A Confirmatory Factor Analysis of the Mandarin-Chinese Version of the Barrett-Lennard Relationship Inventory[1]

Abstract

The aim of this study was to translate and provide an initial validation for a full Mandarin-Chinese version of the Barrett-Lennard Relationship Inventory (B-L RI:MC) to include forms Other toward Self-64 (OS-64) and Other toward Self-40 (OS-40) for use in the Mandarin-Chinese research and clinical contexts. B-L RI:MC OS-64 was translated by a bilingual panel and subsequently administered to 658 Mandarin-speaking Taiwanese respondents online using an age-stratified random sampling strategy. Through both the factor analytic strategy of principle component analysis (PCA) and confirmatory factor analysis (CFA), the reliability and construct validity were investigated. The final results support the original four subscale dimensionality of the inventory. B-L RI:MC OS-64 showed Cronbach's alpha was .96 and KMO= .97. PCA using Varimax rotation yielded a four-factor model supporting the sub-scales: level of regard, empathic understanding, unconditionality of regard and congruence, which explained 49.911% squared loading of the total variance. B-L RI:MC OS-64 and OS-40 were supported by the structures in CFA, which displayed NFI= .95 and .95, CFI= .97 and .96, IFI= .97 and .96, and RMSEA = .092 and .091, indicating a promising construct validity. In conclusion B-L RI:MC OS-64 and OS-40 versions can be considered appropriate for measuring the Rogerian therapeutic relationship conditions within a Mandarin speaking community.

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Introduction

The Barrett-Lennard Relationship Inventory (B-L RI) is the most well-known questionnaire developed specifically for evaluating the interpersonal therapeutic relationship as defined by Rogers (1957). The scale was originally developed by Barrett-Lennard when working in the University of Wisconsin where Carl Rogers and his colleagues carried out studies into psychotherapy with people with a diagnosis of schizophrenia (Thorne & Sanders, 2013, p. 112). As a pioneer of contemporary psychological research, Rogers hypothesized there to be 4 conditions in therapeutic relationships: *empathic understanding*, *positive regard*, *congruence* and *unconditionality of regard* (Barrett-Lennard, 1959a, 1959b, 1962; Rogers, 1957). Acknowledging the positive impact of Carl Rogers' theory, the Barrett-Lennard Relationship Inventory has been gradually adapted into different forms, such as the full 64-item form and the basic 40-item form (Barrett-Lennard, 1978, 2015, p.26-34, p.93-93; Gurman 1977). It has been applied worldwide in evaluating different kinds of relationship, such as therapist-client relationship, immediate family, close peer friend relationship and teacher-student relationship (Barrett-Lennard, 2015, p27-31; Berzon, 1964; Hollenback, 1961, 1965; Snelbecker, 1967; Walker & Little, 1969).

The basic 40-item form, which was reduced from the full 64 item version, has been adapted to measure relationships from different perspectives which come from 'other toward

self' (OS), 'myself toward other' (MO-40), 'observer' (Obs-40), 'teachers toward students' (MO-40:TS), 'students toward teachers' (OS-40: T-S), 'other toward young children' (OS-40CH), 'other in close relationship toward self' (OS-LR-40) and relationships between 'groups/organizations' (GS-40) (Barrett-Lennard, 2015, p116-148). Although the basic 64-item form has been used in more 100 published studies, Barrett-Lennard stated that the 40-item versions practically facilitate the conceptual common origins from the longer forms (Barrett-Lennard, 2015, p61).

There is a significant amount of evidence that points towards the positive relation between the therapeutic relationship conditions measured by the Barrett-Lennard Relationship Inventory with successful psychotherapy outcomes. This has been shown across a wide range of patients experiencing various forms of psychological distress, including adult out-patient services for depression in clinical trials (Ablon & Jones, 1999; Blatt & Zuroff, 2005; Zuroff & Blatt, 2006), treatment studies for depression (Watson & Geller, 2005; Watson, Gordon, Stermac, Kalogerakos, & Steckley, 2003), youth and family therapy (Karver, Handelsman, Fields, & Bickman, 2006), severe psychosis (Hewitt & Coffey, 2005; Rogers, Gendlin, Kiesler, & Truax, 1967), and within general counselling (Archer, Forbes, Metcalfe, & Winter, 2000). For this reason, there is ample justification to consider the effects of the therapeutic relationship conditions as set out by Rogers in Asian culture. However, before this can be done effectively the scale for measuring the therapeutic relationship conditions needs to be translated and validated.

The Barrett-Lennard Relationship Inventory has been either fully or partially translated into 20 languages: American Sign, Arabic, Mandarin Chinese (partially), Czech Republic, Dutch, French, German, Greek, Hebrew, Iranian, Italian, Japanese, Korean, Malaysian, Polish,

Portuguese, Slovak, Spanish, Swedish, and Turkish since 1964 (Barrett-Lennard, 2015). The previous Mandarin-Chinese version was only partially translated encompassing just 14 items of the empathic understanding sub-scale of the full Barrett-Lennard Relationship Inventory 64-item version. These 14 items were initially translated in 2006 by Chu and Tseng (2013) to develop an inventory for evaluating the quality of relationships in medical care aiming to help improve relationships within public health work in Taiwan. Their study showed that empathy as measured by the Barrett-Lennard Relationship Inventory was a relevant factor in considering the health literacy and understanding information; with higher levels of physician empathy being related to higher health literacy and understanding information in patients. This study provides an important link between the therapeutic relationship condition empathic understanding with improved health outcomes in an Asian context.

