BRIEF REPORT

Validation of the Chinese version General Causality Orientation Scale-Clinical Population and causality orientations assessing in major depressions

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Abstract

Introduction: This study examined the psychometric properties of the Chinese version General Causality Orientation Scale-Clinical Population (GCOS-CP) and assessed the causality orientations in patients with major depression disorders (MDDs).

Method: The psychometric properties of the Chinese GCOS-CP were tested in an adults group (study 1). And then, the Chinese GCOS-CP was given to individuals with and without MDD (study 2).

Results: The Chinese GCOS-CP provided good reliability and validity. MDD showed lower autonomy but higher impersonal orientations relative to healthy controls.

Discussion: The GCOS-CP is suitable for the assessment of motivation in patients with mental disorders in Chinese setting.

KEYWORDS
amotivation, depression disorder, intrinsic motivation, self-determination theory

1 | INTRODUCTION

Motivation plays an important role in modulate treatment effects of psychotherapy and psychosocial rehabilitation and appears to be critical to functioning outcome in patients with severe mental disorders, including major depression disorders (MDDs) (Gard et al., 2014; Vancampfort et al., 2016). The General Causality Orientation Scale for Clinical Populations (GCOS-CP) is a valid and reliable self-report scale for multidimensional assessment of motivation in clinical setting, showing be a promising tool for assessing specific motivational deficit in people with severe mental illness (Cooper, Lavaysse, & Gard, 2015).

According to self-determination theory (SDT), motivation is a subjective experience, which is determined by both the environmental factors (eg, external reward) and people's causality orientations (people's understanding of the causation of behavior) (Ryan & Deci, 2000). GCOS-CP provides measures of three inherent causality orientations, namely, autonomy (a sense of act for one's internal interest), control (the activity was perceived as controlling by external reinforcement or contingency), and impersonal (a sense of disengagement) orientation (Deci & Ryan, 1985). Previous studies found that subclinical depression was associated with lower autonomy orientation but higher impersonal orientation (Young, Neighbors, DiBello, Traylor, & Tomkins, 2016).

Cooper et al demonstrated that original English GCOS-CP have excellent reliability and validity, and patients with schizophrenia have...
scored lower autonomy but higher impersonal orientation when compared with healthy individuals (Cooper et al., 2015). It is not clear about the adequacy of its application in patients with MDD or in other countries. Here, we translated the GCOS-CP into Chinese and assessed its psychometric properties in Chinese setting (study 1) and tested the Chinese GCOS-CP by assessing the causality orientations in a sample of adults with and without MDD (study 2).

2 | METHODS OF STUDY 1

2.1 | Measurements

First, we translated the GCOS-CP into Chinese. Then the Chinese GCOS-CP along with additional scales was given to a group of healthy Chinese adults, in a pencil-and-paper manner, to assess the reliability and validity of the scale. The additional scales were chosen based on their theoretically related with causality orientations (Deci & Ryan, 1985), including the Motivational Trait Questionnaire (MTQ) (Heggestad & Kanfer, 2000), the Basic Psychological Need Satisfaction and Need Frustration (BPNSF) scale (Chen et al., 2015) and the self-efficacy scale (Sherer et al., 1982) (see Table S1 for details of scales).

2.2 | Participants

The scales were given to 672 healthy adults who met the research criteria (see Table S1). As a result, questionnaires responded to by 620 participants (mean age = 23.56 ± 6.07, range: 16 to 55, female = 395, response rate 92.3%), 501 of them finished the GCOS-CP again 2 weeks later.

2.3 | Data analysis

Data were analyzed using SPSS 16.0 (SPSS Inc., Chicago, IL, USA). The item-total correlations, internal consistency, test-retest reliability, and convergent validity were calculated. The statistical threshold was set at $P < 0.05$.

3 | RESULTS OF STUDY 1

3.1 | Item analysis and reliability

Item-total correlation of each subscale were all above 0.3 (range 0.34-0.69) (Table S1). Internal consistency of the Chinese GCOS-CP was acceptable for each subscale (Cronbach’s $\alpha_{\text{Autonomy}} = 0.71$, $\alpha_{\text{Control}} = 0.62$, $\alpha_{\text{Impersonal}} = 0.63$, and $\alpha_{\text{Total}} = 0.66$) and were comparable with the English version ($\alpha_{\text{Autonomy}} = 0.74$, $\alpha_{\text{Control}} = 0.65$, and $\alpha_{\text{Impersonal}} = 0.67$) (Cooper et al., 2015). The test-retest reliability of the scale were excellent ($r_{\text{Autonomy}} = 0.71$, $r_{\text{Control}} = 0.80$, $r_{\text{Impersonal}} = 0.79$, and $r_{\text{Total}} = 0.73$, $n = 501$, $p < 0.001$).

