Data Article

Dataset of cognitive behavioral intervention for persons living with HIV in China: A randomized pilot trial

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A B S T R A C T

Globally, persons living with HIV (PLWH) are vulnerable to depressive and anxious symptoms [1]. Cognitive behavioural therapy (CBT) is one of the first-line mental health treatment strategies for PLWH [2–3]. However, structured and systematic cognitive behavioural intervention (CBI) is rare for PLWH in China. This data article presents the raw data of a parallel two-arm randomized controlled trial investigating the preliminary effects of CBI on depression, anxiety, medication adherence, quality of life, and CD4 lymphocyte counts for PLWH in China. Twenty PLWH who aged \( \geq 18 \), were undergoing antiretroviral therapy (ART), and scored the Patient Health Questionnaire-4 (PHQ-4) \( \geq 2 \) were recruited face-to-face and randomly assigned to groups based on computerized random number generation. Intervention participants received a tailored group-based 10-week-long CBI. Control participants only took laboratory tests and received free ART medication. The data includes demographic variables, exposure variables and outcomes. The outcomes were repeated-measured at baseline (T0), after the intervention (T1), and after 6 months of follow-up (T2). We assessed depression and anxiety via the Hospital Anxiety and Depression Scale (HADS), quality of life via the WHOQOL-HIV BREF, medication adherence via self-report adherence, the visual analog scale (VAS) and the medication possession ratio (MPR). CD4 lymphocyte counts were available on participants’ medical

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records. The main manuscript of this dataset is “cognitive behavioral intervention for persons living with HIV in China: a randomized pilot trial” (Han et al., submitted for publication) [4].

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Specifications table

| Subject                      | Nursing and Health Professions                           |
|------------------------------|----------------------------------------------------------|
| Specific subject area        | Mental Health Nursing, AIDS Care                         |
| Type of data                 | Tables                                                   |
| How data were acquired       | Questionnaires include a standardized demographic questionnaire, a 4-item Patient Health Questionnaire-4 (PHQ-4) for screening participants’ depression and anxiety, a 14-item Hospital Anxiety and Depression Scale (HADS), a 31-item WHOQOL-HIV BREF, a 2-item self-report adherence questionnaire, and numerical 0–100 visual analogue scale (VAS). We asked two questions for self-reported medication adherence. ①In the past month, did you miss taking medication or mistakenly take medication? ②In the past month, did you delay or take medication ahead of time by more than 2 h? If a participant answered “no” to both questions, we defined him/her as having good adherence; otherwise, the participant belonged to modest adherence category. The questionnaire is provided as a supplementary file. Every participant was receiving free antiretroviral therapy (ART) under the Chinese National Policies of “Four Frees and One Care for HIV/AIDS” [5]. They received routine follow-up every 3 months in the Shanghai Public Health Center Affiliated with Fudan University outpatient center, which included taking routine blood tests, urine tests, and receiving free ART medication. Their visit records and laboratory test results could be acquired from their medical records. After completing all the follow-ups, we checked every participant’s latest four visit records to calculated their medication possession ratio (MPR) at T0, T1 and T2. The CD4 lymphocyte count was also acquired from medical records. Approved by the Research Ethical Committee both in School of Nursing, Fudan University and Shanghai Public Health Center Affiliated with Fudan University, we were allowed to login the in the archives system and check medical records. |
| Data format                  | Raw data                                                 |
| Parameters for data collection| The parameters included depression, anxiety, quality of life, medication adherence, CD4 lymphocyte count. |
| Description of data collection| We invited two nurses in the outpatient department to help us collect data. Neither of them participated in the intervention, so the data collection was blinded. The data collectors distributed paper questionnaires or let participants scan a QR code to fill out the questionnaire online. Data collectors checked the paper questionnaire on the spot and gave the questionnaire back if the patients had missed any questions. Online questionnaires could be submitted only after answering all the questions. Medical records were checked on the computers in the hospital to obtain patients’ follow-up intervals and CD4 lymphocyte counts. |
| Data source location         | Shanghai Public Health Center Affiliated with Fudan University, Shanghai, China |
| Data accessibility           | All the data for this randomized controlled trial are accessible in this data article. |

Value of the data

• The data can provide better knowledge for researchers and policymakers to evaluate the prospects of CBT for PLWH care in China.
• The data can provide reference for future research study design in the field of PLWH mental health care in China.
The data can provide evidence for nursing practice of providing CBI for PLWH in China.

