Supplement: Moral Dilution

Cillian McHugh[1] & Eric R. Igou[1]

[1] University of Limerick

Author Note

Correspondence concerning this article should be addressed to Cillian McHugh, University of Limerick, Limerick, Ireland, V94 T9PX. E-mail: cillian.mchugh@ul.ie

Abstract

five studies

Keywords: keywords

Word count: TBC

Supplement: Moral Dilution

Supplemantary Materials

Supplementary Materials

Descriptions (Pilot Study 1)

Diagnostic Descriptions

Each moral description contains descriptive information relating to three different moral foundations as follows: *Sam*: care, fairness, loyalty; *Robin*: care, fairness, loyalty; *Francis*: purity, authority, fairness; *Alex*: care, fairness, authority.

Sam

Imagine a person named Sam. Throughout their life they have been known to be cruel, act unfairly, and to betray their own group.

Robin. Imagine a person named Robin. Throughout their life they have been known to physically hurt others, treat some people differently to others, and show lack of loyalty.

Francis

Imagine a person named Francis. Throughout their life they have been known to violate the standards of purity and decency, show lack of respect for authority, and treat people unequally.

Alex

Imagine a person named Alex. Throughout their life they have been known to cause others to suffer emotionally, to deny others their rights, and to cause chaos or disorder.

Non-Diagnostic Descriptions

Jackie

Imagine a person named Jackie. They have red hair, play tennis four times a month, and have one older sibling and one younger sibling.

Charlie

Imagine a person named Charlie. They are left-handed, drink tea in the morning, and have two older siblings and one younger sibling.

Descriptions (Pilot Study 2)

Diagnostic Descriptions

Each moral description contains descriptive information relating to three different moral foundations as follows: *Sam*: care, fairness, loyalty; *Robin*: care, fairness, loyalty; *Francis*: purity, authority, fairness; *Alex*: care, fairness, authority.

Sam

Imagine a person named Sam. Throughout their life they have been known to always help and care for others, treat everyone fairly and equally, and show a strong sense of loyalty to others.

Robin

Imagine a person named Robin. Throughout their life they have been known to show compassion and empathy for others, act with a sense of fairness and justice, and, never to break their word.

Francis

Imagine a person named Francis. Throughout their life they have been known to uphold the standards of purity and decency, show respect for authority, and to always act honestly and fairly.

Alex

Imagine a person named Alex. Throughout their life they have been known to protect and provide shelter to the weak and vulnerable, uphold the rights of others, and

show respect for authority.

Non-Diagnostic

Jackie

Imagine a person named Jackie. They have dark hair, go for a jog twice a week, and their favourite colour is blue.

Charlie

Imagine a person named Charlie. They have blue eyes, drink coffee in the morning, and their favourite colour is green.

Measures

Four-item Moral Perception Scale (MPS-4)

Please rate _____ along the following dimensions:

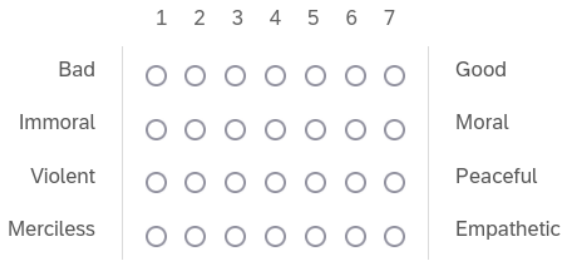

Figure 1

Screenshot of the MPS-4 items as presented to participants

Four-item Moral Perception Scale (MM1-4)

Please rate _____ according to immoral or moral you view them:

