


## Exploring the Relationship between Purpose and Moral Psychological Indicators

Hymen Han <sup>1</sup>

<sup>1</sup>Educational Psychology Program, University of Alabama

### Author Note

Hyemin Han, University of Alabama, Tuscaloosa, AL 35487, USA  <https://orcid.org/0000-0001-7181-2565>

I thank Kelsie J. Dawson for data collection and preliminary data analysis for the current research project.

Correspondence concerning this manuscript should be addressed to Hyemin Han, Box 870231, University of Alabama, Tuscaloosa AL 35487. Email: [hyemin.han@ua.edu](mailto:hyemin.han@ua.edu)

## Exploring the Relationship between Purpose and Moral Psychological Indicators

### **Abstract**

In the present study, I explore the relationship between purpose, which was measured by the Claremont Purpose Scale, and moral psychological indicators, moral reasoning, moral identity, and empathy. Purpose was quantified in terms of three subcomponents: meaning, goal, and beyond-the-self motivation. Moral reasoning was assessed in term of utilization of postconventional moral reasoning. Moral identity was examined with two subscales: moral internalization, and symbolization. Among diverse subscales of empathy, I focused on empathic concern and perspective taking, which have been reported to be strongly related to morality. To explore the best prediction models using the data, I employed Bayesian Model Selection and Bayesian regression analysis. In general, purpose was significantly predicted by most surveyed moral psychological indicators but not by moral symbolization. The best prediction model for beyond-the-self motivation included the most moral psychological indicator predictors including moral reasoning, which did not significantly predict other dependent variables.

*Keywords: Purpose; Flourishing; Moral functioning; Bayesian analysis; Data-driven analysis*

### **Introduction**

Purpose is an important psychological construct promoting wellbeing (Bronk, 2014; Burrow et al., 2010). Purpose is believed to promote flourishing by helping individuals identify and be dedicated to long-term goals that are worth pursuing along with appropriate action plans (Damon, 2008). As a result, presence of purpose among people, especially adolescents and young adults, particularly those younger than 30 years old, who are seeking their purpose and meaning in life, significantly predicts wellbeing (e.g., physical and mental wellbeing) (Burrow et al., 2010), and objective wellbeing (e.g. sustained engagement in civic activities) (Malin, Han, et al., 2017). Recent studies have additionally shown that

purpose among old adults, who retired from their primary career, plays a fundamental role in promoting their health and flourishing (Boyle et al., 2009; Kim et al., 2013).

One point to note is that purpose is a multifaceted construct, which can only be well explained and understood with its multiple constituents. Early research on purpose has reported that purpose consists of multiple subcomponents (i.e., long-term intent, commitment, beyond-the-self [BTS] motivation) with evidence from qualitative investigations (Damon, 2008). Similarly, recent quantitative analysis has also demonstrated three fundamental subscales of purpose (i.e., goal, meaning, BTS concern) with data collected from diverse populations (Bronk et al., 2018). Hence, we need to be aware of such a multifaceted nature of purpose for its better understanding.

As purpose is supposed to predict not only subjective wellbeing, but also objective wellbeing, which is inseparable from flourishing in a society, some have argued that purpose, particularly moral purpose, can be understood as moral virtue or strength (Han, 2015). Of course, given that purpose per se does not necessarily imply any morality or ethics in terms of its definition, it would be possible to imagine ignoble purpose (e.g., purpose possessed by an extremist) (Han, 2015). However, several previous studies have demonstrated a strong connectivity between moral functioning and purpose, particularly purpose in the civic domains (Malin et al., 2015; Malin, Han, et al., 2017). In these studies, presence of moral identity, regarding morality as central to oneself (Aquino & Reed, 2002), was suggested as a significant predictor of long-term purpose. Also, some purpose researchers have proposed that empathy, particularly empathic concern (Malin, Liauw, et al., 2017), play important roles in the formation and functioning of purpose among youths (Malin, 2021). In fact, a strong sense of moral self, which is based on well-developed self-understanding in the moral domain, and moral identity (Damon, 1984) are inseparable from formation and possession of purpose. Only individuals who are capable of sophisticated self-understanding, particularly in terms of understanding the meaning of their

lives and how they are related with others beyond themselves, demonstrated strong sense of purpose among diverse populations across different cultures (Damon & Malin, 2020).

One commonly agreed point regarding the relationship between purpose and morality is that purpose and moral development are likely to promote each other (e.g., Malin et al., 2014; Mariano et al., 2021). On the one hand, a group of purpose researchers have proposed that strong empathy and moral identity, which constitute fundamental moral psychological components required for moral motivation and behavior, promote purpose formation (e.g., Han et al., 2021; Malin, 2021). The relationship has also been well examined in the previous studies addressing civic purpose, a domain specific purpose (e.g., Han et al., 2021; Han & Dawson, 2021). On the other hand, several other studies suggest that moral and virtue development can also be promoted and assisted by exploration and formation of purpose (e.g., Bronk & Baumsteiger, 2018). Particularly, we may need to note that presence of purpose is a strong motivator of sustained prosocial and moral and behavior, as purpose is supposed to be constituted by long-term intent, commitment, as well as motivation to contribute to BTS beings (Han & Dawson, 2021; Malin, Liauw, et al., 2017)

Although previous studies examine the relationship between moral psychological indicators, (i.e., moral identity and empathy) and purpose, several methodological and technical points warrant additional research. First, the majority of previous investigations treated purpose as a categorical variable without possibility of considering its continuous development and change (Han et al., 2021; Han & Dawson, 2021). Due to such a methodological limitation, the previous studies were not able to examine individual-level variances in purpose quantitatively. Second, they have primarily focused on purpose in civic domains (e.g., purpose in political, community service, and expressive activities) (Malin et al., 2015). Given moral values and foundations are inseparable from civic matters (Dawson et al., 2021), the significant association between morality and civic purpose reported in previous research may be attributable the inseparability (Beaumont et al., 2006). More evidence should be acquired to

understand the relationship between general purpose, which includes non-civic purpose, and morality more comprehensively (Mariano & Vaillant, 2012). Third, in the previous studies, only two aspects of moral functioning (i.e., empathy and moral identity) were examined. In fact, philosophers and psychologists interested in moral development have proposed that reasoning-related aspects of morality, (e.g. moral judgment and reasoning) also play important roles in formation of moral character and moral behavior in addition to empathy and moral identity (Darnell et al., 2022). Thus, to understand the association between purpose and morality in a comprehensive and holistic manner, moral reasoning should also be examined.

Hence, in this study, I intend to explore the relationship between moral psychological indicators, purpose, and the subcomponents of purpose through a data-driven approach. To assess multifaceted general purpose, I employ the Claremont Purpose Scale (CPS) (see Bronk et al. [2018] for the full scale). I decided to use the CPS since it was developed to measure general purpose, which is not necessarily limited within moral domains. Unlike previous studies that examined the relationship between purpose and moral development while focusing on civic purpose (e.g., Han et al., 2021; Han & Dawson, 2021; Malin, Han, et al., 2017), use of the CPS would allow me to examine general purpose addressing diverse domains and contexts related to human flourishing in general. In addition, given that the CPS is a quantitative measure for purpose, it would be possible to treat purpose development as a continuous process. In fact, most of the previous studies that examined the aforementioned relationship treated (civic) purpose as a categorical variable (e.g., Malin et al., 2015); such an approach might not be ideal for quantitative investigation of purpose development.

Furthermore, I also examine moral psychological indicators in a more comprehensive manner by testing their moral reasoning development with the Behavioral Defining Issues Test (bDIT) in addition to empathy and moral identity (Choi et al., 2019; Han, Dawson, Thoma, et al., 2020). In terms of the analytic method, I use a data-driven method, Bayesian Model Selection, to explore the relationship of

interest (Bergh et al., 2021; Dawson et al., 2021). The conventional frequentist approach using  $p$ -values is not suitable to searching for the best prediction model (Wagenmakers, Marsman, et al., 2018). First,  $p$ -values can only demonstrate whether a specific null hypothesis regarding absence of a significant effect should be rejected; they are not able to tell us anything about whether an alternative hypothesis, in which we are primarily interested, is supported by data (Wagenmakers, Love, et al., 2018). Second, in the case of model exploration, the conventional approach is primarily suitable for examining one specific model instead of exploring the best model among multiple candidates (Raftery, 1995). Thus, I employ the Bayesian method to explore the best model explaining the relationship among all possible candidate models.

## Methods

### Participants

In the present study, a total of 1,079 undergraduate students (86.10% female) at a public university located in the Southern United States were recruited. The adequacy of the sample size for sufficient statistical power was examined with Bayes Factors (BF) resulting from Bayesian analysis, which indicate extent in which a tested hypothesis is supported by evidence (Wagenmakers, Marsman, et al., 2018), following the Bayesian Stopping Rule (Rouder, 2014). I assumed a BF that was sufficient to support a hypothesis of interest (e.g., at least  $BF \geq 3$  indicating presence of positive evidence) as an indication of a sufficient sample size (Kass & Raftery, 1995). The average age of the participants was 22.04 years (SD: 6.04 years). All participants were recruited via the Education Research Subject Pool. Once they completed the study, they were provided with a course credit as compensation. The current research project was reviewed and approved by the Institutional Review Board at the University of Alabama (IRB protocol ID: 18-12-1842). All participants provided informed consent to participate in the study.