The data may influence the model of mental health services for PLWH in China in the long term.

1. Data description

Tables 1–6 contain all the raw data of the randomized controlled trial. Baseline demographic information is shown in Tables 1 and 2. Tables 3–5 present outcomes data at T0, T1 and T2 respectively. Table 6 presents the attendance rates of the intervention group.

Among the 20 participants, all were males, with a mean age of 36.15 years old. Most of the participants (60%) did not have a Shanghai household registry, which means that they were migrants from other areas. The majority of the participants (95%) were of Han ethnicity. Most of them had a high educational level, with 80% of them having a bachelor’s degree or higher. Approximately half of the participants had a religious affiliation. Most of them were employed (90%). Only 4 participants were married (20%) (Table 1).

Of the total sample, the participants showed an average PHQ-4 score of 5.00, an average year of diagnosis of 4.20 years, and average years of receiving ART of 3.80 years. Half of the participants (50%) had CD4 lymphocyte counts of more than 400/μL, with an average count of 405/μL. All had the latest undetectable virus load (100%). Most of them (80%) were infected with HIV because of homosexual behavior (Table 2).

Among all the outcomes, all are continuous variables except the self-report adherence and the MPR. After a 10-week intervention, one participant in the control group refused to continue...
follow-up (Table 4). Another participant in the control group was unable to be contacted after the 6-month follow-up (Table 5). No one dropped out of the intervention group. The sample retention rate was 90%.

According to our sign-in record, within the intervention group, one participant attended ten sessions; two participants attended nine sessions; two participants attended seven sessions; two participants attended six sessions; one participant attended four sessions; two participants attended one session. The overall attendance rate was 60% (Table 6).

2. Experimental design, materials, and methods

A randomized controlled trial was conducted to examine the preliminary effects of group CBI on depression (primary outcome), anxiety, quality of life, medication adherence, and CD4 lymphocyte count (secondary outcomes). This study was approved by the Research Ethical Committee of the School of Nursing, Fudan University (IRB#TYSA2016–3–1), and Shanghai Public Health Center Affiliated with Fudan University (2019–S036-02). It was also registered with the Chinese Clinical Trial Registry (ChiCTR1900024256).

Participants were eligible if they met the following inclusion criteria: ①Participants who had been diagnosed with HIV-1 infection; ②more than 18 years old; ③receiving anti-retroviral treatment (ART); ④the Patient Health Questionnaire-4 (PHQ-4) score≥2. Participants were excluded if they ①could not participate in our study because of severe comorbidities or cognitive impairment and ②were taking part in other HIV-related research projects at the same time.

Participants were assigned in the control or the intervention group randomly. We used the WPS EXCEL software to generate the random sequence and sorted the random number by size. After the eligible participants signed the informed consent form, they were asked to open an

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**Table 2**

PHQ-4 and HIV-related variables.

