and charitable donations) can seem very distant, they present many similarities, and marketing techniques are often used to enhance the effect of charity appeals. Henceforth, I predict that the findings on product preference and buyer's choice can apply to the context of giving as well: longer fixations will help predict the beneficiary of choice.

Study 3 explores this possibility, investigating the joint effect of emotional expression (in a joint evaluation) and experiential avoidance on fixation preferences of the donors, in turn resulting in a behavioural preference (whom to donate to, and how much to donate). Differently from the previous study, I here used "pure" joint evaluation conditions, combining all emotional expressions (sad vs. neutral, happy vs. neutral, happy vs. sad) and giving the participant the possibility to choose between the two. This allowed to directly compare the target emotional faces (sad and happy), and to investigate some mechanisms underlying the donation choices, via visual attention allocation.

4.2 Study 3

4.2.1 Introduction

Study 3 was designed to explore how visual attention – as a cognitive mediator – might be differentially captured by the different emotional expressions, directly influencing the donation decisions, and how individual differences might moderate its effect.

Specifically, I measured the so-called experiential avoidance of participants, through the use of a validated questionnaire (BEAQ, Gàmèz et al., 2014); moreover, visual overt attention was measured as the fixation time per each picture, thanks to an eye-tracker. A pilot study preceded Study 3, with the aim of selecting the best pictures to use in the main study. Both the pilot study and Study 3 were pre-registered in OSF on 02/02/2022 (<https://osf.io/kmjp7>). My hypothesis were:

H1. Fixation time predicts donations: people should donate more often and higher amounts to the child they look longer at.

H2. Fixation time is predicted by the condition. In particular:

- a. In the happy-neutral contrast, people should look longer at the happy face;
- b. In the sad-neutral contrast, people should look longer at the sad face;
- c. In the sad-happy contrast, we don't have predictions about the direction of the effect, and the analysis will be explorative.

Moreover, I expected that:

H3. Experiential avoidance mediates fixation times, in that

- a. Higher experiential avoidance should result in longer fixation times for the happy vs. neutral child;
- b. Higher experiential avoidance should result in longer fixation times for the neutral vs. sad child;
- c. Higher experiential avoidance should result in longer fixation times for the happy vs. sad child.

4.2.2 Pilot Study

The pilot study was designed to select the most appropriate pictures to use in the main study. While selecting the stimuli for Study 3 from the dataset, I noticed that some of the expressions depicted in the photographs looked forced. As the number of pictures needed for Study 3 was higher compared to Study 1 and 2, and all six pictures needed to be of different children (while the sad and happy faces in the previous studies were of the same child), a more accurate selection was required to find the right combination of faces. Thus, I decided to test a set of photos, and – following the pilot study – to select two pictures per expression (for a total of six), according to how genuine the expression of the emotion looked, and how well participants could identify the depicted emotion as the correct emotion.

4.2.2.1 Methods

Participants. A total of 31 participants from a UK population (mean age = 24.20 years \pm 7.30) were recruited online through direct link distribution.

Material and methods. The pilot study was and built on, and hosted by, Qualtrics (<https://www.qualtrics.com>). For the study, a total of 24 pictures of children were pre-selected from the CAFE database (LoBue & Thrasher, 2015; LoBue et al., 2018), including: 8 pictures of a sad child, 8 pictures of a happy child, 8 neutral pictures. Participants saw all pictures, one at a time. Each picture appeared separately at the centre of the screen, and was followed by two questions:

1. What emotion is expressed by the children in the picture? (response options: *happy/sad/neutral/other*)
2. How genuine is the represented expression? (slider from 0-*not at all*, to 100-*completely*).

4.2.2.2 Results

To select the appropriate picture, I performed a descriptive analysis on the 24 photos. The percentage of correct attribution and the average genuineness value for each picture is reported in Table 6. The selection of the appropriate pictures to use in Study 3 was based on optimising both the recognisability and the perceived genuineness of the emotional expression, and on the need for selecting pictures from six different children. Specifically, the chosen pictures were: Happy 6, Happy 8, Sad 1, Sad 2, Neutral 4, Neutral 5. They are presented in the Materials section of the main study. The initial pictures' sample, together with the graphical representation of the correct emotion attribution and the perceived genuineness for each photo, are reported in the Appendix 3.

TABLE 6. Percentage of correct emotion attribution and mean perceived genuinity of the expression for each of the 24 stimuli, divided by emotional expression.

Happy								
	Pic1	Pic2	Pic3	Pic4	Pic5	Pic6	Pic7	Pic8
Correct emotion (%)	97	97	94	100	100	100	100	100
Genuinity Mean (SD)	76.33 (22.32)	69.79 (22.45)	54.03 (31.29)	70.58 (29.00)	53.64 (31.85)	68.33 (27.63)	62.27 (23.63)	73.21 (24.89)
Sad								
Correct emotion (%)	52	76	91	91	97	94	58	100
Genuinity Mean (SD)	56.79 (27.01)	48.15 (29.80)	9.82 (19.79)	35.42 (27.99)	18.39 (20.41)	26.52 (27.36)	19.33 (21.16)	15.06 (17.02)
Neutral								
Correct emotion (%)	88	79	58	85	91	12	85	52
Genuinity Mean (SD)	80.67 (21.82)	70.42 (23.88)	58.79 (24.45)	76.61 (20.68)	63.97 (26.16)	48.09 (22.10)	67.30 (25.61)	59.67 (23.62)

4.2.3 Main Study

4.2.3.1 Methods

Participants. Participants were recruited online via Prolific, in exchange for 0.88£, after giving their consent online. I recruited a total of 300 participants, from a representative UK sample (50% females, mean age = 40.93 years \pm 17.93). Of the 300 participants, three were excluded for not completing the entirety the study, seven for poor eye-tracking data quality (part or all of eye-tracking data missing) and twenty-nine for failing the manipulation check, which resulted in a final sample size of 261 participants (51% females, mean age = 40.95 years \pm 17.95).

Materials and methods. To create and host this experiment I used the Gorilla Experiment Builder (Anwyl-Irvine et al., 2020-2021). Specifically, I used their Eye-Tracking tool, currently in its beta-version (for other studies using this tool, see Calabrich, Oppenheim & Jones, 2021, and Greenaway, Nasuto & Hwang, 2021). The experiment was developed into two main phases: a donation task and a questionnaire. During part of the donation task the fixation time for each stimulus was recorded. For this reason, participants underwent an eye-tracker calibration phase before starting the experiment. The donation task and the questionnaire were followed by basic demographic questions.

Calibration. Access to the front camera of the personal computer was required. Instructions for the calibration appeared on the screen, and then the calibration started. On a blank screen, a series of 9 dots appeared, one by one and each in a different location, and stayed on the screen for a few seconds. The subjects had to follow the dots with their eyes, keeping the head still in a frontal position. If more than three dots failed to be correctly spotted, calibration would be considered as failed, and a new attempt would start. A maximum of three failed calibrations was allowed, after which the experiment automatically aborted and the participant was not able to continue the study.

