Full study protocol and statistical analysis plan

Official Title of the study:

Cognitive progressive muscular relaxation therapy on couples undergoing IVF-ET

Date of the document:

20th April 2019

Contents:

1. Participant Flow

Recruitment Details

We will choose Infertility Reproductive Center, Second Xiangya Hospital, Central South University to recruit the participants. The recruitment will start at May 1st 2019. The recruitment announcement will be distributed to the participants via notice board in the department.

Pre-assignment Details [*]

We firstly will assess the recruited people to ensure meeting the inclusion and exclusion criteria. Than the final enrolled participants can be sure and randomized assignment will be conducted.

Enrollment (total, anticipatory)	**138**			Record the number of the eligible and the excluded
Allocation (randomized)	**Group A**	**Group B**	**Group C**	Record the number of the received and the unreceived
	46	**46**	**46**	
Follow-up (immediately after intervention)				Record the number of the received and the unreceived

Arm/Group Information *

There are three groups in the study.

Arm/Group Title *

Women intervention group= Group A

Couple intervention group= Group B

Controlled group= Group C

Arm/Group Description *§

Women intervention group: Only women will be intervened by Cognitive progressive muscular relaxation therapy.

Couple intervention group: Both couple will be intervened by Cognitive progressive muscular relaxation therapy.

Controlled routine activity group will have routine nursing care delivered by nurses.

Period(s) *

There is only one stage in the study.

Period Title *

Overall Study.

Started *

There will be 138 participants initiating the intervention.

Those 138 participants will be randomly assigned to three groups with around 46 participants in each group.

Completed *

We will do follow-up, and the number in the follow-up will be recorded.

Milestone Title [*]

Before the intervention, we will measure the participants, and the stage is defined as T0.

We will do follow-up immediately after intervention, defined as T1.

Reason Not Completed Type [*]

We will record the exact reason (Adverse Event) why participants do not complete the study. The reason may be death, lack of efficacy, lost to follow-up, illness, withdrawal by subject or others.

2. Baseline Characteristics

Arm/Group Information *

Chi-square test will be applied to figure out the difference of enumeration data among three groups. ANOVA will be applied to test the difference of measurement data among three groups. F values and χ^2 values will be displayed to show the baseline data are no different in three groups.

Arm/Group Title *

Women intervention group= Group A

Couple intervention group= Group B

Controlled group= Group C

Arm/Group Description *§

All the recruited participants will be numbered and randomly allocated into three groups by random number table. The grouping results will be announced to the participants according to the random number table.

Overall Number of Baseline Participants *

There will be 138 participants initiating the intervention.

Baseline Measure Information *

A group of demographic characteristics will be measured in the study, including gender, age, marital status, income per month, etc.

Baseline Measure Title *

- Age * : Continuous(years)
- Gender * : Female, Male
- Years after diagnosed with infertility: Continuous(years)
- Income per month: Categorical:
    - <=1000 RMB
    - >1000 and <2000 RMB
    - >=2000 RMB
- Educational level: Categorical:
    - Junior high school
    - Senior high school
    - College and above

Measure Type *

- Count of Participants: Gender
- Mean: Age, Years after diagnosed with infertility
- Number: Income per month, Educational level

Measure of Dispersion *

- Standard Deviation
- Inter-Quartile Range
- Full Range

Baseline Measure Data *

The value(s) for each baseline measure, for each group and overall cannot obtain right now since the study has not been started.

3. Outcome Measures

Outcome Measure Information *

A questionnaire will be used during each measurement, including several scales in it.
Dehydroepiandrosterone will also be tested.

Outcome Measure Type *

- Primary and secondary

Outcome Measure Title *

- Depression: depressive mood in recent two weeks measured by Zung Self-rated Depression Scale (SDS). It is a self-reported scale by adding up 20 items and the total score ranges from 20-80, with higher score reflects higher depression.
- Anxiety: Anxiety in recent two weeks measured by Zung Self-rated Depression Scale (SAS). It is a self-reported scale by adding up 20 items and the total score ranges from 20-80, with higher score reflects higher anxiety.
- Sleeping quality: a reflection of one's mood in recent month measured by Pittsburgh sleep quality index(PSQI). It is a self-reported scale, with total score higher than 19 reflects sleeping disorder. The differences within each time frames are the changes of sleeping quality
- Concentration of dehydroepiandrosterone in blood: a kind of hormone that reflects the

person's psychological stress.

- Success of IVF-ET: we will follow up the success of the participants of each group.

Outcome Measure unit *

The depression, anxiety, and sleeping quality are measured by scales with no unit.
Dehydroepiandrosterone has its concentration unit of pg/ml.

Outcome Measure Time Frame *

There will be two measurements, before the intervention and immediately after intervention. They are defined as T0, T1.

Analysis Population Information

Overall Number of Participants Analyzed *

There will be 150 participants totally enrolled in the study.

Outcome Measure Data Table

Measure Type *

- Mean

Measure of Dispersion/Precision *

- Standard Deviation

Outcome Data *

The measurement value(s) for each outcome measure cannot obtain right now since the study has not been started.

Statistical Analysis Overview

Comparison Group Selection [*]

We will compare three groups' data.

Type of Statistical Test [*]

- Superiority
- Other (descriptive analysis)

P-Value [*]

P-Value will be set at 0.05.

Method [*]

- ANOVA
- Chi-Squared
- t-Test, 2-Sided
- Other: repeated measurement of variance analysis within different measurements among different groups

Estimation Parameter [*]

- Mean Difference (Final Values)

4. Adverse Event Information

Time Frame *§

The intervention lasts around 30 days, with 6 times, and we will record the adverse event at each time.

Adverse Event Reporting Description [*]

We will add relevant information about adverse event after finishing the study.

Collection Approach for Table Default *§

- Systematic Assessment: The psychotherapist will routinely determine whether or not certain adverse events have occurred through regular investigator assessment during intervention and in each follow-up.
- Non-Systematic Assessment: Self-reporting by participants or occasional assessment by the psychotherapist.

Adverse Event Term *

The most possible adverse event may be the psychological discomfort because the participants.
We will provide information for in three tables summarizing adverse events in each group,

including all-cause mortality, serious adverse events, and other (not including serious) adverse events.

Organ System *

- Psychiatric Disorders

5. Limitations and Caveats

The measurements are mostly based on self-reported scales and may lead to unreliable data. We will give instruction before fulfilling the questionnaire to ensure the participants understood.

6. Certain Agreements

Are all PIs Employees of Sponsor? *

- No: The principal investigator is not an employee of the sponsor

There is no agreement between the agent (university) and the principal investigators. The principal investigators are graduate students in the university. The principal investigators (PIs) can discuss the results of the study at a scientific meeting or any other public or private forum, or to publish in a scientific or academic journal information concerning the results of the study.

7. Results Point of Contact

Name or Official Title *

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