| ID | PHQ-4 | Transmission mode | CD4 lymphocyte count (μL) | HIV-RNA | Years of HIV diagnosis | Years of receiving ART |
|----|-------|-------------------|---------------------------|---------|------------------------|------------------------|
| 1  | 4     | 1                 | 376                       | 0       | 1                      | 1                      |
| 2  | 3     | 1                 | 370                       | 0       | 1                      | 1                      |
| 3  | 6     | 1                 | 266                       | 0       | 1                      | 1                      |
| 4  | 4     | 2                 | 197                       | 0       | 2                      | 2                      |
| 5  | 5     | 1                 | 253                       | 0       | 6                      | 6                      |
| 6  | 5     | 1                 | 356                       | 0       | 6                      | 6                      |
| 7  | 10    | 1                 | 768                       | 0       | 8                      | 7                      |
| 8  | 4     | 1                 | 443                       | 0       | 8                      | 7                      |
| 9  | 5     | 1                 | 409                       | 0       | 9                      | 8                      |
| 10 | 6     | 3                 | 372                       | 0       | 4                      | 4                      |
| 11 | 2     | 3                 | 433                       | 0       | 1                      | 1                      |
| 12 | 4     | 1                 | 509                       | 0       | 7                      | 2                      |
| 13 | 4     | 1                 | 339                       | 0       | 2                      | 2                      |
| 14 | 5     | 1                 | 549                       | 0       | 3                      | 3                      |
| 15 | 2     | 1                 | 295                       | 0       | 3                      | 3                      |
| 16 | 10    | 1                 | 436                       | 0       | 4                      | 4                      |
| 17 | 3     | 1                 | 539                       | 0       | 4                      | 4                      |
| 18 | 5     | 1                 | 481                       | 0       | 4                      | 4                      |
| 19 | 9     | 1                 | 265                       | 0       | 5                      | 5                      |
| 20 | 4     | 4                 | 449                       | 0       | 5                      | 5                      |

Note: Patients 1–10: intervention group; Patients 11–20: control group.

Transmission mode: 1 = Homosexual behavior; 2 = Heterosexual behavior; 3 = Unknown; 4 = Other.

HIV-RNA: 0 = Undetectable; 1 = Detectable.

Years of HIV diagnosis: how many years has the participants been diagnosed with HIV infection?

Years of receiving ART: how many years has the participants been taking ART?
| ID | Anxiety | Depression | Negative emotion | Physical domain | Psychological domain | Independence domain | Social domain | Environment domain | Spirituality domain | Quality of life | VAS | Self-report adherence | MPR (binary) | MPR | CD4(μL) |
|----|---------|------------|------------------|-----------------|----------------------|---------------------|--------------|-------------------|-------------------|----------------|-----|----------------------|------------|-----|---------|
| 1  | 13      | 10         | 23               | 18              | 21                   | 19                  | 15           | 38                | 17                | 136            | 100 | 2                   | 1.03       | 2   | 376     |
| 2  | 11      | 22         | 23               | 16              | 19                   | 15                  | 17           | 30                | 14                | 119            | 100 | 2                   | 1.06       | 2   | 370     |