Donation phase (donation decision: child A/child B, and donation amount). At first, instructions were displayed, explaining the task and specifying that the donation request was hypothetical. Nonetheless, participants were asked to answer sincerely and act as if the donation were real. In a second screen, a brief text described the economical and health difficulties of the children that would subsequently be presented:

“You will now see the pictures of some children. They all suffer from immunodeficiency, a disease that makes them particularly vulnerable to bacterial and viral infections. Because of their condition, they need continuous treatment and expensive drugs. These children's families are poor, and cannot afford the costs of the treatments. You will see two children at a time, and you will be able to donate to either one or the other. This will help providing them with basic medical care. You can donate any amount of money up to 25£.”

Following the reading of the text, participants underwent three trials, in sequence, representing the three experimental conditions. During each trial, first a fixation cross appeared at the centre of the screen, for 250ms, followed by the appearance of two pictures in the two upper quadrants of the computer screen. The pictures represented the faces of two children, selected from the CAFE dataset and following the pilot study results. According to the trial, the two pictures displayed: a sad child and a neutral child (sad-neutral condition); a happy child and a neutral child (happy-neutral condition); a sad child and a happy child (happy-sad condition) (see Figure 5). The presentation order of the trials was randomised between subjects. During this phase, the fixation time for the two upper quadrants of the computer screen, corresponding to the position of the two pictures, was recorded. After a few seconds, during which the participants were free to look at both pictures, a new screen appeared, presenting again the two children and their names (e.g. Nayani and Rukia), and asking the participants for a donation. Participants had to decide to which of the two children to donate. From this moment on, eye-gaze was not registered anymore. Once the decision was made, a new screen appeared, with no picture, and participants were asked to decide how much to donate, picking any amount from 0£ to 25£, through the use of a slider. Finally, participants

were asked about the perceived effectiveness of the donation, on a 7-point Likert Scale going from 1 – *not effective at all*, to 7 – *very effective*.

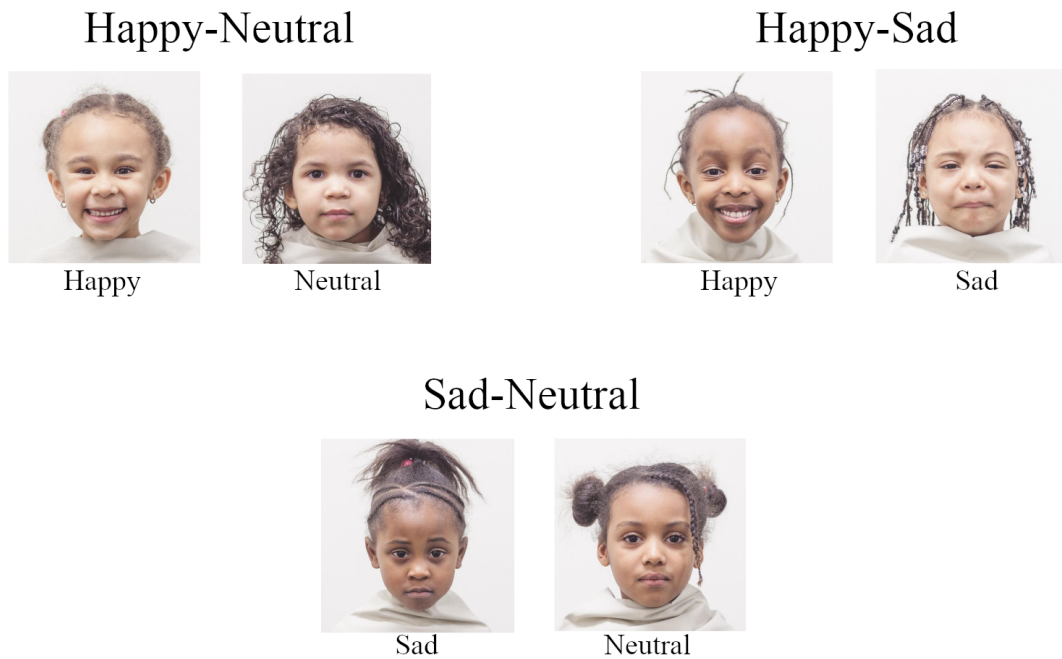


Figure 5: The picture shows the different stimuli used in the three experimental conditions. On the top left, the happy-neutral condition, on the top right the happy-sad condition, on the bottom the sad-neutral condition. The position (left-right) of each picture was randomised between subjects. All participants saw all three conditions, in random order.

Attention and manipulation checks. After the donation phase, two questions were displayed to check participants' focus and understanding of the task: "Can you remember what was the main reason the children needed help?" (possible answers: *poverty, immunodeficiency, starvation, orphanage*); "Can you remember if you had the option of donating to both children, or if you had to choose to donate to either one or the other?" (possible answers: *Yes, I could donate to both; No, I could donate to either one or the other*). Most participants answered correctly to both the first and second items of the attention check. Specifically, to the first question (cause of the donation), 97% selected the correct answer (i.e. immunodeficiency), while only 3% failed it (*poverty*: $n = 7$; *starvation*: $n = 1$; *orphanage*: $n = 0$). To the second question, 92% answered correctly ("I could donate to either one or the other"). Participants failing one or both questions were excluded from the analyses.

Successively, participants completed a manipulation check to assess the correct emotional attribution to all faces. In this phase, all six pictures used in the experiment were displayed, once at a time, and participants were asked to rate their emotional expression on a slider ranging from -5 (*very sad*) to +5 (*very happy*), the 0-value corresponding to the neutral expression. Participants correctly attributed emotional valence to all six pictures used, with average values above zero for the happy faces (Happy1: 3.73 ± 1.45 ; Happy2: 3.39 ± 1.40), around zero for the neutral faces (Neutral1: $-.13 \pm 1.19$; Neutral2: $-.53 \pm 1.18$), and below zero for the sad faces (Sad1: -2.11 ± 1.48 ; Sad2: -2.74 ± 1.87)¹. Two paired t-test confirmed that happy children were evaluated as happier than neutral children ($t = 89.91, p < .001$) and sad children as sadder than neutral children ($t = 44.82, p < .001$).

Brief Experiential Avoidance Questionnaire. Finally, participants were asked to complete a 15-items questionnaire on trait experiential and emotional avoidance (BEAQ, Gamez et al., 2014). Each item was answered on a 6-point scale, ranging from 1 – *strongly disagree*, to 6 – *strongly agree*. All items can be found in the Appendix 3. The score of all items was added up to form a single score to use in the analysis. At the end of the experiment, I collected basic demographic information. Then, participants received a debriefing document, and had the chance of withdrawing from the experiment once more.

4.2.3.2 Results

Descriptive statistics. Table 7 displays the descriptive statistics, namely the raw fixation time, the proportion of donations, the average perceived effectiveness of the donation and the average amount donated, per each expression in each condition. In Table 8 are reported the correlation values between the main variables of interest.

