Individual differences in the explicit power motive predict "utilitarian" choices in moral dilemmas, especially when this choice is self-beneficial

Individual differences in the explicit power motive predict "utilitarian" choices in moral dilemmas, especially when this choice is self-beneficial

Author Note

Felix Suessenbach, University of Edinburgh, 7 George Square, Department of Psychology, EH8 9JZ, United Kingdom. Email: F.Suessenbach@sms.ed.ac.uk

Adam B. Moore, University of Edinburgh, 7 George Square, Department of Psychology, EH8 9JZ, United Kingdom. Email: amoore23@staffmail.ed.ac.uk

Correspondence concerning this article should be addressed to Felix Suessenbach, 7 George Square, University of Edinburgh, Department of Psychology, EH8 9JZ, United Kingdom.

Email: F.Suessenbach@sms.ed.ac.uk

Word count: 4986 words (including abstract, footnotes, keynotes, figure and table captions)

Individual differences in the explicit power motive predict "utilitarian" choices in moral dilemmas, especially when this choice is self-beneficial

We all face moral decisions, whether we are judges, politicians, or just riding the bus. The most well studied of these involve concerns of harming or caring for other people, which have often been researched by employing hypothetical moral dilemmas. This study investigated how the explicit power motive, more precisely the hope to gain power (h_Power), predicts decisions for these types of problems. We found that h_Power was positively related to deciding that it was morally acceptable to kill one person to save multiple others (i.e., making a utilitarian choice). In an exploratory analysis, we found that the probability of making such choices as a function of h_Power was even higher when participants' own lives were at stake as compared to only the lives of others. These findings complement previous research showing that personality variables as well as situational factors predict moral decision making. Finding biases in moral decision making is important, as only when we know these biases we can consciously counteract them.

Keywords: explicit power motive; hope to gain power; utilitarian choice; egoistic bias; self-concern; moral decision making; moral dilemmas.

Individual differences in the explicit power motive predict "utilitarian" choices in moral dilemmas, especially when this choice is self-beneficial[1]

1. Introduction

Professions that come with considerable power, such as judges, politicians, or managers (hereinafter "power professions"), often involve making moral decisions. This means making decisions based on "prescriptive judgements […] pertaining to how people ought to relate to each other" (p.3; Turiel, 1983) in certain moral domains (see Graham, Nosek, Haidt, Iyer, Koleva, & Ditto, 2011). In Western societies, the most prevalent of these moral domains is concerned with caring for or harming other people (Hofmann, Wisneski, Brandt, & Skitka, 2014). For example, a judge might have to decide whether or not to keep a murderer imprisoned, despite eligibility for parole. Similarly, a politician might have to decide whether she favours sending soldiers into war, which might save civilian lives but would endanger the soldiers. However, one does not need to be in a power profession to face moral decisions. For example, one might have to decide whether it is morally appropriate or not to ask a parent with a baby-pram to leave the bus in order to make the little space available to a disabled person waiting at the bus stop. The British Court of Appeal has recently decided to abolish previous laws that regulated this situation, leaving the decision to "the good sense of general people" (Barret, 2014). If we assume that a person wants to make the morally appropriate decision in these situations, then this decision undoubtedly depends on a person's own judgement of what is morally appropriate.

[1] Abbreviations used in this article: h_Power (hope to gain power), f_Power (fear to lose power), FoLC (fear to lose control), FoLR (fear to lose reputation), BAS (behavioural approach sensitivity), BIS (behavioural inhibition sensitivity), GLMM (generalized linear mixed-effect model)

This question of how individuals evaluate what is morally appropriate has been extensively studied in moral psychology, often employing hypothetical moral dilemmas in which one person (i.e., the victim) has to be killed in order to save multiple others (e.g., Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Hauser, Cushman, Young, Kang-Xing Jin, Mikhail, 2007; Moore, Clark, & Kane, 2008). A famous example is the trolley dilemma, in which five workmen are tied to the railway tracks while a runaway trolley is about to kill them. The only way participants can save the workmen is by moving a lever that diverts the trolley onto another track. However, one other person stands on this other track and would thus be killed. Participants are then asked whether or not it is morally acceptable to kill one person in order to save the five workmen (Foot, 1967). Studies using such stimuli have revealed three important findings. First, people do not seem to follow strict normative rules when judging what is morally appropriate (e.g., Cushman, Young, & Hauser, 2006; Moore et al., 2008). Second, situational factors such as whether the victim has to be killed personally (e.g., by pushing someone) or impersonally (e.g., by moving a lever) affect moral judgement (personal-impersonal factor; e.g., Greene et al., 2001; Moore et al., 2008). Other such situational factors are whether the death of a victim is inevitable or avoidable (inevitable-avoidable factor) and whether the death of the victim also leads to saving the participant or only saves others without the participant being endangered (self-other beneficial factor; Moore et al., 2008). Third, moral decision making is also predicted by personality variables (Moore, Stevens, & Conway, 2011; see also Kahane, Everett, Earp, Farias, & Savulescu, 2015) such as behavioural approach sensitivity (BAS), which is related to higher sensitivity towards gaining positive outcomes, and behavioural inhibition sensitivity (BIS), which is related to a higher sensitivity towards avoiding negative outcomes (Carver & White, 1994). Moore and colleagues (2011) showed that BAS is related to deciding that it is morally appropriate to kill one person to save multiple others (also called the utilitarian