| 3  | 17      | 20         | 37               | 11              | 11                   | 8                   | 12           | 21                | 13                | 83             | 100 | 2                   | 0.99       | 2   | 266     |
| 4  | 15      | 11         | 26               | 17              | 21                   | 16                  | 18           | 36                | 20                | 137            | 90  | 2                   | 0.99       | 2   | 197     |
| 5  | 14      | 10         | 24               | 11              | 17                   | 11                  | 14           | 28                | 18                | 104            | 95  | 1                   | 1.22       | 2   | 253     |
| 6  | 13      | 15         | 28               | 14              | 14                   | 12                  | 13           | 23                | 16                | 97             | 98  | 1                   | 1.01       | 2   | 356     |
| 7  | 22      | 14         | 36               | 12              | 16                   | 17                  | 14           | 21                | 12                | 98             | 95  | 1                   | 1.17       | 2   | 768     |
| 8  | 15      | 15         | 30               | 14              | 14                   | 14                  | 12           | 28                | 14                | 102            | 85  | 1                   | 1.13       | 2   | 443     |
| 9  | 17      | 12         | 29               | 16              | 19                   | 16                  | 14           | 31                | 14                | 118            | 100 | 1                   | 1.01       | 2   | 409     |
| 10 | 13      | 11         | 24               | 14              | 15                   | 15                  | 14           | 26                | 15                | 105            | 98  | 1                   | 1.00       | 2   | 372     |
| 11 | 10      | 13         | 23               | 18              | 17                   | 16                  | 17           | 34                | 18                | 128            | 100 | 2                   | 0.99       | 2   | 433     |
| 12 | 14      | 11         | 25               | 14              | 16                   | 15                  | 15           | 34                | 17                | 119            | 100 | 2                   | 0.91       | 1   | 339     |
| 13 | 15      | 11         | 26               | 15              | 19                   | 17                  | 18           | 30                | 16                | 124            | 90  | 1                   | 1.38       | 2   | 549     |
| 14 | 15      | 10         | 25               | 17              | 18                   | 13                  | 12           | 31                | 17                | 116            | 100 | 2                   | 1.14       | 2   | 295     |
| 15 | 13      | 10         | 23               | 15              | 17                   | 14                  | 16           | 31                | 18                | 118            | 95  | 2                   | 0.92       | 1   | 436     |
| 16 | 23      | 16         | 39               | 12              | 12                   | 12                  | 11           | 26                | 19                | 105            | 98  | 1                   | 1.02       | 2   | 539     |
| 17 | 14      | 11         | 25               | 15              | 17                   | 14                  | 11           | 26                | 19                | 105            | 80  | 1                   | 1.00       | 2   | 481     |
| 18 | 13      | 16         | 29               | 13              | 15                   | 14                  | 12           | 29                | 17                | 105            | 80  | 1                   | 0.97       | 2   | 265     |
| 19 | 17      | 14         | 31               | 13              | 14                   | 11                  | 13           | 25                | 13                | 95             | 95  | 1                   | 0.92       | 1   | 449     |