BEAQ. The value for Cronbach's Alpha for the questionnaire was $\alpha = .86$. The BEAQ scores, calculated by summing up all items to form a final total score, were normally distributed in the population, with a mean score of $49.60 (\pm 12.07)$. The score was considered in the following analyses as a continuous score.

¹ The numeration used is the following: Happy1 and Neutral 1 (happy-neutral condition); Happy2 and Sad2 (happy-sad condition); Sad1 and Neutral 2 (sad-neutral condition).

Donation decision. To test for H1 I first ran a general mixed logistic model, using the package lme4 in R (Bates et al., 2015). The dependent variable was the child who benefitted from the donation (either A or B), while the predictor was the difference in the fixation times of the two children (A or B), as defined by the following formula:

$$\Delta = \text{fixation}(B) - \text{fixation}(A)$$

where $\text{fixation}(A)$ and $\text{fixation}(B)$ are the raw fixation times, in seconds for respectively child A and B. It results that, if Δ takes a negative value the participant looked longer at child A, while if it takes a positive value the participant looked longer at child B. The regression included the random effect of the subject. The analysis showed a clear effect of the fixation time on the donation preference, partially confirming Hypothesis 1: participants were more likely to donate to the child they looked longer at ($b = .25$, $SE = .06$, $p < .001$).

Secondly, I ran a linear mixed model, using the donated amount as the dependent variable and the raw fixation time of the beneficiary child as the predictor. Following the results of Study 2, I included perceived effectiveness as a covariate in the model. Fixation time didn't influence the donated amount ($b = .09$, $SE = .11$, $p = .87$), while – in line with previous results – perceived effectiveness had a strong positive effect on it ($b = .95$, $SE = .16$, $p < .001$). Hypothesis 1 is, then, only partially verified. Data for the two regressions models are reported in Table 9.

TABLE 7. Fixation time (mean, SD), perceived efficacy (mean, SD), and donated amount (mean, SD) for each face in each condition of Study 3.

	Conditions					
	Happy-Neutral		Sad-Neutral		Happy-Sad	
	Happy	Neutral	Sad	Neutral	Happy	Sad
Fixation time Mean (SD)	1110 ms (874)	1150 ms (846)	1179 ms (851)	1060 ms (802)	1179 ms (864)	1140 ms (815)
Donation decision N (%)	127 (48.66)	134 (51.44)	174 (66.67)	87 (33.33)	129 (49.42)	132 (50.58)
Perceived efficacy Mean (SD)	4.73 (1.57)	4.46 (1.64)	4.70 (1.58)	4.28 (1.79)	4.32 (1.61)	4.91 (1.61)
Amount Mean (SD)	\$17.1 (7.51)	\$15.6 (7.75)	\$16.3 (7.61)	\$15.3 (8.17)	\$15.6 (7.66)	\$17.4 (7.52)

TABLE 8. Correlation table of the main variables, split in each condition of Study 3.

Happy-Neutral				
	Fixation	Effectiveness	Amount	BEAQ
Fixation	-	.10**	.02	.08
Effectiveness	-	-	.36***	.04
Amount	-	-	-	.19
Sad-Neutral				
	Fixation	Effectiveness	Amount	BEAQ
Fixation	-	.04	-.06	.02
Effectiveness	-	-	.39***	.05
Amount	-	-	-	-.04
Happy-Sad				
	Fixation	Effectiveness	Amount	BEAQ
Fixation	-	-.02	.06	.03
Effectiveness	-	-	.36***	.02
Amount	-	-	-	-.03

NOTE: ** $p < .01$, *** $p < .001$, · $p = .07$.

TABLE 9. Regression coefficients for the mixed linear models testing for Hypothesis 1, with donation decision as the DV in panel (A), and the amount donated as the DV in panel (B).

(A)			
DV: Donation decision			
	<i>B</i>	<i>SE</i>	<i>p</i>
Fixation time (Δ)	0.25	0.06	<0.001***
(B)			
DV: Amount donated			
	<i>B</i>	<i>SE</i>	<i>p</i>
Fixation time (s)	0.09	0.11	0.87
Perceived efficacy	0.95	0.16	<0.001***

Fixation time. To test for hypotheses 2 and 3 I ran a linear regression model per each condition, first considering the sole effect of the facial expression on the fixation time. Specifically, as the predictor, I used dummy variable, which assumed the value of 1 for the emotion following the prediction, and 0 for the emotion not following the prediction, as described in the following Table 10A. For H2(c), which is of an explorative nature, I decided *a priori* to attribute the value of 1 to the predictor for the happy child, while the sad one assumed the value of 0. A positive, significant effect of this variable would confirm the hypothesis, a negative, significant effect would confirm the opposite hypothesis, while a non-significant effect would invalidate the initial hypothesis. Hypothesis 2 was not confirmed, for none of the conditions (*happy-neutral*: $b = -45.74$, $SE = 75.28$, $p = .55$; *sad-neutral*: $b = 113.22$, $SE = 66.73$, $p = .09$; *happy-sad*: $b = -31.05$, $SE = 73.50$, $p = .67$).

Similarly, to test for Hypothesis 3 I ran a linear model for each of the conditions, considering the fixation time for each picture as the dependent variable and using as a predictor the interaction of the dummy variable (see Table 10B) and the BEAQ final score. Hypothesis 3 was not confirmed, for none of the conditions: the BEAQ score didn't result in longer fixation times for a specific emotional expression (interaction of BEAQ score and predictive variable for *happy-neutral*: $b = -0.26$, $SE = 6.24$, $p = .97$; *sad-neutral*: $b = -4.81$, $SE = 5.55$, $p = .39$; *happy-sad*: $b = 2.26$, $SE = 6.10$, $p = .71$).

TABLE 10. (A) The table describes how the dummy values for testing Hypothesis 2 are defined for each condition. The single hypotheses are also reported. **(B)** The table describes how the dummy values for testing Hypothesis 3 are defined for each condition. The hypotheses refer to participants scoring high in the emotional avoidance trait. The single hypotheses are also reported.

(A)				
<i>Condition</i>	<i>Hypotheses</i>	<i>Predictive values</i>		
		<i>Happy</i>	<i>Sad</i>	<i>Neutral</i>
a) happy-neutral	Longer fixation for happy vs. neutral face	1	-	0
b) sad-neutral	Longer fixation for sad vs. neutral face	-	1	0
c) happy-sad	No <i>a priori</i> hypothesis	1	0	-
(B)				
<i>Condition</i>	<i>Hypotheses</i>	<i>Predictive values</i>		
		<i>Happy</i>	<i>Sad</i>	<i>Neutral</i>
a) happy-neutral	Longer fixation for happy vs. neutral face	1	-	0
b) sad-neutral	Longer fixation for neutral vs. sad face	-	0	1
c) happy-sad	Longer fixation for happy vs. sad face	1	0	-

Perceived efficacy. Although not included in the formal hypotheses, perceived efficacy has proven to be an important and non-ignorable factor in the equation. Henceforth, I included the interaction of the emotional expression with fixation time as predictors, and perceived efficacy as the dependent variable. As for the previous analysis, the model was separately applied to the different conditions. Results are, indeed, intriguing: although no significant effect emerged for the happy-neutral and the sad-neutral conditions, an interesting pattern could be observed in the happy-sad condition, for which the interactive effect of emotional expression and fixation time had a significant impact on perceived effectiveness ($b = -.41$, $SE = .20$, $p < .05$). Data for the three regression models are reported in Table 11. Specifically, with a slope analysis it emerged that fixation time had a negative effect on perceived effectiveness for the sad

child ($b = -.28$, $SE = .14$, $p < .05$): the longer the participants observed the picture, the less they perceived their donation as being effective.