choice) – as saving five people represents a positive outcome - and BIS is related to deciding in a non-utilitarian fashion – as to avoid actively causing someone's death.

Importantly, one highly influential personality construct has never been investigated in regard to moral decision making: human motives (e.g., Heckhausen & Heckhausen, 2008; McClelland, Koestner, & Weinberger, 1989; Schultheiss, 2008). According to motivational theory individuals seek situations, actions, and goals depending on how much incentive value the individuals implicitly or explicitly assign to them, as well as on their expectancy of reaching them. The assigned incentive value corresponds with the person's implicit or explicit motive (Heckhausen & Heckhausen, 2008). We propose that situations which allow people to have impact on others (e.g., the moral decision of harming someone, or, alternatively, the moral decision to save multiple others), act as an incentive for individuals with a strong power motive. This motive is defined by a desire to have an impact on others by influencing their attitudes, emotions and behaviours as well as by a desire to attain prestige and reputation (e.g., Heckhausen & Heckhausen, 2008; Schönbrodt & Gerstenberg, 2012; Winter, 1988). Similar to other motives such as affiliation, achievement, or intimacy, researchers usually differentiate between an implicit and an explicit/self-attributed motive component (e.g., Schönbrodt & Gerstenberg, 2012). Whereas the implicit power motive usually predicts task performance (e.g., Koestner, Weinberger, & McClelland, 1991) – for example how well someone will do in a power profession (e.g., Zaccaro, Kemp, & Bader, 2004) – the explicit power motive usually predicts conscious decision making (e.g., McClelland et al., 1989) – for example the decision as to whether someone wants to pursue a power profession (Jackson, 1974).

In this study we investigated the relationship between the explicit power motive and moral decision making using hypothetical moral dilemmas. We focused on the explicit power motive since we were asking for a conscious decision of whether or not something was

morally acceptable, which is more likely to be influenced by the explicit rather than the implicit power motive (McClelland et al., 1989). Importantly, the explicit power motive can be divided into two components: hope to gain power (h_Power) and fear to lose power (f_Power). Notably, h_Power and BAS are conceptually similar; both are related to a sensitivity to gaining a positive outcome. However, whereas BAS is generally related to any positive outcome, h_Power is related to the *specific* positive outcome of gaining influence over other people. Similarly f_Power is somewhat similar to BIS but related to a sensitivity of avoiding the *specific* negative outcome of losing influence on other people (Elliot, & Thrash, 2002; Schönbrodt & Gerstenberg, 2012; see Table 2 for correlations).

We propose that choosing the utilitarian option is preferred by individuals with a higher h_Power, as by killing one person to save multiple others they actively gain influence on other people. Arguably, by not acting many persons and their lives are also strongly affected; however, in this case it is not the power motivated person themselves who actively exerts influence on other people but the properties of the situation (e.g., the runaway trolley). Thus, this decision should not be as appealing to power motivated people. Moreover, as the positive outcome of saving multiple others seems to be more specific to h_Power than to BAS, we hypothesise h_Power to predict utilitarian choices above and beyond the previously established influence of BAS (Moore et al., 2011). We have no clear hypothesis about the fear of losing power component as neither of the two dilemma options seems to imply actually losing power.

2. Methods

2.1 Participants

We collected data from 150 student participants who were reimbursed with £5 or course credit. Data from one participant was removed due uninterpretable questionnaire data; hence we report data from 149 participants (age: $M = 22.09 \pm 4.29$ years; 112 females).

2.2 Materials

2.2.1 Unified motive scales

We measured the power motive, more precisely the h_Power and the f_Power, with the Unified Motives Scales (UMS; Schönbrodt & Gerstenberg, 2012). Altogether this questionnaire consisted of 38 items, 6 items measure h_Power and 5 items measure the two f_Power components "fear to lose reputation" and "fear to lose control" ($r = .43$; two and three items, respectively). The remaining 26 items measured fear and hope components of other motives, which were not considered in this analysis.

2.2.2 BIS-BAS scales

BIS and BAS were measured with the 24 item BIS-BAS scales (Carver & White, 1994). Although using three subscales of BAS is recommended (Carver & White, 1994), we instead used a single averaged BAS score since we had no specific hypotheses regarding the subscales (cf. Moore et al., 2011; see also Jorm, Christensen, Henderson, Jacomb, Korten, & Rodgers, 1998).