## Measures

### *Claremont Purpose Scale (CPS)*

I employed the CPS to assess participants' purpose (Bronk et al., 2018). The CPS was designed to assess three subcomponents of purpose, meaning, goal, and BTS motivation, with twelve items (four items per subcomponent). The first dimension, meaning, is about the extent to which participants feel personal meaningfulness in their life (sample item: "How clear is your sense of purpose in your life?"). The goal dimension is about the extent to which participants are goal oriented and committed to the goal (sample item: "How hard are you working to make your long-term aims a reality?"). The last dimension, BTS motivation is related to whether participants have beyond-the-self-motives or self-oriented motives (sample item: "How often do you hope to leave the world better than you found it?"). Responses were anchored to seven-point Likert scale (1 = Strongly disagree, 7 = Strongly agree). For each subscale and the overall purpose, we used a mean score for further analyses.

Given the higher-order factor model has been validated in a previous study (Bronk et al., 2018), I calculated four mean scores (i.e., the overall CPS, meaning, goal, BTS motivation scores) for further analyses. The overall CPS score was calculated with all twelve items, while each subscale score calculated with three items assigned to the subscale. In the present study, the CPS demonstrated good to excellent internal consistency in all dimensions,  $\alpha = .90, .90, .90, .88$ , for the overall CPS, meaning, goal, and BTS motivation subcomponents, respectively.

Since the CPS has been recently developed and relatively fewer validation studies have been conducted compared with the other measures, I performed confirmatory factor analysis (CFA) to test its measurement model. When the model proposed by Bronk et al. (2018), which includes the three subscales and the overall CPS factor, was tested, good model fit indicators were reported, RMSEA = .043, SRMR = .028, CFI = .953 (see Hu and Bentler [1999] for model fit criteria).

In addition, because significantly fewer male participants were recruited in the present study, whether the CPS assesses purpose across male and female participants in a consistent manner may also need to be examined. Thus, I performed measurement invariance test following Putnick and Bornstein (2016). Via multigroup CFA, I examined whether scalar invariance, which assumes equal factor loadings and intercepts across two different groups, was successfully achieved (see Han, Dawson, and Choi [2022] and Putnick and Bornstein [2016] for evaluation criteria used in the present study). First, when configural invariance, which only assumes the equal measurement model, was tested, good model fit indicators were reported, RMSEA = .043, SRMR = .028, CFI = .950. Second, the CPS also successfully achieved metric invariance, which additionally assumes the equal factor loadings, RMSEA = .026, SRMR = .030, CFI = .980,  $\Delta$ RMSEA = -.017,  $\Delta$ SRMR = .001,  $\Delta$ CFI = .030. Finally, scalar invariance was also successfully reported, RMSEA = .026, SRMR = .030, CFI = .978,  $\Delta$ RMSEA = .000,  $\Delta$ SRMR = .000,  $\Delta$ CFI = -.001. This measurement invariance test result suggests that the CPS measures purpose across male and female participants in a consistent and equal manner.

### ***Behavioral Defining Issues Test (bDIT)***

The bDIT was employed to assess participants' development of moral reasoning, postconventional moral reasoning in particular (Choi et al., 2019; Han, Dawson, Thoma, et al., 2020). This test was developed to examine to what extent participants utilize postconventional reasoning, instead of reasoning based on personal interests or social norms and conventions. The lowest level, the personal-interest level, is associated with a tendency to prioritize participants' own interest or relationship while addressing a given moral dilemma. The maintaining norms level is related to participants' intent to prioritize keeping social norms and orders. The highest level, the postconventional level, is associated with participants' tendency to reconsider existing laws and norms based on moral principles in a reflective and deliberative manner. According to the Neo-Kohlbergian theory, which



addresses the developmental model of moral reasoning, use of postconventional reasoning is required to make sophisticated moral judgment and it predicts moral motivation and behavior (Thoma, 2014).

The bDIT presented three moral dilemmas (i.e., Heinz and Drug, Escaped Prisoner, Newspaper) and requests participants to choose what is the most important moral philosophical rationale while addressing the presented moral dilemmas. In this process, participants were requested to answer eight questions for each dilemma. In each question, three options representing three moral philosophical rationale of judgment based on three difference developmental levels were presented: the personal-interest, maintaining norms, and postconventional levels. Participants were asked to choose which option was most important while solving the presented dilemma. As a result, a total of 24 questions were presented throughout the test. I calculated a P-score, the likelihood of utilization of postconventional reasoning, which ranged from 0% to 100%, as follows:

$$P = \frac{\# \text{ of postconventional reasoning option selection}}{24 \text{ questions}} \times 100(\%)$$

The validity of the bDIT was confirmed based on the item response theory (Choi et al., 2019). In the present study, the bDIT demonstrated good internal consistency,  $\alpha = .80$ .

### ***Interpersonal Reactivity Index (IRI)***

I employed the Interpersonal Reactivity Index (IRI) to assess participants' empathy with multiple subscales (Davis, 1983). The IRI was designed to measure empathy with multiple dimensions (e.g., personal distress, empathic concern, perspective taking). I only used two of these subscales, empathic concern and perspective taking, because they are closely associated with morality. Previous studies have reported that personal distress, an ability to copy another person's pain and distress, does not necessarily promote appropriate moral behavior to solve the source of the pain and distress (Decety & Cowell, 2014). Instead, Decety and Cowell (2014) have proposed that empathic concern, a concern

about another person's wellbeing, and perspective taking, an ability to take another person's perspective to solve a problem, are fundamental in moral functioning.

Both empathic concern (e.g., "I often have tender, concerned feelings for other people less fortunate than me") and perspective taking (e.g., "I try to look at everybody's side of a disagreement before I make a decision") subscales were measured with seven items. Responses were anchored to a five-point Likert scale (1 = Strongly disagree, 5 = Strongly agree). Given the measurement model was tested and validated in the previous study (Davis, 1983), I used a mean score for each scale for further analyses. Both subscales reported good internal consistency,  $\alpha = .74$  .72 for empathic concern and perspective taking subscales respectively.

### ***Moral Identity Scale (MIS)***

I used the Moral Identity Scale (MIS) to examine participants' moral identity. The MIS was designed to measure two different subscales of moral identity, moral internalization and symbolization (Aquino & Reed, 2002). Moral internalization is about to what extent moral values are central to participants' self-identity. Moral symbolization is related to whether expressing and symbolizing moral values in social contexts is regarded to be important to oneself. The MIS begins with listing moral values (e.g., caring, compassionate, fair) and then presents participants with items. Five items were used to examine moral internalization, (e.g., "It would make me feel good to be a person who has these characteristics.") Then, six items were presented to measure moral symbolization, (e.g., "I often buy products that communicate the fact that I have these characteristics.") Responses were anchored to five-point Likert scale (1 = Strongly disagree, 5 = Strongly agree).

The two-factor model has been validated in the present study (Aquino & Reed, 2002). So, I calculated the mean score for each subscale for further analyses. In the present study, the MIS showed good consistency,  $\alpha = .81$  and .85 for the internalization and symbolization subscales, respectively.

## Analysis Plan

All data and source code files are available via the Open Science Framework:

<https://doi.org/10.17605/OSF.IO/6VUK3>.

### ***Descriptive Statistics and Correlation Analysis***

I examined the descriptive statistics of variables of interest including the CPS, bDIT, MIS, and IRI. Moreover, Bayesian correlation analysis was conducted to explore the relationship between the variables. Presence of significant correlation was tested with BFs. I assumed that  $BF \geq 3$ ,  $\geq 10$ , and  $\geq 100$  indicate presence of positive, strong, and very strong evidence supporting significant non-zero correlation, respectively (Kass & Raftery, 1995).

### ***Bayesian Model Selection***

To explore which regression model was the best one among all possible combinations of candidate predictors, I conducted Bayesian Model Selection with *generalTestBF* function implemented in *BayesFactor* package (Morey et al., 2018). Bayesian Model Selection was conducted for four dependent variables of interest (i.e., the overall CPS, meaning, goal, BTS motivation scores). For each dependent variable, five candidate predictors were examined: the bDIT P-score, moral internalization, moral symbolization, empathic concern, and perspective taking. In addition to these variables, demographic variables that were found to be closely associated with moral functioning (i.e., sex, age, religion, political affiliation) (Han, Dawson, & Choi, 2022; Kracher et al., 2002), were considered during the selection process. Once all candidate models were examined, I selected the model demonstrating the highest model BF value, which indicates the extent to which the examined model is better supported by evidence than the null model.

Once the best model was identified, I conducted Bayesian regression with the model to examine whether the included predictors were significantly positive. To conduct Bayesian regression, I employed *brms* package (Bürkner, 2017). Regression analysis was performed while including the identified

predictors as well as the demographic factors in the model. All the variables excluding categorial ones were standardized for better convergence and interpretation. I used the default Cauchy priors, Cauchy (0, 1), following Rouder and Morey (2012). Significance of predictors was examined with BFs. Following Kass and Raftery (1995), I used that  $BF \geq 3, 10, \text{ and } 100$  for thresholds for positive, strong, and very strong evidence supporting significant positive effects, respectively. I also examined the effect size of each predictor by estimating the median posterior  $\eta^2$ .

