

**Exploring the role of contextual behavioural science variables and education  
in the prosocial domain of global poverty and human rights.**

Miles Thompson <sup>1,2,3</sup>, Frank W. Bond <sup>2</sup>, Jo Lloyd <sup>2</sup>, Samantha Anslow <sup>3</sup>, Emily Berry <sup>3</sup>

<sup>1</sup> Department of Social Sciences, University of the West of England

<sup>2</sup> Institute of Management Studies, Goldsmiths, University of London

<sup>3</sup> School of Psychology and Life Sciences, Canterbury Christchurch University

**CORRESPONDENCE AUTHOR:**

Dr Miles Thompson.

Address: Room 3A028. University of the West of England (UWE), Frenchay  
Campus, Coldharbour Lane, BRISTOL, BS16 1QY, UK.

Tel: +44 (0)117 32 87933

E-mail: miles2.thompson@uwe.ac.uk

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## **Exploring the role of contextual behavioural science variables and education in the prosocial domain of global poverty and human rights.**

### **Abstract**

Two preliminary, single session, lab-based experiments sought to examine the differing roles of: contextual behavioural science variables (i.e. ACT / mindfulness), charity focused education and control conditions in terms of their influence on donations to charities operating in the fields of global poverty and human rights. Across the two studies, participants (n=83, n=85) were compensated for their time and after completing self-report questionnaires were introduced to the work of Oxfam and / or Amnesty International and asked if they would donate any of their compensation to the charities (ask 1). Following this, participants listened to a single audio recording containing either: ACT / mindfulness material or relevant charity education content. Control conditions were also used. Participants were then asked again if they wished to donate any of their compensation to charity (ask 2), before being given their actual compensation and having the opportunity to donate some, none or all of it for real (ask 3). Results indicate a bimodal distribution in donation data forcing a change in analytic strategy to non-parametric statistics. Psychological flexibility measures did not significantly correlate with donation data. And neither ACT nor mindfulness audio recordings significantly moved the donation data across the asks. However, charity education material significantly and positively moved donation data between ask 1 and ask 3. The paper discusses possible reasons for the results and explores future avenues for research in the prosocial area.

The two preliminary, randomised, lab-based studies described in this paper seek to explore the ability of processes within Contextual Behavioural Science (CBS) to both predict and influence a specific prosocial behaviour, namely donations to charities working in the area of global poverty and human rights. The studies examine both correlational and experimental data.

The evidence for the utility of CBS, especially ACT and psychological flexibility, has been increasing over the two decades since the publication of Hayes et al. (1999). Reviews and meta-analyses of the ACT evidence base have tended to find medium to large effect sizes (e.g. Hayes et al., 2006; Powers et al., 2009). External bodies such as Division 12 of the American Psychological Association consider ACT to have strong support in the area of chronic pain (Society of Clinical Psychology, 2013). Furthermore, as of January 2021, there were in excess of 450 ACT related randomised controlled trials (RCT) published or in press (see: [http://contextualscience.org/ACT\\_Randomized\\_Controlled\\_Trials](http://contextualscience.org/ACT_Randomized_Controlled_Trials)).

Much of this evidence has been collected in areas of clinical or health psychology. That said, the wider mission of CBS is to: “create a behavioral science more adequate to the challenges of the human condition” (Hayes et al., 2012, p.2), with CBS research also potentially focusing on: “social disparities, environmental degradation, global climate change, poverty, child deprivation, and similar matters” (p.11). Work in this broader area could fall under the umbrella title of prosocial behaviour. Citing David Sloan Wilson (Wilson et al., 2009), Biglan and Glenn define prosocial behavior as “any belief, attitude, or behavior that contributes positively to others, to society as a whole, or both” (2013, p.257).

CBS generally and ACT specifically has an established and growing evidence base under the broad remit of prosocial behaviour. For example, Masuda et al. (2007) published a RCT targeting the stigma that can exist towards individuals with mental health problems in student populations (Masuda et al., 2007). Non-RCT interventions have also been published that sought to reduce ethnic minority prejudice in student populations (Lillis & Hayes, 2007) and stigma towards clients within drug and alcohol counsellors (Hayes, Bissett, et al., 2004).

More recently, Livheim et al. (2020) and Whittingham et al. (2014) described positive changes in self-reported prosocial behaviour as measured by a subscale of the Strengths and Difficulties Questionnaire in youths in residential care and children with cerebral palsy. Also recently, Gloster et al. (2020) used the Dictator Game (Guala & Mittone, 2010) and event sampling methodology to examine the role of ACT based micro-interventions in promoting prosocial behaviours within pre-existing romantic couples. In this study, participants were compensated for their time and results found that they gave more of their compensation to their partner, rather than keeping it for themselves, if they had experienced the ACT micro-intervention. Moreover, at a group and organisation level, Atkins et al. (2019) have published a manual to help promote prosocial behaviours within groups

and organisations with content including the work of 2009 Nobel prize winner Eleanor Ostrom (NobelPrize.org, 2021) and material from the ACT matrix.

In parallel to ACT, a more developed prosocial literature has been amassed in terms of meditation, including mindfulness. Two recent meta-analysis have examined its influence on prosocial behaviour and related emotions such as empathy, compassion, connectedness, aggression, and prejudice. Luberto et al. (2018) examined 26 RCTs (n=1714) and found small to medium effect sizes, concluding meditation can improve prosocial emotions and behaviour. More critically, in 2018, Kreplin et al. reviewed similar evidence (22 RCTs, n=1685) and found that any moderate increases were qualified by prosociality type and quality of study. Specifically, while compassion and empathy were altered positively; aggression, connectedness and prejudice were not. Moreover, positive changes were only found when the intervention was conducted by a study co-author and the study used waiting list rather than active controls – suggesting possible methodological issues.

It seems then, that not just in ACT but across related areas, more prosocial research remains to be done. Moreover, it seems noteworthy that despite prosocial evidence growing in ACT, the recent evidence tends to target prosociality towards relatively close others (partners, workplaces, those directly around us). As such, perhaps less exploration has taken place to date exploring prosociality in the areas described in the earlier quote (i.e. social disparities, environmental degradation, global climate change, poverty, child deprivation, and similar matters).

As such, this study chooses to focus on the topic of global poverty and human rights. Perspectives on poverty vary, but according to the United Nations, in 2018, more than 8 per cent of the world's workers and their families still lived on less than US\$1.90 per person per day (the current definition of extreme poverty; Hoy, 2015). Human rights are enshrined in documents including the 30 articles of the "Universal Declaration of Human Rights" (UDHR). For example: "Everyone has the right to life, liberty and security of person" (UDHR, III), "No one shall be subjected to arbitrary arrest, detention, or exile" (UDHR, IX). Non-governmental organisations like "Amnesty International" and "Human Rights Watch" monitor, research and campaign in this arena, regularly reporting on problems and abuses throughout the world. Limited CBS work has taken place in this area to date, but the potential of our field has been outlined (see Thompson, 2015).