2.2.3 Moral dilemmas

Moral dilemmas were taken from previous studies (Moore et al., 2008; Moore et al., 2011; see Table 1) and consisted of 24 dilemma-type situations in each of which the participant had to decide whether it was morally acceptable to kill one person to save multiple others. Each scenario had a personal and impersonal resolution variant (personal-impersonal factor). The self-other beneficial and the inevitable-avoidable factors were

155 crossed with this personal-impersonal factor, yielding a 2 x 2 x 2 design. Note that only the
156 personal-impersonal factor was varied by changing one or two sentences within the same
157 dilemma. The inevitable-avoidable and the self-other beneficial factors were varied by using
158 different dilemmas. Apart from that, dilemmas were matched regarding the consequences of
159 taking or not taking action, wording, number of words (±2), as well as number and length of
160 sentences (Moore et al., 2008). The 24 critical dilemmas were randomly intermixed with 14
161 filler dilemmas. Every critical dilemma ended by asking if it was morally acceptable to kill
162 one person to save multiple others. Participants were randomly assigned to either of two
163 counterbalanced lists, consisting of 12 personal and 12 impersonal dilemma-type situations,
164 presented randomly.

165 **Table 1**

166 Sample self-beneficial dilemma with avoidable killing. Further samples can be obtained from Moore et al.
167 (2008).

Scenario	Resolution
You are part of a U.N. humanitarian team of SCUBA divers who are deactivating old World War II underwater anti-ship mines. One member of your diving team scrapes himself while trying to deactivate a mine. The blood in the water has attracted several sharks in the area. A feeding frenzy is about to ensue, with the sharks eating everything and everyone in sight. You have a spear-gun, but only one spear and there are many sharks. The bleeding diver is swimming toward the last protective shark cage and will reach it before you and the others. The sharks, following the blood, are coming too close for you and	a) Personal You realize that if you shoot and kill the injured diver with your spear-gun before he reaches the cage, the sharks would stop to eat him while you and the others escaped to safety. Is it acceptable for you to kill this diver in order to save yourself and the rest of the group? b) Impersonal You realize that if you used the emergency remote to

the other divers to escape.	detonate one of the mines, the resulting explosion would kill the injured diver before he reached the cage, allowing you and the others to reach safety. Is it acceptable for you to kill this diver in order to save yourself and the rest of the group?

2.3 Procedure

Participants gave informed consent and completed the BIS-BAS and UMS scales. Afterward, the experimenter instructed the participants to assume that the two dilemma options were the only possible resolutions for each situation and not to concern themselves with either the legality of the proposed actions nor whether they could actually act in such a manner themselves; instead, they were to focus only on whether or not the action/resolution was morally acceptable. Then, the participants answered two practice dilemmas before the main task. All stimuli were presented on a 17 inch computer screen using methods identical to Moore and colleagues (2008); briefly, text was presented in two paragraphs, with the second presented sentence by sentence. Each sentence required the participant to press a button when finished reading it, triggering the next sentence to appear, until the resolution, where the judgement was indicated by either pressing "A" or "L" on a standard keyboard. The computer recorded response times (RT) and responses.

3. Results

3.1 Analytical Approach

We employed generalised linear mixed effects models (GLMM) with a logistic link function (see Table 3) using the g*lmer* function in *R*'s (version 3.1.1; R Core Team, 2012) *lme4* package (version 1.1-7; Bates, Maechler, Bolker, & Walker, 2014) for all our analyses. These types of models are most beneficial in designs with crossed random effects (Baayen, Davidson, & Bates, 2008), which means that random variation is introduced by both subjects and items (in this case dilemmas). One reason being that when applying models that only account for random variation between subjects but not items (e.g., Ciaramelli, Muccioli, Ladavas, & di Pellegrino, 2007; Moore et al., 2008), one cannot generalise findings across the population of items; in other words, findings are limited to the specific set of items (e.g., Baayen et al., 2008; Clark, 1973). Importantly, when using multilevel models such as GLMMs, simulations have shown that the maximal random effects structure justified by the design is most beneficial to minimise Type I errors while only producing minor reductions in statistical power (Barr, Levy, Scheepers, & Tily, 2013). Therefore, we used the maximal random effects structure in all our models: random intercepts for subjects and dilemmas, by-subject random slopes for the personal-impersonal, inevitable-avoidable and self-other beneficial factors and by-dilemma random slopes for the personal-impersonal factor. The five personality variables were standardised and showed no strong correlations (see Table 2).

Table 2

Pearson product-moment correlations with *p* values adjusted by Holm correction for multiple tests. Standard deviations and [range] on diagonal.