**Results**

**Descriptive Statistics and Correlation Analysis**

Descriptive statistics of each variable of interest (i.e., mean and standard deviation) are presented in Table 1. In the same table, the results from Bayesian correlation analysis are also reported. Furthermore, supplementary figures demonstrate the distributions of CPS and predictor scores in histograms.

**Table 1**

*Descriptive Statistics and Bayesian Correlation*

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. CPS overall	3.86	.65	-							
2. CPS meaning	3.56	.90	.82***	-						
3. CPS goal	3.96	.74	.83***	.53***	-					
4. CPS BTS motivation	4.07	.77	.78***	.41**	.53***	-				
5. bDIT P-score	52.24	21.89	.10	.01	.10	.18**	-			
6. Moral internalization	4.5	.70	.25**	.11*	.24**	.28**	.29**	-		
7. Moral symbolization	3.37	.86	.31**	.25**	.24**	.27**	-.07	.10	-	
8. Empathic concern	3.95	.65	.28**	.11*	.22**	.36**	.21**	.47***	.12*	-
9. Perspective taking	3.66	.63	.28**	.14*	.23**	.31**	.22**	.29**	.13*	.54***

*Note.* \*:  $BF \geq 3$  (positive evidence). \*\*:  $BF \geq 10$  (strong evidence). \*\*\*:  $BF \geq 100$  (very strong evidence).

**Bayesian Model Selection**

The results of Bayesian Model Selection and regression are presented in Table 2. Evidence strongly supported the identified best models compared with the null model in all cases ( $BF \geq 10$ ). The best prediction model for the overall CPS included moral internalization, empathic concern, and perspective taking as predictors. Meaning was best predicted only by perspective taking. The best model predicting goal included moral internalization and perspective taking. BTS motivation was best predicted by the bDIT P-score, moral internalization, empathic concern, and perspective taking. All the selected predictors were found to be strongly supported by evidence ( $BFs \geq 10$ ).

**Table 2**

*Results from Bayesian Model Selection and Regression Analysis*

	CPS overall				Meaning				Goal				BTS motivation			
	$\theta$				$\theta$				$\beta$				$\beta$			
	(median)	SE	$\eta^2$	BF	(median)	SE	$\eta^2$	BF	(median)	SE	$\eta^2$	BF	(median)	SE	$\eta^2$	BF
bDIT P-score													.07	.03	.04	87.99
Moral internalization	.13	.03	.02	1999.00					.04	.03	.01	11.86	.11	.03	.01	1332.33
Moral symbolization																
Empathic concern	.09	.04	.09	209.53									.19	.04	.12	Infinite
Perspective taking	.17	.03	.02	Infinite	.12	.03	.02	Infinite	.11	.03	.02	3999.00	.15	.03	.02	Infinite
Model BF (vs. null)				$7.15 \times 10^{26}$				$5.31 \times 10^9$				$2.58 \times 10^{17}$				$7.69 \times 10^{33}$

*Note.* For each dependent variable, only the predictors that were included in the best model were reported in this table.

**Discussion**

In the present study, I explored the relationship between purpose and its subcomponents, meaning, goal, and BTS motivation, and moral psychological indicators, moral reasoning, moral identity, and empathy. To achieve this goal, I employed Bayesian methods that enabled data-driven exploration of best prediction models. The general purpose, which was quantified by the overall CPS, was best predicted by moral internalization, empathic concern, and perspective taking. BTS motivation was best

predicted by the aforementioned predictors as well as postconventional moral reasoning. Interestingly, meaning was simply predicted by perspective taking while goal was predicted by moral internalization and perspective taking. Moral symbolization was not included in any best model.

I found that the overall purpose was predicted by moral internalization and empathy; moral reasoning and symbolization were not selected as best predictors. This result is consistent with what have been reported in the previous purpose studies. As mentioned earlier, formation and development of purpose requires strong moral identity as well as empathy that enable an individual to engage in meaningful activity, which serves beyond-the-self beings, in a long-term (Malin, 2021; Malin et al., 2014).

Interestingly, moral reasoning was not significantly associated with general purpose. Colby and Damon (1982) reported that among moral exemplars, who implement moral purposes in the lives, some do not demonstrate sophisticated moral reasoning, postconventional moral reasoning (Colby & Damon, 1992). Instead, strong moral identity and empathy motivated the moral exemplars to help disadvantaged others. Perhaps, moral reasoning is more about philosophical considerations on moral matters, so it might be less required to generate in concrete purposes compared to identity and empathy. Also, moral symbolization was not significantly related to general purpose. Moral symbolization is primarily about whether moral values are important in symbolizing and expressing oneself; compared with moral internalization, it is less about to what extent moral values are central to and integrated into individuals' self-identity (Aquino & Reed, 2002). Hence, internal integration of moral values into individuals' self-identity, moral internalization, might be closely associated with goal identification and motivation to help others (Reed & Aquino, 2003). In fact, previous studies have reported that successful internalization of moral values were required for possession of meaning (Han et al., 2019) and maintaining political and civic purpose (Han et al., 2021; Han & Dawson, 2021) among young adults experiencing significant transitions.

Among three subcomponents of purpose, BTS motivation was most strongly associated with moral psychological indicators, including postconventional moral reasoning. It would be plausible that the most moral psychological indicators were associated with BTS motivation as it is directly related to whether individuals' purpose is intended to serve beyond-the-self or oneself (Quinn, 2017). One interesting point is that unlike other dependent variables, BTS motivation was also significantly predicted by postconventional moral reasoning. According to the Neo-Kohlbergian model, postconventional moral reasoning is based on an ability to consider diverse perspectives involving moral matters, which exist beyond individuals' self-interest or socio-cultural norms (Thoma, 2014). Presence of postconventional moral reasoning enables individuals to evaluate their own interest as well as existing social conventions in a reflective and deliberative manner so that they can take into account more diverse values and others' wellbeing (Glover et al., 2014). Hence, postconventional moral reasoning would be significantly associated with BTS motivation unlike other subcomponents of purpose, which is seemingly more related to individuals' meaning and goal rather than moral matters and others' welfare.

Other investigators have proposed that examining the nature of moral versus ignoble purpose should be done (Mariano & Vaillant, 2012). Perhaps, the present study may provide some insights to researchers who are interested in the aforementioned point. Given that genuine purpose, including both general and moral purpose, requires BTS motivation as a necessary condition (Quinn, 2017), the findings from the present study suggest that moral functioning, including moral reasoning, moral identity, and empathy, is closely tied to purpose. Although we may imagine several purposes that may seem to be independent from morality, or even anti-moral, we may consider that morality makes purpose stronger and more genuine (Moran, 2009; Quinn, 2017).

The findings from the present study may inform researchers in the field of moral and positive psychology who are interested in how morality can contribute to human flourishing. Particularly the point that moral psychological indicators significantly predict purpose, may support moral philosophical

accounts claimed by virtue ethicists (Snow, 2008). According to virtue ethicists, to achieve authentic happiness as a flourishing human being, individuals should internalize moral virtues and cultivate wisdom (Kristjánsson, 2013). Purpose can be considered an indicator of (Diener et al., 2010) as well as a virtue for flourishing (Han, 2015). In addition, if purpose is predicted by moral functioning, then it would be plausible to assume that developed moral functioning can also contribute to flourishing at the end. However, it is impossible to demonstrate any causal relationship with the current cross-cultural dataset. Nonetheless, the findings suggest that diverse aspects of moral functioning, including moral reasoning, moral identity, and empathy, which have been proposed as central necessary components for moral motivation and behavior (Darnell et al., 2022), could not be completely separated from purpose and flourishing. As such, moral and positive psychologists, particularly those interested in flourishing and eudemonic wellbeing, may need to pay more attention to morality and its development to be able to understand the big picture of positive youth development better.

### **Limitations**

Although the present study may contribute to expanding existing literature related to moral psychology and positive psychology with additional evidence from data-driven analysis, several limitations may warrant further investigation. We may start with discussing several limitations regarding the methodology. First, although I examine the psychological nature of the moral aspects of purpose, antimoral or ignoble purpose, which is a potential issue in research on purpose, has not been studied in the present study. Second, among various moral psychological indicators, only moral reasoning, moral motivation, and empathy were considered in the present study. In fact, the aforementioned indicators embrace central components of moral functioning proposed by moral philosophers (Darnell et al., 2022). However, additional moral psychological indicators, which address diverse aspects of human morality (e.g., moral competence [Lind, 2008], moral growth mindset [Han, Dawson, Choi, et al., 2020]),



need to be assessed in the future studies for a more comprehensive understanding of the relationship between morality and purpose.

In addition to the aforementioned methodological limitations, it would also be necessary to consider other potential limitations based on the analysis. First, the fact that there were significantly fewer male participants (13.90%) than female participants (86.10%) can be a significant concern. Although I was able to demonstrate that the CPS assessed purpose in a consistent manner across the different groups, findings from the present study may not be perfectly generalized among male populations. Second, the significant amount of variance shared among predictors and dependent variables (see Table 1) should also be considered carefully. Because I focused on identification of best regression models and predictors (i.e., model selection) in the present study only a limited number of predictors was selected for each best model. Thus, potential effects from the excluded predictors, which were also significantly associated with included predictors and dependent variables, could not be well examined. Perhaps Bayesian Model Averaging, which enables averaging multiple candidate models to consider more predictors in an inclusive manner from the Bayesian perspective (Han, Dawson, Walker, et al., 2022; Hoeting et al., 1999), can be employed to address this limitation in future studies for the purposes of accurate model estimation rather than model selection.