TABLE 11. Regression coefficients for the linear models testing the interactive effect of the fixation time and BEAQ score (predictor) on perceived efficacy (DV), and divided by condition: (A) happy-neutral condition; (B) sad-neutral condition; (C) happy-sad condition.

DV: Perceived efficacy			
(A)			
	<i>B</i>	<i>SE</i>	<i>p</i>
Fixation time x Emotional expression	-0.09	0.20	0.65
(B)			
	<i>B</i>	<i>SE</i>	<i>p</i>
Fixation time x Emotional expression	0.11	0.23	0.62
(C)			
	<i>B</i>	<i>SE</i>	<i>p</i>
Fixation time x Emotional expression	-0.41	0.20	0.04*

4.2.3.3 Discussion

As predicted, fixation time positively correlates with donation choices, in that participants donated to the child they looked longer at. This result extends the findings on attention allocation and preference that were initially studied in marketing and consumer's choice, to a new field. Fixation time, though, did not depend on the facial expression of the child: there was no significant difference in the total duration of the fixation between the different facial expressions, in none of the joint evaluation conditions, although there was a non-significant trend for the sad face in the sad-neutral condition. In addition, I couldn't find an effect of experiential avoidance in moderating the effect of emotional expression on fixation preference, in none of the conditions.

Firstly, the results on fixation time are not particularly surprising and are coherent with consumer's behaviour literature showing that the longer we look at a product, the more likely we are to choose it (Harwood and Jones, 2011; Krajbich & Rangel, 2011; Ares et al., 2013; Van Loo et al., 2015; Van Laan et al., 2015; Sari et al., 2018). Nonetheless, it is worth noticing that the present results could replicate this effect in a different context, namely charitable giving. Although not unexpected, it's an important finding, further validating the strength of visual attention as a predictor of preference in multiple domains.

Secondly, it is puzzling that no difference in donations, nor in the fixation time, emerged for the two emotional faces compared to the neutral one (happy-neutral and sad-neutral conditions), contrary to predictions. Literature about the preference for emotional faces compared to neutral ones, as well as results from Study 1, would support a different outcome. The reason for this may lay on the paradigm architecture, the participants being forced to choose between the two kids, instead of having the option to drop out (as in Study 1 and 2). This makes it harder to properly compare the present results with the previous studies, but at the same time opens the discussion to an interesting topic: how having an "escape" option, *versus* being forced to choose between options, can impact decision making and, possibly, the emotional response regulation of the actor of the choice itself, which will need to be considered in future research. In addition, differently from studies on the spontaneous allocation of attention to emotional faces, donation decision implies the processing of more information, and longer decisional processes. While first fixation might mirror the findings of the above cited research on attention toward emotional faces, the absence of a difference in fixation time between faces might reflect the more complex decisional context. Moreover, in the present study the gaze was not measured during the proper decision phase; doing so might have been more informative of the relation between eye-gaze and decisional processes. Future research might try to answer this question by not only considering the total duration of fixations, but also first fixation, fixation count and visual exploration patterns. This could also shed more light on the differences between high and low avoidant individuals: although the behavioural outcome of the two groups does not differ, visual exploration patterns might reveal some dissimilarities. For

instance, highly avoidant individuals might explore more the pictures eliciting a positive emotion (the happy face), and explore more the area *surrounding* the pictures eliciting a negative emotion (the sad face). In alternative, they could switch between the two pictures more often, in an automatic attempt to avoid the negative photo, but then forcing themselves to look at it.

Finally the results emerging from the exploratory analysis on perceived efficacy add on to the results of Study 2 and the previous literature on donations (Zemack-Rugar & Klucarova-Travani, 2018; Västfjäll et al., 2015), corroborating the hypothesis that a sad child might deliver the information that the donation will not be highly effective. Indeed, participants donating to the sad child perceived their donation as less effective, when they looked at the picture longer, and this in turn affected the donated amount. Future research could further explore these results. Notably, as perceived efficacy of the donation was asked, in this study, only for the child participants donated to, it is not possible to evaluate whether the different conditions influenced how efficient the donation to the un-chosen child was perceived as. It is impossible, thus, to understand if the perceived efficacy mediated the choice between the two children in this setting. Surely this should be explored in future experiments.

Chapter 5

Conclusions, limits and future directions

In our daily lives we are constantly exposed to charities' appeals, that can be very different in their form and make very different use of both visual and verbal information in the attempt to reach the donors' heart. In particular, the use of emotional pictures, and especially portraits, is a widespread strategy to evoke an emotional response in the viewers and help them feel a personal connection to the cause. The variety of pictures used, though, is huge, ranging from very realistic settings, depicting life-threatening conditions to represent the extreme degree of need of the people in the photographs, to more positive and hopeful pictures. The use of negative pictures, on one side, well represent the actual situation of need and trigger the urge to help (Small & Verrochi, 2009; Tusche et al., 2016), but it can also generate emotions too negative to bare, and kick-back, inhibiting helping behaviours (Västfjäll et al., 2015). On the other hand, using cheerful pictures of happy children might cause people to not fully understand the need for help, and, nonetheless, it can also facilitate donations by tuning donors' to positive emotions, which can boost altruistic acts (Shaffer, 1986). Understanding under which circumstances one or the other option is optimal, and how single individuals, with their cognitive and affective peculiarities, respond to the different appeals, can be of great support in designing fundraising campaigns, and in optimising how effectively they can elicit giving.

With the three studied presented in this thesis my aim was to contribute to the existing literature in the field, providing more data and trying to fill the gaps that are yet unanswered. In particular, the first two studies focused on the emotional expression of the beneficiaries, and on its relation to the perceived efficacy of donations. Although the role of emotional expression in donations was largely investigated, findings are still ambiguous. As reported in Chapter 2, while some research found that the use of sad children enhances donations (Small & Verocchi, 2009; Barberini et al., 2015; Jang, 2021), some other found the opposite, with happy children eliciting more donations

(Zemack-Rugar & Klucarova-Travani, 2018; Li & Atkinson, 2019; Septianto & Paramita, 2021). Of course, several other factors are playing a role, such as the gaze direction (Tong et al., 2021), the use of promotion vs. prevention messages (Septianto & Paramita, 2021), and so on, which can confound the main effect of emotional expressions. In addition, the pictures used in different studies aren't always comparable, being characterised by different frames or background information. For these reasons, I first selected a validated database, containing standardised pictures of children, expressing several different emotions (e.g. anger, happiness, sadness, disgust, etc.), all sharing the same portrait frame and the same neutral shirt and background (CAFE database, LoBue & Thrasher, 2015; LoBue et al., 2018). This allowed to avoid as much as possible the unnecessary spoiling of the outcomes by unwanted, not controlled for, secondary factors. First, in Study 1 I explored whether a main effect of emotional expression would emerge, using the above-mentioned database, to set a baseline for the following studies. I tested it with a between-subject design, showing either a happy, a sad or a neutral face. While donations to all the three children were approximately equal, in terms of frequency, the happy child received significantly higher amounts compared to the neutral child. No difference was found between the amounts donated to the neutral and the sad children. The present results validate, in part, past work, showing at least a partial advantage for the happy child. The absence of a significant main difference between the happy and the sad child is not new in the literature, where emotional expression was mostly found to interact, or be mediated by, other variables (see, for example: Barberini et al., 2015; Cao & Jia, 2017; Pham & Septianto, 2019; Kang et al., 2022).

