



**Public perceptions of the effectiveness of income provision
on reducing psychological distress**

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Public perceptions of the effectiveness of income provision on reducing psychological distress

Journal of Public Mental Health

Abstract

Purpose. Socioeconomic determinants such as poverty cause a great deal of mental ill-health.

However, it is not clear whether the general public believes this to be true. Lay understandings of health often overemphasize the roles of individual habits and medical treatments and underappreciate the importance of socioeconomic determinants. Understanding public perceptions of how to improve mental health is important, since public perceptions shape political decision making.

Design/methodology/approach. UK adults (n=622) rated effectiveness of three interventions for reducing psychological distress: medication, psychotherapy, and providing sufficient income to cover necessities via a basic income. We manipulated whether participants rated effectiveness for an identified individual vs. the population in general. Participants also indicated their support for the introduction of the basic income scheme.

Findings. Increasing income was rated highly effective for reducing psychological distress. Effectiveness ratings for income provision were as high as those for psychotherapy, and higher than those for medication. There was also an interaction with framing: in the population framing, income provision was rated more effective than either of the other two interventions. There were high levels of support for introducing a universal basic income scheme in this population.

Originality. UK adults anticipate that income provision would be highly effective at reducing psychological distress; as or more effective than increasing access to psychotherapy or medication. Policymakers can assume that the public will be receptive to arguments for mental health interventions that tackle broader socioeconomic determinants, especially when these are framed in population terms.

Keywords: psychological distress, lay perceptions, public mental health, basic income

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3 Income is a key social determinant of health because of its capacity to shape and influence
4 multiple pathways to health and illness (Mikkonen and Raphael, 2010). This is particularly the case
5 for mental ill-health (Dijkstra-Hersten *et al.*, 2015; Evans, 2004). There is now a considerable body of
6 evidence that risk of mood disorders decreases with higher income (Kourouklis *et al.*, 2020), whilst
7 negative income events and low financial assets increase risk of psychological disorder (Sareen *et al.*,
8 2011; Ettman *et al.*, 2021; Reeves *et al.*, 2016). Within this context, welfare and social security
9 policies designed to mitigate poverty and low income may also be viewed as useful tools for
10 improving population mental health (Golberstein, 2015). Arguments of this kind are amongst those
11 made by advocates for basic income (BI) schemes. These are state assistance programs that would
12 provide regular cash transfers to all citizens on an unconditional basis and ensuring a guaranteed
13 minimum income (Ruckert *et al.*, 2018). BI advocates argue that one of the key advantages of
14 introducing such schemes would be the positive influence on population psychological health by
15 improving material circumstances and reducing chronic stress (Johnson *et al.*, 2021).

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31 There are theoretical reasons therefore to expect that universal provision of income could
32 have a positive impact on population mental health and existing pilot data are encouraging in this
33 respect (Gibson *et al.*, 2020; Wilson and McDaid, 2021). The focus of the current work is not on
34 establishing the potential effect of BI schemes on mental health, but on an adjacent yet important
35 question: is the value of income for supporting mental health something that the lay populace
36 recognizes and believes to be true? Whilst there has been much study of public intuitions about
37 mental health and how this relates to preferences and adherence to psychotherapeutic and
38 pharmacological treatment (Angermeyer *et al.*, 2017), there has been less examination of public
39 understanding of interventions that tackle social determinants of mental health. It is necessary to
40 examine this, because the development and implementation of population health policies is subject to
41 the vagaries of the politico-social sphere in which policy-making decisions take place (Greer *et al.*,
42 2017). A key component of policy development is policymakers' views of what is politically feasible
43 or viable, often shorthand for whether they think something will be viewed as acceptable or legitimate