Leading on from the above, it seems useful to gather evidence to examine the extent to which the successes CBS have established in other areas may be usefully applied to broader prosocial domains such as global poverty and human rights. Moreover, it seems helpful to provide some speculative details on the different ways in which specific ACT processes may operate in this area. For example, such work may help individuals clarify and / or become more aware of their values and thus more able to engage in committed action in

the face of potentially difficult / conflicting private events (thoughts, feelings, body sensations, urges and actions). Indeed, difficult thoughts and feelings may lead to individuals avoiding contact with such content; fusion with thoughts that such matters are someone else's responsibility might lead to avoidance; as might competing demands on limited resources. Individuals may equally become behaviourally inactive by the perceived enormity and complexity of the issues involved. As such, ACT based interventions may provide a space where individuals can be both willing to experience both the complex reality and resulting difficult private events and yet still have the possibility of taking action in a flexible way, if this is an area they care about.

Due to the relatively early stage of research into these broader prosocial areas – especially regarding global poverty and human rights – this paper will describe two studies conducted as preliminary experiments under single session laboratory conditions rather than more extended group based interventions. Meta-analyses of ACT interventions conducted under lab-based conditions have existed for almost 10 years (Levin et al., 2012; 66 different studies). And while, following functional contextual principles, we are concerned with the prediction and the influence of real-world behaviour (Biglan, 1995, p.34), it also seems important to explore the cross-sectional relationships between variables related to CBS and real-world behaviours.

In terms of real world behaviours, the specific studies detailed in this paper seek to increase donating behaviour. In 2011, an edited volume called “The Science of Giving” explored different psychological factors that might impact aspects of donating behaviour (Oppenheimer & Olivola, 2011). While the book highlights many potential influences, there is less of a focus on identifying factors that can be directly influenced. This is perhaps unsurprising as wider psychology / social psychology does not necessarily focus on examining manipulable variables in the same way that CBS does. However, studies in this volume and other publications include models that can be both adopted and adapted. For example, Zagefka et al. (2013) investigated the role of increasing knowledge in terms of increasing donating behaviour (see also Oppenheimer & Olivola, 2011). Studies such as those carried out by Zagefka have shown that increasing knowledge can have a positive impact of donations – perhaps because it increases participant understanding of situations and / or an identification with victims. In terms of methodology, in Zagefka et al. (2013), participants were compensated £3 or £5 for taking part, in 50 pence pieces and had the opportunity to donate all or part of this money towards causes associated with the study. Moreover, as Zagefka and James (2015) note, knowledge is an interesting variable because it can be reasonably easily manipulated (p.171). As the closing of a perceived knowledge deficit provides a potential useful active control it will be adopted in this experiment. Although, it must be noted that increase of knowledge alone may not be enough to increase

prosocial behaviour (e.g. Kollmuss & Agyeman, 2002, p.241).

In sum, these two studies will explore if it is possible to increase the amount of money that participants donate to charities associated with global poverty and human rights using audio recordings related to CBS variables (e.g. ACT / mindfulness) on the one hand and charity education on the other. Specifically, the research questions these studies focus on are whether:

1. Self-reported expected donations to charity are related to psychological flexibility measures, prior to any intervention being given (cross sectional).
2. Whether donations to charity can be increased through different micro interventions (i.e. i. CBS related variables [ACT / mindfulness], ii. Charity education).

## **Study 1 – Method**

### **General overview**

These studies took place in the UK and all participants received £5 compensation for their time. After answering a self-report questionnaire and before any intervention, participants were briefly introduced to the work of both Oxfam and Amnesty International (notable charities in the field of global poverty and human rights) and asked if they would donate any of their £5 to either charity (ask 1). Following this, participants listened to one of three ten-minute audio recordings containing either: an ACT related micro-intervention, relevant charity education content, or a control condition featuring music. Then participants were again asked if they wished to donate any of their £5 payment to either charity (ask 2). Finally, participants received their actual £5 compensation and had the opportunity to donate some, none or all the payment to either charity for real (ask 3).

### **Measures**

The key dependent variable in this study was the amount of the £5 compensation that participants donated to charity or kept for themselves. Participants were asked on three occasions (i. before listening to the audio, ii. after listening to the audio and iii. after they had been given their payment).

The **AAQ-II** (Acceptance and Action Questionnaire; Bond et al., 2011) is a uni-dimensional seven item measure. Participants answer items on a 7-point Likert type scale ranging from (1) never true to (7) always true. Higher scores indicate higher levels of psychological inflexibility. Within the present sample the AAQ had very good levels of internal consistency ( $\alpha = .89$ ; DeVellis, 2012).

The **EPIC** (Everyday Psychological Inflexibility Checklist; Thompson et al., 2019) is a relatively new measure that assesses aspects of psychological inflexibility in an everyday context. It contains eight items over two factors (Avoidance [A] and Behavioural Rigidity [B]). Participants answer items on a 7-point Likert type ranging from (1) never true to (7) always true. Higher scores indicate higher levels of psychological inflexibility. Within the present

sample, the EPIC had very good levels of internal consistency (A:  $\alpha = .82$ ; B:  $\alpha = .80$ ).

**Manipulation check measure.** A new 10 item measure was designed for this study. It was completed by participants after they had listened to one of the three audio recordings. It asked if the audio recording had helped to increase understanding of 10 different things. Five items related to the education recording (e.g. Global poverty; Oxfam) and five were related to the ACT recording (e.g. How my thoughts and feelings can hinder action; Not needing to let thoughts and feelings get in the way of donating). No items related directly to the control condition (music). Participants responded to each item on a 7-point Likert type scale ranging from (1) strongly disagree to (7) strongly agree. Higher scores indicate higher levels of understanding. Within the present sample, the education sub-scale had very good internal consistency ( $\alpha = .92$ ) as did the ACT sub-scale ( $\alpha = .95$ ).

### **Interventions – audio recording description**

Each of the three recordings (ACT, education and music / control) was approximately 10 minutes long. The education and ACT intervention were matched in terms of both time and the readability of the text used in the script. The music / control recording simply contained non-lyrical, slow, instrumental music.

In terms of the ACT condition, following research by Levin et al. (2012) who found larger effect sizes for experiential tasks compared to rationale alone, the ACT audio contained a number of short experiential tasks. In general, the recording tried to increase psychological flexibility around pro-social behaviour focused on global poverty and human rights. The recording touched on 5 of the 6 aspects of the hexaflex, excluding self as content / context.