There is a growing need for effective, culturally sensitive, psychotherapies as the reported level of mental health problems is increasing worldwide. It has been reported that 1 in 4 people in Taiwan, a country with a 23 million population (Table 1) located in the Asia Pacific region, are suffering from common mental health problems, such as depression and anxiety disorder (Department of Census, Directorate General of Budget Accounting & Statistics [DGBAS], 2016a, DGBAS, 2016b, DGBAS, 2016c, DGBAS, 2016d; Department of Household Registration Affairs, 2016; Fu et al., 2013; Ministry of Health and Welfare Taiwan, 2015). The World Health Organization (WHO) reported that the number of registered psychiatrists in South East Asia and Africa has increased 25% more than the number in 2011 according to the report of the Mental Health Atlas in 2014 (World Health Organisation [WHO], 2014). The population of other mental health professionals, such as psychiatric nurses, has grown by 37% (WHO, 2014, p.53). In the Mandarin speaking world there is currently a surge in the development of

psychological services to support people's mental wellbeing (Ministry of Health and Welfare Taiwan, 2015). These reports have led to a growing understanding that the proportion of the population experiencing psychological distress is increasing in developing countries. To meet the needs of the population those staff providing services need to be trained and equipped with evidence based approaches. Therefore, translating and validating the most widely used therapeutic relationship inventories can contribute to the development of the quality of mental health care available (Lee, Li, Arai, & Puntillo, 2009; Murphy, Cramer, & Joseph, 2012; National Institute for Mental Health and Royal College of Psychiatrists, 2005; Priebe, Richardson, Cooney, Adedeji, & McCabe, 2011; Rogers, 2004; Slovák et al., 2015). Access to a translated version of the Barrett-Lennard Relationship Inventory would also provide a scope for researchers and clinicians to make meaningful comparisons across cultural divides (Murphy et al., 2017; Pescosolido, Medina, Martin, & Long, 2013; Rogers & Murphy, 2017; WHO, 1988).

The Chinese speaking population is approximately 14.4% of the world's population. The language Mandarin-Chinese, otherwise known as Standard Chinese, shares the similar characteristics with other Chinese language groups, such as Wu, Min, Yue, Jin, Xiang, Hakka, Gan, Huizhou, and Pinghua (Lewis, Simons, & Fennig, 2015). It is considered as the official language of China and Taiwan, as well as one of the four official dialects in Singapore. Mandarin is also widely used in Malaysia and Indonesia (Kurpaska, 2010). The language Mandarin-Chinese often requires professional translation services within industry. However, translating one language into another is playing the role of an ambassador for languages which are carrying specific cultural images of nations, ethnic groups and individuals to introduce the cultural uniqueness to foreigners. Regardless of the variety of Chinese sub-languages, there are two

written systems: Simplified and Traditional Chinese characters used in translating services, yet they represent the mutual meanings in Chinese contexts (Li, Ran, & Xia, 2010; Liu, 2014).

Some studies have argued that certain diversities in character or content of language and culture might cause a difficulty to address the cultural image in translating the work, such as, the religious belief and philosophy of life which could be distinguishable in Chinese society and English culture (Liu, 2014). In contrast, some researchers have found that brain areas, such as the ventral occipitotemporal regions and Cerebellum, are involved in reading in whichever language (Herbster, Mintun, Nebes, & Becker, 1997; Petersen, Fox, Posner, Mintun, & Raichle, 1988; Petersen, Fox, Snyder, & Raichle, 1990; Pugh et al., 1997; Rumsey et al., 1997). The comparison of brain images whilst reading Chinese orthographic characters and English alphabetic words through fMRI (the functional magnetic resonance imaging) experiments demonstrated that the left inferior prefrontal cortex was active and involved in processing both Chinese characters and English word recognition (Tan et al, 2001). Regardless of simplified and translational Chinese writing systems, a study in cognitive science displayed a high similarity between two written characters in Chinese reading and recognition (Liu, Chuk, Yeh, & Hsiao, 2016). Although readers of simplified Chinese might encounter difficulties when writing traditional characters, the data indicated their competence in learning to read and write using simplified characters was transferred to processing traditional characters conceptually and comprehensively (Liu, et al., 2016). Thus, translating conceptually and comprehensively a complete Mandarin-Chinese version of Barrett-Lennard Relationship Inventory (B-L RI:MC) which crosses over two languages and two written systems is possible.

As the person-centred approach becomes more well established in the Asia-Pacific region and Eastern cultures it will be useful to have access to translated measures that can assess the

theoretical constructs as originally intended (Motoyama & Murphy, 2017). This will enable and inform the cultural relevance for their clinical and research application. It will also be advantageous to have the Barrett-Lennard Relationship Inventory translated to Mandarin as person-centred approaches to mental health care and psychotherapy need to be evaluated using theoretically consistent measures. In addition, the American Psychological Association and the Chinese Psychological Society have been working towards greater integration of these two systems (American Psychological Association [APA], 2016) suggesting the likelihood of future cross over in professional activity between USA and China will continue to grow. Having access to psychological measures of the therapeutic relationship available in both English and Mandarin will support the development of intercultural collaborations in research and practice.