### **Concluding Remarks**

In the present study, I demonstrated that moral functioning indicators (i.e., moral reasoning, moral identity, empathy) significantly predicted purpose as measured by the CPS. I employed Bayesian model selection to explore the best predictors and prediction models for the CPS and its subscales in a data-driven manner. From a theoretical standpoint, the present study may inform researchers who are interested in moral and positive development, including the development of moral motivation and behavior. Researchers can examine how morality and purpose promote each other's development in the lifespan (Damon & Malin, 2020). It would also be possible to examine whether noble purpose, which is

supported by moral values (Damon, 2003), can be developed and sustained better than ignoble purpose, which is based on anti-moral or anti-social intent, commitment, and motivation (Mariano & Vaillant, 2012).

Furthermore, the present study has a significant methodological implication. By employing a data-driven model exploration method, it was possible to examine which predictors should be included in the best prediction models compared to all possible candidate models (Raftery, 1995). Researchers who intend to build a prediction or explanation model with data could use the Bayesian method. Such a model developed through the Bayesian Model Selection procedure employed in the present study may further inform future studies by providing insights for study design as well as hypothesis building (Mazzocchi, 2015).

#### **Data Availability Statement**

The data that support the findings of this study are openly available in the Open Science Framework at <https://doi.org/10.17605/OSF.IO/6VUK3>.

#### **References**

- Aquino, K., & Reed, A. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology, 83*(6), 1423–1440. <https://doi.org/10.1037/0022-3514.83.6.1423>
- Beaumont, E., Colby, A., Ehrlich, T., & Torney-Purta, J. (2006). Promoting Political Competence and Engagement in College Students: An Empirical Study. *Journal of Political Science Education, 2*(3), 249–270. <https://doi.org/10.1080/15512160600840467>
- Bergh, D. van den, Clyde, M. A., Gupta, A. R. K. N., de Jong, T., Gronau, Q. F., Marsman, M., Ly, A., & Wagenmakers, E.-J. (2021). A tutorial on Bayesian multi-model linear regression with BAS and JASP. *Behavior Research Methods, 53*(6), 2351–2371. <https://doi.org/10.3758/s13428-021-01552-2>

- Boyle, P. A., Barnes, L. L., Buchman, A. S., & Bennett, D. A. (2009). Purpose in Life Is Associated With Mortality Among Community-Dwelling Older Persons. *Psychosomatic Medicine*, *71*(5), 574–579. <https://doi.org/10.1097/PSY.0b013e3181a5a7c0>
- Bronk, K. C. (2014). *Purpose in life*. Springer. <https://doi.org/10.1007/978-94-007-7491-9>
- Bronk, K. C., & Baumsteiger, R. (2018). Fostering purpose as a way of cultivating civic friendship. In J. Arthur (Ed.), *Virtues in the Public Sphere: Citizenship, Civic Friendship and Duty* (1st ed., pp. 184–198). Routledge. <https://doi.org/10.4324/9780429505096>
- Bronk, K. C., Riches, B. R., & Mangan, S. A. (2018). Claremont Purpose Scale: A Measure that Assesses the Three Dimensions of Purpose among Adolescents. *Research in Human Development*, *15*(2), 101–117. <https://doi.org/10.1080/15427609.2018.1441577>
- Bürkner, P.-C. (2017). brms: An R Package for Bayesian Multilevel Models Using Stan. *Journal of Statistical Software*, *80*(1). <https://doi.org/10.18637/jss.v080.i01>
- Burrow, A. L., O'Dell, A. C., & Hill, P. L. (2010). Profiles of a developmental asset: Youth purpose as a context for hope and well-being. *Journal of Youth and Adolescence*, *39*(11), 1265–1273. <https://doi.org/10.1007/s10964-009-9481-1>
- Choi, Y.-J., Han, H., Dawson, K. J., Thoma, S. J., & Glenn, A. L. (2019). Measuring moral reasoning using moral dilemmas: Evaluating reliability, validity, and differential item functioning of the behavioural defining issues test (bDIT). *European Journal of Developmental Psychology*, 1–10. <https://doi.org/10.1080/17405629.2019.1614907>
- Colby, A., & Damon, W. (1992). *Some do care: Contemporary lives of moral commitment*. Free Press.
- Damon, W. (1984). Self-understanding and moral development from childhood to adolescence. In W. M. Kurtines & J. L. Gewirtz (Eds.), *Morality, moral behavior and moral development* (pp. 109–127). John Wiley & Sons.
- Damon, W. (2003). *Noble Purpose: Joy Of Living A Meaningful Life*. Templeton Foundation Press.

Damon, W. (2008). *The path to purpose: Helping our children find their calling in life*. Free Press.

Damon, W., & Malin, H. (2020). The Development of Purpose: An International Perspective. In L. A. Jensen (Ed.), *The Oxford Handbook of Moral Development* (pp. 109–127). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190676049.013.8>

Darnell, C., Fowers, B. J., & Kristjánsson, K. (2022). A multifunction approach to assessing Aristotelian phronesis (practical wisdom). *Personality and Individual Differences, 196*, 111684. <https://doi.org/10.1016/j.paid.2022.111684>

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*, 113–126. <https://doi.org/10.1037/0022-3514.44.1.113>

Dawson, K. J., Han, H., & Choi, Y. R. (2021). How are moral foundations associated with empathic traits and moral identity? *Current Psychology*. <https://doi.org/10.1007/s12144-021-02372-5>

Decety, J., & Cowell, J. M. (2014). The complex relation between morality and empathy. *Trends in Cognitive Sciences, 18*(7), 337–339. <https://doi.org/10.1016/j.tics.2014.04.008>

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2010). New Well-being Measures: Short Scales to Assess Flourishing and Positive and Negative Feelings. *Social Indicators Research, 97*(2), 143–156. <https://doi.org/10.1007/s11205-009-9493-y>

Glover, R. J., Natesan, P., Wang, J., Rohr, D., McAfee-Etheridge, L., Booker, D. D., Bishop, J., Lee, D., Kildare, C., & Wu, M. (2014). Moral rationality and intuition: An exploration of relationships between the Defining Issues Test and the Moral Foundations Questionnaire. *Journal of Moral Education, 43*(4), 395–412. <https://doi.org/10.1080/03057240.2014.953043>

Han, H. (2015). Purpose as a moral virtue for flourishing. *Journal of Moral Education, 44*(3), 291–309. <https://doi.org/10.1080/03057240.2015.1040383>

Han, H., Ballard, P. J., & Choi, Y.-J. (2021). Links between moral identity and political purpose during emerging adulthood. *Journal of Moral Education, 50*(2), 166–184.

<https://doi.org/10.1080/03057240.2019.1647152>

Han, H., & Dawson, K. J. (2021). Applying elastic-net regression to identify the best models predicting changes in civic purpose during the emerging adulthood. *Journal of Adolescence, 93*, 20–27.

<https://doi.org/10.1016/j.adolescence.2021.09.011>

Han, H., Dawson, K. J., Choi, Y. R., Choi, Y.-J., & Glenn, A. L. (2020). Development and validation of the English version of the Moral Growth Mindset measure [version 3; peer review: 4 approved].

*F1000Research, 9*, 256. <https://doi.org/10.12688/f1000research.23160.3>

Han, H., Dawson, K. J., & Choi, Y.-J. (2022). Testing the Consistency of the Moral Growth Mindset

Measure Across People With Different Political Perspectives. *European Journal of Psychological*

*Assessment, 1015-5759/a000710*. <https://doi.org/10.1027/1015-5759/a000710>

Han, H., Dawson, K. J., Thoma, S. J., & Glenn, A. L. (2020). Developmental Level of Moral Judgment

Influences Behavioral Patterns During Moral Decision-Making. *The Journal of Experimental*

*Education, 88*(4), 660–675. <https://doi.org/10.1080/00220973.2019.1574701>

Han, H., Dawson, K. J., Walker, D. I., Nguyen, N., & Choi, Y.-J. (2022). Exploring the association between

character strengths and moral functioning. *Ethics & Behavior, 1*–18.

<https://doi.org/10.1080/10508422.2022.2063867>

Han, H., Liauw, I., & Kuntz, A. F. (2019). Moral Identity Predicts the Development of Presence of Meaning

During Emerging Adulthood. *Emerging Adulthood, 7*(3), 230–237.

<https://doi.org/10.1177/2167696818758735>

Hoeting, J. A., Madigan, D., Raftery, A. E., & Volinsky, C. T. (1999). Bayesian model averaging: A tutorial.