3.2 | Validity analysis

All subscales of the GCOS-CP appear to be in line with similar measures in current sample. The autonomy orientation was correlated with MTQ-Personal Mastery ($r = 0.25$, $P < 0.001$) and self-efficiency ($r = 0.20$, $p < 0.001$) and all three subscales of BPNSF ($r = 0.21-0.38$, $p < 0.001$). Control orientation showed positive correlations with MTQ-Competitive Excellence ($r = 0.24$, $P < 0.001$) and negative correlations with subscales of BPNSF ($r = −0.09$ to $−0.30$, $p < 0.05$). Impersonal orientation was positively correlated with MTQ-Motivation Related Anxiety ($r = 0.29$, $P < 0.001$) and MTQ-Competitive Excellence ($r = 0.09$, $P = 0.037$) and negatively correlated with MTQ-Personal Mastery($r = −0.09$, $P = 0.037$) and subscales of BPNSF($r = −0.20$ to $−0.27$, $p < 0.001$).

4 | METHODS OF STUDY 2

4.1 | Participants

In an independent study, Chinese GCOS-CP were given to 82 clinically stable patients with MDD and 82 age- and sex-matched healthy controls (HCs) (please see Table S1 for specific inclusion/exclusion criteria), to assess the motivational deficit of MDD. All subjects were Han Chinese. This study was carried out in accordance with the Declaration of Helsinki and written informed consent was obtained.

4.2 | Measurements

All participants were administered the GCOS-CP, MTQ, BPNSF, the behavioral inhibition systems /behavioral activation systems (BIS/BAS) scale (Carver & White, 1994), and the Temporal Experience of Pleasure Scale (TEPS) (Gard, Gard, Kring, & John, 2006) (See Table S1 for details of scales). Individuals with MDD were also given the Hamilton Depression Scale (HAM-D) (Hamilton, 1960), Hamilton Anxiety Scale (HAMA) (Hamilton, 1959), and Personal and Social Performance Scale (PSP) (Morosini, Magliano, Brambilla, Ugolini, & Pioli, 2000), to assess the severity of symptoms and functioning of them.

4.3 | Data analyses

Independent sample t tests and a two (MDD and HCs) by three (autonomy, control, and impersonal orientations) repeated measures ANOVA were carried out to assess the within and between group differences of causality orientations. Pearson’s correlations were conducted to assess relationships between causality orientations and clinical measures. The statistical threshold was set at $P < 0.05$.

5 | RESULTS OF STUDY 2

Compared with HCs, patients with MDD exhibited deficit in MTQ-Personal Mastery BAS-Drive, all subscales of TEPS and BPNSF, and increased BIS score and MTQ-motivation-related anxiety (Table 1). Repeated measures ANOVA revealed that, while both group were
MTQ

Abbreviations: BAS, behavioral activation systems score of BAS/BIS; BAS

***Significant at the 0.001 level (two tailed).

TEPS found a correspondence between causality orientations in GCOS sound internal consistency of each subscale (Spector, 1992). We The item convergent validity of the Chinese GCOS logical needs is associated with improved autonomous motivation in corresponding to prediction of SDT, that satisfaction of basic psycho-

orientation (Young et al., 2016). SDT suggested that the impersonal orientation was related to more severe depression symptoms. These results were in line with the findings that higher autonomous motivation is associated better outcome in general population (Young et al., 2016), and partly in line with the findings in patients. These result were in line with previous study in gen-

In study 2, while both patients with MDD and HCs manifested similar structure of causality orientations, ie, autonomy > impersonal > control, the patients reported significantly lower autonomy orientation than HCs. And autonomy orientation was associated with less severe depression symptoms, better functioning, and abstract hedonic experiences in patients. These result were in line with previous study in general population (Young et al., 2016), and partly in line with the findings that higher autonomous motivation is associated better outcome in depression (Vancampfort, Moens, et al., 2016; Zuroff et al., 2017), sug-

6 DISCUSSION

As showing in study 1, the Chinese GCOS-CP appears to be psychologically similar to the original scale. The internal consistency (0.62-0.71) and the test-retest reliability (0.71-0.80) of subscales were good. The item-total correlations ranged from 0.34 to 0.69, suggesting a sound internal consistency of each subscale (Spector, 1992). We found a correspondence between causality orientations in GCOS-CP and similar motivation traits in MTQ. Moreover, the positive correlations between autonomy orientation and subscales of BPNSF and the inverse pattern observed in control and impersonal orientations, corresponding to prediction of SDT, that satisfaction of basic psychological needs is associated with improved autonomous motivation in individuals (Chen et al., 2015). These results demonstrated a strong convergent validity of the Chinese GCOS-CP.