Hence, the purpose of this study was to translate the complete 64 items and construct a Mandarin-Chinese version of Barrett-Lennard Relationship Inventory from the original English Barrett-Lennard Relationship Inventory. The aim is to use the form Other toward Self-64 (OS-64), and then validate both Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 and OS-40 to provide a contextually comprehensive measurement to evaluate relationships in the Mandarin-Chinese speaking community. Confirmatory factor analysis (CFA) is one of the methods used to investigate construct validity of psychological measures (Fournier-Vicente, Larigauderie, & Gaonac'h, 2008). Instead of constructing an inductive theory like exploratory factor analysis (EFA), Confirmatory factor analysis is an instrument which extracts latent factors from the overall observed variables and specifies a model based upon hypotheses (McArdle, 1996). It is a procedure of theory deduction through the test of construct validity of hypothesis-based questionnaires (Atkinson et al., 2011). Therefore, we examined the collected data set to evaluate the construct validity of the form OS-64 and OS-40 of the Barrett-Lennard

Relationship Inventory Mandarin-Chinese version using confirmatory factor analysis. We hypothesized that the four-factor model (i.e., level of regard, empathic understanding, congruence and unconditionality of regard) would be replicated in the analysis of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 (B-L RI:MC OS-64) and OS-40 (B-L RI:MC OS-40).

Method

This study was carried out in three stages. The first stage involved the linguistic translation of the English language scale to the Barrett-Lennard Relationship Inventory Mandarin-Chinese version. The second stage consisted of testing the measurement properties of the 64 items in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version, which included the tests for reliability and construct validity of the items using principle component analysis (PCA). Subsequently, conducting an investigation on the fitness of models of Form OS-64 and OS-40 with the use of confirmatory factor analysis in the final stage. The research received ethical approval from the University Research Ethics Committee.

Cross-Cultural Translation

Cross-cultural translation of the original Barrett-Lennard Relationship Inventory English version to the Mandarin-Chinese version was completed in three stages. Three bilingual translators, who each spoke Mandarin-Chinese as their first language and specialized in the person-centred approach to counselling and psychotherapy, translated the items of the Barrett-Lennard Relationship Inventory into Mandarin-Chinese. In order to retain the original meaning of the scale items accurately, and to generate an optimal comprehensive translation, it was

considered essential for each translator to have inside knowledge of the theoretical constructs within the scale to also achieve conceptual and semantic equivalence (Flaherty et al., 1988; Wang, Lee & Fetzer, 2006; Lee et al., *2009*; Barrett-Lennard, 2015, p.158). Two of the translators were person-centred counsellors and the third translator was completing doctoral research in to the person-centred approach (lead author of this article).

To begin, the forward translation approach was performed. Each translator was assigned a set of items across each of the different dimensions of the Barrett-Lennard Relationship Inventory and translated them individually. The translators translated the inventory in accordance with the knowledge and understanding of Carl Rogers's person-centred theory and the principle of maintaining the content and semantic equivalences in the translation. Secondly, the expert review panel was established. Each of the translators then reviewed the translations made by each of the other translators in a 'round-robin' to identify and modify any of the inaccurate expressions of concepts in the translation of each dimension. Lastly, a process of back translation was carried out by a language specialist. The back translator was a linguist, who did not have any prior knowledge or understanding of person-centred counselling and psychotherapy. In the back-translation process, the suitability of the amended Mandarin-Chinese version in the second stage was examined through reverse translation and comparison with the original English version, Barrett-Lennard Relationship Inventory.

The final stage of the translation process involved the pilot test of the penultimate Barrett-Lennard Relationship Inventory Mandarin-Chinese version. The scale was completed by three Taiwanese people who were not in the field of person-centred counselling and psychotherapy. Each respondent completed the Barrett-Lennard Relationship Inventory Mandarin-Chinese version and subsequently they were interviewed about any obstacles in

completing the questionnaire and asked about their understanding of each item. All the suggestions and findings were considered to modify the final Barrett-Lennard Relationship Inventory Mandarin-Chinese version before going forward to further validation.

Participants

The target sample was to recruit approximately 640 Taiwanese potential respondents, who were 18 years old or over and spoke Mandarin-Chinese as their first language. According to Tabachnick (2007) when estimating the sample size of prospective respondents to a distributed questionnaire, theoretically, there should be at least 10 individuals multiplied by the total number of scale items in the questionnaire. It is important to ensure accuracy in the results of the validation in any study and proper determination of the number of respondents can help reduce research error and thus strengthen the impact of results (Martínez-Mesa & Bastos, 2014). The stratified random sampling method was performed to ensure that at least one observation was picked from each of the strata and is a suitable method to recruit the samples into stratum (Carl-Erik, Swensson, & Wretman, 2003). By stratifying the target population, the measurement can be placed into manageable groups and the representativeness of each group can be estimated. Stratification also provides a smaller error in estimation when there is a lower standard deviation in the measurement. In this study, the respondents were recruited by age grouping: 18-25, 26-35, 36-45, 46-55, 56-65, and over 66 years (see Table 1). In the final analysis, there were 658 Taiwanese respondents that completed the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 using an online survey, by following Watts' success in 1989 (Barrett-Lennard, 2015, p62; Watts, 1989), over a two-month period. Information concerning

the demography of the respondents was also collected, such as gender, occupation, and the target relationship evaluated when completing the scale (Table 1).