*Statistical Science, 14*(4), 382–401. <https://doi.org/10.1214/ss/1009212519>

- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Kass, R. E., & Raftery, A. E. (1995). Bayes Factors. *Journal of the American Statistical Association*, 90(430), 773–795. <https://doi.org/10.2307/2291091>
- Kim, E. S., Sun, J. K., Park, N., & Peterson, C. (2013). Purpose in life and reduced incidence of stroke in older adults: “The Health and Retirement Study.” *Journal of Psychosomatic Research*, 74, 427–432. <https://doi.org/10.1016/j.jpsychores.2013.01.013>
- Kracher, B., Chatterjee, A., & Lundquist, A. R. (2002). Factors Related to the Cognitive Moral Development of Business Students and Business Professionals in India and the United States: Nationality, Education, Sex and Gender. *Journal of Business Ethics*, 35(4), 255–268. <https://doi.org/10.1023/A:1013859404733>
- Kristjánsson, K. (2013). *Virtues and vices in positive psychology: A philosophical critique*. Cambridge University Press.
- Lind, G. (2008). The meaning and measurement of moral judgment competence revisited: A dual-aspect model. In D. Fasko & W. Willis (Eds.), *Contemporary Philosophical and Psychological Perspectives on Moral Development and Education* (pp. 185–220). Hampton Press.
- Malin, H. (2021). *Teaching for purpose: Preparing students for lives of meaning*. Harvard Education Press.
- Malin, H., Ballard, P. J., & Damon, W. (2015). Civic purpose: An integrated construct for understanding civic development in adolescence. *Human Development*, 58(2), 103–130. <https://doi.org/10.1159/000381655>

- Malin, H., Han, H., & Liauw, I. (2017). Civic purpose in late adolescence: Factors that prevent decline in civic engagement after high school. *Developmental Psychology, 53*(7), 1384–1397.  
<https://doi.org/10.1037/dev0000322>
- Malin, H., Liauw, I., & Damon, W. (2017). Purpose and Character Development in Early Adolescence. *Journal of Youth and Adolescence, 46*(6), 1200–1215. <https://doi.org/10.1007/s10964-017-0642-3>
- Malin, H., Reilly, T. S., Quinn, B., & Moran, S. (2014). Adolescent purpose development: Exploring empathy, discovering roles, shifting priorities, and creating pathways. *Journal of Research on Adolescence, 24*, 186–199. <https://doi.org/10.1111/jora.12051>
- Mariano, J. M., Damiani, T., & Boyer, M. (2021). Self- and Other-Reported Virtues of Young Purpose Exemplars. *Youth & Society, 53*(3), 466–485. <https://doi.org/10.1177/0044118X19859022>
- Mariano, J. M., & Vaillant, G. E. (2012). Youth purpose among the ‘greatest generation.’ *The Journal of Positive Psychology, 7*(4), 281–293. <https://doi.org/10.1080/17439760.2012.686624>
- Mazzocchi, F. (2015). Could Big Data be the end of theory in science?: A few remarks on the epistemology of data-driven science. *EMBO Reports, 16*(10), 1250–1255.  
<https://doi.org/10.15252/embr.201541001>
- Moran, S. (2009). Purpose: Giftedness in intrapersonal intelligence. *High Ability Studies, 20*(2), 143–159.  
<https://doi.org/10.1080/13598130903358501>
- Morey, R. D., Rouder, J. N., Jamil, T., Urbanek, K., & Ly, A. (2018). *Package ‘BayesFactor.’*
- Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting: The state of the art and future directions for psychological research. *Developmental Review, 41*, 71–90.  
<https://doi.org/10.1016/j.dr.2016.06.004>

- Quinn, B. P. (2017). The beyond-the-self dimension of adolescent purpose: Absence and change. *The Journal of Positive Psychology, 12*(6), 558–570.  
<https://doi.org/10.1080/17439760.2016.1209543>
- Raftery, A. E. (1995). Bayesian Model Selection in Social Research. *Sociological Methodology, 25*, 111.  
<https://doi.org/10.2307/271063>
- Reed, A., & Aquino, K. F. (2003). Moral identity and the expanding circle of moral regard toward out-groups. *Journal of Personality and Social Psychology, 84*(6), 1270–1286.  
<https://doi.org/10.1037/0022-3514.84.6.1270>
- Rouder, J. N. (2014). Optional stopping: No problem for Bayesians. *Psychonomic Bulletin & Review, 21*(2), 301–308. <https://doi.org/10.3758/s13423-014-0595-4>
- Rouder, J. N., & Morey, R. D. (2012). Default Bayes Factors for Model Selection in Regression. *Multivariate Behavioral Research, 47*(6), 877–903.  
<https://doi.org/10.1080/00273171.2012.734737>
- Snow, N. E. (2008). Virtue and Flourishing. *Journal of Social Philosophy, 39*(2), 225–245.  
<https://doi.org/10.1111/j.1467-9833.2008.00425.x>
- Thoma, S. J. (2014). Measuring moral thinking from a neo-Kohlbergian perspective. *Theory and Research in Education, 12*(3), 347–365. <https://doi.org/10.1177/1477878514545208>
- Wagenmakers, E.-J., Love, J., Marsman, M., Jamil, T., Ly, A., Verhagen, J., Selker, R., Gronau, Q. F., Dropmann, D., Boutin, B., Meerhoff, F., Knight, P., Raj, A., van Kesteren, E.-J., van Doorn, J., Šmíra, M., Epskamp, S., Etz, A., Matzke, D., ... Morey, R. D. (2018). Bayesian inference for psychology. Part II: Example applications with JASP. *Psychonomic Bulletin & Review, 25*(1), 58–76. <https://doi.org/10.3758/s13423-017-1323-7>
- Wagenmakers, E.-J., Marsman, M., Jamil, T., Ly, A., Verhagen, J., Love, J., Selker, R., Gronau, Q. F., Šmíra, M., Epskamp, S., Matzke, D., Rouder, J. N., & Morey, R. D. (2018). Bayesian inference for

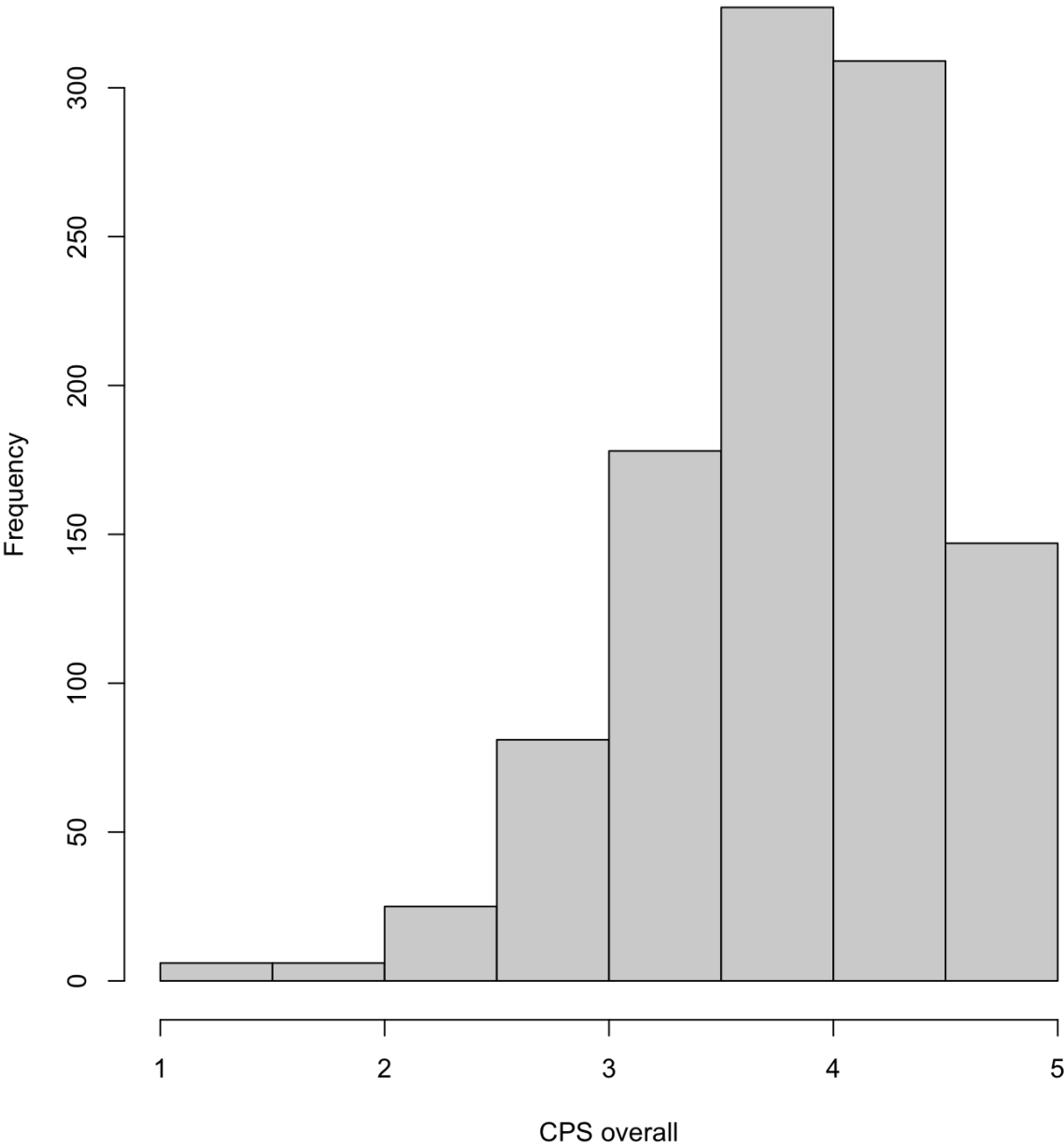


psychology. Part I: Theoretical advantages and practical ramifications. *Psychonomic Bulletin & Review*, 25(1), 35–57. <https://doi.org/10.3758/s13423-017-1343-3>

