

# Can virtual reality-based meditation help reduce anxiety and depression in patients newly diagnosed with acute leukemia?

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<b>Registration date</b> 06/06/2022	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 02/05/2023	<b>Condition category</b> Mental and Behavioural Disorders	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

In contrast to other cancer therapy stages, the initial stage of therapy (induction chemotherapy) causes the highest level of anxiety and depression among newly diagnosed patients with the blood cancer acute leukemia. Heightened anxiety and depression can lead patients to avoid medical messages to reduce the psychological stimulation caused by their disease.

According to previous studies, exercise therapy, cognitive behavioural therapy, mindfulness and meditation have successfully been used to reduce anxiety and depression during the induction chemotherapy period. However, due to cancer-related symptoms (fatigue, pain, emesis) and complications (anemia, bleeding, infection), exercise therapy could actually make a patient's condition worse.

Mindfulness and meditation have been shown to reduce anxiety, depression and negative emotions effectively. However, continual medical treatments and the noisy ward environment can readily interrupt the meditation process. The aim of this study is to see if virtual reality can improve the meditation intervention procedure to reduce anxiety and depression in patients with acute leukemia at the beginning of their treatment.

### Who can participate?

Adults newly diagnosed with acute leukemia

### What does the study involve?

Participants are randomly allocated to one of two groups. Those in the intervention group receive conventional care plus an immersive experience from a virtual reality device delivering meditation guidance, peaceful background music, and images. Patients in the control group receive conventional care only.

### What are the possible benefits and risks of participating?

Benefits not provided at time of registration

Participation in the intervention group is associated with a risk of developing virtual reality-

related symptoms, including general symptoms (dizziness, difficulty concentrating, nausea, drowsiness, fatigue, headache, boredom) and eye-related symptoms (blurred vision, tired eyes, difficulty focusing, sore/aching eyes). Once participants report severe symptoms, the intervention is suspended and participants would be required to quit the study.

Where is the study run from?

Second Affiliated Hospital of Guangzhou University of Chinese Medicine

When is the study starting and how long is it expected to run for?

January 2021 to February 2022

Who is funding the study?

Investigator funded (China)

Who is the main contact?

Bixia Zhang

20192110640@stu.gzucm.edu.cn

## Contact information

### Type(s)

Principal investigator

### Contact name

Ms Bixia Zhang

### Contact details

12 Jichang Road

Baiyun District

Guangzhou

China

510080

+86 181 0020 2331

20192110640@stu.gzucm.edu.cn

## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Protocol serial number

Nil known

## Study information

### Scientific Title

Effect of virtual reality combined with meditation on alleviating anxiety and depression among acute leukemia patients during induction chemotherapy

### Study objectives

Virtual reality combined with meditation can effectively alleviate anxiety and depression among acute leukemia patients during induction chemotherapy.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Approved 12/01/2021, Ethics Committee of Guangdong Provincial Hospital of Chinese Medicine (111 Dade Road, Yuexiu District, Guangzhou, Guangdong, 510030, China; +86 20 8188 7233 (35943); llbgs@gzucm.edu.cn), ref: YE2021-020-01.

### **Study design**

Randomized controlled trial

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Prevention of anxiety and depression during induction chemotherapy in previously untreated patients newly diagnosed with acute leukemia

### **Interventions**

Randomization:

Random assignment to the intervention group and control group will be performed by SPSS 24.0 at a proportion of 1:1. The 70 generated codes will be written on the same sized paper and the paper will be placed in opaque, sealed, and sequentially numbered envelopes. A participant receives a numbered envelope after the qualified initial assessment. The paper showing "1" means that the participant is assigned to the control group, and "2" means that the participant is assigned to the intervention group.

Control group:

The control group will receive conventional care alone, including general care, psychological care, and health education. General care: limiting activity depending on patients condition to prevent bleeding, preventing blocking and infection from a peripherally inserted central catheter, protective quarantine used to prevent infection in patients, oxygen inhalation to prevent symptoms caused by anemia, adequate nutrition intake, monitoring changes of patients' vital signs and side-effect caused by chemotherapy. Psychological care: developing a good relationship with patients, identifying patients' negative emotions, and enlightening them. Health education: assisting patients to build up to perception and cognition of disease through imparting knowledge.

Intervention group:

In addition to conventional care, the VR combined with meditation intervention is offered to patients in the intervention group. During the intervention, patients experience a sense of immersion through a VR device delivering meditation guidance, background music, and images. We selected 14 different VR 3D videos (about 20 minutes) which are freely downloaded from the Internet, mixing peaceful background music and meditation guidance referenced by a specialist. An immersive effect is experienced from the natural environment. Patients feel as if

they are sitting in a forest or by a beach and are able to meditate following the meditation guidance, listening to authentic natural sounds and peaceful background music to keep a peaceful mind. The intervention procedure will be given once a day for 14 days.

### **Intervention Type**

Behavioural

### **Primary outcome(s)**

1. Anxiety is measured using State Anxiety Inventory at baseline and post-intervention (2 weeks)
2. Depression is measured using the Center for Epidemiological Studies Depression Scale at baseline and post-intervention (2 weeks)

### **Key secondary outcome(s)**

Quality of life is measured using The Functional Assessment of Cancer Therapy-Leukemia Questionnaire at baseline and post-intervention (2 weeks).

### **Completion date**

12/02/2022

## **Eligibility**

### **Key inclusion criteria**

1. Newly diagnosed with acute leukemia, including acute myeloid leukemia and acute lymphocytic leukemia
2. No relevant previous treatment
3. Aged 18 years and over
4. Normal cognition and comprehension
5. Karnofsky Performance Status 60

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Lower age limit**

18 years

### **Sex**

All

### **Total final enrolment**

63

### **Key exclusion criteria**

1. Aggravation in related symptoms, such as severe infection, bleeding, or anemia
2. Complicated with other neoplastic diagnoses

3. In a critical condition
4. Accompanied eye-related diseases
5. Refused participation or participating in other studies

**Date of first enrolment**

13/01/2021

**Date of final enrolment**

12/01/2022

## Locations

**Countries of recruitment**

China

**Study participating centre**

**Second Affiliated Hospital of Guangzhou University of Chinese Medicine**

111 Dade Road, Yuexiu District, Guangzhou, Guangdong Province, China

Guangzhou

China

510030

## Sponsor information

**Organisation**

Guangdong Provincial Hospital of Traditional Chinese Medicine

**ROR**

<https://ror.org/01gb3y148>

## Funder(s)

**Funder type**

Other

**Funder Name**

Investigator initiated and funded

## Results and Publications

## Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Bixia Zhang, 20192110640@stu.gzucm.edu.cn, the type of data is the original data. After the submission of the paper to a journal, data will become available and will be available for 1 year. Data will be shared with researchers who are specialists in Artificial Intelligence. The type of analysis is Meta-analysis. Consent from participants was obtained and participants were assured anonymity and confidentiality of the information.

## IPD sharing plan summary

Available on request

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		23/01/2023	02/05/2023	Yes	No