Instruments

The original English version of the Barrett-Lennard Relationship Inventory was developed from the core concepts of Rogers's theory of the necessary and sufficient conditions for personality change in the therapeutic relationship (Barrett-Lennard, 1964). The Barrett-Lennard Relationship Inventory was developed as a Likert-type measurement for assessing relationships. The scale is constructed to enable obtaining an equal number of positively and negatively worded items for each sub-scale. Each item is rated on differing strengths of No or Yes in the range -3 to +3 (Barrett-Lennard, 2015, pp. 26-34, 40-41). The internal reliability of the original 64-item Barrett-Lennard Relationship Inventory exceeded .80 completed with a data set that consisted of 82 people, including 42 psychotherapy clients and 40 therapists (Barrett-Lennard, 2015, p. 43). An early review of the 64-item Barrett-Lennard Relationship Inventory indicated the internal reliability coefficients of four sub-scales: level of regard = .91, empathic understanding = .84, unconditionality of regard = .74 and congruence = .88 (Gurman, 1977).

The Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 was translated in accordance with the original English version which contains the four dimensions: level of regard, empathic understanding, congruence and unconditionality of regard. Each sub-scale dimension contains 16-items, including 8 positive items and 8 negatively worded items (Barrett-Lennard, 2015, pp. 26-34).

First, the level of regard refers to the regardfulness of one person's response to another, and it might embed positive or negative feelings (Barrett-Lennard, 2015, p. 11). Secondly, the

concept of empathic understanding is defined as the degree to which one person truly recognizes the felt awareness and meaning of another (Barrett-Lennard, 2015, p. 10). Thirdly, the definition of unconditionality of regard is given as the non-judging affective response of one person towards another (Barrett-Lennard, 2015, p. 11). Finally, the concept of congruence is centred on the consistency between whole present experience and underlying awareness, for example, a congruent person can be honest, sincere and direct to another without hesitation or feeling compelled during the communication (Barrett-Lennard, 2015, p. 11). All the items in each sub-scale were arranged in the same order in the original Barrett-Lennard Relationship Inventory Form OS-64: one item of level of regard followed by an item for empathic understanding then unconditionality of regard and finally an item for congruence. This repeating pattern continues throughout the entire scale.

In this study, the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: From OS-64 was administered to the respondents as a 64-item self-report measure of the relationship with a specific friend. The responses to items was recorded using a six-point Likert scale with scoring options: -3 = No, I strongly feel that it is not true, -2 = No, I feel it is not true, -1 = No, I feel that it is probably untrue, or more untrue than true, +1 = Yes, I feel that it is probably true, or more true than untrue, +2 = Yes, I feel it is true, and +3 = Yes, I strongly feel that it is true, which was located from right to left.

Results

Respondents' demographic characteristics

The sample that provided the data set consisted of 658 people including males (n=162), females (n=495) and other (n=1). All respondents were aged 18 years or above and spoke

Mandarin-Chinese as their first language. Further characteristics are displayed in Table 1. The distribution of age range was 18-25 (32.1%), 26-35 (33.6%), 36-45 (16.7%), 46-55 (12.3%), 56-66 (5%), and 65 years old or above (0.3%). The occupations of the sample consisted mostly of students (28%), then professional occupations (21.4%), followed by sales and customer service workers (11.6%), and administrative and secretarial occupations (10.2%).

The target relationship that respondents answered questions about were friendships that were mainly long-term relationships. For example, friendships used in the test had lasted less than 6 months (1.7%), 6 months to 12 months (6.2%), 1 to 3 years (12.5%), 3 to 5 years (16%), and more than 5 years (63.7%).

All the data were collected using an online survey advertised through social network sites. To prevent missing items, the online survey had a pre-setting to ensure the completion of each item in the questionnaire. Therefore, there were no missing data in this survey.

Table 1: Demographic Characteristic of the Sample and Census Data in Taiwan

Characteristic	Respondents	%	Demographics of Taiwan*a.b.
Age range (years)	(n=658)		(Unit: Persons)
18–25	211	32.1	1,608,149
26–35	221	33.6	3,389,604
36–45	110	16.7	3,856,925
46–55	81	12.3	3,691,645
56–65	33	5	1,554,074
>65	2	0.3	1,554,074
Gender			
Male	162	24.6	11,719,270
Female	495	75.2	11,820,546
Other	1	0.2	N/A
Occupation/ education			

Managers, directors and senior officials	12	1.8	2,764,332
Professional occupations	141	21.4	674,236
Associate professionals and technical	23	3.5	344,512
Administrative and secretarial occupations	67	10.2	486,017
Skilled trades	38	5.8	87,061
Caring, leisure and other service	10	1.5	460,160
Sales and customer service	76	11.6	1,656,678
Process, plant and machine operatives	8	1.2	3,245,599
Elementary occupations	57	8.7	2,463,369
Retired	13	2.0	98,495
Student	184	28.0	8,249,000
Unemployed	29	4.4	460,000
Duration of Friendship (years)			
<0.5	11	1.7	
0.5–1	41	6.2	
1–3	82	12.5	
3–5	105	16	
>5	419	63.7	

