

Supernatural beliefs intervention to enhance type 2 diabetes self-management in China: a pilot randomized controlled trial Stephen W. Pan* Stephen Pan Zihan Dong Qikai Wang Shiqiang Wu Yuxin Liang Wanqi Wang Mark A. Strand Amy Wachholtz Guofeng Zhou Dan Mao Yimei Tang

Background: China has over 100 million people living with type 2 diabetes mellitus (T2DM), many of whom experience adverse health outcomes due to suboptimal diabetes self-management. Interventions framed around pre-existing personal beliefs in the supernatural may improve T2DM self-management, but such interventions are lacking in China. This pilot randomized controlled trial (RCT) examined the feasibility of a full-size RCT to evaluate the efficacy of a supernatural beliefs-based intervention on T2DM self-management in China. Methods: In 2019, 62 T2DM patients were enrolled at two hospitals in Suzhou, China. Participants were randomly assigned to view a 30-second control or intervention video at baseline. The control video showed general diabetes self-management information. The intervention video showed identical information, but also indicated that some diabetics with supernatural beliefs have lower glycemic levels because their beliefs enhanced their confidence in diabetes self-management. Development of the intervention was guided by literature on spiritual framing health interventions. Baseline and follow-up measures after 2-12 weeks were assessed by interviewer-administered surveys in-person and by telephone, respectively. Diabetes self-management was assessed with the Diabetes Self-Management Questionnaire. Group differences were assessed with T-tests and Chi-square tests. Results: Comparable baseline characteristics between the control and intervention groups indicated that randomization was successful (Table). However, follow-up retention was low, especially for the intervention group (3% vs 31%, $p < 0.01$). Conclusion: A full-size efficacy RCT using the current study design is unlikely to succeed. T2DM patients shown the supernatural beliefs-based intervention had significantly higher loss to follow-up that was insurmountable. Older T2DM patients in Suzhou, China may not be receptive to supernatural beliefs-based interventions delivered in clinical settings.

Table. Baseline participant characteristics (n=62)

	Control (n=32) (%)	Intervention (n=30) (%)	p- value
Sociodemographic Characteristics			
Age, mean (SD)	58.9 (11.0)	57.1 (11.5)	0.54
Sex			
Male (vs female)	53.1	43.3	0.44
Education			
None/elementary school	53.1	40.0	0.45
Middle school	28.1	43.3	
High school/vocational high school/vocational college	18.8	16.7	
Religious Affiliation			
None	78.1	70.0	0.52
Buddhist	15.6	26.7	
Muslim/Protestant/Catholic/other	6.3	3.3	
Belief in supernatural determinants of health score, mean (SD)	1.28 (0.63)	1.67 (1.06)	0.09
Diabetes			
Years since diagnosis, mean (SD)	7.67 (6.7)	7.8 (7.2)	0.93
Glucose control score, mean (SD)	11.0 (2.6)	11.0 (2.5)	0.99
Dietary control score, mean (SD)	8.6 (2.6)	8.9 (2.3)	0.66
Physical activity score, mean (SD)	6.8 (2.5)	6.1 (2.8)	0.27
Health-care use score, mean (SD)	5.7 (1.3)	5.1 (1.7)	0.09