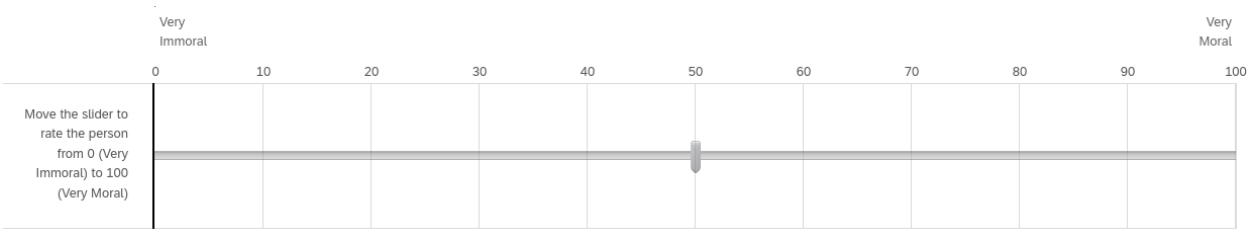

Figure 2

Screenshot of MM-1 as presented to participants

Supplemantary Analyses

Supplementary Analyses

Pilot Study 1

Pilot: 1: Differences Between Moral Descriptions

We developed a combined moral perception measure by calculating the mean of the combined mean-centered scores for MPS-4 and MM-1, and mean-centering this result. Below we report the analyses for this combined measure.

The standardized means and standard deviations for the combined measure for each scenario are as follows: *Sam* (moral), M = -0.30, SD = 1.16; *Francis* (moral), M = -0.22, SD = 1.06; *Alex* (moral), M = -0.25, SD = 1.10; *Robin* (moral), M = -0.31, SD = 1.19; *Jackie* (neutral), M = 0.36, SD = 0.55; *Charlie* (neutral), M = 0.35, SD = 0.55. For the moral descriptions, we observed significant variation depending on the description, $F(601.86, 2.85) = 2.67$, $p = .050$, partial $\eta^2 = 0.001$. When correcting for multiple comparisons, pairwise comparisons did not reveal significant differences between descriptions. We note that without correction, *Francis* appeared to be rated as more moral than both *Robin* ($p = .022$), and *Sam* ($p = .021$). For the neutral descriptions there was no significant difference in ratings depending on description, $t(211) = -0.46$, $p = .645$, $d = 0.03$.

Pilot 1: Testing Moral vs Neutral

Overall, the model significantly predicted participants responses, and provided a better fit for the data than the baseline model $\chi^2(2) = 1{,}035.36$, $p < .001$, and condition was a significant predictor in the model $b = -0.31$, $t(210.99) = -8.74$, $p < .001$.

Study 1

Again, we created a combined measure of moral perception from both DVs.

The means and standard deviations for the combined measure for each scenario are as follows: *Sam*, $M_{\text{MPS-4}} = 0.02$, $SD_{\text{MPS-4}} = 0.89$, *Francis*, $M_{\text{MPS-4}} = 0.48$, $SD_{\text{MPS-4}} = 1.00$, *Alex*, $M_{\text{MPS-4}} = -0.21$, $SD_{\text{MPS-4}} = 0.92$, *Robin*, $M_{\text{MPS-4}} = -0.32$, $SD_{\text{MPS-4}} = 0.94$. There was significant variation depending on the description, $F(2{,}254.69, 2.82) = 269.01$, $p < .001$, partial $\eta^2 = 0.10$. *Francis* appeared to be rated as the most favorable, followed by *Sam*, then *Alex* and finally *Robin* as the least favorable (all *p*s $< .001$).

We conducted a linear-mixed-effects model to test if condition influenced moral perception. Our outcome measure was the combined moral perception measure, our predictor variable was condition; we allowed intercepts and the effect of condition to vary across participants, and scenario was also included in the model. Overall, the model significantly predicted participants responses, and provided a better fit for the data than the baseline model, $\chi^2(8) = 762.31$, $p < .001$. Condition significantly influenced responses to the MPS-4, $F(1, 799.66) = 57.93$, $p < .001$; and was a significant predictor in the model when controlling for scenario, $b = -0.08$, $t(2{,}501.32) = -3.42$, $p < .001$, with the non-diagnostic descriptions being rated as more moral than the diagnostic (morally relevant) descriptions of immoral characters Figure 4.