Indeed, as largely discussed in Chapter 3, a big role in mediating the effect of emotional expressions seems to be played by the perceived efficacy of donations. To summarise the findings of previous works, displaying a happy child in a charity advertisement can increase donors' perception of the positive outcomes of their donations, hence have a positive effect on donations given (Zemack-Rugar & Klucarova-Travani, 2018). Similarly, Li and Yin (2022) found that perceived efficacy mediated the effect of emotional faces on donations. On the same line, Västfjäll and colleagues found that the sight of negative pictures (including, but not limited to, sad children), decreased

donation, due to what the authors defined pseudo-inefficacy. This back-kick may be accounted for by helping the donors envisage the good that their donation could do in helping the (sad) child. This possibility led to the design of the second study: borrowing from behavioural economics, I tried to boost the perceived efficacy of donating to the sad child, through the use of a comparative setting. As the creation of a clear reference point, in classical separate/joint evaluation settings, helps evaluating the presented items along the most relevant, though hard to gauge without a reference, dimensions (Hsee, 1996; Hsee et al., 1999), the presence of a second child can function as a more tangible reference point for evaluating the good that a donation can do. Looking at a child in the same conditions as the target of donation, but with a less negative expression, can deliver the impression that there is space for improvement even for the sad child, alleviating the sense of inefficacy. Indeed, the manipulation worked, and the perceived efficacy of donating to the sad child improved in the comparative setting, compared to when the sad child was seen alone. As predicted, there was no such effect for the happy child, to whom, in contrast, donations were always perceived as highly effective in both conditions. As such, the use of a comparative setting can help improve donations when using photos of sad children and it does not decrease donations to happy children. Importantly, though, participants didn't have the chance to choose whom to donate to, and no direct combined presence of a happy and a sad child was included in this experiment. Henceforth, it is unclear whether the presence of a happy child, instead of a neutral child, would produce a similar, or bigger, effect, producing a preference reversal similar to what is described in consumer behaviour literature. In fact, if a happy and a sad child are paired it could be that, when pairing the sad and happy child, a double effect is produced: the sad child would look more needy than the happy child, but the presence of the happy child could work as an even stronger reference point/goal than the neutral child, resulting in more or higher donations for the sad child, again improving the perceived efficacy of donations. It could also be that the gap between sad and happy child is too large and there is no effect (compared to when the reference is the neutral expression). If that is true then donations to the sad child could go down or not increase much.

Finally, Study 3 took into consideration the role of individual differences in reacting to different emotional expressions of the beneficiaries of help, as reported with a standardised questionnaire and as mediated by visual attention. The most relevant finding was that, when showing two children together, the likelihood of donating to one or the other child was strictly connected to how long participants looked at the child: longer fixations corresponded to a higher probability of donations. The amount donated was not affected by fixations. Importantly, though, participants could not look at the children again when deciding how much to give. The fixation time was only recorded strictly before deciding whom to donate to. Time delay from the last fixation was maybe too long to influence the decision at this point. Future research could go further and record eye-gaze toward the children during all donation phases, which might provide additional interesting insights about these decision processes. Finally, no effect of the emotional expression emerged in the fixation time, not as a main effect nor in interaction with the experiential avoidance. Nonetheless, exploratory analyses revealed a connection between emotional expression and the perceived efficacy of donations. In line with past research, looking at the sad child negatively influenced the perceived efficacy of giving: the longer participants looked at the sad child, the less effective they perceived their donations to be.

Overall, the findings of the presented research can be summarised as follows: although weak, a preference for the happy child, when it comes to giving choices, exists. This effect is mediated by the perceived efficacy of the donation; as a matter of fact, using the picture of a sad child can have a negative impact on how effective donors perceive their actions to be in changing the child's situation for the better, causing them to donate less, or less frequently. Coupling the sad child with a less negatively-valenced picture, such as a neutral-faced child, can help compensate for the lack in perceived efficacy, improving the perceived efficacy of donations and increasing giving. The happy child, on the other hand, is not affected, neither positively nor negatively, by the presence of a second child. Finally, the third study proves that, when given the chance to choose to which child to give, people look more at the child they will donate to later on. The present results enrich and add on to past works, contributing to the theory of decisional processes in a charitable context. In addition, the use of stimuli from the same dataset,

sharing the same visual characteristics, and similar – although not identical – paradigms throughout the three studies, has the advantage of providing a logically progressive framework to explore the variables of interest and contribute to building a solid behavioural and cognitive model.

Some limitations are worth being noted. First of all, to keep the paradigm as simple as possible and avoid the influence of too many confounders, the present research does not take into consideration many other variables that can possibly play a not negligible role in donation decisions. Among the others, the perception of manipulative intents, which can demotivate donors from acting, the way the message is framed, participants' affective reaction to the stimuli, and many of the personality traits that can either boost or decrease donations, the understanding of which would allow a donor-tailored charity campaign. In addition, it would be worth investigating if the emotional intensity of the stimuli plays a role in the donation decision, along with the valence (positive or negative) of the facial expression itself. More studies need to take progressively more factors into consideration, in order to construct a reliable behavioural model of donation decisions. Last but not least, despite the use of a validated dataset the stimuli didn't result as reliable as expected, in terms of genuinity of the facial expressions, as highlighted from the pilot of Study 3. Future studies using the same dataset should consider a second validation of the entire stimuli database.

