Supplemental Meterials

Supplemental Material 1. Study Protocol

Appointment Schedule

- T1 - lab session (*60 mins*) one week before scan appointment
- T2 – scanner apt (*150 mins*)
- T3 – lab session (*30 mins*) four weeks after scan appointment

T1 (Lab Session) – One week before scan

1. Consent & Introduction (*5 mins*)
2. Review metal screening form for scanner (they do not have to fill out, only have them look at questions and let us know if there is anything we should be aware of – make sure to double check on any surgeries)
3. Fit with accelerometer & record steps/time (hallway & stairway) (*5 mins*)
4. Pre-questionnaires (*30 mins*)
    - Value rating
    - Demographics
    - CommLadder
    - USLadder
    - IPAQ
    - BREQ
    - Fishbein
    - Self-Efficacy for diet & exercise (Sallis)
    - Social Connectedness and Social Assurance Scale
    - Social Support
    - RAND-36
    - TSRQ
    - Barratt impulsivity Scale
    - Beck Depression Inventory
    - BIS/BAS
    - IRI
    - LOT-R
    - Mindfulness
    - Social Media Survey/Social Network builder/Facebook
5. Send practice text (red oxygen)
6. Pay participant ($15) and have them fill out receipt
7. Remind participant to continually wear accelerometer & that it is important to be on time for scanner appointment

T2 (Scanner)

1. **Introduction** (*30 mins*)

"Hi, and thank you for coming today. We are going to start off the day by practicing the tasks you will be completing in the scanner. Then you head into the scanner, which will last just over an hour. Following the scan we are going to have you finish up by taking some online surveys."

2. Get accelerometer, charge, & get data
3. fMRI safety screening check
4. De-metal participant and put their things in the locker
5. Scanner task training
    a. Word Task (self-related processing task)
        i. "The first task you will complete will be a word association task. In this task there will be 3 conditions (you, Obama, & positive), then you will see a word and you will respond (yes or no) if the word is associated the condition. For example if you are in the positive condition and you see the word "pain" you would then respond "yes" or "no" depending on if you think the word is positive. In the scanner Yes=index finger and No=middle finger, here on the computer Yes=2 and No=3. Do you have any questions?"
        ii. Start demo
    b. People Should Task (counter arguing task)
        i. "The next task you will be doing is split into 3 parts. In the first part you will be presented with "people should" statements and you will respond by letting us know if you agree or disagree with the statement. Again in the scanner Yes=index finger and No=middle finger, here on the computer Yes=2 and No=3. In the second part of the task you will see "people should" statements and it will be your job to think of reasons that support the statement, each time you think of a new reason you will press down with your index finger, here you will use the 2 button. In the third part of this task you will see "people should not" statements and it will be your job to think of reasons that support the statement, again each time you think of a new reason you will press down with your index finger, here you will use the 2 button."
        ii. Start demo
    c. Past/Future Task (self-affirmation task)
        i. "In this task you will see statements such as "people should tie their shoe" and then a condition, either "past" or "future", then you will think about how this has occurred or could occur in your life depending on the condition. Again you will respond with your index finger for each time you think about a new experience. In the task here you will use the 2-key."
        ii. Start demo
    d. Message Task (health messages task)
        i. "In the last task you will see a series of 3 screens, in the first 2 screens you only need to read the message, in the third screen you will think about either "how" or "why" the statements you just

read relate to your life. The "how" and "why" will be the 2 conditions in this task, and again when you think of an example you will respond with your index finger. Here will be the 2-key."

ii. Start demo

6. De-metal again and see if the participant has to use the bathroom
7. **Scan** (*60-75 mins*)
    a. Word Task (self-related processing task)
        i. "The first task you will complete will be a word association task. There will be 3 conditions (you, Obama, & positive), then you will see a word and you will respond (yes or no). Remember you will use your index finger=yes and middle finger=no. Do you have any questions? Remember to keep your head as still as possible."
    b. People Should Task (counter arguing task)
        i. "The next task you will be doing is split into 3 parts. In the first part you will be presented with "people should" statements and you will respond by letting us know if you agree or disagree with the statement. Again index finger=yes and middle finger=no. In the other parts of the task you will see "people should" and "people should not" statements and it will be your job to think of reasons that support the statement, each time you think of a new reason you will press down with your index finger. Do you have any questions? Remember to keep your head as still as possible."
    c. SPGR/Self-Affirmation Slides
    d. Past/Future Task (self-affirmation task)
        i. "In this task you will see "past" or "future" future statements, then you will think about how this has occurred or could occur in your life depending on the statement. Again you will respond with your index finger for each time you think about a new experience. Do you have any questions? Remember to keep your head as still as possible."
    e. Message Task (health messages task)
        i. "In the last task you will see a series of 3 screens, in the first 2 screens you only need to read the message, in the third screen you will think about either "how" or "why" the statements you just read relate to your life, again when you think of an example you will respond with your index finger. Do you have any questions? Remember to keep your head as still as possible."

