Functional Magnetic Resonance Imaging Participant Information

Magnetic Resonance Imaging is a safe, non-invasive and painless brain imaging modality. It utilizes a strong magnetic field to measure the blood oxygenation during neural activities.

Project Title

The Role of Anchoring and Distraction in the Effectiveness of Mindfulness on Reducing Emotional Reactivity

Purpose of Study

The objective of the current study is to investigate how mindfulness training influences the effectiveness of distraction and anchoring strategies on reducing emotion reactivity. The study compares the neural mechanisms associated with anchoring and distraction and their distinct impacts on the processing of emotional stimuli using neuroimaging techniques.

Target

- ☑ Adults aged between 20 and 40
- ☑ Postgraduate students who are receiving professional training in counselling (e.g. clinical psychology, educational psychology, counselling, social work) under a local Master's programme in 2022-23/2023-24 academic year
- ☑ Right-handed

Exclusion Criteria

☑ If participants have had the following conditions, they are not suitable to do fMRI:

- Surgical clips
- Cardiac pacemaker
- Neurostimulator/internal electrodes
- Insulin pump
- Internal shunt
- Metal screen / suture
- Cochlear implants
- Hearing aid
- Eye implants/eyelid springs
- Orthopaedic devices (e.g. pins, nails, screws)
- Prosthetic heart valve
- Breast tissue expander
- Tattoo or permanent eye-lining
- Body ring
- Patch/Blood Glucose Monitor
- Dentures
- Intrauterine contraceptive device
- Metal blockage in the blood vessel/metal foreign body in the body

☑ If participants have had the following conditions, they are not suitable to do fMRI:

- History of neurological or other disorders affecting the brain (such as encephalitis, epilepsy, birth defects, or polio)
- Have experienced a concussion, head or brain trauma, seizures, loss of consciousness
- Have been injured in the eye by a metallic foreign body.
- Have been injured by metallic foreign body (e.g. bullet, shrapnel)
- History of sickle cell anemia/kidney disease/diabetes

- History of asthma
- History of allergies
- Long-term use of medication is required
- Currently pregnant or breast feeding.

☑ If the participant has undergone any type of surgery, please inform the researchers to determine if they are suitable for functional magnetic resonance imaging scans.

☑ Participants in the experiment need to stay in the functional magnetic resonance imaging scanner for a long time. If the participant has claustrophobia/fear of enclosed spaces, then they are not suitable to participate in the experiment.

☑ If the participant has received psychological or psychiatric treatment before, they are not suitable to participate in this study.

Experiment Procedure

1. Participants will each undergo one functional magnetic resonance imaging scan experiment at Hong Kong Baptist University during the period of August to September 2023 and December 2024 to January 2024. Each experiment session will take about two hours. The amount of time you spend in the MRI device will be 60 minutes.
2. You will be asked to have a series of MRI pictures taken of your head. These pictures are made with an MRI device that uses radio waves and a large magnet to create the images. The MRI pictures will be made while you lie on a narrow bed placed inside of a large magnet. During the MRI scan, you may be asked to perform various tasks. Depending on the specific needs of the experiment, these include:
    a. **Resting State fMRI:** Your resting state fMRI will be collected. You will not be required to perform any specific task during a 5-minute period.
    b. **Emotional Care/Regulation Task:** You will be presented with images captured neutral or negative videos you watched outside the scanner. You will be asked to take care/regulate your emotion using anchoring and distraction. A counting-Stroop task will immediately follow the images.
3. During parts of the scan, you will be asked to remain very still for periods of up to 60 minutes (though most procedures will be much shorter).
4. All of the following may be part of your exam, depending on the specific requirements of the research:
    a. You may be asked to complete a brief questionnaire that will require two to three minutes of your time. You have the right to refuse to answer any question that you do not wish to answer.
    b. You may be asked to answer questions about your medical history. In addition, the investigators may perform a brief medical evaluation of your health status, as well as a brief standard physical neurological exam. The results will be used only in connection with the MRI procedure, and will not become part of your medical records.

c. Electrical activity in your brain or eyes may be monitored during the study. This involves attaching small electrodes (EEG) to your skin or scalp. The electrodes are attached with a paste that can be removed easily using shampoo and water.

d. During the procedure your eye movements may be monitored with a device specifically designed for this purpose. This device works at a distance from the eye itself and does not involve any direct contact with or injury to your eyes.

e. The physiological signal (ECG, SpO2, EMG, and ETCO2) may be monitored by electrodes attached to your body. The electrodes will be attached with a paste that can be removed easily using soap and water. The procedure of attaching the electrodes generally takes two to three minutes.