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3 through Prolific.co, an on-demand platform that enables data collection for social science research
4 from more diverse samples than have previously been available through online platforms (Peer *et al.*,
5 2017). Prolific-panel data on student status were available for 47% of the sample, only 59 of whom
6 (20% of available data) were students. Employment status data were available for 43% of the sample:
7 47% of whom were in full-time work, 32% of whom were in part-time or other employment, 13%
8 were not in paid work (homemaker, retired or disabled) and the remainder (8%) of whom were
9 unemployed or due to start a new job within the next month. Participants were eligible to take part if
10 they were over 18 and resident in the UK and were included in reported data if they had complete data
11 on the intervention ratings and support for BI. Occasional covariate data is therefore missing for some
12 participants (see Table 1).
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28 **Design**

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30 Study design, materials and predictions were pre-registered prior to collection of data (details
31 of the pre-registration as well as anonymous data and analysis script can be accessed at
32 <https://osf.io/38ehn/>). We employed a 2×2×3 mixed design wherein framing (individual, population)
33 and placement of BI support rating (before, after intervention ratings) were between-subjects factors
34 and intervention-type (medication, psychotherapy, income) was a repeated measures factor. The main
35 dependent variables were ratings of intervention effectiveness and of support for BI.
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46 **Measures**

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49 Participants were invited to take part in a study on “Public perceptions of interventions to
50 improve psychological health”. Participants were presented with a definition of psychological distress
51 adapted from Cromby *et al.* (2013): *Psychological distress is a term often used by psychologists and*
52 *mental health practitioners to refer to all of the difficult, troubling or unusual experiences associated*
53 *with psychiatric diagnoses or mental illness.* The subsequent text differed according to which framing
54 condition participants were randomly allocated to.
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3 In the population condition, participants read: “*Rates of psychological distress in the UK*
4 *population are high. For example, nearly 1 in 5 people in England report experiences of*
5 *psychological distress in the previous week. We would like to know how effective you think different*
6 *interventions are at reducing levels of psychological distress in the population.*” They were then
7 asked to indicate how effective they thought each of the following is for reducing levels of
8 psychological distress in the population from 0 (*not at all effective*) to 100 (*very effective*): *Ensuring*
9 *every citizen has access to relevant medication (e.g. anti-depressants or anti-psychotic drugs),*
10 *Ensuring every citizen has access to evidence-based psychotherapy, and Ensuring every citizen has*
11 *access to sufficient monthly income to cover basic necessities.*

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23 Participants in the individual condition were instead presented with a short description of
24 John (adapted from Jorm *et al.*, 2005).

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27 *John is someone who has been experiencing psychological distress. He is 30 years old and*
28 *has been feeling unusually sad and miserable for the last few weeks. Even though he is tired*
29 *all the time, he has trouble sleeping nearly every night. John doesn't feel like eating and has*
30 *lost weight. He can't keep his mind on his work and puts off making decisions. Even day-to-*
31 *day tasks seem too much for him.*

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39 They were then asked to rate how effective each of the three interventions would be for reducing
40 John's distress. Interventions were presented in a randomized order.

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44 All participants were asked to indicate their support for BI, either before (N = 310) or after (N
45 = 310) they had rated the three interventions. Participants were presented with a definition of BI
46 adapted from Nettle *et al.* (2021): *We are interested in what you know and think about something*
47 *called "unconditional basic income" or "universal basic income". Unconditional basic income refers*
48 *to a social security system where every citizen is paid a modest guaranteed income every month, to*
49 *cover basic necessities. The payment is the same for everyone. The payment is not conditional on*
50 *what other earnings a person has and they do not have to do anything in particular to receive it.*
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3 Following Nettle *et al.* (2021), participants were asked to indicate the extent to which they
4 thought it would be a good or bad idea to introduce a system of this kind, where 0 = *bad* and 100 =
5 *good*. Participants were also asked to indicate the extent to which they were familiar with the idea of
6 BI, from 0 = *never heard of an idea of this kind before* to 100 = *I consider myself an expert on this*
7 *subject*. After the effectiveness and support ratings, participants were asked directly whether
8 considering the effectiveness of income on psychological distress had had an impact on their support
9 for BI, where -50 = *has made me less likely to support it*, 0 = *has had no impact* and +50 = *has made*
10 *me more likely to support it*. Finally, a number of covariates were recorded (see Supplemental
11 materials).