	BAS	BIS	h_Power	FoLC	FoLR	Cron-bach's Alpha
BAS	0.72 [-2.16 to 1.40]					.74
BIS	-.11	3.43 [13 to 28]				.78
h_Power	.26*	-.07	6.05 [6 to 36]			.88
FoLC	.20	.43**	.45**	2.97 [5 to 18]		.74
FoLR	.09	.31**	.33**	.43**	2.36 [2 to 12]	.85

** p < .01, *p < .05.

Table 3

Comparison of model fits as indicated by the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC) and Log-Likelihood (LogLik) for 13 models predicting the probability of a utilitarian choice.

Coefficient codes represent the following: P = Personal-impersonal factor, S = Self-other-beneficial, I = Inevitable-avoidable, BAS = Behavioural approach sensitivity, BIS = Behavioural inhibition sensitivity, h_Power = Hope to gain power, FoLC = Fear of losing control, FoLR = Fear of losing reputation. An asterisk marks an interaction term.

Model Number	Model description		No. of parameters	AIC	BIC	LogLik
Confirmatory models						
1	P,S,I,h_Power		18	3656.73	3768.01	-1810.37
2	P,S,I,h_Power,BAS		19	3657.10	3774.55	-1809.55
Exploratory models						
3	P,S,I,FoLC		18	3660.78	3772.05	-1812.39
4	P,S,I,FoLR		18	3658.82	3770.10	-1811.41
5	P,S,I,h_Power,S*h_Power		19	3648.78	3766.23	-1805.39
6	P,S,I,BIS,S*BIS		19	3651.71	3769.17	-1806.85
7	P,S,I,BIS,h_Power,S*BIS,S*h_Power		21	3642.80	3772.62	-1800.40
Follow up models						
8	P,I,h_Power	(other-benef. dilemmas)	13	1877.94	1949.30	-925.97
9	P,I,h_Power	(self-benef. dilemmas)	13	1898.77	1970.13	-936.39
10	P,I,BAS	(other-benef. dilemmas)	13	1878.35	1949.71	-926.18
11	P,I,BAS	(self-benef. dilemmas)	13	1909.60	1980.96	-941.80
Replication models						
12	P,S,I,BAS		18	3657.81	3769.09	-1810.91
13	P,S,I,BIS		18	3657.47	3768.74	-1810.73

3.2 Confirmatory analysis: The hope to gain power

Since coefficients in logistic regression represent log odds and factors were effect coded, the intercept in model 1 (see Table 4) shows that an average participant with an

average h_Power score had a 59% median probability[2], β = 0.37, p = .210, (hereinafter baseline probability) of picking the utilitarian option across all dilemmas. This baseline decreased to 49% when killing was personal but increased to 68% when killing was impersonal, β = 0.40, p < .001. Killing someone to save oneself and others as compared to only others did not predict utilitarian choices (self-other beneficial factor, β = -0.33, p = .229). Killing someone whose death was inevitable as compared to avoidable was positively but only marginal significantly related to the utilitarian option (inevitable-avoidable factor, β = -0.44, p = .096). Note that these findings regarding the situational factors remain substantially unchanged across all models tested (see Table 3). Most importantly, if a person had an h_Power score 1 SD below or above the population mean the baseline probability changed to 53% or 65%, respectively (β = .27, p = .037). Thus, h_Power was indeed positively related to the probability of choosing the utilitarian option in these moral dilemmas. Notably, in a model that included both h_Power and BAS (model 2), h_Power was only marginally significant, β = .22, p = .096, whereas BAS was not significant, β = .16, p = .200. This indicates that some of the variance h_Power and BAS share was predictive of utilitarian choices but that h_Power was the overall stronger predictor.

Table 4

GLMM (model 1) predicting the probability of choosing the utilitarian option as a function of hope to gain power (h_Power). Situational factors were effect coded with impersonal, other-beneficial and avoidable resolutions coded as 1.

Fixed effects	β	SE	Z value	p
Intercept	0.37	0.29	1.26	.201
Level 1: Dilemmas				
Personal-impersonal	0.40	0.10	4.21	< .001
Self-other beneficial	-0.33	0.27	-1.20	.229

[2] All the probabilities given here are median population probabilities; however, note that median probabilities between 0.2 and 0.8 are close to the mean probabilities as the logit function is almost linear in this range.