Supplementary Figures

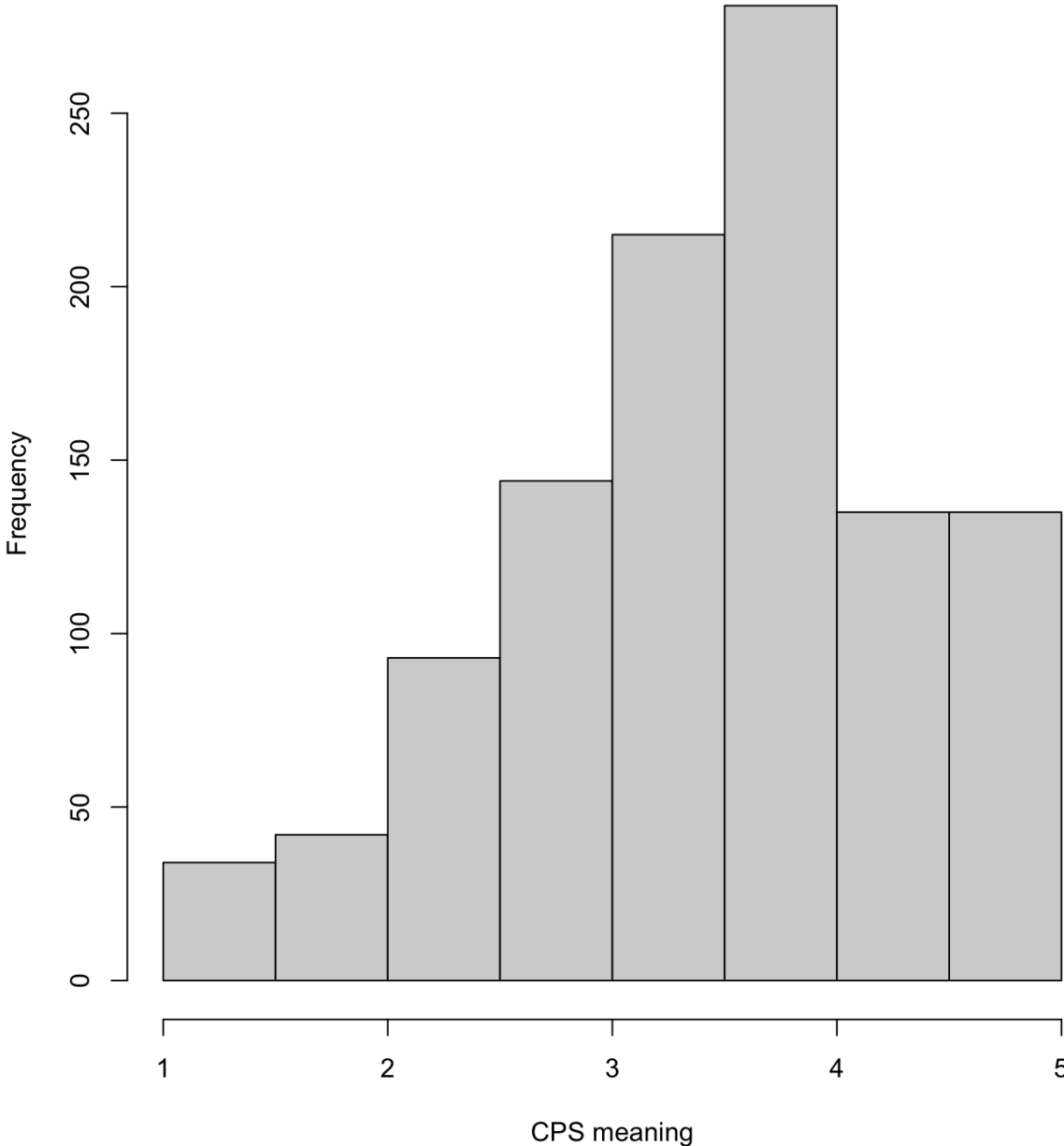
Figure S1

*Histogram of CPS overall*



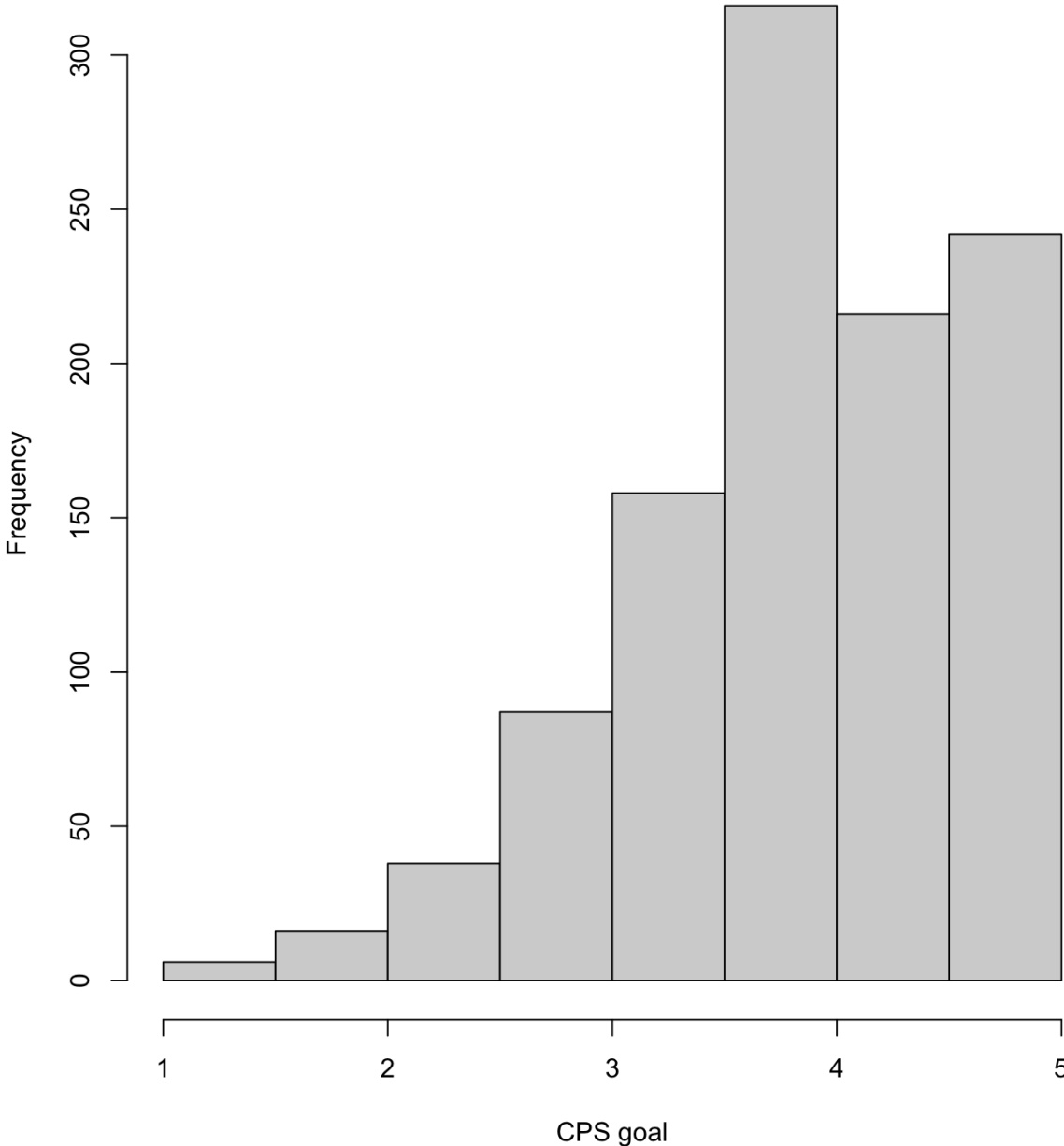
**Figure S2**

*Histogram of CPS meaning*



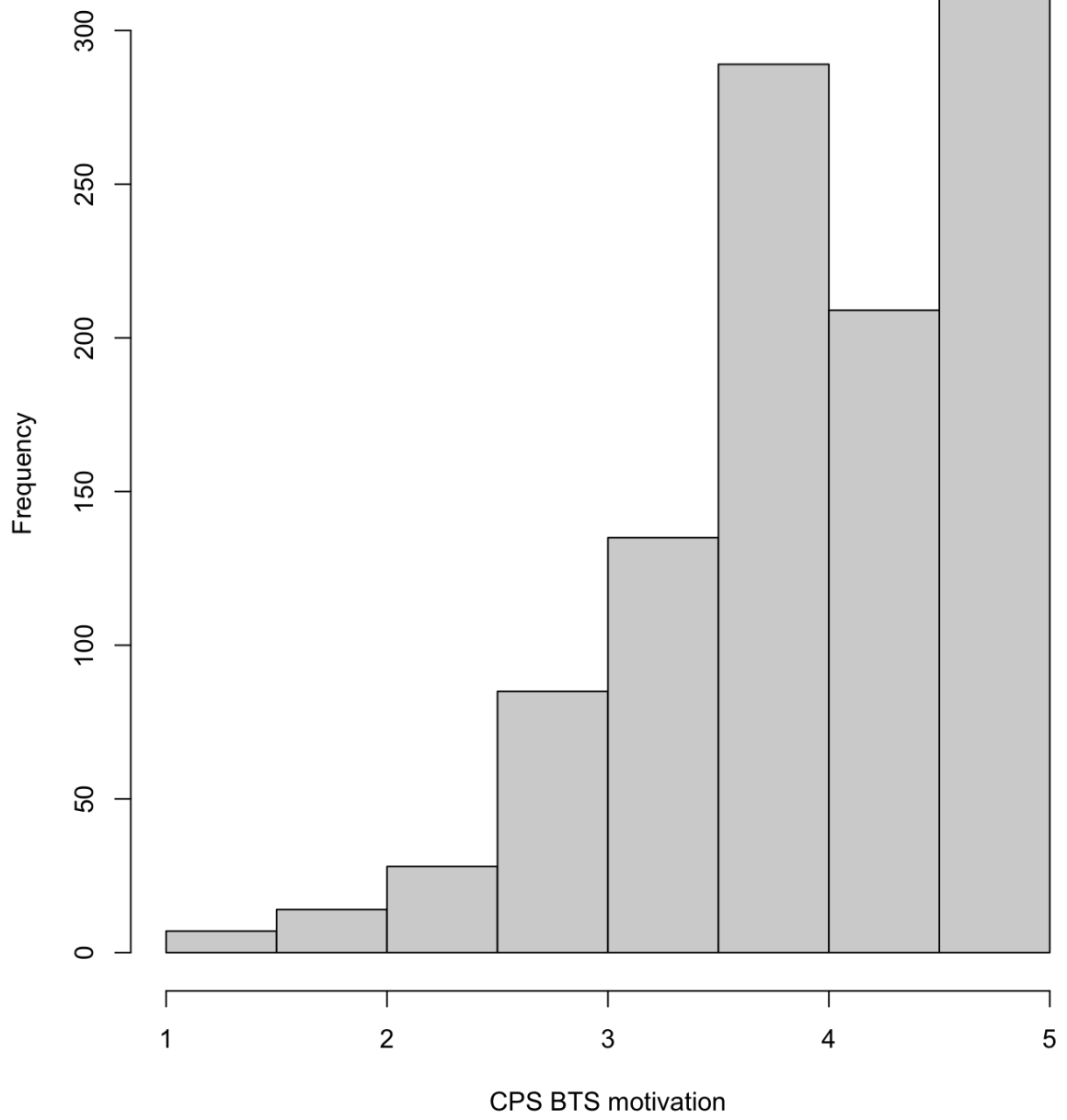