8. **Post scan questionnaires** (*45 mins*)
    - Affirmation rating task
    - Affirmation writing task
    - Self-Efficacy for diet & exercise (Sallis)
    - PANAS
    - Fishbein
    - IAT
9. Pay participant ($30)

10. Give back accelerometer
11. Remind about text messages

T3 (Lab) – Four weeks after scan

1. Follow-up questionnaires
    - IPAQ
    - BREQ
    - TSRQ
    - IAT
    - BIG-5
    - Facebook/Social Media Survey
2. Debrief & feedback (5 mins)

Supplemental Material 2. Demographic Analyses.

The primary regression analyses were also run using demographic as covariates, including centered age, sex, ethnicity, and years of education. Participants' value ranking scores were not significantly associated with age, ethnicity (converted into a binary variable indicating white vs. minority status due to small cell sizes for our minority participants), years of education, or baseline weekly exercise minutes (*p*s>.20). Sex and BMI were significantly associated with value ranking, and moderation tests were conducted as follows.

Female participants were more likely to rank transcendent values higher than male counterparts (r=.24, p=.049). Moderation test revealed a significant value * sex interaction predicting activity within the left amygdala, R^2=.21, $R^2_{adjusted}$=.15, β=1.59, t(53)=2.18, p=.034, 95% CI [.01, .14], and Neurosynth 'threat' regions, R^2=.18, $R^2_{adjusted}$=.11, β=1.21, t(53)=2.01, p=.049, 95% CI [0, .11]. Specifically, having high transcendent values was associated with non-significantly (marginally) attenuated response within the left amygdala among males, R^2=.33, $R^2_{adjusted}$=.25, β=-.43, t(18)=-2.02, p=.058, 95% CI [-.13, 0]. By contrast, transcendent value ranking was not associated with left amygdala responses to health messages among females, R^2=.02, $R^2_{adjusted}$=-.04, β=-.02, t(34)=-.09, p=.93, 95% CI [-.04, .04], though this may be due to a ceiling effect. Similarly, high transcendent values was associated with non-significantly (marginally) attenuated response within the Neurosynth 'threat' mask among males, R^2=.30, $R^2_{adjusted}$=.22, β=-.40, t(18)=-1.86, p=.079, 95% CI [-.09, .01]. By contrast, no such link was present among females, R^2=0, $R^2_{adjusted}$=-.06, β=.04, t(34)=.25, p=.81, 95%

CI [-.03, .04]. Sex did not moderate value effects on other regions of interest, including right amygdala (p=.10) or left AI (p=.23).

Individuals with higher BMI tended to rank transcendent values lower (r=-.35, p=.004). However, BMI did not significantly moderate the link between transcendent values and activity within the left amygdala (p=.21), right amygdala (p=.79), left AI (p=.34), or the Neurosynth 'threat' regions (p=.37).

The primary regression analyses were also run using demographic as covariates, including centered age, sex, ethnicity, and years of education. All results remained significant with two exceptions of the links between value rankings and left AI activity which became marginal (p=.060) when controlling for ethnicity, and Neurosynth mask which became marginal (p=.080) when controlling for sex.

In sum, female participants and individuals with lower BMI in our sample were more likely to rank transcendent values higher over other values. Furthermore, sex moderated the link between transcendent value rankings and neural response to health messages within the left amygdala. This finding suggests additional factors of interest to explore in the link between values and affective responses. As such, future studies may further test whether demographic or health-related characteristics may interact with the transcendent value effects. For example, one limitation of the current sample is that it did not include enough people from different ethnic backgrounds to test whether some of the shown effects might differ depending on ethnicity or other cultural contexts. Future studies specifically testing transcendent value effects across different demographic backgrounds are warranted.

Supplemental Material 3-1.
Whole brain results for the health messages and self-related processing tasks

Whole-brain results comparing neural activity during 'health messages > rest', $p<.005$, $k=126$ (n=58).

Region	*x*	*y*	*z*	*size*	*t*
Occipital pole	-16	-105	-8	23322	16.95
L anterior insula	-37	12	4		
R anterior insula	-39	12	4		
L amygdala	-23	-5	-17		
R amygdala	25	-5	-17		
Cuneus	15	-71	19	577	-2.67
Precuneus	8	-50	58	300	-2.67
R posterior insula	35	-26	19	412	-2.67
Precuneus	4	-26	19	203	-2.67