Inevitable-Avoidable	-0.44	0.27	-1.67	.096
Level 2: Participants				
h_Power	0.27	0.13	2.08	.037
Random effects	σ	Correlation matrix		
By Subject				
Intercept	1.42	Intercept	Pers.-impers.	Self-other b.
Personal-impersonal	0.21	-.18		
Self-other beneficial	0.28	-.59	-.16	
Inevitable-Avoidable	0.19	-.35	-.30	.96
By Dilemma				
Intercept	1.30	Intercept		
Personal-impersonal	0.40	-.17		

3.3 Exploratory analysis

To explore whether the five personality variables (see Table 2) would interact with any of the situational factors, we built several models with interaction terms while lowering our alpha level to .01 to counteract the inflation of type I errors due to multiple testing. The only significant interactions were between h_Power and self vs. other beneficial dilemmas, as well as between BIS and self vs. other beneficial dilemmas. Model 7 (see Table 5 and Figure 1), which included both interactions, shows that an average person, with average h_Power and BIS scores, across all dilemmas had a 59% baseline probability, β = 0.37, p = .202, of picking the utilitarian option. In self-beneficial dilemmas, this probability changed to 51% or 67%, for participants who scored 1 SD below or above the mean of h_Power, respectively (main effect of h_Power: β = 0.34, p = .006). On the other hand, in other-beneficial dilemmas the baseline probability only changed to 55% or 64% for participants who scored 1 SD below or above the mean of h_Power, respectively (interaction of h_Power and self-beneficial factor: β = -0.15, p = .002; see Figure 1). The interaction of self-other beneficial dilemmas

and BIS was of almost equal magnitude but its direction was reversed. Whereas in self-beneficial dilemmas scores of 1 SD below or above the mean of BIS predicted a change of baseline probability to 67% or 51%, respectively, (marginally significant main effect of BIS: β = -0.33, p = .014), these scores predicted a change of 63% or 55% in other-beneficial dilemmas (interaction of BIS and self-beneficial factor: β = 0.13, p = .008). Hence, participants with higher h_Power or lower BIS were more likely to pick the utilitarian option in dilemmas where their own life was at stake as compared to dilemmas in which only other persons' lives were endangered. The f_Power components both showed no significant influence (ps > .136, models 3 & 4).

Table 5

GLMM (model 7) predicting the probability of choosing the utilitarian option as a function of h_Power and BIS. Situational factors were effect coded with impersonal, other-beneficial and avoidable resolutions coded as 1.

Fixed effects	β	SE	Z value	p
Intercept	0.37	0.29	1.28	.202
Level 1: Dilemmas				
Personal-impersonal	0.41	0.10	4.26	< .001
Self-other beneficial	-0.34	0.27	-1.25	.211
Inevitable-Avoidable	-0.44	0.27	-1.66	.097
Level 2: Participants				
h_Power	0.34	0.12	2.74	.006
BIS	-0.33	0.13	-2.47	.014
Cross-level interaction				
Self-other*h_Power	-0.15	0.05	-3.04	.002
Self-other*BIS	0.13	0.05	2.64	.008

Random effects	σ	Correlation matrix		
By Subject				
Intercept	1.39	Intercept	Pers.-impers.	Self-other b.
Personal-impersonal	0.22	.04		

Self-other beneficial	0.24	-.65	-.55	
Inevitable-Avoidable	0.19	-.11	-.39	.77
By Dilemma				
Intercept	1.29	Intercept		
Personal-impersonal	0.40	-.14		

