

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

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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) (Heggstad & 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 $r_{\text{Total}} = 0.73$, $n = 501$, $ps < 0.001$).

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-efficacy ($r = 0.20$, $p < 0.001$) and all three subscales of BPNSF ($r = 0.21$ - 0.38 , $ps < 0.001$). 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 , $ps < 0.05$). 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 , $ps < 0.001$).

4 | METHOD FOR 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 (HAMD) (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

TABLE 1 Demographics and self-report measures for patients with MDD and healthy controls

	MDD (n = 82)	HC (n = 82)	t	p	d
Sex(m/f)	23/59	23/59	-	-	-
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).

significantly more autonomy oriented ($ps < 0.006$), patients with MDD reported lower autonomy ($t_{81} = -4.85$, $P < 0.001$, Cohen's $d = 0.758$) but higher impersonal orientation ($t_{81} = 4.07$, $P < 0.001$, $d = 0.636$) than HCs. (Figure S1).

HAMD ($r_{82} = -0.27$, $P = 0.025$), PSP ($r_{82} = 0.27$, $P = 0.015$), the Abstract Consummatory ($r_{82} = 0.41$, $P < 0.001$), and Abstract Anticipatory ($r_{82} = 0.27$, $P = 0.013$) hedonic experience of TEPS were related to autonomy orientation. And HAMD was correlated to impersonal orientation ($r_{82} = 0.22$, $P = 0.045$) (Figure S2).

6 | DISCUSSION

As showing in study 1, the Chinese GCOS-CP appears to be psychometrically 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

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 subserved by dopaminergic systems (Di Domenico & Ryan, 2017).

This study has several limitations. The cross sectional design limited our ability to see any fluctuations of motivation, or whether external influences (such as treatment or stressors) influence causality orientations in patients. Although none of the participants experienced 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 Institutional Review Board of Southwest Medical University and written consent form was obtained from all participants and caregivers.

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REFERENCES

- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology*, *67*(2), 319–333. <https://doi.org/10.1037/0022-3514.67.2.319>
- Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., & Mouratidis, A. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, *39*(2), 216–236. <https://doi.org/10.1007/s11031-014-9450-1>
- Cooper, S., Lavaysse, L. M., & Gard, D. E. (2015). Assessing motivation orientations in schizophrenia: Scale development and validation. *Psychiatry Research*, *225*(1-2), 70–78. <https://doi.org/10.1016/j.psychres.2014.10.013>
- Deci, E. L., & Ryan, R. M. (1985). The General Causality Orientations Scale: Self-determination in personality. *Journal of Research in Personality*, *19*(2), 109–134. [https://doi.org/10.1016/0092-6566\(85\)90023-6](https://doi.org/10.1016/0092-6566(85)90023-6)
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Di Domenico, S. I., & Ryan, R. M. (2017). The emerging neuroscience of intrinsic motivation: a new frontier in self-determination research. *Frontiers in Human Neuroscience*, *11*, 1–14.
- Gard, D. E., Gard, M. G., Kring, A. M., & John, O. P. (2006). Anticipatory and consummatory components of the experience of pleasure: A scale development study. *Journal of Research in Personality*, *40*(6), 1086–1102. <https://doi.org/10.1016/j.jrp.2005.11.001>
- Gard, D. E., Sanchez, A. H., Starr, J., Cooper, S., Fisher, M., Rowlands, A., & Vinogradov, S. (2014). Using self-determination theory to understand motivation deficits in schizophrenia: The 'why' of motivated behavior. *Schizophrenia Research*, *156*(2-3), 217–222. <https://doi.org/10.1016/j.schres.2014.04.027>
- Hamilton, M. (1959). The assessment of anxiety states by rating. *British Journal of Medical Psychology*, *32*(1), 50–55. <https://doi.org/10.1111/j.2044-8341.1959.tb00467.x>
- Hamilton, M. (1960). A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry*, *23*(1), 56–62. <https://doi.org/10.1136/jnnp.23.1.56>
- Heggstad, E. D., & Kanfer, R. (2000). Individual differences in trait motivation: Development of the Motivational Trait Questionnaire. *International Journal of Educational Research*, *33*(7), 751–776. [https://doi.org/10.1016/S0883-0355\(00\)00049-5](https://doi.org/10.1016/S0883-0355(00)00049-5)
- Maier, S. F., & Seligman, M. E. (2016). Learned helplessness at fifty: Insights from neuroscience. *Psychological Review*, *123*(4), 349–367. <https://doi.org/10.1037/rev0000033>
- Morosini, P. L., Magliano, L., Brambilla, L., Ugolini, S., & Pioli, R. (2000). 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 Scandinavica*, *101*(4), 323–329.
- 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 Conference on Business, Engineering and Industrial Applications (ICBEIA2011), 11–14.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 764–780.
- Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and

- validation. *Psychological Reports*, 51(2), 663–671. <https://doi.org/10.2466/pr0.1982.51.2.663>
- Spector, P. E. (1992). *Summated rating scale construction: An introduction*. London, UK: Sage Publications. <https://doi.org/10.4135/9781412986038>
- Treadway, M. T., & Zald, D. H. (2011). Reconsidering anhedonia in depression: Lessons from translational neuroscience. *Neuroscience & Biobehavioral Reviews*, 35(3), 537–555.
- Vancampfort, D., De Hert, M., Broderick, J., Lederman, O., Firth, J., Rosenbaum, S., & Probst, M. (2016). Is autonomous motivation the key to maintaining an active lifestyle in first-episode psychosis? *Early Intervention in Psychiatry*, 12, 821–827. <https://doi.org/10.1111/eip.12373>
- Vancampfort, D., Moens, H., Madou, T., De Backer, T., Vallons, V., Bruyninx, P., ... Probst, M. (2016). Autonomous motivation is associated with the maintenance stage of behaviour change in people with affective disorders. *Psychiatry Research*, 240, 267–271. <https://doi.org/10.1016/j.psychres.2016.04.005>
- Young, C. M., Neighbors, C., DiBello, A. M., Traylor, Z. K., & Tomkins, M. (2016). Shame and guilt-proneness as mediators of associations between general causality orientations and depressive symptoms. *Journal of Social and Clinical Psychology*, 35(5), 357–370. <https://doi.org/10.1521/jscp.2016.35.5.357>
- Zuroff, D. C., Koestner, R., Moskowitz, D., McBride, C., Marshall, M., & Bagby, M. R. (2007). Autonomous motivation for therapy: A new common factor in brief treatments for depression. *Psychotherapy Research*, 17(2), 137–147. <https://doi.org/10.1080/10503300600919380>
- Zuroff, D. C., McBride, C., Ravitz, P., Koestner, R., Moskowitz, D., & Bagby, R. M. (2017). Autonomous and controlled motivation for interpersonal therapy for depression: Between-therapists and within-therapist effects. *Journal of Counseling Psychology*, 64(5), 525–537. <https://doi.org/10.1037/cou0000239>

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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