In more detail, at the beginning, the recording noted how it was not trying to change participants minds, but instead to get them to pay attention and be aware of what was going on in terms of private events. It began with a brief orientating, moment of eyes-closed, focus on breathing. The first main task asked participants to notice whether global poverty and human rights was something they value. Again, not trying to change values, but to note them. The next task asked participants to consider that if global poverty could be changed relatively easily – if we only made a small effort – would they make that effort. This functioned both to get participants to consider if they valued engaging in this behaviour and as a potential space where automatic thoughts / feelings might be created about how reality might be more complicated and difficult than this. This segued into a section where participants were invited to notice how private events can impact our behaviour when we think about engaging in prosocial behaviour. Other sections explored the general nature of and potential costs of automatic thoughts and the influence they can have on our behaviour, including taking us away from our values, as well as the risk of “auto-pilot” in terms of valued behaviour. This led into a task where participants were invited to recall for themselves the

private events that occurred to them during ask 1 of this study. Finally, the recording moved towards the possibility and potential of being able to notice private events, even difficult ones, and to both allow them and be able to act in the direction of prosocial values.

In terms of the education recording, in general, it provided information about global poverty, human rights and the work of both Oxfam and Amnesty International specifically. In more detail, the recording began with some statistics on global poverty and human rights, indicating the number of people affected globally and the different impacts and implications in terms of quality of life. Then it focused first on Oxfam, providing some information on its history, including the history of its name. Then highlighted Oxfam's work around the world, and how some of this work is funded through its charity shops in the UK. The focus then moved to human rights, providing more details on human rights abuses globally before describing Amnesty International. Here, again, first the history of the organisation was highlighted before focusing on its work around the world, including its campaign against torture for which it won the Nobel Peace Prize in 1977.

### **Procedure**

Ethical permission was sought and received from the host institution. Participants were recruited from within that institution by posters and flyers as well as e-mails to different departments. The experiment took place in one of the psychology labs. Data was collected using the online survey platform Limesurvey (<http://www.limesurvey.org>).

All participants were compensated £5 for their time. Once the participant was settled in front of the computer, the research assistant would leave the lab in an effort to reduce demand characteristics. The participant then controlled the progress of the study which was automated through the survey platform. Following reading the information sheet and consent form, participants read a short amount of background information about global poverty and human rights before being provided with a one sentence introduction to the work of both Oxfam and Amnesty International.

Then, at ask one, on-screen instructions asked participants to divide their £5 compensation, in any whole pence combination to: Oxfam, Amnesty International or themselves. Following this, they listened to one of the three ten-minute audio recordings: an ACT micro-intervention, charity education, or a control condition featuring music. The survey software randomized the choice of audio recording. After the audio, participants completed the manipulation check measure. Then on-screen instructions asked participants to either reconfirm or change their level of donations to charity or self, by re-entering the amounts (ask two). Without the research assistant entering the room, participants received their actual compensation and now had the opportunity to divide it between the charities or themselves for real (ask three). Participants received their compensation in a coin configuration that enabled them to make any combination of donations to self or charity.



## **Participants**

In total 83 participants took part, they were mainly students recruited within the host institution. Of these: 53% were female, with an average age of 25 years (SD 9.6, range 18-68). In terms of other demographic data, information related to different categories is presented if more than 5% of participants fall into that category. In terms of geographical location: UK (87%), Europe (13%). Regarding ethnicity: White (87%), Mixed (6%). In terms of highest level of education: GCSE's or A' levels (65%), undergraduate degree (18%), postgraduate degree (12%).

## **Results**

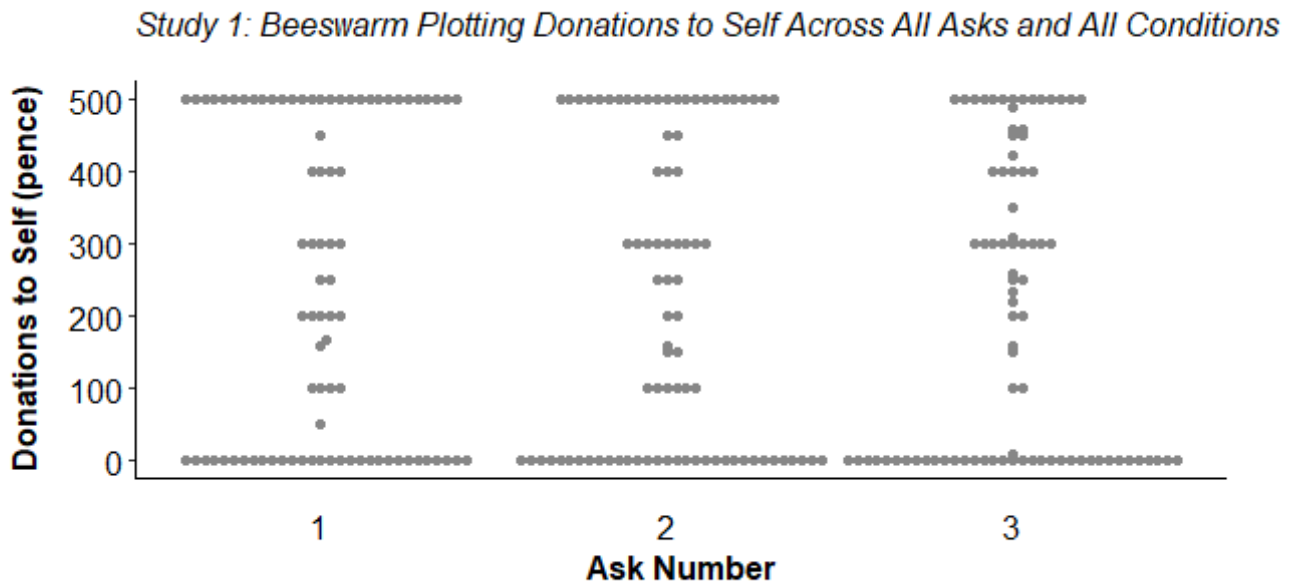
The key dependent variable in the results is how the £5 compensation was allocated by participants to either: Oxfam, Amnesty International, or kept by self. As there are two charities, we focus on donations to self. So larger amounts of money donated to self, indicate less money given to either charity / less prosocial behaviour.

### **Characterising the data**

Within a normally distributed population, a bell-shaped curve, 68% of the data should occur with 1 standard deviation of the mean, 96% within 2 deviations of the mean and just 2% at the extreme points beyond that (Aron et al., 2014). Compared to the 2% of data that would normally be found at the extreme points, in this sample at ask one, 36% of participants (n=30) allocated all of the money to themselves, a further 35% (n=24) donated it all to charity. That amounts to 71% of the data occurring at the two most extreme points, leaving only 29% (n=34) of the data elsewhere (also see Figure 1).

Data distributions, like our sample, that have "two distinct humps" (Coolican, 1994, p.200), "two predominant peaks" (Howell, 2010, p.27) or "two modes" (Field, 2013, p.22) can be described as Bimodal. As bimodal data is not open to transformations, non-parametric statistics will generally be used throughout these results (Pett, 2016) as such we will focus on within group changes (ask 1 v 2 v 3) rather than between group (ACT v education v control) changes.