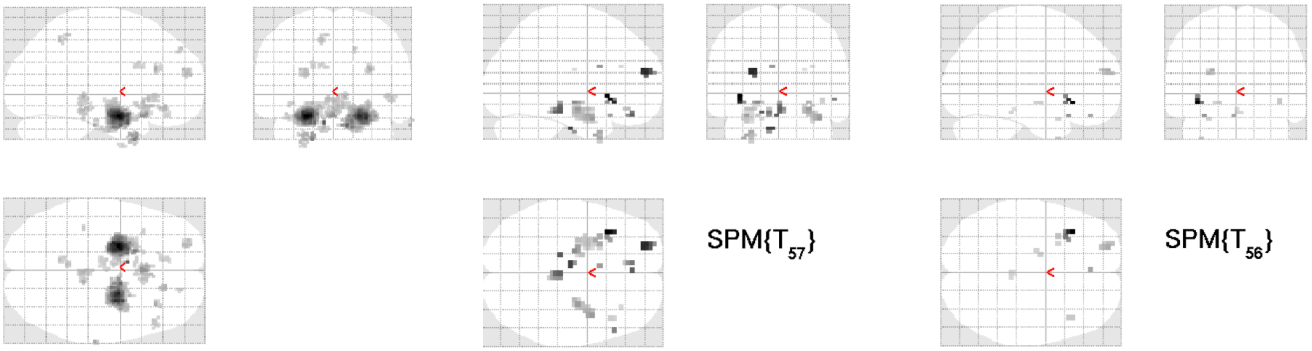
Whole-brain results comparing neural activity during 'self-relevance judgment > rest', $p<.005$, $k=113$ (n=57).

Region	*x*	*y*	*z*	*size*	*t*
Occipital pole	-23	-102	4	16498	10.51
R precentral gyrus	60	5	37	346	5.98
R dorsal lateral prefrontal cortex	53	43	10	330	-2.67
R posterior insula	46	-9	4	360	-2.67
L fusiform gyrus	-33	-43	-17	116	-2.68
L middle temporal gyrus	-61	-43	-14	120	-2.70

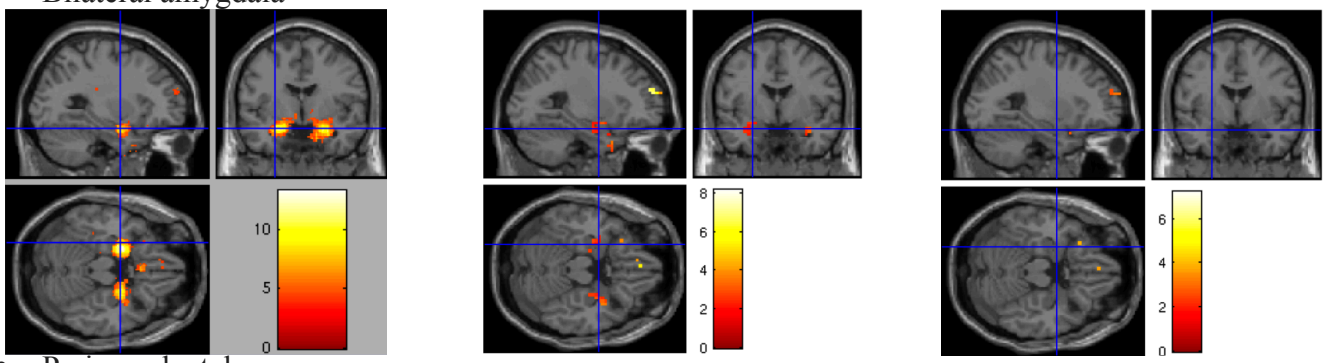
Note: The occipital pole cluster overlapped with the left anterior insula and with a small number of voxels in the right anterior insula. Peak voxels as well as additional local maxima in regions of interest are listed.
L=left; R=right

Supplemental Material 3-2.
Comparisons of activation across the Neurosynth's reverse 'threat' map, health messages > rest, and self > rest contrasts.

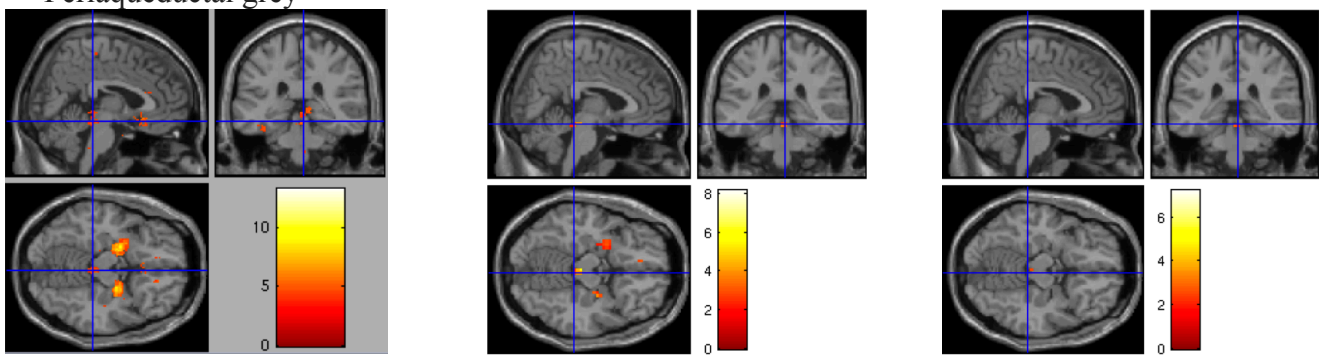
Glass brain views and masked analyses of:
Neurosynth reverse 'threat' map health messages > rest* self > rest*