22 23 24 25 26 *Data Analysis*

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28 Linear mixed models were employed to analyse intervention efficacy ratings, in order to
29 address non-independence of ratings clustered within participants. General linear models were
30 employed to determine predictors of support for BI. Table 1 presents key descriptive variables whilst
31 Supplemental Table S1 depicts the pre-registered predictions, models and whether or not these were
32 confirmed. In exploratory analyses, person-specific variables were added to explore predictors of BI
33 support (Table 2).

44 45 **Results**

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47 Table 1 depicts the key sample characteristics and indicates a broad range of ages, subjective
48 socioeconomic status and political orientation. All three interventions were rated as effective and
49 endorsement for BI was high overall. In contrast, familiarity with BI was low (<50). On average,
50 participants tended to indicate that considering the effectiveness of income on psychological distress
51 had had a positive impact (>0) on their support for BI.

Table 1.

Descriptive statistics (N, mean, standard deviation [SD] and distribution parameters) for all continuous variables

	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
Age (18 - 83)	622	34.4	13.0	0.91	0.33
Medication Efficacy (0 - 100)	621	73.2	21.3	-0.95	0.82
Psychotherapy Efficacy (0 - 100)	620	77.7	18.3	-1.01	1.35
Income Efficacy (0 - 100)	621	77.8	20.9	-1.24	1.70
Support for BI (0 - 100)	620	65.9	29.0	-0.64	-0.65
Familiar with BI (0 - 100)	613	42.2	28.4	-0.02	-1.24
Changed support for BI (-50 - +50)	587	20.1	19.2	-0.38	0.36
Subjective SES (1-10)	622	5.32	1.6	-0.20	-0.50
Left-Right Spectrum (0 - 100)	604	37.4	23.6	0.30	-0.54
Role of Government (0 - 100)	608	65.9	24.3	-0.55	-0.24

Ratings of Intervention Efficacy

There was a main effect of intervention-type (see Table S1, Figure 1A). However, this was not in the direction we predicted (Prediction 1). Pairwise contrasts (with Tukey correction for multiple contrasts) showed that efficacy ratings were significantly higher for income and psychotherapy relative to medication (Medication - Psychotherapy: $p < .001$; Medication - Income: $p < .001$), and that there was no significant difference in ratings between income and psychotherapy ($p = .985$).

Intervention-type interacted with individual vs. population framing, confirming Prediction 2 (Figure 1B). Whilst medication ratings ($p > .999$) and psychotherapy ratings ($p = .243$) did not differ significantly across framing condition, ratings of income efficacy were significantly higher in the population (marginal mean = 81.7) than individual condition (marginal mean = 73.8, $p < .001$). In the individual framing condition, there was no difference in ratings of effectiveness for medication and

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3 income ($p = .994$), both of which were rated as significantly less effective than psychotherapy
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5 (medication – psychotherapy, $p < .001$; income – psychotherapy, $p < .001$). In the population framing
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7 condition, medication and psychotherapy did not differ in effectiveness ($p = .338$), whilst income was
8
9 rated as significantly more effective than psychotherapy ($p < .001$) and medication ($p < .001$).

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11 There was no evidence in support of Prediction 3, which was that subjective SES (Kraus *et*
12
13 *al.*, 2012) would interact with efficacy ratings.