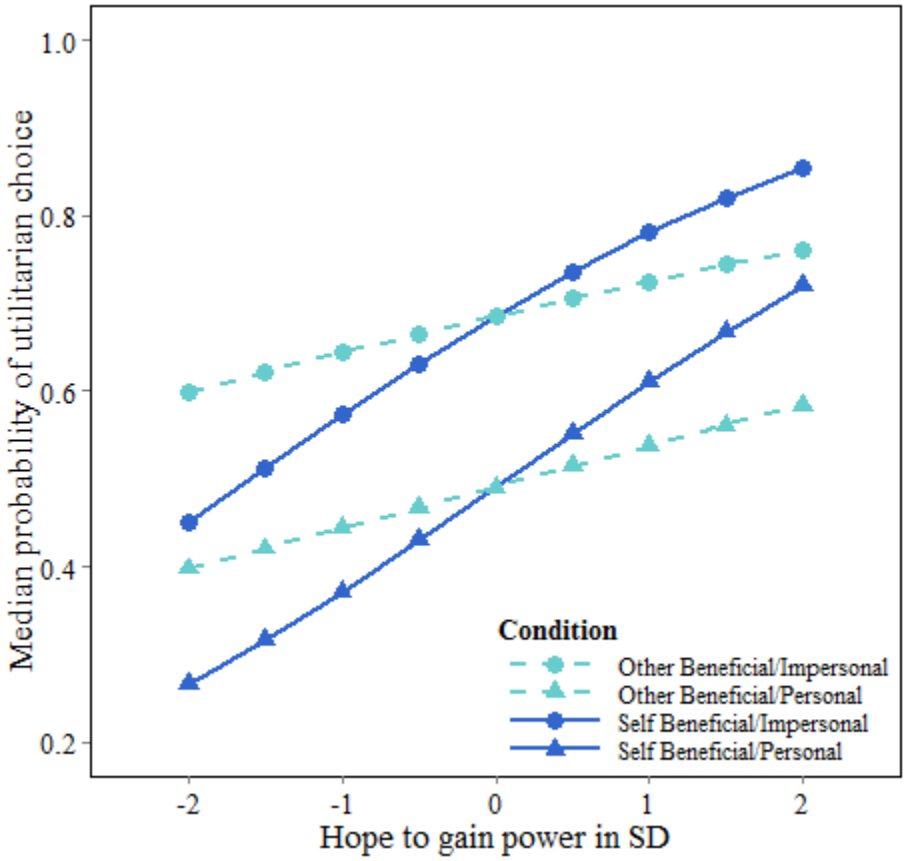

Figure 1. Predicted median probabilities for making a utilitarian choice as a function of hope to gain power across personal-impersonal and self-other beneficial factors.

3.4 Follow up and replication analysis

To test whether the main effect of h_Power (model 1) was solely driven by the higher order interaction found in the exploratory analysis, we investigated models similar to model 1

but with either only other-beneficial dilemmas (model 8) or only self-beneficial dilemmas (model 9). Whereas h_Power was only marginally significant in model 8, $\beta = .20$, $p = .089$, it was significant in model 9, $\beta = .50$, $p < .001$. Notably, h_Power was still a better predictor than BAS. In models including BAS, the personal-impersonal, and inevitable-avoidable factors (similar to model 12), BAS was neither significant when including only other-beneficial, $\beta = .19$, $p = .115$, (model 10) nor when including only self-beneficial dilemmas, $\beta = .18$, $p = .194$, (model 11).

Finally, we could only somewhat replicate findings by Moore and colleagues (2011) as BAS ($\beta = 0.22$, $p < .071$; model 12) and BIS ($\beta = -0.26$, $p < .056$; model 13) both only attained marginal significance. In order to directly compare our findings to Moore and colleagues (2011), we conducted a 2x2x2 within-subjects ANCOVA including all three situational factors as well as BIS and BAS as between-subject covariates. In this analysis, which only takes the random variation between subjects into account, all three situational factors were highly significant Fs(1,145) > 42.71, ps < .001. Regarding the covariates, only BIS attained significance, $F(1,145) = 7.12$, $p = .009$ on its own, whereas BAS did not, $F(1,145) = 1.36$, $p = .245$. Moreover, BIS interacted significantly with all three situational factors ps < .042; BAS only interacted marginally significantly with personal-impersonal, $p < .085$. This mostly replicates previous findings, except for the non-significant main effect of BAS and the significant interaction between BIS and the self-other beneficial factor. Repeating this analysis with h_Power yielded the previously found significant main effect of h_Power, $F(1,147) = 7.78$, $p = .006$, as well as a significant interaction between h_Power and the self-other beneficial factor, $F(1,147) = 8.85$, $p = .003$.

4. Discussion

Here we found that a higher explicit hope to gain power (h_Power; Schönbrodt & Gerstenberg, 2012) was positively related to making the utilitarian choice (i.e., deciding that it is morally acceptable to kill one person to save multiple others) in hypothetical moral dilemmas. Importantly, in an exploratory analysis, we found that the probability of making this choice as a function of h_Power was even higher when participants' own lives are at stake as compared to only the lives of others (self-other beneficial factor). This higher-order interaction seemed to have a strong impact on the main effect of h_Power, as h_Power was just marginally significant in a model which included only other-beneficial dilemmas but was significant in a model which included only self-beneficial dilemmas. We found a similar, but reverse, interaction between behavioural inhibition sensitivity (BIS; Carver & White, 1994) and the self-other beneficial factor, which was independent of the interaction of the self-other beneficial factor with h_Power. The probability of making a utilitarian choice decreased as a function of BIS when participants' own lives were at stake as compared to only the lives of others. The fear of losing power components, "fear of losing control" and "fear of losing reputation" (Schönbrodt & Gerstenberg, 2012), did not predict utilitarian choices.

A previous study has found that behavioural approach sensitivity (BAS; Carver & White, 1994) is also related to making utilitarian choices (Moore et al., 2011). We somewhat replicated this finding, as BAS was marginally significant in our analysis. Notably, both the coefficients of h_Power and BAS were of much smaller magnitude when including them as predictors together as compared to separately. This is unlikely to be explained by simply having lower statistical power in a model with more predictors, so we conclude that some of the shared variance of h_Power and BAS was predictive of utilitarian choices. As both constructs represent a sensitivity to gaining a positive outcome (Elliot & Thrash, 2002; Schönbrodt & Gerstenberg, 2012) we believe that this communality explains the shared

predictive variance. Moreover, as we argued that the moral decision of killing one person to save multiple others is a more specific positive outcome for individuals high in h_Power as compared to individuals high in BAS, this is likely to explain why h_Power is a stronger predictor in these dilemmas than BAS.