Note: Patients 1–10: intervention group; Patients 11–20: control group.
Anxiety: range from 7 to 28.
Depression: range from 7 to 28.
Negative emotion = Anxiety + Depression, range from 14 to 56.
Physical domain: range from 4 to 20.
Psychological domain: range 5 to 25.
Independence domain: range from 4 to 20.
Social domain: range from 4 to 20.
Environment domain: range from 8 to 40.
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Psychological domain: range from 4 to 20.
Quality of life = Physical domain + Psychological domain + Independence domain + Social domain + Environment domain + Spirituality domain + 2 general items, range from 31 to 155.
VAS: visual analogue scale, range from 0 to 100.
Self-report adherence: 1 = modest, 2 = good.
MPR: medication possession ratio = time interval between two prescriptions/90.
MPR(binary): 1 = modest(MPR < 0.95), 2 = good(MPR ≥ 0.95).
Table 4
Outcomes after intervention (T1).

| ID | Anxiety | Depression | Negative emotion | Physical domain | Psychological domain | Independence domain | Social domain | Environment domain | Spirituality domain | Quality of life | VAS | Self-report adherence | MPR (binary) | MPR | CD4 (µL) |
|----|---------|------------|------------------|-----------------|---------------------|---------------------|-------------|-------------------|-------------------|----------------|-----|----------------------|-------------|-----|-----------|
| 1  | 11      | 8          | 19               | 18              | 21                  | 19                  | 15          | 35                | 17                | 133            | 100 | 2                    | 1.1         | 2   | 665       |
| 2  | 12      | 14         | 26               | 17              | 18                  | 16                  | 13          | 27                | 10                | 107            | 100 | 2                    | 0.94        | 1   | 340       |
| 3  | 17      | 13         | 30               | 12              | 13                  | 12                  | 12          | 22                | 13                | 89             | 100 | 2                    | 0.99        | 2   | 318       |
| 4  | 7       | 9          | 16               | 20              | 24                  | 14                  | 16          | 39                | 18                | 140            | 100 | 2                    | 0.99        | 2   | 488       |
| 5  | 7       | 8          | 15               | 18              | 21                  | 16                  | 16          | 32                | 20                | 131            | 100 | 2                    | 0.81        | 1   | 488       |
| 6  | 13      | 14         | 27               | 14              | 15                  | 14                  | 13          | 26                | 14                | 102            | 90  | 2                    | 1.03        | 2   | 386       |
| 7  | 14      | 12         | 26               | 17              | 22                  | 19                  | 14          | 29                | 15                | 123            | 99  | 2                    | 0.99        | 2   | 690       |
| 8  | 18      | 15         | 33               | 12              | 15                  | 14                  | 12          | 28                | 11                | 97             | 95  | 2                    | 1.27        | 2   | 333       |
| 9  | 14      | 14         | 28               | 16              | 19                  | 17                  | 14          | 33                | 16                | 123            | 90  | 2                    | 0.99        | 2   | 453       |
| 10 | 13      | 10         | 23               | 14              | 16                  | 14                  | 12          | 20                | 9                 | 91             | 100 | 2                    | 0.98        | 2   | 512       |
| 11 | 12      | 14         | 26               | 19              | 19                  | 17                  | 18          | 34                | 14                | 129            | 100 | 1                    | 0.99        | 2   | 462       |
| 12 | 13      | 10         | 23               | 16              | 19                  | 18                  | 14          | 32                | 14                | 122            | 100 | 2                    | 1.11        | 2   | 511       |
| 13 | 13      | 10         | 23               | 16              | 19                  | 18                  | 14          | 32                | 14                | 122            | 100 | 2                    | 0.96        | 2   | 444       |
| 14 | 15      | 12         | 26               | 18              | 19                  | 15                  | 17          | 31                | 17                | 122            | 100 | 2                    | 0.85        | 1   | 297       |
| 15 | 14      | 12         | 26               | 18              | 19                  | 15                  | 17          | 30                | 19                | 126            | 90  | 2                    | 0.85        | 1   | 436       |
| 16 | 20      | 15         | 35               | 12              | 14                  | 14                  | 11          | 20                | 16                | 91             | 90  | 2                    | 1.07        | 2   | 473       |
| 17 | 15      | 14         | 29               | 11              | 14                  | 14                  | 11          | 25                | 14                | 94             | 100 | 2                    | 1.14        | 2   | 750       |
| 18 | 15      | 12         | 27               | 11              | 19                  | 16                  | 14          | 28                | 16                | 111            | 60  | 1                    | 0.85        | 1   | 510       |
| 19 | 17      | 14         | 31               | 14              | 14                  | 14                  | 12          | 24                | 12                | 96             | 90  | 1                    | 1.01        | 2   | 351       |
| 20 | 14      | 10         | 24               | 19              | 17                  | 16                  | 15          | 30                | 19                | 124            | 97  | 1                    | 1.17        | 2   | 307       |
### Table 5
Outcomes at the 6-month follow-up (T2).