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15 We also explored whether there was an effect of having first answered questions about BI on
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17 intervention ratings, using a linear mixed model with fixed effects of intervention, order and the
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19 interaction term. There was no significant main effect of order ($F(1,618.22) = 2.575, p = .109$),
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21 however, the interaction term was significant ($F(2,1236.57) = 13.293, p < .001$; Figure 1C). Efficacy
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23 ratings for medication were higher when these were assessed after participants had answered
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25 questions about BI ($p < .001$). There were no corresponding differences for psychotherapy ($p = .549$)
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27 or income ($p = .305$). We therefore re-ran models 1-3 on data from only those participants who
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29 completed efficacy evaluations before BI judgments (condition “BI After” in Figure 1C). We did this
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31 in order to establish whether the pre-registered predictions hold for those participants whose
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33 judgments should not have been influenced by BI evaluations. The same global patterns were
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35 observed and are reported in the Supplement.
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41 *Support for BI*

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43 Prediction 4 was confirmed: participants support for BI was significantly higher if they gave
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45 these responses after providing efficacy evaluations (Figure 2). There was no support for Prediction 5:
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47 neither the main effect of framing condition nor the interaction with order reached significance.
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49 Exploratory analyses indicated that familiarity with BI, income efficacy ratings and view of the role
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51 of government predicted support for BI (see Table 2).
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Table 2.*Output of exploratory general linear model assessing predictors of support for BI*

Fixed effect	Estimate	SE
BI Order		
BI First (vs. BI Second)	-8.333**	2.841
Framing Condition		
Population (vs. Individual)	-0.351	2.927
BI Order*Framing	4.210	4.061
Familiarity with BI	0.212***	0.038
Income Efficacy Rating	0.358***	0.052
Subjective SES	-0.024	0.637
Political Orientation	-0.097	0.050
Role of Government	0.303***	0.050
Age	-0.079	0.080
Gender		
Male (vs. Female)	-2.982	2.326
PFTS ^a (vs. Female)	-31.30	17.362
Other genders (vs. Female)	9.512	8.238
Intercept	20.156**	7.313

*** $p < .001$, ** $p < .01$, * $p < .05$; ^aPrefer not to say

Discussion

The positive psychological health implications of providing sufficient income were very apparent to this sample of UK adults. Psychotherapy is typically viewed by patients and non-patients as preferable to and more effective than medication (Angermeyer *et al.*, 2017) and this was also the case here. However, for the first time we can compare this with perceived effectiveness of having

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3 sufficient income for reducing psychological distress, which was rated just as high as for
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5 psychotherapy and higher than for medication. This view of the value of provision of income for
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7 psychological health was such that support for a BI policy was significantly higher for those
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9 respondents who had evaluated income as an intervention for psychological distress. Ratings were
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11 also sensitive to the individual versus population question; income was viewed as significantly more
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13 effective when participants were asked about reducing distress within the population rather than for an
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15 individual called “John” who was experiencing a particular form of distress.
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18 Our aim was not to make inferences about the objective value of BI schemes for population
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20 mental health. Rather we sought to determine the lay view of the effectiveness of providing income
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22 relative to clinical interventions on which there *is* a considerable evidence-base on public perspectives
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24 (Angermeyer *et al.*, 2017). Contrary to our predictions, income was rated as effective as
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26 psychotherapy and most effective of the three interventions when placed in population terms,
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28 indicating that income’s role as a social determinant of mental health was very apparent to this
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30 sample. Ratings of income – but not medication or psychotherapy – were also sensitive to framing.
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32 One possible reason is that, in the individual condition, participants may not have thought of John as
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34 facing financial constraint. The whole population by contrast necessarily includes individuals at the
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36 lower end of the income spectrum, for whom an income intervention is likely to be most beneficial. A
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38 related prospect arises when considering the number of people currently experiencing distress in each
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40 scenario. In the individual condition, 100% of those included in the scenario (John) are currently
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42 experiencing distress compared to 20% (1 in 5) of the population scenario. If sufficient income is
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44 viewed as effective in part as a preventative measure, then it may be seen as more effective in
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46 scenarios where distress has not yet arisen, which is more often the case in the population scenario.
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48 Future studies are needed to tease apart these mechanisms. As mental health policy increasingly
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50 focuses on population-level interventions (Sampson and Galea, 2018; Purtle *et al.*, 2020), further
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52 studies on public perspectives and opinion on corresponding interventions are likely to follow. A key
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54 insight here is that lay perspectives of population interventions may in turn be sensitive to whether or
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56 not they are viewed from a population perspective.
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3 Whilst the current sample was sufficiently large and diverse to give an indication of the
4 public's views of different interventions, it was not designed to be fully representative of the national
5 UK population. Further research should repeat this approach in nationally representative samples of
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7 both the UK and other countries, as well as to explore changes in views over time. It is feasible, for
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9 example, that the mental health impact of poverty will become evident to an increasing proportion of
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11 the population as living costs continue to rise with accelerating rates of inflation across the globe.
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13 Support for universal welfare schemes may change accordingly.
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18 On the basis of the current results, we find that there are good reasons to anticipate people
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20 will be broadly receptive to arguments for public interventions that tackle population mental health
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22 through provision of income and addressing other socioeconomic determinants. In other words, the
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24 public may already be on-side on this issue. Asking people to reflect on the mental health benefits of
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26 interventions, typically viewed as economic or social security in nature, is a promising route for
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28 increasing public support for such policies.
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Figures