Figure 1



### Cross sectional correlations

Table 1, below, shows the correlations between the donations to self at asks one to three and the psychological flexibility measures (AAQ-II / EPIC A & B). In short, while the three asks have strong, positive relationships with each other, there are no relationships between them and the measures of psychological flexibility.

Table 1: Kendall Tau correlations between the three asks and the psychological flexibility measures.

|        | Ask1   | Ask2   | Ask3 | AAQ-II | EPIC A | EPIC B |
|--------|--------|--------|------|--------|--------|--------|
| Ask2   | .80*** | -      |      |        |        |        |
| Ask3   | .58*** | .66*** | -    |        |        |        |
| AAQ-II | .01    | -.02   | -.01 | -      |        |        |
| EPIC A | .11    | .11    | .09  | .25**  | -      |        |
| EPIC B | .09    | .10    | .01  | -.07   | .17*   | -      |

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . AAQ-II = Acceptance and Action Questionnaire II. EPIC = Everyday Psychological Inflexibility Checklist; Avoidance (A) and Behavioural Rigidity (B).  $N = 83$ .

### Manipulation checks

Before assessing the influence of the audio conditions on donations, we first check whether the audio conditions were understood by participants. Table 2 shows the scores for

the sub-scales of the manipulation check measure which was completed after participants had listened to their randomly allocated audio recording. As hoped, higher scores are found where audio condition and sub-scale match.

Table 2. Mean and standard distributions for the sub-scales of the understanding manipulation check measure across all three audio conditions.

|                     | Education condition | ACT condition | Music (control) condition | Total sample |
|---------------------|---------------------|---------------|---------------------------|--------------|
| Education sub-scale | 28.03 (5.76)        | 13.72 (7.16)  | 13.11 (7.06)              | 18.69 (9.66) |
| ACT sub-scale       | 19.83 (6.54)        | 24.64 (5.36)  | 16.36 (8.38)              | 20.11 (7.60) |

Two independent sample Kruskal-Wallis tests were performed, as the distribution of the data was non-normal. For the education subscale a significant effect for condition was found ( $H(2) = 43.471, p < .001$ ). Pairwise comparisons found significant differences between education and music ( $p < .001, r = .46$ ) and education and ACT ( $p < .001, r = .42$ ), but no significant difference between the scores for music and ACT audio conditions ( $p = .78, r = .02$ ). For the ACT sub-scale, a significant effect for the audio condition was found ( $H(2) = 16.167, p < .001$ ). Following the same pattern, pairwise comparisons found significant differences between ACT and music ( $p < .001, r = .31$ ) and ACT and education ( $p < .008, r = .21$ ), but no significant difference between the music and education audio conditions ( $p = .48, r = .10$ ). In terms of effect size (small  $> 0.1$ ; medium  $0.3$ ; large  $> 0.5$ ), the education condition had larger results ( $r = .42 / .46$ ) than the ACT condition ( $r = .21 / .31$ ). These results suggest that participants engaged in and understood the content of both the education and ACT audio conditions.

### **Influence of audio condition on donations**

Table 3 below, shows the donation data in pence across the three asks and three conditions. In light of the extent of the bimodal distribution, both mean and median descriptive data are shown to illustrate their differences. The size of the standard deviations are illustrative of the bimodal nature of the data.

Table 3: Mean and median results across the conditions and asks in study 1 showing donations to self in pence (0-500).

|                          | Ask 1                     | Ask 2            | Ask 3            |
|--------------------------|---------------------------|------------------|------------------|
| All (n=83)               | M/sd 245 (220)<br>Mdn 200 | 223 (213)<br>200 | 208 (205)<br>200 |
| ACT (n=25)               | M/sd 230 (205)<br>Mdn 250 | 238 (210)<br>300 | 234 (186)<br>260 |
| Charity education (n=30) | M/sd 269 (233)<br>Mdn 250 | 210 (225)<br>125 | 192 (219)<br>55  |
| Music [control] (n=28)   | M/sd 233 (226)<br>Mdn 183 | 224 (210)<br>205 | 201 (210)<br>130 |

*Note.* M/sd = Mean and standard deviation, Mdn = median.

Four Friedman tests, a non-parametric test for repeated measures, were employed to check for any significant differences across the three asks on the combined participant data, and then the 3 different audio conditions. Across the sample as a whole, a Friedman test found that the ranked distribution of donations significantly changed over the course of the three asks  $\chi^2(2) = 16.67$  ( $p = <.001$ ). Post hoc analyses (using Nemenyi) found significant differences only between ask 1 and 3 ( $p = .03$ ). In short, across the sample, donations to self decreased between ask 1 and 3.

Filtering participant data by condition: the charity education condition produced a significant result  $\chi^2(2) = 8.578$  ( $p = .014$ ), with post hoc differences between ask 1 and 3 only ( $p = .024$ ); the ACT condition did not produce a significant differences  $\chi^2(2) = 3.35$  ( $p = .187$ ); and unexpectedly, the music / control condition produced a small significant result  $\chi^2(2) = 6.55$  ( $p = .038$ ), again with post hoc differences between ask 1 and 3 only ( $p = .024$ ).

### Discussion

In summary, the analysis of study 1 data was unexpectedly constrained by the bimodal distribution of the donations. Overall, the results indicated that psychological flexibility measures had no significant correlations with the donation data across any of the three asks – although the different asks had strong positive correlations with each other. Results from the manipulation check measure suggest that participants understood both the ACT and charity education conditions. And yet, the ACT condition did not significantly alter donations to self, whereas the education conduction – and oddly, the control condition, did between ask 1 and 3.

While these are not the hoped-for results for ACT in terms of both cross sectional and intervention data, they need to be considered alongside a methodology which produced

unexpectedly bimodal results and an unexpectedly active control condition. Both will be further explored in study 2 below.

## Study 2

### Introduction and procedure

In general, study 2 sought to replicate many aspects of study 1 whilst making some methodological modifications in the direction of simplicity to help unpick the results described above. Specifically, in study 1 participants could split their money 3 ways (Oxfam, Amnesty International, or self). This may have contributed to the bimodal data distribution. So, in study two we reduced the options to just one charity (Amnesty International) or self. Also, in study 1, the ACT intervention did not significantly shift donations, but the control (music) did. Without trustworthy controls, all future results may be unsound, moreover, it is possible that the music condition might have had an active relaxing influence on participants. As such, we sought to make the control arm less active to check its stability. Specifically, a third of participants would not listen to any audio condition – with half of them responding to 3 asks (mirroring the audio conditions), and the other half bypassed the second ask, going straight from ask 1 to ask 3 (2 asks only). Finally, as the potentially relaxing music condition did seem to produce a significant result, and ACT did not, and considering the prosocial mindfulness/meditation literature described in the introduction – study 2 employed a brief mindfulness audio recording instead of ACT.