| ID | Anxiety | Depression | Physical domain | Psychological domain | Independence domain | Social domain | Environment domain | Spirituality domain | Quality of life | VAS | Self-report adherence | MPR (binary) | MPR | CD4 (μL) |
|----|---------|------------|-----------------|----------------------|---------------------|---------------|--------------------|-------------------|-----------------|-----|------------------------|-------------|-----|---------|
| 1  | 15      | 14         | 29              | 18                   | 19                  | 18            | 14                 | 34                | 17              | 128 | 100                    | 2           | 0.93| 1       | 532 |
| 2  | 15      | 15         | 30              | 14                   | 15                  | 12            | 11                 | 25                | 12              | 94  | 100                    | 2           | 1.29| 2       | 498 |
| 3  | 16      | 20         | 36              | 10                   | 11                  | 12            | 11                 | 22                | 14              | 85  | 100                    | 2           | 0.99| 2       | 479 |
| 4  | 7       | 7          | 14              | 19                   | 24                  | 18            | 17                 | 37                | 20              | 145 | 90                     | 2           | 0.99| 2       | 488 |
| 5  | 9       | 7          | 16              | 16                   | 20                  | 15            | 15                 | 29                | 19              | 120 | 90                     | 2           | 1    | 2       | 506 |
| 6  | 15      | 14         | 29              | 15                   | 16                  | 14            | 14                 | 26                | 16              | 107 | 90                     | 1           | 0.99| 2       | 396 |
| 7  | 20      | 10         | 30              | 17                   | 19                  | 20            | 13                 | 33                | 11              | 120 | 99                     | 1           | 1.43| 2       | 908 |
| 8  | 15      | 16         | 31              | 11                   | 15                  | 12            | 11                 | 25                | 15              | 95  | 100                    | 2           | 1.96| 2       | 430 |
| 9  | 7       | 9          | 16              | 17                   | 21                  | 19            | 16                 | 35                | 19              | 135 | 90                     | 2           | 1.02| 2       | 501 |
| 10 | 12      | 8          | 20              | 13                   | 15                  | 15            | 12                 | 20                | 17              | 98  | 90                     | 2           | 1.06| 2       | 512 |
| 11 | 11      | 12         | 23              | 17                   | 21                  | 16            | 16                 | 32                | 19              | 129 | 100                    | 2           | 1.07| 2       | 455 |
| 12 | 14      | 11         | 23              | 16                   | 21                  | 17            | 15                 | 31                | 17              | 125 | 100                    | 2           | 1.45| 2       | 585 |
| 13 | 14      | 10         | 24              | 18                   | 21                  | 16            | 15                 | 30                | 17              | 125 | 100                    | 2           | 1.38| 2       | 286 |
| 14 | 18      | 18         | 36              | 13                   | 12                  | 13            | 10                 | 19                | 15              | 87  | 90                     | 2           | 0.94| 1       | 393 |
| 15 | 17      | 14         | 25              | 12                   | 15                  | 11            | 11                 | 23                | 15              | 93  | 80                     | 2           | 1    | 3       | 481 |
| 16 | 18      | 14         | 28              | 14                   | 19                  | 16            | 13                 | 30                | 19              | 119 | 50                     | 1           | 0.93| 1       | 541 |
| 17 | 15      | 12         | 27              | 14                   | 15                  | 14            | 12                 | 27                | 14              | 102 | 95                     | 2           | 0.99| 2       | 293 |
| 18 | 20      | 14         | 11              | 25                   | 20                  | 17            | 15                 | 31                | 16              | 122 | 100                    | 1           | 0.92| 1       | 359 |
envelope that contained the information about the assigned group. The data collection staff was blinded.

We designed the “1 + 2 + 10” strategy in the intervention group, which means one nurse, two voluntary assistant intervention providers with psychological background, and ten participants in the CBT group. Table 7 summarizes the content of the intervention sessions.

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### Conflict of Interest

None to declare.

### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi: 10.1016/j.dib.2020.105459.
References

[1] S. Rezaei, S. Ahmadi, J. Rahmati, H. Hosseinifard, A. Dehnad, A. Aryankhesal, H. Shabaninejad, S. Ghasemyani, S. Alihosseini, N.L. Bragazzi, S. Raoofi, Z.M. Kiaee, A. Ghashghaee, Global prevalence of depression in HIV/AIDS: a systematic review and meta-analysis, BMJ Support Palliat. Care 9 (2019) 404–412, doi:10.1136/bmjspcare-2019-001952.

[2] M.V. Relf, S. Eisbach, K.N. Okine, T. Ward, Evidence-based clinical practice guidelines for managing depression in persons living with HIV, J. Assoc. Nurses AIDS Care 24 (2013) S15–S28, doi:10.1016/j.jana.2012.05.007.

[3] J.K. Kemppainen, S. MacKain, D. Reyes, Anxiety symptoms in HIV-infected individuals, J. Assoc. Nurses AIDS Care 24 (2013) S29–S39, doi:10.1016/j.jana.2012.08.011.

[4] S. Han, Y. Hu, L. Zhang, Z. Zhu, J. Luo, M.V. Relf, M. Mulawa, B. Wu, cognitive behavioral intervention for persons living with HIV in China: a randomized pilot trial, J. Affect Disord. (2020) (Submitted for publication).

[5] L. Li, G. Ji, C. Lin, L.J. Liang, C.W. Lan, Antiretroviral therapy initiation following policy changes: observations from China, Asia Pac. J. Public Health 28 (2016) 416–422, doi:10.1177/1010539516650721.