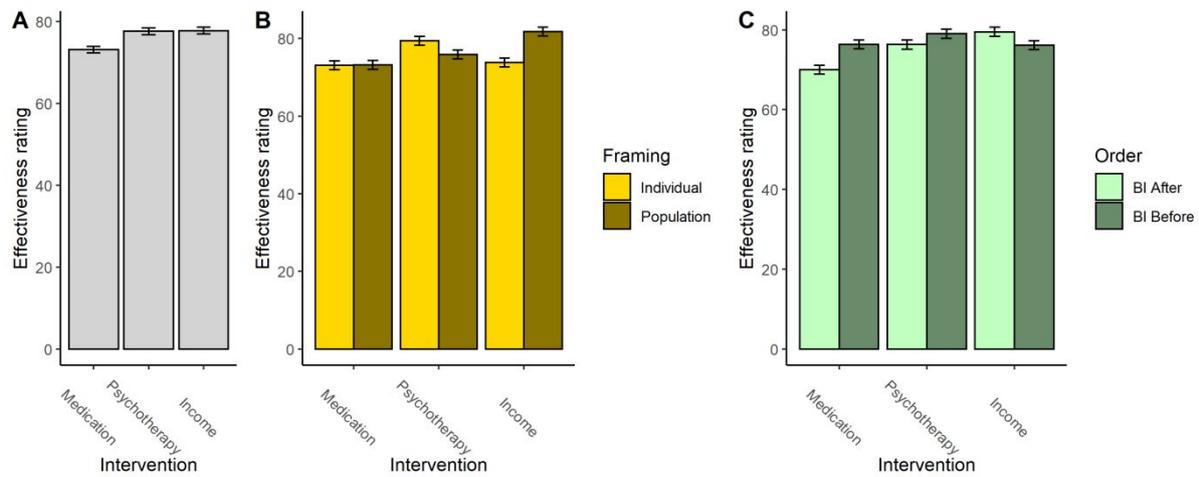


Figure 1. Effective ratings for interventions. A. Effectiveness ratings (estimated marginal means \pm se) by intervention type, collapsing across framing and order. B. Effectiveness ratings (estimated marginal means \pm se) by intervention type and framing. C. Effectiveness ratings (estimated marginal means \pm se) by intervention type and order (BI After = BI was measured after effectiveness ratings).

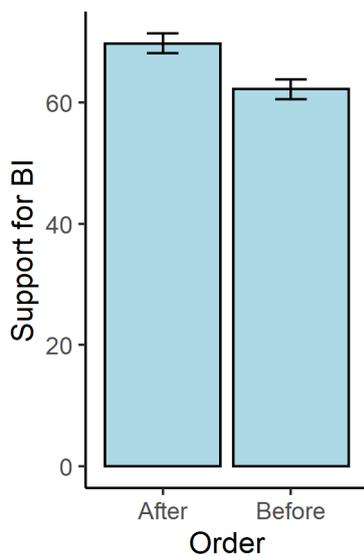


Figure 2. Support for BI (estimated marginal means \pm se) by order of asking (After = BI support was assessed after effectiveness ratings).