*The total population of Taiwan is 23,539,816 people
a. DGBAS, 2016a; DGBAS, 2016b; DGBAS, 2016c; DGBAS, 2016d.
b. Department of Household Registration Affairs, 2016

Data Analysis

This study aimed to validate the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 and Form OS-40, with confirmatory factor analysis (CFA). The data were analysed using SPSS Version 23.0 (SPSS Inc., 2015) and LISREL Version 8.7 (Jöreskog & Sörbom, 2001) for Windows. Initially, the internal reliability was analysed by calculating Cronbach's alpha indicating the degree of relatedness among the 64 items in the

entire inventory. Secondly, Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity were calculated using principal component analysis (PCA) with Varimax rotation, which indicated the adequacy for running the factor analysis (Field, 2005, pp. 619-666). Thirdly, a parallel analysis between the Monte Carlo simulation (MC simulation) and the PCA was performed. The aim of this is to reduce the 'noise' within the factor structure and determine those significant components within the overall group of components in the model of Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 (Conedera et al., 2010; Inoue, Hukushima, & Okada, 2006; Nasser & Wisenbaker, 2003; Sariyar, Perk, Akman, & Hortaçsu, 2006). In statistics, a Monte Carlo simulation is one approach used to determine the properties of some phenomenon with a large number of random sampling, yet it does not always request truly random numbers. Monte Carlo simulation provides an intuitive understanding of the estimated components in a composition (Inoue et al., 2006). Hence, 658 subjects, 64 variables, 100 sets of the desired number of parallel data, and desired percentile 95.5, the components in the PCA which have a lower eigenvalue than those in the Monte Carlo simulation can be excluded from the factor structures (Inoue et al., 2006; Nasser & Wisenbaker, 2003). Lastly, confirmatory factor analysis (CFA) was used to investigate the fitness of models of the data for the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 and Form OS-40.

Reliability analysis

To evaluate homogeneity, the overall consistency of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version was analysed. The Barrett-Lennard Relationship Inventory Mandarin-Chinese version was found to have high internal consistency with Cronbach's alpha

= .96 in the entire sample (n=658), .95 in the male group (n=162), and .96 in the female group (n=495), where a high alpha indicates a strong internal correlation of each item (Table 2). A Cronbach's alpha between 0.70 and 0.95 would be considered excellent (Terwee, et al., 2007).

Separate reliabilities were calculated for all four of sub-scale variables: level of regard, empathic understanding, unconditionality of regard, and congruence, all of which exceeded the minimum Cronbach's alpha and were .94, .84, .75, and .89 respectively; which represented a high internal consistency across each of the four sub-scales in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 (Table 2).

Table 2: Cronbach's Alpha, KMO, Bartlett's Test of Sphericity and Mean, Median and Standard Deviations for Each Sub-scale of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64

	Reliability	Principle Component Analysis[a]		Data score (per item)		
(/item) Variable	Cronbach's Alpha	KMO [b]	Bartlett's Test of Sphericity	Mean	Median	Standard Deviations
Sample						
Male (n=162)	.95	.89	.00			
Female (n=495)	.96	.97	.00			
Total (n=658)	.96	.97	.00			
Sub-scales						
Level of Regard	.94	.96	.00	1.79	2.00	1.30
Empathic Understanding	.84	.94	.00	0.86	1.00	1.69
Unconditionality	.75	.86	.00	0.60	1.00	1.84
Congurence	.89	.95	.00	1.28	2.00	1.61

a. Principal Component Analysis with Varimax Rotation (Eigenvaule>1)
b. Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

Principal Components Analysis

Principal Components Analysis (PCA) with the Varimax rotation method was performed. PCA results showed a Kaiser-Meyer-Olkin (KMO) coefficient of .97 in the entire data set (n=658), .89 in the male group (n=162) and .97 in the female group (n=495) and were well above the recommended .70. The P-value of Bartlett's Test of Sphericity of .000 (approx. chi-square 24039.755, df 2016) also suggested satisfactory sampling adequacy (Table 2).

The 64-item inter-correlation matrix was analysed and 11 components were extracted (eigenvalue >1) in the initial model of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version. Using this data, the first five components in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version were extracted that showed an eigenvalue = 22.359 (>1.721 in Monte Carlo simulation), 3.794 (>1.656 in Monte Carlo simulation), 2.150 (>1.610 in MC simulation), 1.894 (>1.574 in Monte Carlo simulation) and 1.746 (>1.533 in Monte Carlo simulation), which were able to account for 34.936%, 5.928%, 3.360%, 2.959% and 2.727% of the total explanatory variance of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version respectively (Table 3). Furthermore, by comparing the eigenvalues with the suggested eigenvalue generated in the parallel analysis using the Monte Carlo simulation, the eigenvalue of the sixth and seventh components in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version were 1.447 and 1.321. These were less than the suggested eigenvaules 1.503 and 1.474 in the Monte Carlo simulation. Thus, the sixth and seventh components were explained as the noises of the factor structure (Table 3).