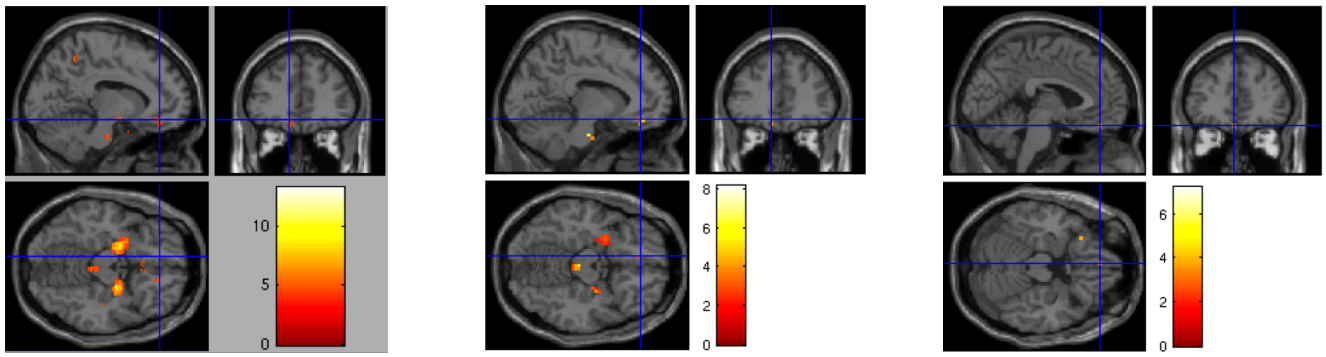
- Bilateral amygdala



- Periaqueductal grey



- Ventromedial prefrontal cortex



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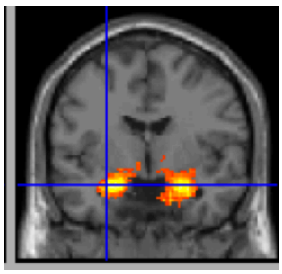
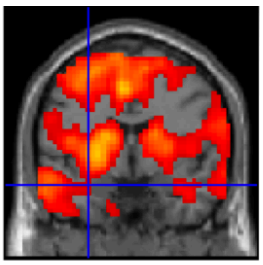
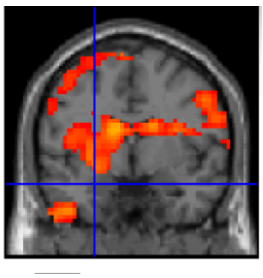
*FDR corrected within the mask of the Neurosynth reverse inference 'threat' mask

Additional unmasked analyses:

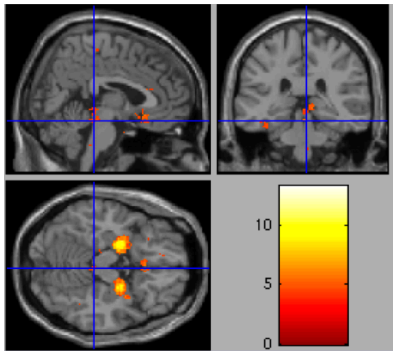
Neurosynth reverse 'threat' map health messages > rest self > rest

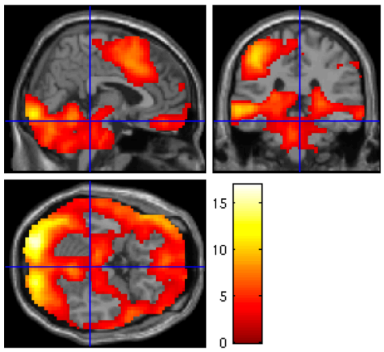
- Bilateral amygdala

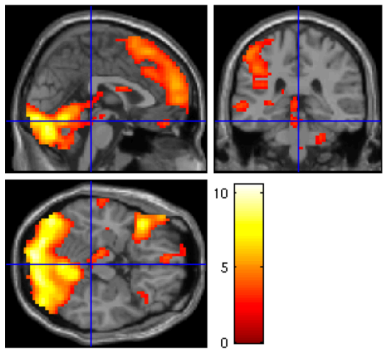




- PAG

Neurosynth reverse 'threat' map health messages > rest self > rest







- vmPFC

Neurosynth reverse 'threat' map health messages > rest self > rest