Public perceptions of the effectiveness of income provision on reducing psychological distress

Supplemental Material

Sample

Participants were reimbursed at a rate equivalent to the UK minimum wage (£9.00) for a 4-minute study. The target sample size was determined *a priori* based on the required sample size to detect a small between-groups effect size ($d = .20$) with a one-tailed between-subjects t-test with standard assumptions (see pre-registration: https://osf.io/38ehn/?view_only=467de894240146d6994b17c8bf77571c).

Additional Covariates

Participants gave their age and gender as well as indicated where they place themselves on a single left-right political spectrum (0 = *left*, 100 = *right*). Redistribution preferences were also captured using a single-item measure adapted from Alesina and Giuliano (2009) which asks people to place themselves on a scale from 0 (*people should take care of themselves*) to 100 (*Government should do everything it can to help the poor*). Following research showing that subjective measures of social class relate to a variety of social judgments including the endorsement of societal issues as dispositional/individual vs. contextual/societal (Kraus *et al.*, 2012) we also measured subjective socioeconomic status (Adler *et al.*, 2000). Participants were presented with a ladder characterizing where people stand in the UK, with those who are best off in terms of money, education and jobs at the top (rung 10) and those who are worst off at the bottom (rung 0). Participants were asked to indicate which number best represents where they would place themselves on the ladder relative to other people in the UK.

Supplemental Analyses

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3 We re-ran models 1-3 on data from only those participants who completed efficacy
4 evaluations before BI judgments (condition “BI After” in Figure 1C), in order to establish whether the
5 pre-registered predictions hold for those participants whose judgments should not have been
6 influenced by BI evaluations. There was a main effect of intervention ($F(2,618.42) = 25.56, p < .001$)
7 which contradicted Prediction 1, because psychotherapy and income were rated significantly higher
8 than medication ($ps < .001$). There was also a trend for income to be rated higher than psychotherapy
9 ($p = .050$). The interaction between intervention-type and framing was again confirmed as indicated in
10 Prediction 2 ($F(2,616.14) = 11.16, p < .001$). Income was rated as significantly more effective in the
11 population than the individual condition ($p < .001$), whilst there was no significant effect of framing
12 condition on medication ($p = .930$) or psychotherapy ($p = .882$). There was again no support for an
13 interaction between intervention and subjective SES (Prediction 3, $F(2,613.93) = .154, p = .858$).
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Table S1.

Pre-registered predictions, models and corresponding results

Prediction	Dependent Variable	Model [Fixed Effects/Predictors] ^a	Test	Confirmed?
1 Efficacy ratings will be higher for psychotherapy and medication than providing sufficient income	Efficacy ratings	1: Linear mixed model [Intervention]	$F(2,1238.5) = 15.179, p < .001$	No, psychotherapy and income rating higher than medication
2 Efficacy ratings will be affected by whether questions are framed in population vs. individual terms	Efficacy ratings	2: Linear mixed model [As 1 + Individual-Population + Intervention*Individual-Population]	$F(2,136.38) = 19.122, p < .001$	Yes (see text for specifics on direction)
3 Efficacy ratings will interact with subjective socioeconomic status	Efficacy ratings	3: Linear mixed model [As 2 + Subjective SES + Subjective SES*Intervention]	$F(2,1234.20) = 0.754, p = .471$	No
4 Support for BI will be greater when assessed after rating efficacy of providing sufficient income for addressing psychological distress	BI support	4. General linear model [Before-After + Individual-Population + Before-After*Individual-Population]	$F(1,616) = 10.667, p = .001$	Yes

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2					
3	5	Support for BI will be greater when	BI support	4. General linear model [Before-After	F(1,616) = 2.998, $p = .084$
4		efficacy questions framed in population		+ Individual-Population + Before-	No
5		vs. individual terms		After*Individual-Population]	
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7					
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^aKey fixed effect for testing prediction is highlighted in bold

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