For *Sam*, MPS-4 scores were significantly higher for the non-diagnostic condition ($M = 2.70$, $SD = 0.82$), than in the diagnostic condition ($M = 2.42$, $SD = 0.87$), $t(798.90) = -4.66$, $p < .001$, $d = 0.33$; MM-1 ratings were higher in the non-diagnostic condition ($M = 26.55$, $SD = 16.41$), than in the diagnostic condition ($M = 21.50$, $SD = 15.59$), $t(787.84) = -4.45$, $p < .001$, $d = 0.32$. For the combined measure ratings were also higher in the non-diagnostic condition ($M = 0.18$, $SD = 0.88$), than in the diagnostic condition ($M = -0.13$, $SD = 0.88$), $t(795.41) = -4.98$, $p < .001$, $d = 0.35$.

For *Robin*, MPS-4 scores were not significantly different for the non-diagnostic

condition (M = 2.16, SD = 0.90), than in the diagnostic condition (M = 2.09, SD = 0.92), t(793.94) = -1.09, p = .275, d = 0.08; MM-1 ratings were similar in the non-diagnostic condition (M = 21.29, SD = 16.94), and in the diagnostic condition (M = 19.87, SD = 17.17), t(794.97) = -1.18, p = .239, d = 0.08. For the combined measure ratings were also similar in the non-diagnostic condition (M = -0.28, SD = 0.94), than in the diagnostic condition (M = -0.36, SD = 0.94), t(796.03) = -1.24, p = .217, d = 0.09.

For *Alex*, MPS-4 scores were significantly higher for the non-diagnostic condition (M = 2.41, SD = 0.88), than in the diagnostic condition (M = 2.23, SD = 0.86), t(796.97) = -2.92, p = .004, d = 0.21; MM-1 ratings were higher in the non-diagnostic condition (M = 21.93, SD = 16.47), than in the diagnostic condition (M = 19.20, SD = 16.73), t(798.89) = -2.33, p = .020, d = 0.16. For the combined measure ratings were also higher in the non-diagnostic condition (M = -0.12, SD = 0.92), than in the diagnostic condition (M = -0.30, SD = 0.92), t(798.40) = -2.82, p = .005, d = 0.20.

For *Francis*, MPS-4 scores were significantly higher for the non-diagnostic condition (M = 3.12, SD = 0.95), than in the diagnostic condition (M = 2.98, SD = 0.97), t(796.12) = -1.99, p = .047, d = 0.14; MM-1 ratings were not significantly different in the non-diagnostic condition (M = 30.38, SD = 17.17), than in the diagnostic condition (M = 29.84, SD = 18.56), t(788.61) = -0.43, p = .668, d = 0.03. For the combined measure ratings were also similar in the non-diagnostic condition (M = 0.53, SD = 0.98), and in the diagnostic condition (M = 0.44, SD = 1.02), t(794.36) = -1.29, p = .198, d = 0.09.

Pilot Study 2

Pilot: 2: Differences Between Moral Descriptions

As in previous studies, we developed a combined moral perception measure by calculating the mean of the combined mean-centered scores for MPS-4 and MM-1, and mean-centering this result. Below we report the analyses for this combined measure.

The standardized means and standard deviations for the combined measure for each scenario are as follows: *Sam* (moral), $M = 0.21$, $SD = 0.91$; *Francis* (moral), $M = 0.10$, $SD = 0.96$; *Alex* (moral), $M = 0.18$, $SD = 0.94$; *Robin* (moral), $M = 0.16$, $SD = 0.93$; *Jackie* (neutral), $M = -0.24$, $SD = 1.01$; *Charlie* (neutral), $M = -0.30$, $SD = 1.07$. For the moral descriptions, we observed significant variation depending on the description, $F(587.74, 2.75) = 2.90$, $p = .039$, partial $\eta^2 = 0.002$*Sam* was viewed significantly more favorably than *Francis* ($p = .045$). For the neutral descriptions there was no significant difference in ratings depending on description, $t(214) = -1.46$, $p = .147$, $d = 0.10$.