It should be noted that we also replicated a previously found main effect of personal vs. impersonal killing on participants' likelihood to make a utilitarian choice (Moore et al., 2008). More precisely, participants were more likely to make a utilitarian choice when a victim could be killed in an impersonal way. However, we did not replicate the main effects for inevitable vs. avoidable killings and self vs. other-beneficial killings (e.g., Moore et al., 2008). This is likely to be due to the analysis strategy we applied, which not only accounted for variability between subjects but also between dilemmas; thus allowing generalisability across both subjects and dilemmas. Analysing our data in a by-subject ANCOVA (cf. Moore et al., 2008; Moore et al., 2011), indeed yields *p* values below .001 for all situational factors. Nonetheless, both non-significant main effects in our models pointed in the previously found direction and might be covered up by low statistical power (i.e., having too few dilemmas).

The interaction between h_Power and the self-other beneficial factor indicates that individuals with a higher explicit power motive have a tendency to shift their moral perception in a way so that those solutions which are beneficial for themselves also appear to be more morally acceptable. This finding is in line with research showing exploitative/selfish tendencies in power motivated individuals in economic exchange games such as money allocation tasks (Quirin, Beckenkamp, & Kuhl, 2009), prisoner's dilemma games (Terhune, 1968) or dictator games (Schönbrodt & Gerstenberg, 2012). However, this is not to say that individuals with a high power motive necessarily act egoistically. For example, Winter (1985) found that the implicit power motive in women, who had younger siblings, predicted "responsible social power actions" whereas the same motive predicted profligate behaviour in

women, who did not have younger siblings. Some researchers (e.g., McClelland, 1970) even suggested distinguishing between a socialised power and a personalised power motive, which has since received some empirical validation (e.g., Magee & Langner, 2008; Schultheiss, Campbell, & McClelland, 1999). Moreover, as the power motive is defined by both a desire to influence other people as well as by a desire for prestige and reputation, being in a context in which one's behaviour is made overt to other people might also be a moderating factor. For example, controlling someone might satisfy one's needs but might be regarded negatively by others, and thus might be suppressed. One could even imagine a situation in which a need for control – achieved by acting manipulative and selfishly - and a need for prestige and reputation - achieved by acting overtly prosocial – could yield competing behavioural strategies.

4.1 Concluding remarks

Moral decisions, especially those regarding caring for or harming other people are prevalent in our daily lives (Hofmann et al., 2014). Importantly, studies have shown that individuals do not follow normative rules (e.g., Moore et al., 2008) and that certain situational (e.g., Greene et al., 2001, Moore et al., 2008) and certain personality variables affect moral decision making (e.g., Kahane, 2015; Moore et al., 2011). In this study we show for the first time that a hope to gain power is positively related to making utilitarian moral decisions especially in situations in which a person's own life is at stake, as compared to only the lives of others. An interesting next step would be to investigate how this moral bias relates to people in power professions, as the power motive is particularly prevalent in these professions (Jackson, 1974; Jenkins, 1994) and because their moral decisions can have a major impact on other people's lives (e.g., when deciding whether or not to send soldiers to war). For people in power professions but also for the general public it is important to be aware of the factors which bias their own moral perception, since only then they can take

372 conscious measures against them to attain a more balanced moral judgement. The hope to
373 gain power certainly is one of those moral biasing factors.

6. References

Baayen, R. H., Davidson, D. J., & Bates, D. M. (2008). Mixed-effects modeling with crossed random effects for subjects and items. *Journal of Memory and Language*, *59*, 390-412.

Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, *68*, 255-278.

Barret, D. (2014, December 08). Prams on buses court case prompts new wheelchair row. *The Telegraph*. Retrieved from http://www.telegraph.co.uk/news/uknews/road-and-rail-transport/11280483/Prams-on-buses-court-case-prompts-new-wheelchair-row.html

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2014). *lme4: Linear mixed-effects models using Eigen and S4*. R package version 1.1-7

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology*, *67*, 319-333.

Ciaramelli, E., Muccioli, M., Ladavas, E., & di Pellegrino, G. (2007). Selective deficit in personal moral judgment following damage to ventromedial prefrontal cortex. *Social Cognitive and Affective Neuroscience*, *2*, 84-92.

Clark, H. H. (1973). The language-as-fixed-effect fallacy: A critique of language statistics in psychological research. *Journal of Verbal Learning and Verbal Behavior*, *12*, 335-359.

396 Cushman, F., Young, L., & Hauser, M. (2006). The role of conscious reasoning and intuition
397 in moral judgment testing three principles of harm. *Psychological Science*, *17*,
398 1082-1089.

399 Elliot, A. J., & Thrash, T. M. (2002). Approach-avoidance motivation in personality:
400 Approach and avoidance temperaments and goals. *Journal of Personality and Social*
401 *Psychology*, *82*, 804-818.

