Understanding the effect of mindfulness training on the well being of law enforcement officers.

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Law enforcement officers have to deal with criminals, excessive violence, death and threats to their own safety on a daily basis. Irregular shifts, excessive workload, pending litigation and departmental politics further exacerbate the stress experienced by these officers. These stressors can negatively impact the physical and mental well-being of these officers which in turn lead to elevated rates of cardiovascular diseases, depression, substance abuse and post traumatic stress disorder (PTSD).

With this experiment, I intend to study the impact of mindfulness based training on law enforcement officers. Psychology Today defines mindfulness as "the self- regulation of attention with an attitude of openness, and acceptance". Previous studies on this topic indicate that mindfulness based training leads to heightened self awareness and self compassion. According to Oregon police officer Richard Goerling - "Self awareness is the cure for bias. We will never overcome our biases if we aren't aware of them". Findings suggest that making the law enforcement officers aware of their deeply ingrained and unconscious judgments can help them to change their attitudes and behaviors towards others.

RESEARCH QUESTION AND HYPOTHESIS:

Primary Question: **<u>Whether mindfulness training can help improve the well-being of law enforcement officers?</u>**

To determine the effectiveness of the mindfulness training exercise, I intend to use 5 surveys namely,

Mind- Wandering Questionnaire[1], Global Health Questionnaire[2], Sleep Disturbance Questionnaire, Five Facet Mindfulness Questionnaire[3] and Oldenburg Burnout Inventory. Mind-wandering is characteristically described as the interruption of task-focus by task-unrelated thought.[4] According to the study, high levels of mind-wandering as assessed by the MWQ may cause worse mood in adults. The authors further assert that "even if mind-wandering is not directly causing stress, low mood, and poor self-esteem, it is still possible that interventions targeting any one of these outcomes might affect the others". The Global Health Questionnaire measures an individual's physical, mental, and social health. Sleep and wakefulness are fundamental neurobehavioral states and sleep deprivation in humans is associated with changes in vigilance and psychomotor performance, mood and affect regulation, memory consolidation, moral reasoning,

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[1] Mrazek, M. D., Phillips, D. T., Franklin, M. S., Broadway, J. M., & Schooler, J. W. (2013). Young and restless: Validation of the Mind-Wandering Questionnaire (MWQ) reveals disruptive impact of mind wandering among youth. Frontiers in Perception Science, 4, 560.

[2] http://www.healthmeasures.net/images/PROMIS/manuals/ PROMIS_Global_Scoring_Manual.pdf

[3] Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self- report assessment methods to explore facets of mindfulness. *Assessment*, *13*, 27- 45.

[4] Smallwood J., Schooler J. W. (2006). The restless mind. Psychol. Bull. 132, 946–958 10.1037/0033-2909.132.6.946

metabolic and appetite regulation, and immune function.[5] Since the job of any law enforcement officer demands exceptionally high state of vigilance and mood regulation, it is of utmost importance to remedy any sleep disorders affecting such officers, which will benefit not only the officers but also the society at large. The Five Facet Mindfulness questionnaire is based on a factor analytic study of five independently developed mindfulness questionnaires. The five facets are observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity to inner experience. Burnout has been defined as a "prolonged response to chronic interpersonal stressors on the job" that is characterized by exhaustion, cynicism and detachment, and lack of accomplishment/ ineffectiveness from work.[6] The inherent nature of the work assigned to law enforcement officers make them extremely susceptible to burnouts which leads to a deterioration in one's quality of work which is mostly followed by feelings of negative self evaluation.

Like a pre-post design, the participants in the treatment and control group will take these surveys before and at the end of the treatment. I am primarily interested in checking the differences in means of the scores on the above mentioned surveys for the two groups.

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[5] Van Dongen HP, Maislin G, Mullington JM, et al. The cumulative cost of additional wakefulness: Dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep* 2003;26:117–26.

[6] Leiter, M.P., Maslach, C., 2016. Latent burnout profiles: A new approach to understanding the burnout experience. Burnout Research

As a secondary question, I would like to test the mean scores for the participants in the intervention group for the surveys taken pre treatment and post treatment. I would use a paired t test to check for any differences in the said mean scores.

LURKING VARIABLES:

The research conducted by Brown University to study how gender affects mindfulness suggests that mindfulness training leads to greater reduction in negative mood in women and their mindfulness and self compassion improves more as compared to men. It was further observed that the mindfulness training was directly associated with enhancements in all five facets of mindfulness skills, i.e, observing, acting with awareness, describing, non-judging and non-reactivity.

Hence, in the present study, I assume that gender and having a prior experience in meditation can act as lurking variables. Hence, I plan to block for them using the randomized block design.