5. After completing the experiment, each participant will receive $200 worth of supermarket vouchers.

Benefits

You may receive no direct medical benefit from participating in this study. To appreciate for participants' valuable time and involvement, each participant will receive a $100 supermarket gift voucher as compensation and a personal 3D brain structure image after completing all the tests.

Potential Risks and Discomforts:

- Magnetic Resonance Imaging (MRI) uses a powerful magnet to take pictures of your body. Because the MRI machine exposes the body to a very strong magnetic force, you will have to follow certain safety precautions to make sure there are no metal objects in or on your body. Before you undergo the MRI scan, MR personnel will ask whether your body contains any metallic medical devices or equipment, including heart pacemakers, metal prostheses, implants or surgical clips. You also will be asked whether you have had any prior injuries from shrapnel or grinding metal, and if your eyes have been exposed to metal particles.
- If you have no metallic objects or particles in your body, you will need to remove all metal objects, including jewellery, watches, hair holders, or eyeglasses before entering the scanner room. You will need to empty your pockets of all materials, including keys, wallets, and magnetic cards such as ATM and credit cards. In addition, you will need to change into a patient gown. Finally, you may be asked to remove any eye shadow you may be wearing, because eye shadow sometimes contains metallic substances.
- During the MRI examination, you will lie on a table that slides into a horizontal tube slightly wider than your body. You will be asked to lie still, but you will be able to hear and speak to the MRI personnel/research staff. Some individuals experience anxiety, panic, or a sensation of claustrophobia when lying in the MRI machine. If you think this may happen to you, please tell the MRI personnel before the scan. The scanner also makes loud noises during its operation. You will be provided with ear protection to reduce the noise level. If you feel uncomfortable for any reason before or during the procedure, please tell the MRI personnel. If for any reason during the procedure you want to stop, you may do so by pressing the squeeze ball.
- There are devices which will be used in addition to the MRI scanner such as button response boxes or equipment that monitors your physiological processes. These devices or the wires attached to them may generate a low level of heat. If you feel an uncomfortable heating/burning sensation, you should let the staff know immediately.

- Although there is no evidence that participation in an MRI examination by a pregnant woman would be harmful to her foetus, a woman who is pregnant, or who thinks that she might be pregnant, should refrain from participating in the examination.
- No studies have reported significant risks associated with the levels of the MR that you will be exposed to in the MRI examination. However, you should be aware that there could still be other risks which are unknown to researchers in this field.

Participant Responsibilities

As a participant of a research study, your responsibilities include:

- Follow the instructions of the radiographer, MR personnel, and/or research staff.
- Inform the radiographer, MR personnel and/or research staff about any side effects, doctor visits, or hospitalizations that you may have.
- Inform the radiographer, MR personnel and/or research staff if you believe you might be pregnant.
- Inform the radiographer, MR personnel and/or research staff if you have some type of implanted electrical device (such as a cardiac pacemaker). You will not be allowed to participate in this study if you have one.
- Ask questions as you think of them.
- Inform the radiographer, MR personnel and/or research staff if you change your mind about staying in the study.
- Inform the radiographer, MR personnel and/or research staff if you are taking part in any other research project(s). This is to protect you from possible undesirable procedures or events such as extra blood drawing, extra x-rays, interaction(s) of research drugs, or other hazards.

Possible Discovery of Medical Findings

When an MRI examination is performed, MR personnel may find something unexpected in the images. ***Since you are participating in a research project, the research team will not conduct a diagnostic review of the images and hence no written or verbal report of the results of the MRI examination, normal or otherwise, will be issued.***

The MRI Examination Does Not Substitute a Clinical Examination:

The MRI examination that you will receive is part of a research study. The researchers and The Hong Kong Polytechnic University do not bear responsibility for identifying or failing to identify abnormalities in the scan images. However, you may choose to be informed (or not to be informed) about incidental findings (if any) in the consent form. With this consent, the researchers may inform you when abnormalities are detected in your scan images. In no case will the MRI examination that you will undergo replace a visit to your own doctor. The images generated from the MRI examination will not be released to you for personal use.

Privacy and Confidentiality

The only personnel who know that you are a research participant are members of the research team. No information about you, or provided by you during this research, will be disclosed to others without your written permission, except:

- if necessary to protect your rights or welfare (for example, if you are injured and need emergency care); or
- if required by law.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

Enquiry and Complaint

You can contact one of the investigators, Assistant Research Officer Mr. Wu Ka Chun at 3917-5176, about this study. If you have complaints related to the investigator(s), I can contact Human Research Ethics Committee of the University of Hong Kong at 2241-5267.