**Figure S3**

*Histogram of CPS goal*



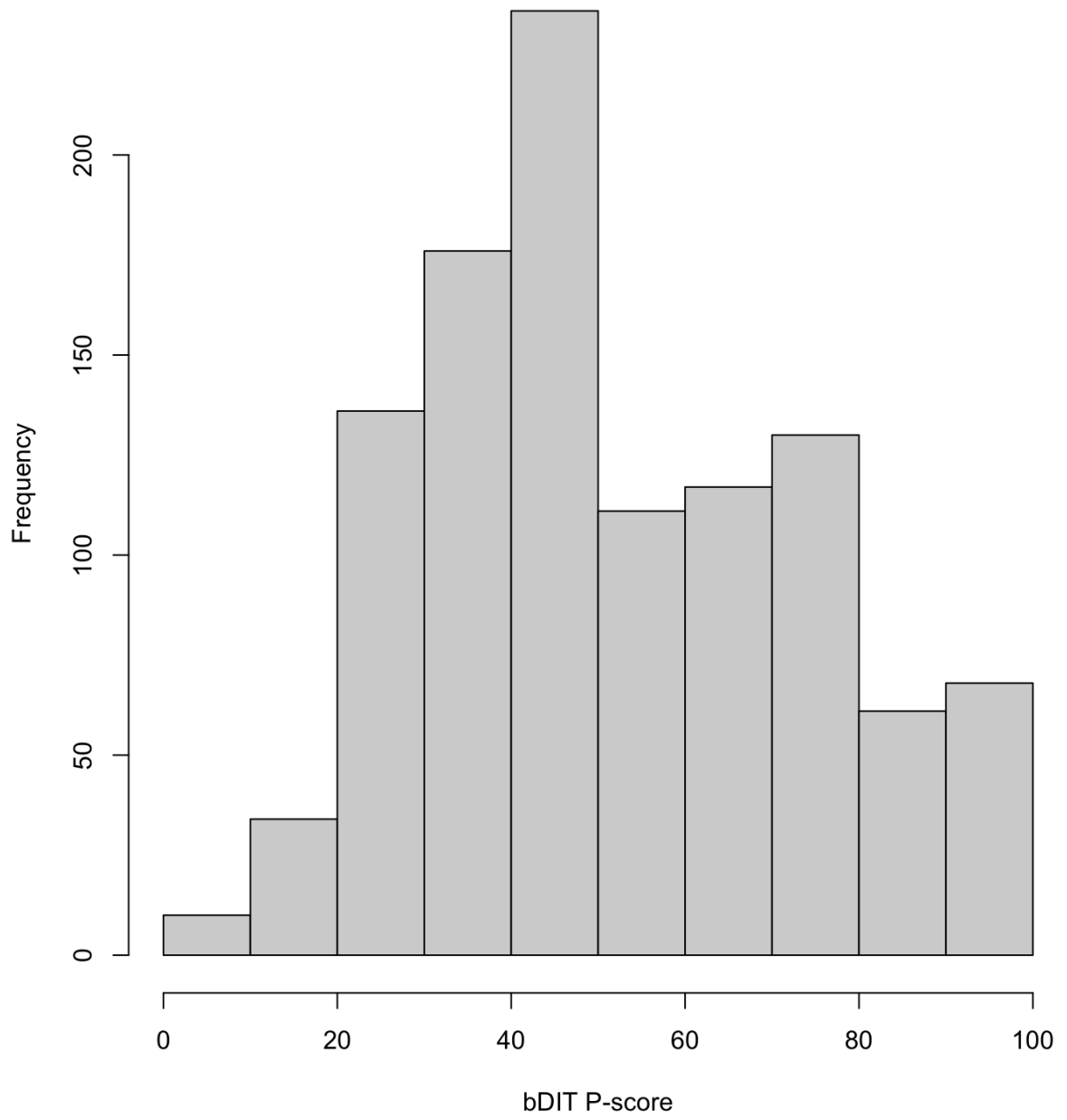
**Figure S4**

*Histogram of CPS BTS motivation*



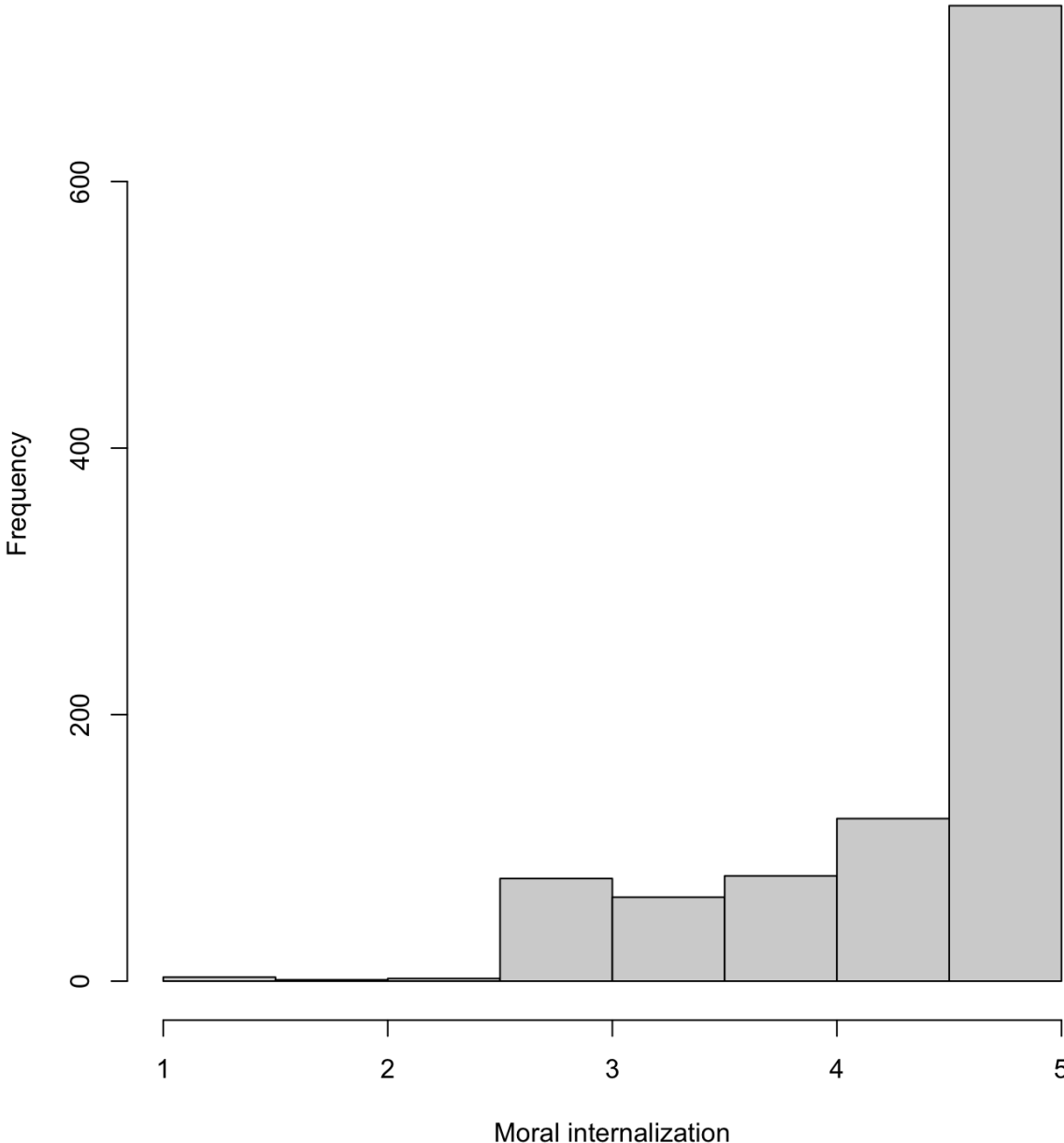
**Figure S5**

*Histogram of bDIT P-score*



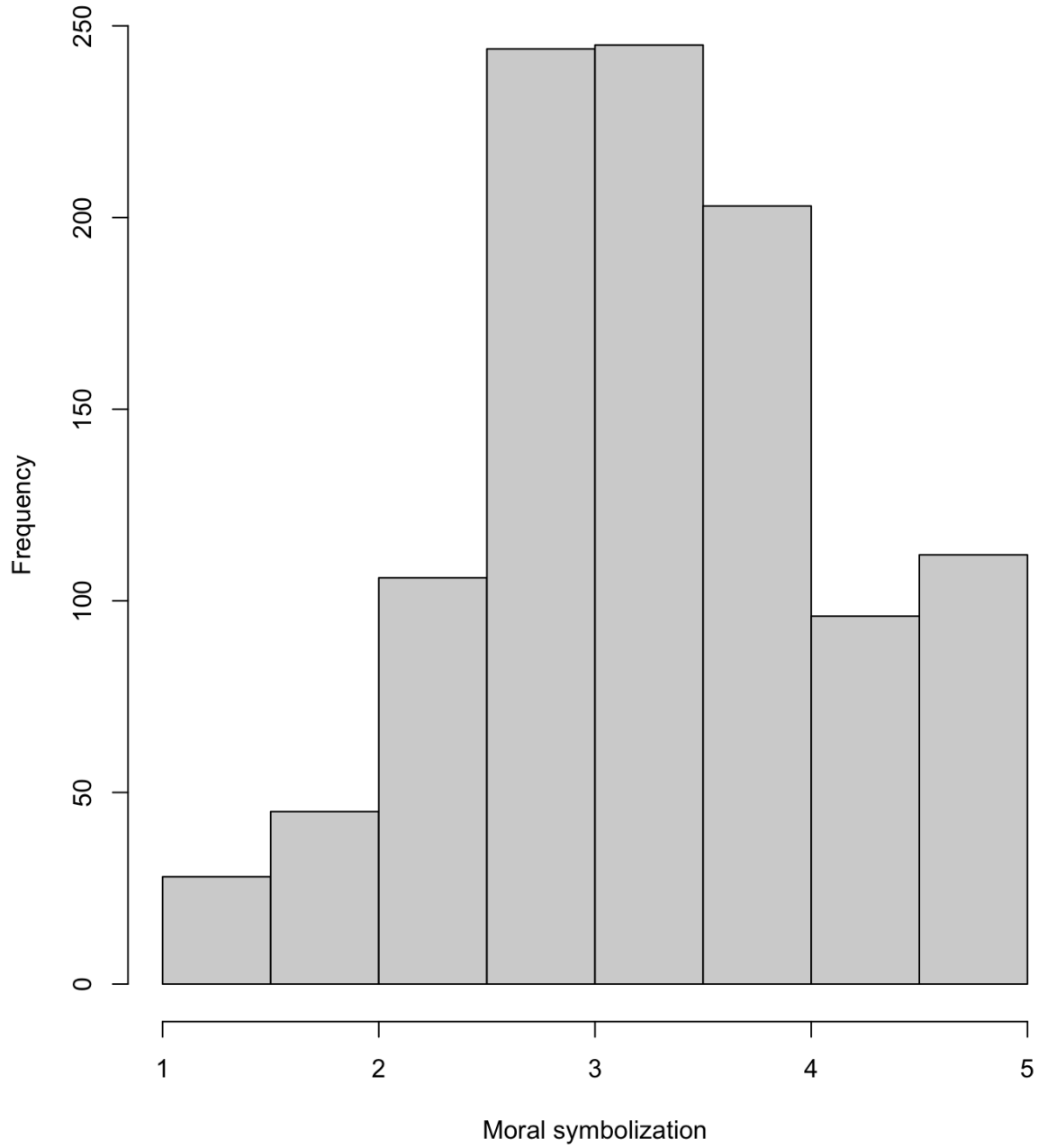