Table 3: Total Variance Explained of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64

Component	Principle Component Analysis[a]			Parallel Analysis[b]
	Initial Eigenvalues	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings	Eigenvaule Monte

										Carlo Simulation
	Statistics			Statistics			Statistics			Statistics
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total in General Random Data
1	22.359	34.936	34.936	22.359	34.936	34.936	9.210	14.390	14.390	1.721593
2	3.794	5.928	40.864	3.794	5.928	40.864	6.344	9.912	24.303	1.656847
3	2.150	3.360	44.224	2.150	3.360	44.224	5.626	8.791	33.094	1.610990
4	1.894	2.959	47.183	1.894	2.959	47.183	4.823	7.536	40.630	1.574000
5	1.746	2.727	49.911	1.746	2.727	49.911	3.075	4.805	45.435	1.533476
6	1.447	2.261	52.172	1.447	2.261	52.172	2.339	3.654	49.090	1.503755
7	1.321	2.064	54.236	1.321	2.064	54.236	2.155	3.368	52.457	1.474237
8	1.135	1.774	56.009	1.135	1.774	56.009	1.447	2.261	54.718	1.446682
9	1.097	1.714	57.723	1.097	1.714	57.723	1.372	2.144	56.862	1.421458
10	1.073	1.677	59.401	1.073	1.677	59.401	1.325	2.070	58.932	1.396603
11	1.020	1.594	60.995	1.020	1.594	60.995	1.320	2.063	60.995	1.372320

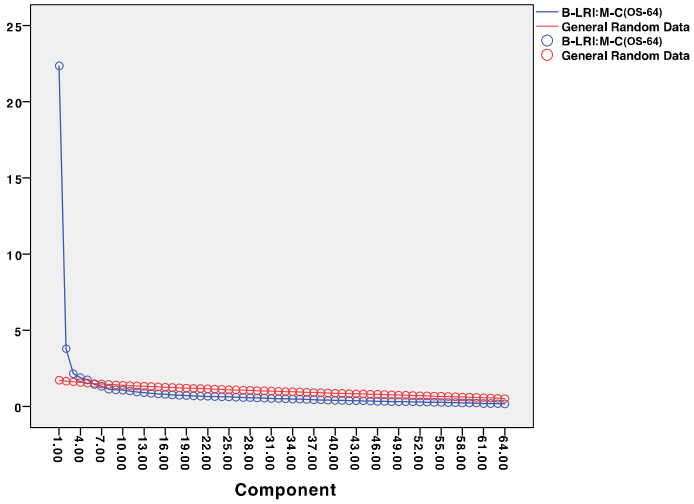
Extraction Method:

a. Principal Component Analysis with Varimax Rotation (Eigenvaule>1)

b. Parallel Analysis Using Eigenvaule Monte Carlo Simulation (Number of Subject=658, Number of Variables=64, Desired Number of Parallel Data Sets=1000, Desired Percentile=95.5)

This finding remains consistent with the Scree Plot that also indicated that the first five components could be extracted from the Barrett-Lennard Relationship Inventory Mandarin-Chinese version (Fig. 1).

Figure 1: Scree Plot



If the criterion for a fixed number of components was set at 5 and for high loading the level is set at equal to or greater than ±0.49, there were only 2 items (C12 and R53) correlated highly with more than one component. The loadings on five components are presented as follows (see Table 4): the first and largest component accounted for 34.936% of the variance. Since 11 of the 15 items were from the level of regard sub-scale, this component was best identified as reflecting level of regard. The remaining items were two from the empathic understanding, one from the unconditionality of regard, and another one from the congruence scale.

The second largest loading component accounted for 5.928% of the variance. Since6 of these 14 items were from the congruence sub-scale and two were from the level of regard (R49 and R53), three from empathic understanding (Em22, Em50, Em58), and three from the unconditionality of regard (U55, U27, U19), the second component could be classified as partially but predominantly representing the congruence sub-scale.

The third component accounted for 3.360% of the variances. Since all 8 of these items were from the congruence, this component was best interpreted as characterizing the congruence

sub-scale. Furthermore, the fourth component accounted for 2.959% of the variances. As all six of these items came from the empathic understanding, this component was best labelled as representing the empathic understanding sub-scale.

Finally, the fifth component accounted for 2.727% of the variances. All items came from the unconditionality of regard, and therefore were reflective of the sub-scale of unconditionality of regard.