In study 2, while both patients with MDD and HCs manifested similar structure of causality orientations, ie, autonomy > impersonal > control, the patients reported significantly lower autonomy orientation than HCs. And autonomy orientation was associated with less severe depression symptoms, better functioning, and abstract hedonic experiences in patients. These result were in line with previous study in general population (Young et al., 2016), and partly in line with the findings that higher autonomous motivation is associated better outcome in depression (Vancampfort, Moens, et al., 2016; Zuroff et al., 2017), suggesting autonomy support is crucial in treatment of MDD, among other mental disorders (Vancampfort et al., 2016; Zuroff et al., 2007).

People with MDD reported higher score of impersonal orientation than HCs, and the impersonal orientation was related to more severe depression symptoms. These results were in line with the findings that impersonal orientation was correlated with subclinical depression in general population (Pujol, Umemuro, Murata, Yano, & Ara, 2011; Young et al., 2016). SDT suggested that the impersonal orientation tends to develop in an environment where there are few opportunities for autonomy or rewarding stimuli (Deci & Ryan, 2000), in line with the learned helplessness model of depression (Maier & Seligman, 2016). Our results extend this view, by suggesting that people could develop a sense of disengagement in an environment with enough external reward but lacked opportunity to develop agency or self-expression.

Patients with MDD showing intact control-orientated motivation but impaired hedonic capacity related to HCs. This was

| TABLE 1 Demographics and self-report measures for patients with MDD and healthy controls |
|---------------------------------|---------------------------------|----|----|----|
| **Sex(m/f)** | **MDD (n = 82)** | **HC (n = 82)** | **t** | **p** | **d** |
| **Age** | 30.02 ± 11.29 | 30.46 ± 11.39 | −0.25 | 0.805 | 0.04 |
| **Education** | 11.66 ± 3.21 | 12.26 ± 3.19 | −1.20 | 0.234 | 0.19 |
| **Autonomy** | 39.15 ± 8.73 | 44.72 ± 5.66 | −4.85 | 0.000*** | 0.76 |
| **Control** | 29.79 ± 7.46 | 28.34 ± 6.14 | 1.36 | 0.176 | 0.21 |
| **Impersonal** | 35.67 ± 6.49 | 31.67 ± 6.08 | 4.07 | 0.000*** | 0.64 |
| **BAS-D** | 9.90 ± 2.76 | 11.18 ± 2.13 | −3.33 | 0.001*** | 0.52 |
| **BAS-FS** | 11.07 ± 2.31 | 11.04 ± 1.73 | 0.12 | 0.909 | 0.02 |
| **BAS-RR** | 15.84 ± 2.68 | 16.27 ± 2.22 | −1.11 | 0.269 | 0.17 |
| **BIS** | 22.68 ± 2.61 | 15.51 ± 3.62 | 14.55 | 0.000*** | 2.27 |
| **TEPS-CC** | 14.11 ± 3.79 | 16.16 ± 3.19 | −3.75 | 0.000*** | 0.59 |
| **TEPS-CA** | 15.11 ± 4.01 | 17.70 ± 4.48 | −3.89 | 0.000*** | 0.61 |
| **TEPS-AC** | 23.55 ± 5.69 | 27.09 ± 4.28 | −4.50 | 0.000*** | 0.70 |
| **TEPS-AA** | 16.01 ± 3.89 | 18.27 ± 2.83 | −4.25 | 0.000*** | 0.66 |
| **MTQ-PM** | 59.05 ± 11.85 | 66.01 ± 8.09 | −4.40 | 0.000*** | 0.68 |
| **MTQ-CE** | 45.21 ± 8.95 | 43.18 ± 7.03 | 1.61 | 0.109 | 0.25 |
| **MTQ-MRA** | 77.12 ± 13.70 | 60.99 ± 11.06 | 8.30 | 0.000*** | 1.30 |
| **BPNSF-autonomy** | 23.6 ± 5.13 | 29.74 ± 4.05 | −8.51 | 0.000*** | 1.33 |
| **BPNSF-relatedness** | 26.52 ± 5.45 | 31.89 ± 3.94 | −7.23 | 0.000*** | 1.13 |
| **BPNSF-competence** | 22.8 ± 5.14 | 29.84 ± 5.19 | −8.72 | 0.000*** | 1.36 |