**Figure S6**

*Histogram of moral internalization*



**Figure S7**

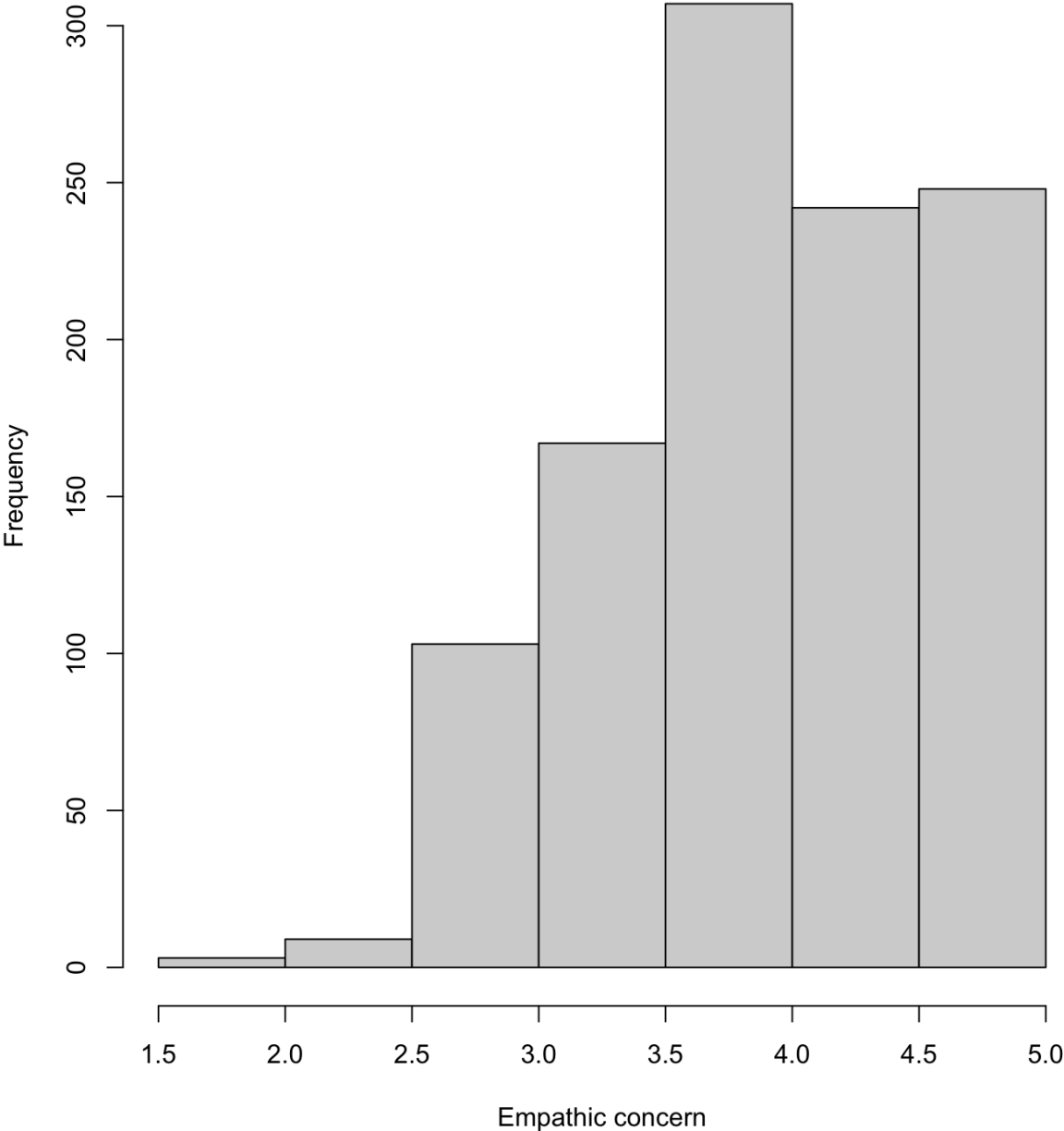
*Histogram of moral symbolization*





**Figure S8**

*Histogram of empathic concern*



**Figure S9**

*Histogram of perspective taking*