Table 4: Loadings on Five Components[ab] of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64

Latent Factor/ Item	English	Mandarin-Chinese	Component 1	2	3	4	5
Level of Regard (R)							
R13*	I feel appreciated by __.	我感覺__欣賞我。	**0.683**	0.130	0.218	0.134	0.201
R37*	__ is friendly and warm with me.	_ 對我友善且溫暖。	**0.634**	0.291	0.410	0.116	0.178
R5*	__feels a true liking for me.	感覺我是真的討 _ 的喜歡。	**0.631**	0.115	0.246	0.145	0.209
R25*	__cares for me.	_ 關心我。	**0.617**	0.170	0.444	0.195	0.084
R41	I feel that __ really values me.	我覺得 _ 真的很重視我。	**0.613**	0.123	0.470	0.156	0.116
R53	__ feels contempt for me.	我覺得 _ 輕視我。	**0.590**	**0.515**	0.239	-0.028	0.140
R57	__is truly interested in me.	_ 是真的對我感興趣。	**0.580**	0.053	0.436	0.051	0.126
R1*	__respects me as a person.	_ 尊重我這個人。	**0.565**	0.265	0.146	0.252	0.201
R17*	__is indifferent to me.	_ 對我漠不關心。	**0.559**	0.329	0.417	0.088	-0.003
Em2*	__wants to understand how I see things.	_ 會想要了解我對事物的看法。	**0.556**	0.126	0.176	0.341	0.079
R29*	I feel that __ disapproves of me.	我覺得 _ 不認同我。	**0.537**	0.489	0.348	0.079	0.118
R61	__ feels affection for me.	_ 對我是友好的。	**0.532**	0.036	0.456	0.019	0.121
U3*	__'s interest in me depends on the things I say or do.	我所說的話或所做的事, 會影響 _ 對我的興趣或關注。	**-0.516**	0.178	-0.005	-0.163	0.144
Em42	__appreciates exactly how the things I experience feel to me.	我覺得 _ 真的很重視我。	**0.511**	0.228	0.369	0.360	0.278
U11*	Depending on my behavior, __ has a better opinion of me sometimes than he/she has at other times.	_ 有時會因為我的行為, 而提高對我的評價。	-0.487	0.171	0.076	-0.127	0.079

R21	__finds me rather dull and uninteresting.	_ 覺得我乏味又無趣。	0.483	0.452	0.193	-0.022	0.160
R33*	__ just tolerates me.	_ 只是在忍受我而已。	0.470	0.468	0.391	-0.009	0.055
C4*	__is comfortable and at ease in our relationship.	_ 對我們的關係感到舒服和輕鬆自在。	0.445	0.204	0.384	0.295	0.152
Em62	When I am hurt or upset __ can recognize my feelings exactly, without becoming upset him/herself.	當我覺得受傷或是不開心的時候，_ 仍可以在不影響到他自己的狀態下察覺我的感受。	0.372	0.132	0.323	0.326	0.193
Empathic Understanding (Em)							
Em10*	__nearly always knows exactly what I mean.	_ 幾乎總是能完全理解我的意思。	0.332	0.168	0.237	**0.645**	0.226
Em34*	__ usually understands the whole of what I mean.	_ 通常可以完全理解我的意思。	0.320	0.208	0.310	**0.594**	0.194
Em18*	__usually senses or realizes what I am feeling.	_ 通常能察覺到或明白我現在的感受。	0.455	0.119	0.222	**0.584**	0.070
Em6*	__may understand my words but he/she does not see the way I feel.	_ 雖然了解我說的話，但未必能體會我的感受。	0.108	0.400	0.013	**0.552**	-0.041
Em38*	__takes no notice of some things I think or feel.	_ 沒有察覺到我對某些事物的想法或感受。	0.058	0.450	0.198	**0.526**	-0.027
Em30**	__ realizes what I mean even when I have difficulty in saying it.	即使我沒辦法表達清楚我想說的事情, _ 仍可明白我的意思。	0.218	0.129	0.401	**0.524**	0.157
Em26	__ thinks that I feel a certain way, because that's the way he/she feels.	_ 認為我所感覺的,正是他所感受的。	-0.317	-0.006	-0.293	-0.338	-0.248

Unconditionality of Regard (U)							
U7*	__whether I am feeling or unhappy with myself makes no real difference to the way feels about me.	_ 對我的感覺,不會因為我對自己感到開心或不開心而有任何變化。	0.021	0.041	-0.045	-0.021	**0.626**
U51	Whether the ideas and feelings I express are “good” or “bad” seems to make no difference to __’s feeling toward me.	_ 對我的感受，似乎不會因為我所表達的想法或感受是好還是壞,而有所影響。	0.126	0.161	0.307	0.152	**0.610**
U39*	How much __ likes or dislikes me is not altered by anything that I tell him/her about myself.	_ 喜歡或不喜歡我的程度，不會因為我告訴他任何關於我自己的事情，而有所影響。	0.134	0.235	0.232	0.141	**0.556**
U47	Whether I happen to be in good spirits or feeling upset does not make __ feel any more or less appreciative of me.	不論我是積極正向或是感到低潮難過，都不會影響到 _ 對我的欣賞程度。	0.385	0.246	0.298	0.216	**0.547**
U15*	__’s feeling toward me doesn’t depend on how I judge or feel about myself. [Answer ‘no’ (−1, −2 or −3) if the way you feel about yourself alters his/her feeling.]	_ 對我的感受，不會因著我怎麼評論或看待自己而有所影響。[如果你對你自己的看法，會影響他對你的感覺；則請依程度回答 "-3(非常不符合)"、"-2(不符合)"或"-1(較不符合)"。]	0.097	0.022	0.068	-0.042	**0.544**
U59	I don’t think that anything I say or do really changes the way __ feels toward me.	我不認為 _ 對我的感受會因為我所說的或我所做的事情而改變。	-0.014	0.173	0.187	0.200	**0.526**