RESEARCH DESIGN:

In this study, there is one intervention effect i.e mindfulness training and one control effect i.e the placebo effect. The mindfulness training program will include actual mindfulness improving exercises for one hour twice per week whereas the placebo training program will include simply visiting the training centre and sitting for one hour twice per week.

Equal number of participants from each of the following groups/combinations will be recruited for the study:

Male + Prior meditation experience,

Female + Prior meditation experience,

Male + No prior meditation experience,

Female + No prior meditation experience.

Randomization techniques will be used to assign these people to the treatment and control groups.

For the purposes of randomization, we would assign one number to each person in the study. Following this, the "sample()" function in the R package will be used to select (n/2) (n = people in each of the 4 groups) random numbers from every combination and assign them to the treatment group. The remaining persons would then be assigned to the control group. This way we will ensure that every block combination will receive both the intervention and control effects.

HYPOTHESIS:

The null hypothesis for this study is that mindfulness has no effect on the scores of the 5 surveys stated hereinbefore and the alternative hypothesis is that the mindfulness training has an effect (two sided) on the scores of the 5 surveys. I want to check the two sided effect of mindfulness since I would like to measure the positive and negative effects of the training. My reason for checking the negative effects of mindfulness is based on a study conducted by some researchers to study the meditation related

challenges in western Buddhists.[7] Owing to randomization, I propose to test the difference in means of the scores on the 5 surveys for the treatment and control group using an independent two sided t-test with 0.05 level of significance.

EFFECT SIZE:

To determine the effect size, I looked at some previous literature on this subject and decided to use a medium effect size of 0.3.[8] For obtaining an effect size of 0.3, I used the pwr.t.test function in the R package to calculate the sample size with power = 0.8 and level of significance = 0.05. I want to use a balanced design for my study and hence, I plan to have the same number of participants in the above mentioned four combinations/groups in my sample. For n = 80, the exact effect size calculated by the R package is 0.317 which is almost equal to 0.3, which is the effect size which I intended to use for my study. However, sometimes participants leave the study which affects the pre planned design as well as the power and effect size calculations. With this skeptical mindset, I have decided to recruit 120 people even though the minimum required participants are 80 for the pre stated power and effect size. Further, to get this sample size in the balanced design, I would have to recruit 30 people for each of the four groups.

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[7] PLOS One - The varieties of contemplative experience - A mixed methods study of meditation related challenges in western Buddhists.

[8] Effects of mindfulness - based stress reduction on depression in adolescents and young adults - a systematic review and meta- analysis https://doi.org/10.3389/fpsyg.2018.01034

PROCESS:

After recruiting 30 people in each group as stated hereinbefore, every participant will be given the said 5 surveys and their scores will be recorded. These will be the pre experiment scores for every person. Thereafter using the randomization process half of the participants from each of the 4 groups will be assigned to the treatment group and the remaining will be assigned to the control group. At the end of 5 weeks, the participants from the treatment and control groups will again take the surveys and their scores will be measured. The subsequent analysis will be conducted using t tests as described above.

DATA COLLECTION PROTOCOLS:

While doing research it is extremely necessary to maintain and follow certain protocols to ensure that the data is collected uniformly and doesn't add any unwanted confounders. If the people who are collecting the data are not made aware of the consequences of incorrect data collection techniques, the results obtained using such data may not be reliable.

To ensure that I can use the data for reaching conclusions about my intended hypothesis, I will lay down the procedures for data collection, which would include but shall not be limited to the following:

1) Data for the pre treatment surveys should be collected before the participants are assigned to the treatment and control groups. I think this is necessary to be done to make sure that there are no differences in the way in which this data is collected from the treatment and control groups.

2) Participants from both the groups should be called to the same place at the same time and placed in different rooms. Participants will undergo the intervention and placebo phases for one hour twice per week for the entire period of the study. The intervention group will enter the room without any electronic devices and will be taught actual mindfulness exercises. On the other hand, the participants in the control group will also enter the room without any electronic devices but will only be expected to sit quietly for one hour.

3) If any participant intends to leave the treatment or control groups before the end of the stipulated 5 weeks, they shall be at liberty to do so.

4) Though no personal data will be collected, the participants will be required to sign a consent form to thereby allow us to use their data collected during the experimental phase. Further, the participants will sign an undertaking that they will not discuss the treatment they undergo twice a week with any other person, during the course of the study. The participants would be bound by this undertaking during the period of the study even if they decided to leave it mid way.

5) The people who are collecting the data or working with the participants in any other way should refrain from using any words or phrases which might indicate which group (intervention or control) the participants belong to.

6) The participants should take the surveys online in the pre and post treatment phases.

7) Once the surveys are completed, the data should be electronically transferred into a tabular format to avoid any human errors at that stage.

Adhering to the above stated procedures should ensure that the data collected for the study will not get tampered and rendered useless for the intended analysis.