Another point is the one briefly mentioned in Chapter 4, concerning paradigm architecture. While the three studies share the same basic concept and the same photographic stimuli and descriptive text, the first two studies differ from the third one on one basic component, which is how the donation choice is formulated. For the first two, whether to donate or not was the donors' choice, but who to donate to – which only applies to the JE condition – was pre-determined (either the sad or the happy child, but never the neutral child). In the third study, on the contrary, participants didn't have the chance not to donate, but they could choose who to donate to. The existing literature on the topic is, unfortunately, poor, and when the research exists, it mainly pertains in the field of marketing. Regarding consumer behaviour, Dhar and Simonson (2003) studied how participants' choice pattern changed when they faced a forced decision (object A or

object B) compared to when they had a “no choice” option. They considered an ambiguous choice context, that is to say a context where it would be hard to identify which of the two options was the best: for instance, one of the two objects (A) would score very high on two characteristics, and very low on two others, while the second object (B) would score average on all characteristics. The study showed that in such an uncertainty, people’s choices are aimed at minimising the risk of regret for the choice made, choosing the “safer option”. When given the chance of not making a choice, though, the proportion of choices for the “safe” option drops abruptly, while the rate of choice for the other option stays more or less unaltered. The “no choice” option functions, thus, as a choice resolution mechanism in such conditions. In the domain of donations, unfortunately, the literature is very scarce. Nonetheless, some interesting findings can be of great use. For instance, Erlandsson and colleagues (2020) compared people’s behaviour toward two different helping projects in a matching task and, subsequently, in a forced-choice task: first, participants had to match two projects – differing in just one dimension (e.g. gender of the beneficiaries) – to make them equally attractive (for instance, by stating how many men would project A need to help, in order to make the project equally attractive to project B, helping 100 women); second, they had to choose between the same two, previously matched projects. Curiously, when forced to choose, participants didn’t choose randomly – as it would be expected if the two alternatives were equally attractive – but systematically preferred one of the two (i.e. the one helping females vs. males, children vs. adults etc). Similarly to the ambiguous situation described above, when facing two very similar alternatives, people prefer to pick the “safe” choice (here, the most socially desirable option), to avoid regretting it. Concerning altruistic choices, Yin and colleagues (2022) explored the effect of forced choice on money allocation, when contributing to a monetary gift. In particular, when choosing how much to donate for a friend’s honeymoon, participants could be presented with either the possibility of donating for a specific part of the trip (flight, hotels, food, entertainment, ...), or with a pre-filled choice (i.e. “you can contribute to the flight expenses”). Interestingly, when having the possibility to choose what to contribute to, participants gave more money than when forced into one of the several options. Intriguingly, a recent study by Ein-Gar and associates (2021) examined

how having to choose the recipient (one of two) of the donation, can make people refrain from donating, as a consequence of the inner conflict between the will to help, and the moral impulse to do so in a fair manner. To avoid unfair donations, participants preferred to not donate at all. Having a pre-selected option or a single recipient option, on the other hand, resulted in lower conflict and in more donations. Similarly, when the authors introduced an enhanced-fairness condition (that is: for each donation the participant made to one of the recipient, the lab would make the same donation to the other recipient), the opt-out rate visibly decreased, together with the cognitive conflict reported by participants. All considered, choice architecture can clearly shape the way a choice is made, as also demonstrated, for instance, by the literature on nudging (see Schlang, 2010; Pittarello et al. 2010, Mrkva et al., 2021). Contextualising the above-cited findings in the frame of my research, in Study 1 – having a “no donation” option – the happy child received higher donations than the neutral child. This pattern disappears in Study 3 (where no exit option is present), suggesting that even in this case the forced-choice architecture might have had an effect on the decisional process. Moreover, considering cognitive research on the perception and recognition of emotional faces, I would expect at least a difference in fixation time to emerge, with longer fixations to the emotional vs. the neutral face (Schupp et al., 2003-2007; Calvo & Lang, 2004; Carretié et al., 2004, Kulke et al., 2020). The emotional face is, in fact, a more salient stimulus, which should automatically capture attention, compared to the neutral facial expression (Pessoa et al., 2002; Vogt et al., 2008). Again, the results of Study 3 don't reflect these assumptions, and again, it might be that the forced choice has a role in it. Having some seconds to look at both pictures, and knowing that they have to choose between the two children, without an exit option, might induce participants to look back and forth at both stimuli, in order to better compare them and to optimise their choice, but reducing the difference in fixation time between the different emotional stimuli. With the present data, not having information on the fixation pattern but only the raw and percentage times spent looking at each picture, it is hard to make assumptions in this sense. Finally, it could be that having to actively choose which child to give – henceforth, which child *not* to give to – to, puts participants in a more accountable position, contributing to the generation of negative emotions for the child they cannot help (Study 3). In Study 2, on

the other hand, participants are given the option to help one child only, and the one they don't help is, thus, less of a responsibility for them, which might reduce the sense of guilt for not helping. This hypothesis can find some support in the above-cited work by Ein-Garr and colleagues (2021). Specifically, Study 3 partially mirrors the “choice” condition used by the authors, but presents a non negligible difference: it does not include an opt-out option. It would be interesting to explore in future works how participants react to the three conditions presented in my study, when also having the opportunity not to donate, and under which conditions the cognitive conflict is higher, leading to increased opt-out rates, or lower. As for example, the emotional expressions of the children might function as a justification mechanism to reduce conflict (e.g. the sad child looks needier than the neutral one, thus, donating to them doesn't feel as unfair as donating to the neutral one).

In future studies it could be useful to collect more precise fixation data: knowing which picture was looked at first, and whether participants look directly at the facial features carrying emotional information (e.g. eyes, mouth,...) or around them, or, again, how frequently they move their gaze from one picture to the other, could shed more light on the processing of the emotional faces and the donation decision. In addition, future research should address the question of whether using or not an exit option, when also giving donors the chance of choosing between the two children. This might give a deeper insight of the psychological processes influencing donation decisions in this context; moreover, an effect of emotional avoidance could emerge, resulting, for instance, in a decision to drop-out in the conditions perceived as the most uncomfortable (i.e. the ones where a sad child is present).

In conclusion, the present work contributes to the existing literature on charitable donations, trying to address some ongoing questions using a progressively more complex design and controlled stimuli and paradigms. Moreover, it opens research on charitable giving to new approaches, such as the use of visual attention to better understand the underlying psychological and cognitive processes during charitable decision making. Future works should continue researching on these new aspects, while also considering a more individual-focused investigation, exploring more and more how

individual and/or cultural differences influence altruistic and giving behaviour. Research in this field is much needed, both for enriching the theoretical knowledge on decision making and for providing useful tools that charities can make a use of to improve the good they can do.

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Appendices

Appendix 1

1. Conditions. Here are reported the three possible conditions of Study 1. Participants were randomly assigned to one of the conditions.

HAPPY CONDITION



This is a photo of Nayani. Nayani suffers from immunodeficiency, a disease that makes her particularly vulnerable to bacterial and viral infections. Because of her condition, she needs continuous treatment and expensive drugs. Her family is poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.

If you want to help Nayani select "YES", if you don't want to help Nayani select "NO".

Yes, I want to donate

No, I don't want to donate

SAD CONDITION



This is a photo of Nayani. Nayani suffers from immunodeficiency, a disease that makes her particularly vulnerable to bacterial and viral infections. Because of her condition, she needs continuous treatment and expensive drugs. Her family is poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.

If you want to help Nayani select "YES", if you don't want to help Nayani select "NO".

Yes, I want to donate

No, I don't want to donate

NEUTRAL CONDITION



This is a photo of Nayani. Nayani suffers from immunodeficiency, a disease that makes her particularly vulnerable to bacterial and viral infections. Because of her condition, she needs continuous treatment and expensive drugs. Her family is poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.