Abbreviations: BAS, behavioral activation systems score of BAS/BIS; BAS-D, BAS-Drive subscale; BAS-FS, BAS-Fun Seeking subscale; BAS-RR, BAS-Reward Responsiveness subscale; BIS, behavioral inhibition system score of BAS/BIS; HC, healthy control; MDD, major depression disorder; MTQ-CE, MTQ-Competitive Excellence subscale; MTQ-MRA, MTQ-Motivation Related Anxiety subscale; MTQ-PM, MTQ-Personal Mastery subscale; TEPS-AA, TEPS-Abstract Anticipatory subscale; TEPS-AC, TEPS-Abstract Consummatory subscale; TEPS-CA, TEPS-Concrete Anticipatory subscale; TEPS-CC, TEPS-Concrete Consummatory subscale.

***Significant at the 0.001 level (two tailed).
in line with the recent findings that anhedonia and motivation deficit in depression have different neural mechanism, ie, the motivation deficit is mainly associated with compromised dopaminergic system, while the anhedonia involve in deficit in opioid systems (Treadway & Zald, 2011). This is consistent with a recent review, which suggests that intrinsically motivated exploratory and mastery behaviors are suberved by dopaminergic systems (Di Domenico & Ryan, 2017).

This study has several limitations. The cross sectional design lim-
ited our ability to see any fluctuations of motivation, or whether ex-
ternal influences (such as treatment or stressors) influence causality
orientations in patients. Although none of the participants experi-
enced any obvious difficulties in responding to the scale, when
applied, the GCOS-CP to patients with low education level or with
severe symptoms could still be a bit of challenge.

7  |  CONCLUSION

In summary, this study demonstrated robust psychometric properties
of the Chinese GCOS-CP and provided evidence for problems of
autonomy and impersonal motivation in MDD, suggesting that the
Chinese GCOS-CP is suitable for clinical and research purposes for
the assessment of motivation in patients with severe mental disorders
in the Chinese setting.

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AUTHOR CONTRIBUTIONS

JC and KZL designed the studies, collected and analyzed data, and
wrote the initial draft of the report. NL, XML, JZ, and XJZ collected
data. BX and CHH contributed to the data analyzing and the editing
of the report. WL designed the studies, oversaw all aspects of the
studies. All authors contributed to the editing of the report.

ETHICAL APPROVAL

The permission to conduct the study was obtained from the Institu-
tional Review Board of Southwest Medical University and written
consent form was obtained from all participants and caregivers.

REFERENCES

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activa-
Chen, B., Vansteenkiste, M., Beyers, W., Boone, L. Deci, E. L., Van der
Kaap-Deeder, J., & Mouratidis, A. (2015). Basic psychological need sat-
entations in schizophrenia: Scale development and validation. Psychiatry Research, 225(1-2), 70–78. https://doi.org/10.1016/j.
psychres.2014.10.013
S15327965PLI1104_01
Di Domenico, S. I., & Ryan, R. M. (2017). The emerging neuroscience of
schres.2014.04.027
j.2044-8341.1959.tb00467.x
Neurosurgery, and Psychiatry, 23(1), 56–62. https://doi.org/10.1136/
jnp.23.1.56
Heggestad, E. D., & Kanfer, R. (2000). Individual differences in trait motiva-
doi.org/10.1016/S0883-0355(00)00049-5
Maier, S. F., & Seligman, M. E. (2016). Learned helplessness at fifty: Insights
or/10.1037/rev0000033
Development, reliability and acceptability of a new version of the
DSM-IV Social and Occupational Functioning Assessment Scale
(SOFAS) to assess routine social functioning. Acta Psychiatrica
Pujol, R. S., Umemuro, H., Murata, K., Yano, K., & ARA, K. (2011). Mental
health assessment based on personality of individual and associated
workers in workplace. Paper presented at the International Confer-
ence on Business, Engineering and Industrial Applications (ICBEIA2011),
11-14.

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validation. Psychological Reports, 51(2), 663–671. https://doi.org/10.2466/pr0.1982.51.2.663


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