As before we hoped to see whether psychological flexibility self-report measures have any relationship to donation behaviour and whether a CBS related audio recording (this time mindfulness) influences donations in a comparable way to charity education. Finally, we will examine if this simplified methodology still produces bimodal results and if control conditions produce stable data.

### Measures

As before, the key dependent variable was the £5 compensation which participants could split in any whole pence combination between the single charity (Amnesty International) and self.

Repeating study 1, the psychological flexibility self-report measures were the AAQ-II ( $\alpha=.92$ ) and EPIC (Avoidance,  $\alpha=.80$ ; Behavioural Rigidity,  $\alpha=.81$ ). Participant understanding of the charity education audio only was explored using a new 4 item manipulation check measure asking participants about their familiarity, knowledge and approval of the work of the charity on a 7-point Likert type scale ranging from (1) strongly disagree to (7) strongly agree. Higher scores indicating higher levels of understanding. The measure was completed by participants in the active intervention arms (mindfulness and education) both before and after listening to their audio recording. Within the present sample, the measure had good levels of internal consistency pre ( $\alpha=.93$ ) and post ( $\alpha=.89$ ).

## Interventions – audio recording description

Building from study 1, two audio recordings were used in study 2: i. charity education focusing just on Amnesty International and ii. a mindfulness recording. Each was approximately 5 minutes long (half the length of study 1). The charity education recording was simply an edit of the initial script used in study one, focusing on human rights and the work of Amnesty International. The mindfulness recording was a generic, short mindfulness exercise focusing on breathing and present moment awareness.

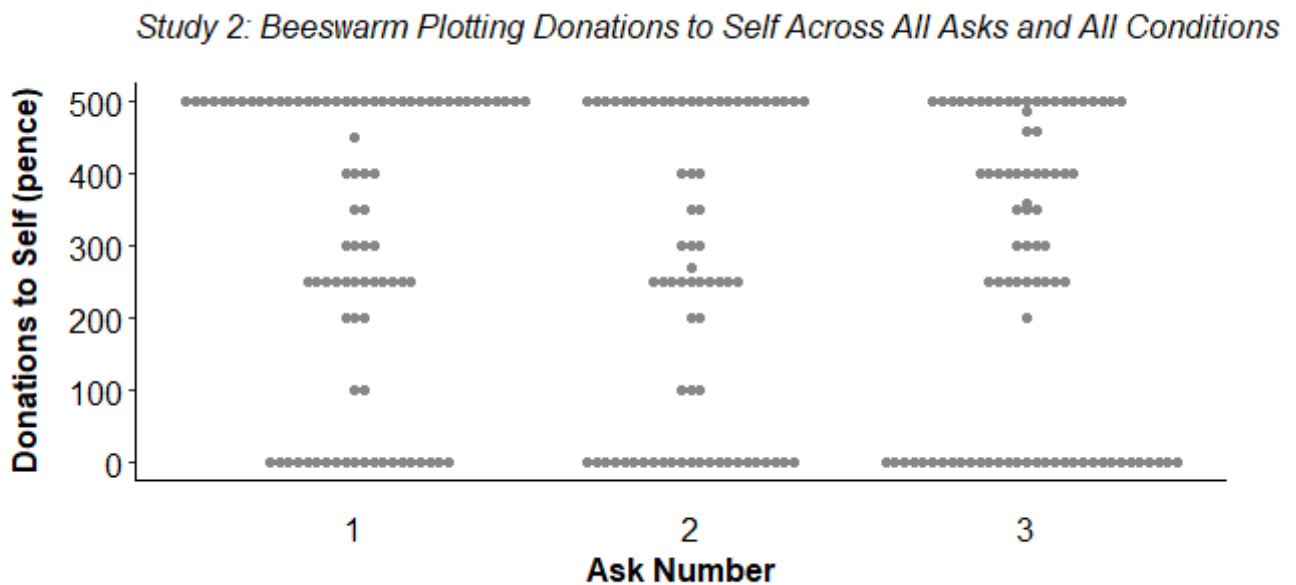
## Participants

In study two, 85 participants took part, again mainly students recruited within the host institution. Of these: 57% were female, with an average age of 23 years (SD 8.5, range 18-63). In terms of geographical location: UK (81%), Europe (4%). Regarding ethnicity: White (72%). In terms of highest level of education: GCSE's or A' levels (72%), undergraduate degree (6%), postgraduate degree (5%).

## Results

Being consistent with study one, the results will focus on donations to self and follow the same order as before. Again, the distribution of donations was distinctly bimodal (see Figure 2). At ask one, 43.5% (n=37) chose to allocate all of their money to self, and 23.5% (n=20) chose to allocate all of it to charity, leaving only 33% (n=28) not choosing one of the two most extreme points. As before, non-parametric tests are employed.

Figure 2



### Cross sectional correlations

Table 4, below, shows the correlations between donations to self and the psychological flexibility measures. In short, the data replicates study 1 – strong positive relationships between the asks, but no significant relationships with the psychological flexibility measures.

Table 4. Kendall Tau correlations between the three asks and the AAQ-II and EPIC A & B.

|        | Ask1   | Ask2   | Ask3 | AAQ-II | EPIC A | EPIC B |
|--------|--------|--------|------|--------|--------|--------|
| Ask2   | .81*** | -      |      |        |        |        |
| Ask3   | .73*** | .77*** | -    |        |        |        |
| AAQ-II | .05    | -.05   | -.02 | -      |        |        |
| EPIC A | .04    | .05    | -.01 | .16*   | -      |        |
| EPIC B | .10    | -.02   | .09  | .06    | .05    | -      |

*Note.* \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . EPIC = Everyday Psychological Inflexibility Checklist; Avoidance (A) and Behavioural Rigidity (B). AAQ-II = Acceptance and Action Questionnaire II.  $N=85$ , apart from when involving Ask 2, then  $N=71$ .

### Manipulation checks

The manipulation checks in study 2, focused on participant understanding of the charity education audio. The measure was completed by those in the education and mindfulness conditions only. The data shows that those who listening to the charity education audio increased their mean score on the measure from 12.7 (sd 5.3) to 21.6 (sd 2.8), compared to those in the mindfulness condition whose scores stayed almost identical before 15.1 (sd 7.0) and after 15.1 (sd 6.7) listening to the mindfulness audio. A two-way mixed ANOVA showed a significant main effect of time on participant scores ( $F(1, 50) = 97.54$ ,  $p < .001$ ,  $\eta_p^2 = .661$ ), a significant interaction between time and condition ( $F(1, 50) = 97.12$ ,  $p < .001$ ,  $\eta_p^2 = .665$ ), and a significant main effect of condition on scores ( $F(1, 50) = 432.17$ ,  $p < .001$ ,  $\eta_p^2 = .896$ ). Examination of the profile plots confirm that while the mindfulness condition scores stayed the same before and after listening to the audio, the scores for the charity education condition increased significantly between the two time points.