If you want to help Nayani select "YES", if you don't want to help Nayani select "NO".

Yes, I want to donate

No, I don't want to donate

2. Donation amount. Reported below is, the amount slider, only appearing if the participant chose to donate.

How much money (from \$0 to \$100) would you be willing to donate to Nayani? Use the slider below.

0 10 20 30 40 50 60 70 80 90 100

How much do you want to donate?

A horizontal slider bar with a blue circular handle at the 0 mark. The bar is a thin grey line extending from 0 to 100. The handle is a solid blue circle positioned at the very beginning of the bar, corresponding to the value 0.

Appendix 2

1. Conditions. Here are integrally reported the four possible conditions of Study 2. Participants were randomly assigned to one of the conditions. In the JE condition the picture of the target child was randomly presented on the right or on the left. For the seek of simplicity, here is only presented the condition with the target on the *left*. In brackets are reported the words that substituted the text in bold when the target was on the *right*.

HAPPY SE CONDITION



This is a photo of Nayani. Nayani suffers from immunodeficiency, a disease that makes her particularly vulnerable to bacterial and viral infections. Because of her condition, she needs continuous treatment and expensive drugs. Her family is poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.

If you want to help Nayani select "YES", if you don't want to help Nayani select "NO".

Yes, I want to donate

No, I don't want to donate

SAD SE CONDITION



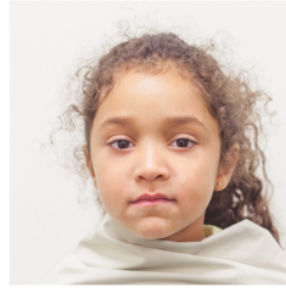
This is a photo of Nayani. Nayani suffers from immunodeficiency, a disease that makes her particularly vulnerable to bacterial and viral infections. Because of her condition, she needs continuous treatment and expensive drugs. Her family is poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.

If you want to help Nayani select "YES", if you don't want to help Nayani select "NO".

Yes, I want to donate

No, I don't want to donate

HAPPY JE CONDITION



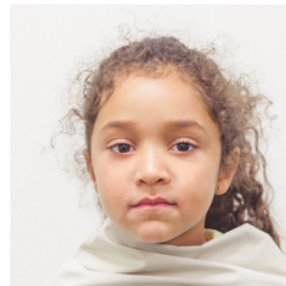
The picture on the left is a photo of **Nayani** [Oya], the picture on the right is a photo of **Oya** [Nayani]. Nayani and Oya suffer from immunodeficiency, a disease that makes them particularly vulnerable to bacterial and viral infections. Because of their condition, they need continuous treatment and expensive drugs. Their families are poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.

If you want to help Nayani select "YES", if you don't want to help Nayani select "NO".

Yes, I want to donate

No, I don't want to donate

SAD JE CONDITION



The picture on the left is a photo of **Nayani** [Oya], the picture on the right is a photo of **Oya** [Nayani]. Nayani and Oya suffer from immunodeficiency, a disease that makes them particularly vulnerable to bacterial and viral infections. Because of their condition, they need continuous treatment and expensive drugs. Their families are poor, and cannot afford the costs of the treatments. If you wish, you can help Nayani with a donation. This will help Nayani's family provide basic medical care. You can donate any amount of money.

If you want to help Nayani select "YES", if you don't want to help Nayani select "NO".

Yes, I want to donate

No, I don't want to donate

2. Donation questions. Reported below are the amount slider, only appearing if the participant chose to donate, and the question about donation perceived efficacy, appearing both if the participants chose to donate or not.

How much money (from \$0 to \$100) would you be willing to donate to Nayani? Use the slider below.

0 10 20 30 40 50 60 70 80 90 100

How much do you want to donate?



How efficient do you think your donation would be in order to help Nayani?