Pilot 2: Testing Moral vs Neutral

Overall, the model significantly predicted participants responses, and provided a better fit for the data than the baseline model $\chi^2(2) = 564.98$, $p < .001$, and condition was a significant predictor in the model $b = 0.22$, $t(214.32) = 6.60$, $p < .001$.

Study 2

Below we report the results for the combined measure of moral perception from both DVs. We additionally report the effect of condition on responses to each description individually

The means and standard deviations for the combined measure for each scenario are as follows: *Sam*, $M_{\text{MPS-4}} = 0.07$, $SD_{\text{MPS-4}} = 0.97$, *Francis*, $M_{\text{MPS-4}} = -0.17$, $SD_{\text{MPS-4}} = 1.06$, *Alex*, $M_{\text{MPS-4}} = 0.09$, $SD_{\text{MPS-4}} = 1.02$, *Robin*, $M_{\text{MPS-4}} = 0.07$, $SD_{\text{MPS-4}} = 0.96$. There was significant variation depending on the description, $F(2{,}335.46,\ 2.85) = 48.01$, $p < .001$, partial $\eta^2 = 0.01$. *Francis* appeared to be rated as the less favorable than all other characters (all ps $< .001$).

We conducted a linear-mixed-effects model to test if condition influenced moral perception. Our outcome measure was the combined moral perception measure, our predictor variable was condition; we allowed intercepts and the effect of condition to vary across participants, and scenario was also included in the model. Overall, the model significantly predicted participants responses, and provided a better fit for the data than the baseline model, $\chi^2(8) = 142.42$, $p < .001$. Condition did not influence moral perception, $F(1,\ 2{,}452.92) = 0.88$, $p = .349$; and was not a significant predictor in the model when controlling for scenario, $b = -0.01$, $t(2{,}613.53) = -0.42$, $p = .673$, see Figure 4.

For *Sam*, MPS-4 scores were not significantly different in the non-diagnostic condition (M = 6.17, SD = 0.89), than in the diagnostic condition (M = 6.05, SD = 1.06), t(680.49) = -1.71, p = .088, d = 0.12; MM-1 ratings were similar in the non-diagnostic condition (M = 84.90, SD = 14.26), than in the diagnostic condition (M = 84.20, SD = 14.76), t(744.17) = -0.69, p = .490, d = 0.05. For the combined measure ratings were also similar in the non-diagnostic condition (M = 0.11, SD = 0.93), than in the diagnostic condition (M = 0.02, SD = 1.03), t(717.94) = -1.33, p = .183, d = 0.10.

For *Robin*, MPS-4 scores were not significantly different for the non-diagnostic condition (M = 6.08, SD = 1.00), than in the diagnostic condition (M = 6.13, SD = 0.98), t(784.04) = 0.73, p = .463, d = 0.05; MM-1 ratings were similar in the non-diagnostic condition (M = 84.12, SD = 14.37), and in the diagnostic condition (M = 85.98, SD = 13.32), t(800.09) = 1.92, p = .055, d = 0.13. For the combined measure ratings were also similar in the non-diagnostic condition (M = 0.03, SD = 0.98), than in the diagnostic condition (M = 0.13, SD = 0.95), t(788.76) = 1.46, p = .145, d = 0.10.

For *Alex*, MPS-4 scores were not significantly different for the non-diagnostic condition (M = 6.11, SD = 1.00), than in the diagnostic condition (M = 6.14, SD = 0.99), t(737.60) = 0.32, p = .746, d = 0.02; MM-1 ratings were similar in the non-diagnostic condition (M = 85.28, SD = 14.31), than in the diagnostic condition (M = 84.83, SD = 15.51), t(776.47) = -0.43, p = .668, d = 0.03. For the combined measure ratings were also similar in the non-diagnostic condition (M = 0.09, SD = 0.98), than in the diagnostic condition (M = 0.09, SD = 1.04), t(767.89) = -0.06, p = .952, d = 0.00.