### Influence of audio condition on donations

Table 5 below shows the donation data across the three asks and four conditions (2 controls). Friedman tests were carried out on the combined participant data where 3 asks were made ( $n=71$ ), and on the three separate conditions which involved 3 asks

(mindfulness, charity education, and 'control including ask 2'). A Wilcoxon test was carried out on 'control without ask 2' (n=14) as it only has pre-post data.

Table 5: Mean and median results across the conditions and asks in study 2 showing donations to self in pence (0-500)

|                                   | Ask 1                     | Ask 2            | Ask 3            |
|-----------------------------------|---------------------------|------------------|------------------|
| All (n=85, 71, 85)                | M/sd 309 (204)<br>Mdn 350 | 257 (211)<br>250 | 251 (212)<br>300 |
| Mindfulness (n=28)                | M/sd 303 (203)<br>Mdn 325 | 290 (210)<br>300 | 245 (213)<br>300 |
| Charity education (n=24)          | M/sd 304 (219)<br>Mdn 425 | 200 (225)<br>100 | 210 (225)<br>125 |
| Control including ask 2<br>(n=19) | M/sd 284 (189)<br>Mdn 250 | 281 (186)<br>250 | 241 (191)<br>250 |
| Control without ask 2<br>(n=14)   | M/sd 361 (211)<br>Mdn 500 | -                | 346 (204)<br>450 |

*Note.* M/sd = Mean and standard deviation, Mdn = median.

Across the sample as a whole, there was a statistically significant difference over the three asks  $\chi^2(2) = 20.73$  ( $p < .001$ ), with post hoc differences only between ask 1 and 3 ( $p = .025$ ). Further Friedman tests, splitting participant data by condition, found no statistically significant differences for the mindfulness condition  $\chi^2(2) = 3.94$  ( $p = .139$ ), nor the control condition with 3 asks  $\chi^2(2) = 5.55$  ( $p = .062$ ). However, the charity education condition did again produce a significant result  $\chi^2(2) = 14.53$  ( $p = .001$ ), with post hoc differences only between ask 1 and 3 only ( $p = .09$ ). Finally, the second control condition with only 2 asks showed no significant difference between those asks ( $T = 0$ ,  $p = .157$ ).

### Study 2 and general discussion

These two preliminary studies were conducted to explore whether a specific behaviour (i.e. donations) towards a prosocial area (i.e. global poverty and human rights) were related to and could be increased by CBS related variables. In neither study did self-report measures of psychological flexibility (AAQ-II and EPIC) relate to donations nor did an ACT nor mindfulness recording significantly increase donations. However, across both studies the charity education condition consistently, significantly, moved donations in a prosocial direction between ask 1 and 3.

Focusing in more on study 2, certain modifications helped clarify some details from study 1. In study 2, control conditions, which involved not listening to any audio appeared to



produce stable results, so do not inherently question any future use of this methodology. However, across both studies, the methodology produced consistent bimodal data distributions and future work in this area will need to take this into account in terms of planned sample sizes and analytic strategy.

This study produced consistent results in terms of the effectiveness of providing education around the target area and the charities involved. It has been suggested that increasing knowledge and raising awareness might be 'a' or even 'the' important step in terms of mobilising support in terms of global poverty and human rights (United Nations General Assembly, 2010 point 78-f, p.29). Indeed, other research has also suggested that increasing knowledge, increases donation levels (Oppenheimer & Olivola, 2011; Zagefka et al., 2013). This is contrasted with the results in this paper that do not immediately suggest that CBS variables and interventions have strong roles to play in this specific domain of prosocial behaviour (i.e. global poverty and human rights). However, it must be noted that research in other prosocial areas (e.g. romantic couples) has recently been published that did produce positive results as highlighted in the introduction (i.e. Gloster et al., 2020). It is also likely sensible to be cautious before assuming that any form of knowledge raising activity will produce desired outcomes. It is worth noting that although they were only designed for these two studies and were more focused on checking that the audio recordings had been listened to, neither education focused manipulation check measure produced significant correlations with donation data. Another issue that is worth considering in the future is whether the effectiveness of providing educational information can be enhanced through the addition of insights from CBS (e.g. Education + ACT). Future research may choose to investigate this.

For now, the two studies reported in this paper focused on behaviour related to global poverty and human rights. Work by Gloster et al. (2020; romantic couples) and these studies (global poverty and human rights) both seem to meet Biglan and Glenns definition of prosocial behaviour (“any belief, attitude, or behavior that contributes positively to others, to society as a whole, or both”). Perhaps it is useful to note that sometimes, as academics, we talk about prosocial behaviour “generally”. But of course, prosocial behaviour is not one single thing. There is likely a spectrum of prosocial behaviours (different things that we think, feel and do) across a broad range of domains (for example, very generally: towards family and loved ones, towards people and things physically close to us and towards things that are more distant to us). As previously noted, CBS literature highlights how future research could focus on areas such as: “social disparities, environmental degradation, global climate change, poverty, child deprivation, and similar matters” (Hayes, et al., 2012, p.11). The specific examples in the quote, like the studies in this paper, seem to relate prosocial domains that are arguably more distant to us. It may be interesting for future research to

tease out any potential differences that exist between different prosocial behaviours and domains. What differences exist, for example, between behaviour towards someone you love or are related to, who you interact with every day, in an area most, if not all, people would agree is important (i.e. family and loved ones); and domains which are more distant, harder to positively interact with on a daily basis, and some may feel is not a priority for them (i.e. global poverty and human rights). Future research might need to explore how prosocial behaviours and domains differ, if at all. It seems possible, for example, that CBS may be more immediately impactful when applied to certain prosocial behaviours and domains and not to others. It could be that for more distant prosocial areas another CBS element, e.g. values, may be integral in terms of whether CBS interventions are influential or not. Of course, this is an empirical question which needs to be bottomed out through the collection of further data.

It is useful to explore other possible reasons why the studies above found the results they did. Firstly, broadly, it is worth noting the relative complexity of the first study (e.g. donations to two charities / across three asks). However, it is important to note the general findings and bimodal data remained in study 2.

In terms of study 1, one may wonder if the ACT audio recording did not work. While this is possible, the positive results from the manipulation check measure suggests that the ACT recording was at least understood. Of course, other issues may be in play. For example, perhaps the intervention needed to be longer (a treatment dose effect; Hansen et al., 2002), or maybe required longer to “sink in” (a mental practice effect; Driskell et al., 1994). It could also be the case that a different script focusing differently on CBS processes may have produced a different result. In terms of study 2, it is important to note that mindfulness was unlikely to have been taught or shaped as a skill in such a short intervention. Instead, simply, a mindfulness recording was listened to by participants.