402 Foot, P. (1967). The problem of abortion and the doctrine of double effect. *Oxford Review, 5*,
403 5–15.

404 Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the
405 moral domain. *Journal of Personality and Social Psychology*, *101*, 366-385.

406 Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M., & Cohen, J. D. (2001). An
407 fMRI investigation of emotional engagement in moral judgment. *Science*, *293*,
408 2105-2108.

409 Hauser, M., Cushman, F., Young, L., Kang-Xing Jin, R., & Mikhail, J. (2007). A dissociation
410 between moral judgments and justifications. *Mind & Language*, *22*, 1-21.

411 Heckhausen, J. E., & Heckhausen, H. E. (2008). *Motivation and Action*. Cambridge
412 University Press.

413 Hofmann, W., Wisneski, D. C., Brandt, M. J., & Skitka, L. J. (2014). Morality in everyday
414 life. *Science*, *345*, 1340-1343.

415 Jackson, D. N. (1974). *Personality research form manual*. Research Psychologists Press.

Jenkins, S. R. (1994). Need for power and women's careers over 14 years: Structural power, job satisfaction, and motive change. *Journal of Personality and Social Psychology*, *66*, 155-165.

Jorm, A. F., Christensen, H., Henderson, A. S., Jacomb, P. A., Korten, A. E., & Rodgers, B. (1998). Using the BIS/BAS scales to measure behavioural inhibition and behavioural activation: Factor structure, validity and norms in a large community sample. *Personality and Individual Differences*, *26*, 49-58.

Kahane, G., Everett, J. A., Earp, B. D., Farias, M., & Savulescu, J. (2015). 'Utilitarian'judgments in sacrificial moral dilemmas do not reflect impartial concern for the greater good. *Cognition*, *134*, 193-209.

Koestner, R., Weinberger, J., & McClelland, D. C. (1991). Task-intrinsic and social-extrinsic sources of arousal for motives assessed in fantasy and self-report. *Journal of Personality*, *59*, 57-82.

Magee, J. C., & Langner, C. A. (2008). How personalized and socialized power motivation facilitate antisocial and prosocial decision-making. *Journal of Research in Personality*, *42*, 1547-1559.

McClelland, D. C. (1970). The two faces of power. *Journal of International Affairs*, *24*, 29-47.

McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ?. *Psychological Review*, *96*, 690-702.

Moore, A. B., Clark, B. A., & Kane, M. J. (2008). Who shalt not kill? Individual differences in working memory capacity, executive control, and moral judgment. *Psychological Science*, *19*, 549-557.

439 Moore, A. B., Stevens, J., & Conway, A. R. (2011). Individual differences in sensitivity to
440 reward and punishment predict moral judgment. *Personality and Individual*
441 *Differences*, *50*, 621-625.

442 Quirin, M., Beckenkamp, M., & Kuhl, J. (2009). Giving or taking: the role of dispositional
443 power motivation and positive affect in profit maximization. *Mind & Society*, *8*,
444 109-126.

445 R Development Core Team (2012). *R: A Language and Environment for Statistical*
446 *Computing*. Vienna, Austria: Basic Books.

447 Schönbrodt, F. D., & Gerstenberg, F. X. (2012). An IRT analysis of motive questionnaires:
448 The unified motive scales. *Journal of Research in Personality*, *46*, 725-742.

449 Schultheiss, O. C. (2008). Implicit motives. In O. P. John, R. W. Robins & L. A. Pervin
450 (Eds.), *Handbook of Personality: Theory and Research* (3 ed., pp. 603-633). New
451 York: Guilford.

452 Schultheiss, O. C., Campbell, K. L., & McClelland, D. C. (1999). Implicit power motivation
453 moderates men's testosterone responses to imagined and real dominance success.
454 *Hormones and Behavior*, *36*, 234-241.

455 Terhune, K. W. (1968). Motives, situation, and interpersonal conflict within prisoners'
456 dilemma. *Journal of Personality and Social Psychology*, 8(3, Pt. 2), (Monograph
457 Suppl.), 1-24.

458 Turiel, E. (1983). *The Development of Social Knowledge: Morality and Convention*.
459 Cambridge University Press.

460 Winter, D. G., & Barenbaum, N. B. (1985). Responsibility and the power motive in women
461 and men. *Journal of Personality*, *53*, 335-355.

462 Winter, D. G. (1988). The power motive in women—and men. *Journal of Personality and*
463 *Social Psychology*, *54*, 510-519.

464 Zaccaro, S. J., Kemp, C., & Bader, P. (2004). Leader traits and attributes. In J. Antonakis, A.
465 T. Cianciolo, & R. J. Sternberg (Eds.), *The Nature of Leadership* (pp. 101–124).
466 Thousand Oaks, CA: Sage.