For *Francis*, MPS-4 scores were not significantly different for the non-diagnostic condition (M = 5.82, SD = 1.05), than in the diagnostic condition (M = 5.90, SD = 1.08), t(794.94) = 1.06, p = .290, d = 0.07; MM-1 ratings were not significantly different in the non-diagnostic condition (M = 81.74, SD = 15.67), than in the diagnostic condition (M = 82.31, SD = 14.90), t(771.23) = 0.54, p = .591, d = 0.04. For the combined measure

ratings were also similar in the non-diagnostic condition (M = -0.20, SD = 1.08), and in the diagnostic condition (M = -0.14, SD = 1.04), $t(777.51) = 0.88$, $p = .379$, $d = 0.06$.

Figure 3

Pilot Study 1: Differences in combined measure depending on condition

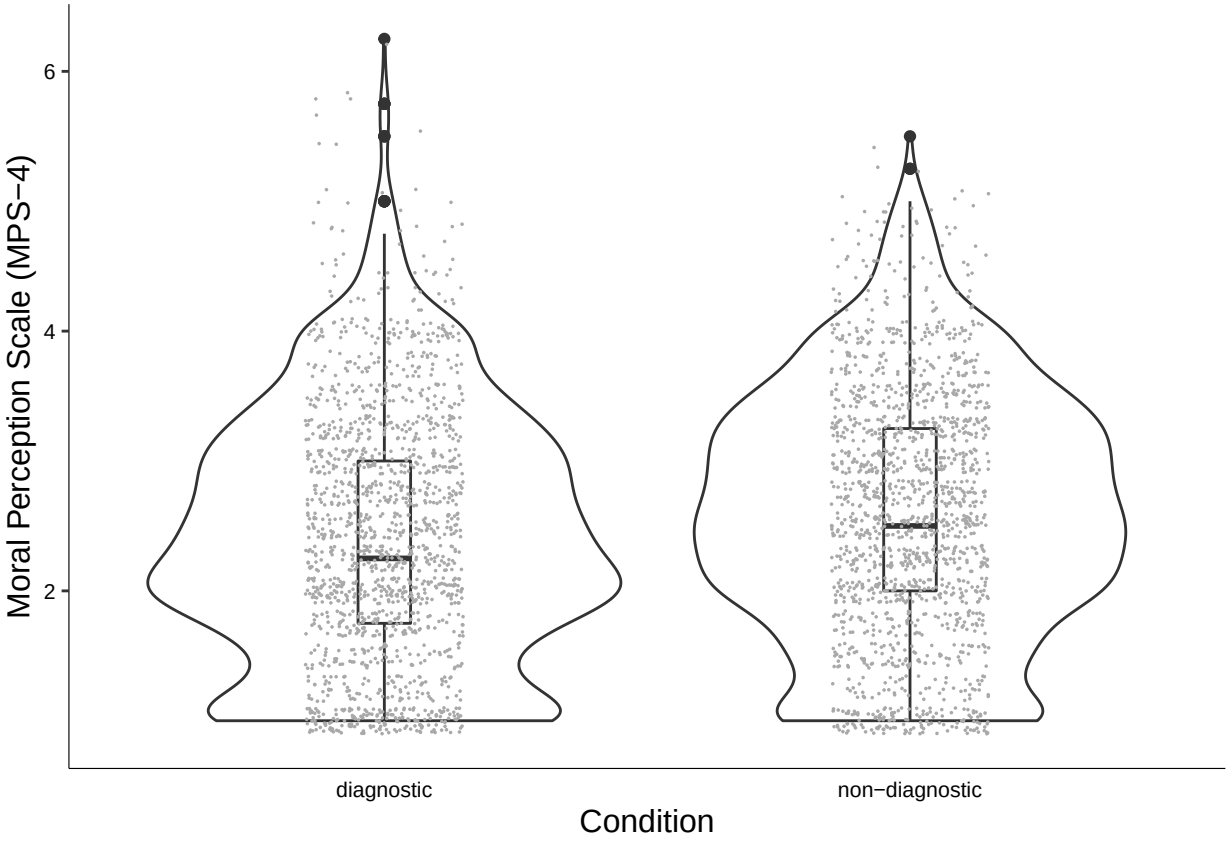

Figure 4

Study 1: Differences in combined measure depending on condition

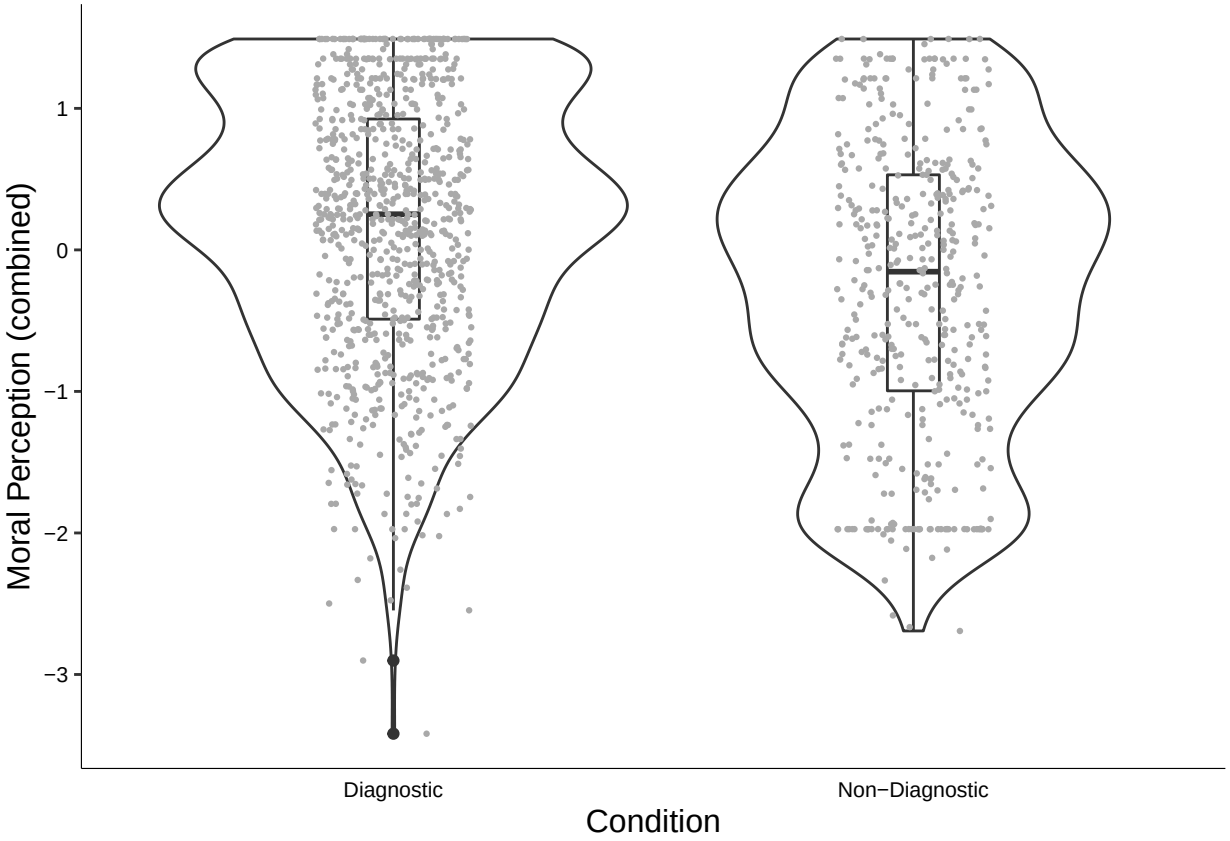

Figure 5

Pilot Study 1: Differences in combined measure depending on condition

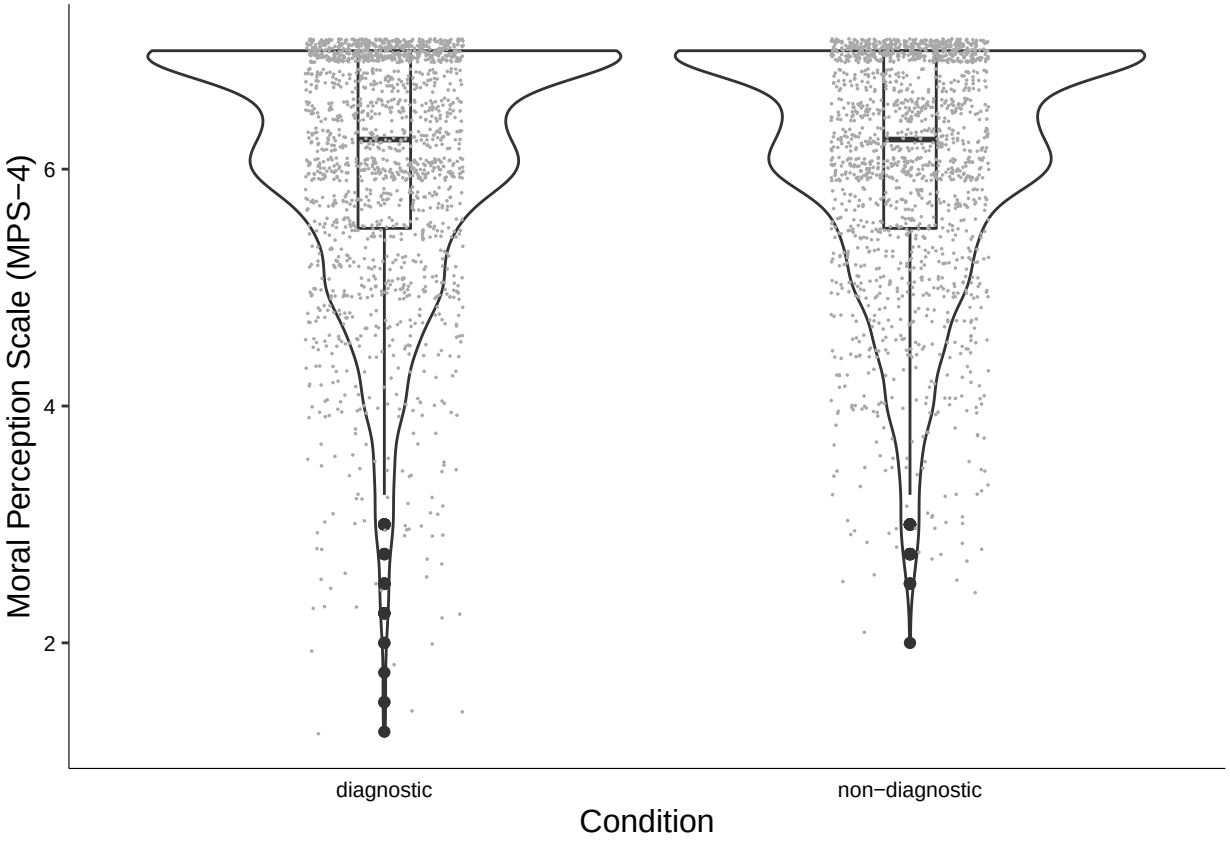

Figure 6

Study 1: Differences in combined measure depending on condition