More broadly in terms of methodology, it is worth noting that one of the things this research tried to do was not just compare donations across groups of participants (e.g. ACT v charity education; between groups) but to establish and then compare against a baseline of donating (ask 1 v ask 2 & ask 3) within groups. Many lab-based studies only gather donation data at one time point (e.g. Zagefka et al., 2011, 2013), which only allows for comparison between groups. Here multiple asks allowed for a comparison within groups – which turned out to be important when the bimodal data restricted analytic choices. However, it is also possible that multiple asks may have established a “preference for consistency”. This has been noted elsewhere in the literature (e.g. Cialdini et al., 1995). But more research is needed to investigate the extent of this phenomena, whether it is problematic, or whether it might even have useful parallels to real world behaviour. It is also worth considering that while audio recordings can be consistently delivered, it seems

possible that CBS interventions might benefit from being delivered in a more 1-2-1, interactive format. Although it must also be noted that the ACT audio recording was written to be as experiential as possible.

The research was set up so that participants could donate any amount of money from 0 to 500 pence (£5), in single pence increments, with the hope of producing normally distributed data. The bimodal data found in both studies limited data analysis options. Moreover, the pattern of responding limited the potential of participants to change the amount they donated. For example, in study 1, at ask one, two thirds of participants donated at one of the two extreme points: all or nothing to self. This provided limited directions in which participants could move their behaviour even if they wanted to.

Taken together, if results like this continue to be found, it may limit the potential usefulness of donation methodologies like this as CBS continues to investigate the role it can play in developing and encouraging prosocial behaviours. At the same time, it may be the case that changing a single variable, for example giving participants more compensation for their time, i.e. £50 rather than £5 may alter the pattern of donating. It is worth noting that Gloster et al. (2020) provided 240 Francs (approx. £200) in compensation to each of its participants. Of course, such modifications would make future research more expensive to run. It is also worth bearing in mind that donating participant compensation in a lab-based setting having just learnt about the charity in situ, may be easier than donating money in the real world where there may be more competing demands for the money and perhaps less accessible or even contradictory sources of information.

With the above in mind, it may be that as a field we also need to investigate other experimental and cross-sectional methodologies as we gather evidence for the role of CBS across different prosocial behaviour and domains. Indeed, if future research also finds bimodal data, researchers may choose to focus on other instances of behaviour that can be recorded in nominal categories such as yes / no binaries. For example, signing a petition, writing a letter, or taking part in an act of activism. Moreover, despite the relevant concerns of Newsome et al. (2019) about the focus of our field on self-report measures and not behaviour, the potential difficulty of capturing normally distributed data reflecting a real-world behaviour might suggest a need for parallel investigations of this topic area with the use of self-report measures.

Finally, it must be noted that this paper does not represent CBS as a whole. Instead with its focus on ACT in study one, mindfulness in study two and psychological flexibility measures across both, this represents one possible example of work occurring within CBS concerning prosocial behaviour broadly defined. Relatedly, in terms of the self-report measures used in this study, psychological flexibility measures did not significantly relate to any of the three asks in either of these studies. This mirrors previous research where

psychological flexibility related variables have either not correlated or had mixed results with measures of empathy and other prosocial measures (e.g. Levin et al., 2014; Thompson et al., 2019; Vilaradaga et al., 2012). More work is needed to understand this developing pattern of results. Due to the positive results for education across these studies, future research may also wish to more carefully assess levels of existing knowledge at both pre and post intervention.

In all, future directions for research across this broader prosocial area (including global poverty and human rights), might include: longer or more interactive conditions, less asks, different target behaviours, measuring values and seeing if CBS variables amplify the influence of education. More broadly, there appear to be wider possibilities for future research including investigating the scope and variety of prosocial behaviours and domains generally and how these relate to factors of importance to CBS.

### **Conclusion**

The preliminary studies reported in this paper sought to investigate the role of CBS variables in the prediction and influence of behaviour in a specific prosocial domain: global poverty and human rights. While the results, as they stand, do not suggest immediately exciting potential for CBS in this specific domain, this early work should be thought of as a foundation for others to build on and should be placed alongside the more positive results produced in closer prosocial domains. The road is long, and it will take time as we strive to: “create a behavioral science more adequate to the challenges of the human condition” (Hayes, et al., 2012, p.1).

### **References**

- Aron, A., Aron, E., & Coups, E. J. (2014). *Statistics for Psychology*: Pearson New International Edition (6th ed.). Pearson.
- Atkins, P. W. B., Wilson, D. S., & Hayes, S. C. (2019). *Prosocial: Using Evolutionary Science to Build Productive, Equitable, and Collaborative Groups*. New Harbinger Publications.
- Biglan, A. (1995). *Changing cultural practices: A contextualist framework for intervention research*. Context Press.
- Biglan, A., & Glenn, S. S. (2013). Toward prosocial behavior and environments: Behavioral and cultural contingencies in a public health framework. In *APA handbook of behavior analysis, Vol. 2: Translating principles into practice* (pp. 255–275). American Psychological Association. <https://doi.org/10.1037/13938-010>
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, 42(4), 676–688.

<https://doi.org/10.1016/j.beth.2011.03.007>

- Cialdini, R. B., Trost, M. R., & Newsom, J. T. (1995). Preference for consistency: The development of a valid measure and the discovery of surprising behavioral implications. *Journal of Personality and Social Psychology*, 69(2), 318–328. <https://doi.org/10.1037/0022-3514.69.2.318>
- Coolican, H. (1994). *Research methods and statistics in psychology* (2nd ed). Hodder and Stoughton
- DeVellis, R. F. (2012). *Scale development: Theory and applications* (3rd ed., Vol. 26). Sage Publications.
- Driskell, J. E., Copper, C., & Moran, A. (1994). Does mental practice enhance performance? *Journal of Applied Psychology*, 79(4), 481–492. <https://doi.org/10.1037/0021-9010.79.4.481>
- Field, A. (2013). *Discovering statistics using SPSS: And sex, drugs and rock 'n' roll* (4th ed.) Sage Publications
- Gloster, A. T., Rinner, M. T. B., & Meyer, A. H. (2020). Increasing prosocial behavior and decreasing selfishness in the lab and everyday life. *Scientific Reports*, 10(1), 21220. <https://doi.org/10.1038/s41598-020-78251-z>
- Guala, F., & Mittone, L. (2010). Paradigmatic experiments: The Dictator Game. *The Journal of Socio-Economics*, 39(5), 578–584. <https://doi.org/10.1016/j.socec.2009.05.007>
- Hansen, N. B., Lambert, M. J., & Forman, E. M. (2002). The psychotherapy dose-response effect and its implications for treatment delivery services. *Clinical Psychology: Science and Practice*, 9(3), 329–343. <https://doi.org/10.1093/clipsy.9.3.329>
- Hayes, S. C., Barnes-Holmes, D., & Wilson, K. G. (2012). Contextual Behavioral Science: Creating a science more adequate to the challenge of the human condition. *Journal of Contextual Behavioral Science*, 1(1), 1–16. <https://doi.org/10.1016/j.jcbs.2012.09.004>
- Hayes, S. C., Bissett, R., Roget, N., Padilla, M., Kohlenberg, B. S., Fisher, G., Masuda, A., Pistorello, J., Rye, A. K., Berry, K., & Niccolls, R. (2004). The impact of acceptance and commitment training and multicultural training on the stigmatizing attitudes and professional burnout of substance abuse counselors. *Behavior Therapy*, 35, 821–835.
- Hayes, S. C., Luoma, J. B., Bond, F., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes, and outcomes. *Behaviour Research and Therapy*, 44(1), 1–25.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change* (2631152). Guilford Press.
- Hoy, C. (2015). The definition of extreme poverty has just changed – here's what you need

to know. ODI. <https://www.odi.org/blogs/9934-definition-extreme-poverty-has-just-changed-here-s-what-you-need-know>