Not at all

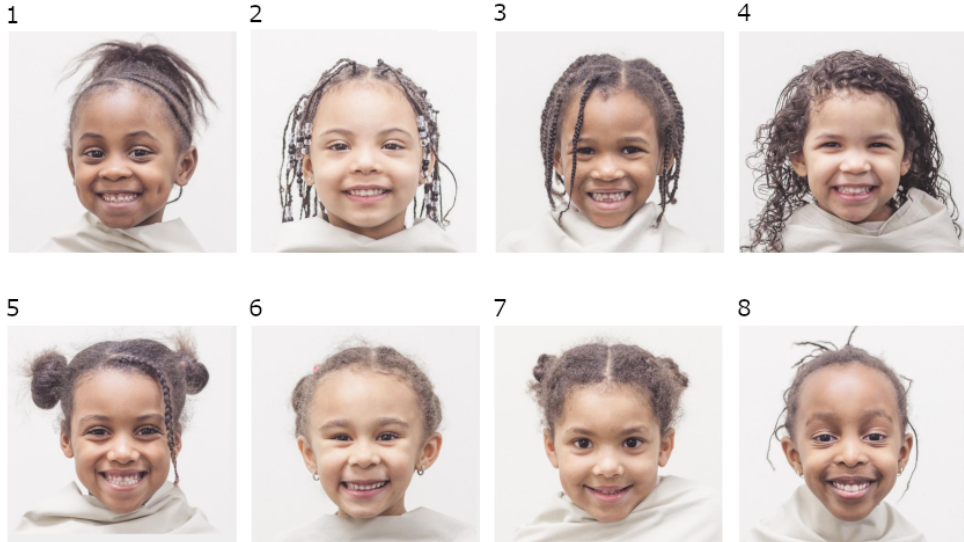
Very

Appendix 3

3.1 Pilot study

1. Tested stimuli.

HAPPY

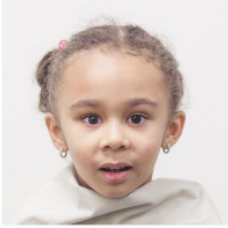


SAD

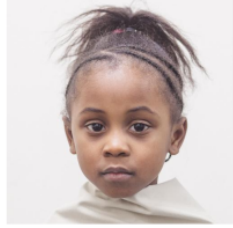


NEUTRAL

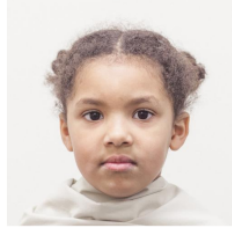
1



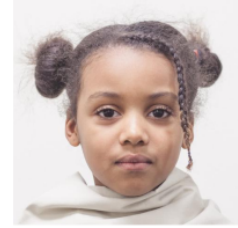
2



3



4



5



6



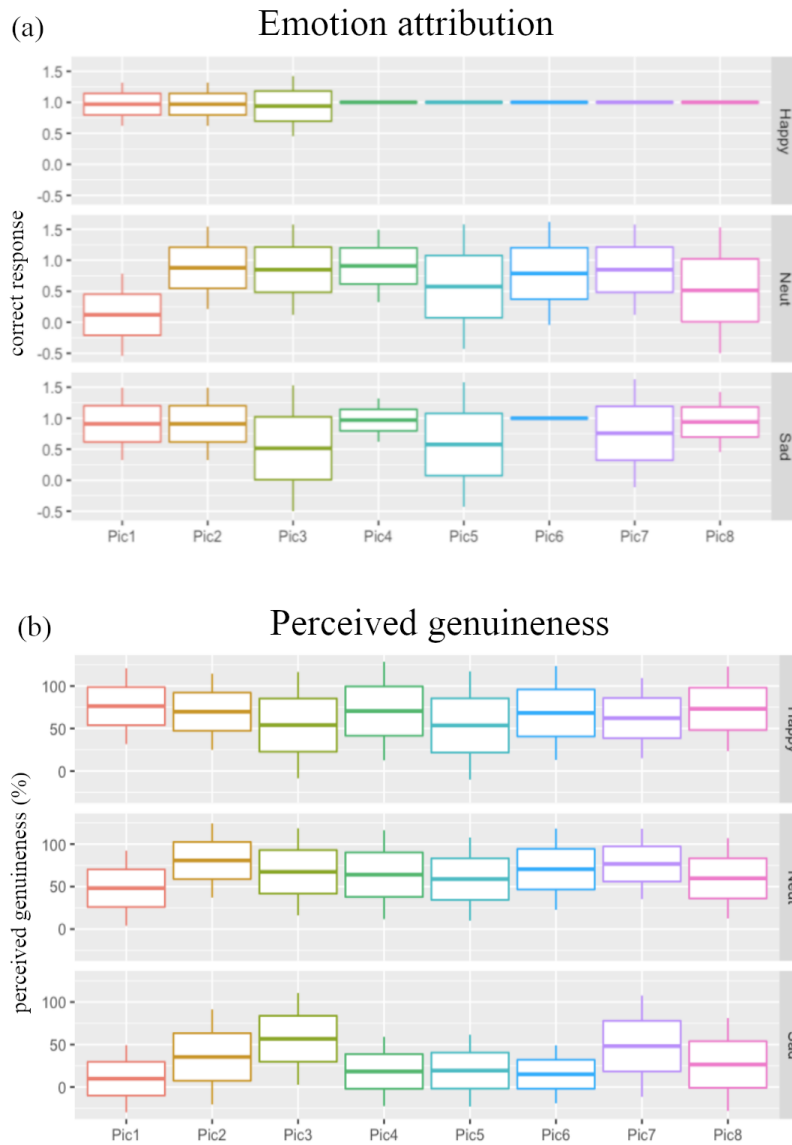
7



8



2. Results. The graphs show the percentage of correct answers and the perceived genuinity for each of the stimuli. The outcomes are grouped by facial expression.



3.2 Main study

1. Instructions and descriptive text. The texts reported below followed the eye-tracker calibration and preceded the donation trials. The instructions and the descriptive text appeared in two consecutive screens.

You can now start the task.

During the task you will first read a text, and then observe the pictures of some children. You will be then asked to make a donation to the children. The donation is **hypothetical**, but we ask you to act **as if it were a real donation**. Please answer all the questions truthfully.

ATTENTION:

If you received a "Failed Calibration" message in the previous calibration part, please close the experiment and return it on Prolific, as you will not be included in the data analysis.

You will now see the pictures of some children. They all suffer from **immunodeficiency**, a disease that makes them particularly vulnerable to bacterial and viral infections. Because of their condition, they need **continuous treatment and expensive drugs**. These children's families are poor, and cannot afford the costs of the treatments. You will see two children at a time, and you will be able to donate to either one or the other. This will help providing them with basic medical care. You can donate any amount of money up to 25€.

2. Conditions and donation decision. Here are integrally reported the three conditions of Study 3. For each condition, first appeared the two photos only, following a fixation cross and for a total of 3 seconds, during which the fixation time for each of the pictures was recorded. Then, the donation question and two choice buttons appeared; no fixation was recorded for this screen. The position (left/right) of the two pictures was randomly assigned at each trial. Participants saw all three conditions, in a random order.

HAPPY-NEUTRAL CONDITION

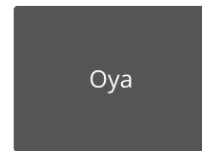
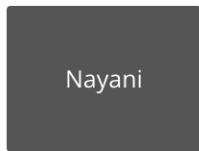


Nayani



Oya

I want to make a donation to:



SAD-NEUTRAL CONDITION

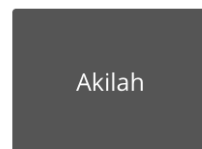
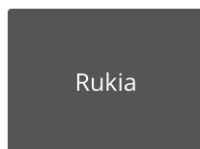


Rukia



Akilah

I want to make a donation to:



HAPPY-SAD CONDITION



Dada



Safiya

I want to make a donation to:

Dada

Safiya

2. Donation questions. Reported below are the amount slider and the question relative to the perceived efficacy of the donation.

AMOUNT

Thank you for your donation. You can now decide how much to donate, using the slider below.

0£



25£

PERCEIVED EFFICACY

How effective do you think your donation would be in helping the child?

Not at all

1 2 3 4 5 6 7

Very

3. Manipulation checks. Below are the two manipulation checks and the emotional expression check. For the latter, only one picture is reported as an example. The emotional expression check was done for all six pictures.

MANUPULATION CHECK #1

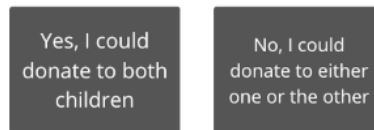
Before proceeding to the next session of the experiment, we ask you to answer a brief question about the task you have just completed.

Can you remember what was the main reason the children needed help for?



MANUPULATION CHECK #2

Can you remember if you had the option of donating to both children, or if you had to chose to donate to either one or the other?



EMOTIONAL EXPRESSION CHECKS

You will now be asked to rate the pictures you saw earlier in the task in terms of how intense was the emotion displayed by the children, from very sad to very happy, where 0 represents a neutral expression.



How intense is the emotional expression displayed?

Very sad ————— Very happy

Next

4. Brief Experiential Avoidance Questionnaire.

Brief Experiential Avoidance Questionnaire

Please indicate the extent to which you agree or disagree with each of the following statements.

	1-----	2-----	3-----	-----	4-----	5-----	6
	strongly disagree	moderately disagree	slightly disagree		slightly agree	moderately agree	strongly agree
The key of a good life is never feeling any pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am quick to leave any situation that makes me feel uneasy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When unpleasant memories come to me, I try to put them out of my mind	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel disconnected from my emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I won't do something until I absolutely have to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear or anxiety won't stop me from doing something important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would give up a lot not to feel bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I rarely do something if there is a chance that it will upsted me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's hard for me to know what I am feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to put off unpleasant tasks for as long as possible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I go out of my way to avoid uncomfortable situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One of my big goals is to be free of painful emotions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work hard to keep out upsetting feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I have any doubts about doing something, I just won't do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pain always leads to suffering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>