- Howell, D. C. (2010). *Statistical Methods for Psychology* (7th ed.). Cengage Wadsworth
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Kreplin, U., Farias, M., & Brazil, I. A. (2018). The limited prosocial effects of meditation: A systematic review and meta-analysis. *Scientific Reports*, 8(1), 2403. <https://doi.org/10.1038/s41598-018-20299-z>
- Levin, M. E., Hildebrandt, M. J., Lillis, J., & Hayes, S. C. (2012). The impact of treatment components suggested by the psychological flexibility model: A meta-analysis of laboratory-based component studies. *Behavior Therapy*, 43(4), 741–756.
- Levin, M. E., Luoma, J. B., Lillis, J., Hayes, S. C., & Vildardaga, R. (2014). The Acceptance and Action Questionnaire – Stigma (AAQ-S): Developing a measure of psychological flexibility with stigmatizing thoughts. *Journal of Contextual Behavioral Science*, 3(1), 21–26. <https://doi.org/10.1016/j.jcbs.2013.11.003>
- Lillis, J., & Hayes, S. C. (2007). Applying acceptance, mindfulness, and values to the reduction of prejudice: A pilot study. *Behavior Modification*, 31(4), 389–411. <https://doi.org/10.1177/0145445506298413>
- Livheim, F., Tengström, A., Andersson, G., Dahl, J., Björck, C., & Rosendahl, I. (2020). A quasi-experimental, multicenter study of acceptance and commitment therapy for antisocial youth in residential care. *Journal of Contextual Behavioral Science*, 16, 119–127. <https://doi.org/10.1016/j.jcbs.2020.03.008>
- Luberto, C. M., Shinday, N., Song, R., Philpotts, L. L., Park, E. R., Fricchione, G. L., & Yeh, G. Y. (2018). A Systematic Review and Meta-analysis of the Effects of Meditation on Empathy, Compassion, and Prosocial Behaviors. *Mindfulness*, 9(3), 708–724. <https://doi.org/10.1007/s12671-017-0841-8>
- Masuda, A., Hayes, S. C., Fletcher, L. B., Seignourel, P. J., Bunting, K., Herbst, S. A., Twohig, M. P., & Lillis, J. (2007). Impact of acceptance and commitment therapy versus education on stigma toward people with psychological disorders. *Behaviour Research and Therapy*, 45(11), 2764–2772. <https://doi.org/10.1016/j.brat.2007.05.008>
- Newsome, D., Newsome, K., Fuller, T. C., & Meyer, S. (2019). How contextual behavioral scientists measure and report about behavior: A review of JCBS. *Journal of Contextual Behavioral Science*, 12, 347–354. <https://doi.org/10.1016/j.jcbs.2018.11.005>
- NobelPrize.org. (2021). Elinor Ostrom—Facts. NobelPrize.Org.

- <https://www.nobelprize.org/prizes/economic-sciences/2009/ostrom/facts/>
- Oppenheimer, D. M., & Olivola, C. Y. (Eds.). (2011). *The science of giving: Experimental approaches to the study of charity*. Psychology Press.
- Pett, M. (2016). *Nonparametric Statistics for Health Care Research* (2nd ed.). SAGE Publications Ltd.
- Powers, M. B., Zum Vörde Sive Vörding, M. B., & Emmelkamp, P. M. G. (2009). Acceptance and commitment therapy: A meta-analytic review. *Psychotherapy and Psychosomatics*, 78(2), 73–80. <https://doi.org/10.1159/000190790>
- Society of Clinical Psychology. (2013). *Psychological treatments*.  
<https://div12.org/treatment/acceptance-and-commitment-therapy-for-chronic-pain/>
- Thompson, M. (2015). Poverty: Third wave behavioral approaches. *Current Opinion in Psychology*. <https://doi.org/10.1016/j.copsyc.2014.11.010>
- Thompson, M., Bond, F. W., & Lloyd, J. (2019). Preliminary psychometric properties of the Everyday Psychological Inflexibility Checklist. *Journal of Contextual Behavioral Science*, 12, 243–252. <https://doi.org/10.1016/j.jcbs.2018.08.004>
- United Nations. (2018). *Ending Poverty*. <https://www.un.org/en/sections/issues-depth/poverty/>
- United Nations General Assembly. (2010). *Draft Resolution A/65/L.1*. UN, New York.  
[www.un.org/en/mdg/summit2010/pdf/mdg%20outcome%20document.pdf](http://www.un.org/en/mdg/summit2010/pdf/mdg%20outcome%20document.pdf)
- Villardaga, R., Estévez, A., Levin, M. E., & Hayes, S. C. (2012). Deictic relational responding, empathy, and experiential avoidance as predictors of social anhedonia: Further contributions from relational frame theory. *The Psychological Record*, 62, 409–432. <https://doi.org/10.1177/0011000012460836>
- Whittingham, K., Sanders, M., McKinlay, L., & Boyd, R. N. (2014). Interventions to Reduce Behavioral Problems in Children With Cerebral Palsy: An RCT. *Pediatrics*, 133(5), e1249–e1257. <https://doi.org/10.1542/peds.2013-3620>
- Wilson, D. S., O'Brien, D. T., & Sesma, A. (2009). Human prosociality from an evolutionary perspective: Variation and correlations at a city-wide scale. *Evolution and Human Behavior*, 30(3), 190–200. <https://doi.org/10.1016/j.evolhumbehav.2008.12.002>
- Zagefka, H., & James, T. (2015). The psychology of charitable donations to disaster victims and beyond. *Social Issues and Policy Review*, 9(1), 155–192. <https://doi.org/10.1111/sipr.12013>
- Zagefka, H., Noor, M., & Brown, R. (2013). Familiarity breeds compassion: Knowledge of disaster areas and willingness to donate money to disaster victims. *Applied Psychology*, 62(4), 640–654. <https://doi.org/10.1111/j.1464-0597.2012.00501.x>
- Zagefka, H., Noor, M., Brown, R., de Moura, G. R., & Hopthrow, T. (2011). Donating to disaster victims: Responses to natural and humanly caused events. *European*