U31*	__'s attitude toward me stays the same: he/she is not pleased with me sometimes and critical or disappointed at other times.	_ 對於我的態度總是一致:他不會對我時而滿意,時而指責我或對我感到失望。	0.362	0.298	0.235	0.127	0.388
Congruence (C)							
C52	There are times when I feel that __'s outward response to me is quite different from the way he/she feels underneath.	有幾次我會覺得 _ 給我的回應,與他內在真實的感受不一致。	0.095	**0.653**	0.332	0.161	0.119
C64	I believe that __ has feelings he/she does not tell me about that are causing difficulty in our relationship.	我相信是那些 _ 沒告訴過我的感受讓我們的關係遇上瓶頸。	0.044	**0.626**	0.357	0.168	0.108
Em22*	__ 's own attitudes toward things I do or say prevent him/her from understanding me.	因為 _ 對我所做的事情已經先抱有既定的態度,所以使他無法了解我。	0.340	**0.609**	0.201	0.215	0.196
C60	What __ says to me often gives a wrong impression of his/her whole thought or feeling at the time.	__常讓我對他的整個想法或感受產生誤解。	0.286	**0.602**	0.374	0.097	0.117
R49	I seem to irritate and bother __.	我似乎會惹 _ 生氣或打擾到他。	0.219	**0.600**	0.059	0.033	0.200
C40*	At times I sense that __ not aware of what he/she is really feeling with me.	有時候我覺得 _ 並沒有意識到他對我真正的感覺是什麼。	0.218	**0.568**	0.160	0.260	-0.017

U55	Sometimes I am more worthwhile in __'s eyes than I am at other times.	有時候我覺得 _ 願意花心思在我身上,有的時候則不是這樣。	0.342	**0.564**	0.215	0.051	0.276
U27*	__likes or accepts certain things about me, and there are other things s/he does not like in me.	_ 喜歡或接受部份的我，但他不喜歡其他某方面的我。	0.120	**0.544**	-0.022	0.175	0.150
Em50	__does not realize how sensitive I am about some things we discuss.	_ 不明白我對我們所談論的某些事物是有多麼地敏感。	0.211	**0.535**	0.188	0.285	0.078
U19*	__wants me to be a particular kind of person.	_ 希望我成為某種類型的人。	0.020	**0.524**	0.050	-0.035	0.154
C16**	It makes __uneasy when I ask or talk about certain things.	當我問起或提起某些事情時，會讓 _ 感到不舒服。	0.007	**0.518**	0.188	0.189	0.156
Em58	__'s response to me is usually so fixed and automatic that I don't get through to him/her.	_ 通常給我的回應都很制式且機械化，以至於我沒辦法了解他這個人。	0.392	**0.502**	0.447	-0.004	0.020
C32*	Sometimes __ is not at all comfortable but we go on, outwardly ignoring it.	有時候 _ 和我在討論事情時,會感到不舒服,但我們會在表面上忽略它並繼續。	0.007	**0.492**	0.140	0.155	-0.061
R9*	__is impatient with me.	_ 對我沒什麼耐心。	0.460	0.485	0.126	0.106	0.095
R45	__ doesn't like me for myself.	_ 不喜歡我的行事為人。	0.469	0.476	0.225	-0.057	0.128
U63	What other people think of me does (or would, if he/she knew) affect the way __ feels toward me.	別人看待我的方式會影響到 _ 對我的看法。	0.183	0.467	0.314	0.070	0.242

C24*	__ wants me to think that he/she likes or understands me more than he/she really does.	_ 想要我以為他比實際上來的喜歡我或了解我。	-0.172	0.427	-0.067	-0.030	0.040
Em14*	__looks at what I do from his/her own point of view.	_ 以他的角度來看我所做的事情。	0.010	0.388	0.014	0.198	-0.090
Em46	At times __ thinks that I feel a lot more strongly about a particular thing than I really do.	有時候, _ 覺得我對某些事物的感受，比我實際上的主觀感受還要強烈。	0.018	0.325	-0.219	-0.041	0.051
U35*	If I show that I am angry with __, he/she becomes hurt or angry with me, too.	如果我對 _ 發脾氣,他會感到受傷,或是對我生氣。	-0.061	0.314	-0.224	0.193	0.159
C44	__ is willing to express whatever is actually in his/her mind with me, including personal feelings about him/herself or me.	_ 願意向我表達他內在真實的想法,包含他對他自己、或他對我的感受。	0.271	0.144	**0.736**	0.180	0.139
C36*	__ expresses his/her true impressions and feelings with me.	_ 向我表達他真正的想法和感覺。	0.340	0.187	**0.701**	0.136	0.126
C28*	__ doesn't avoid or go round anything that is important for our relationship.	_ 不會迴避談論任何對我們之間重要的事。	0.232	0.179	**0.656**	0.195	0.117
C56	__ doesn't hide from himself (herself) anything that he/she feels with me.	_ 不會向我隱藏他對我的感受。	0.101	0.213	**0.649**	0.152	0.221
C48	__ is openly himself/herself in our relationship.	_ 在我們的關係中很坦率地做自己。	0.333	0.185	**0.649**	0.111	0.163

C12*	I feel that __is real and genuine with me.	我感覺 _ 很真實且真誠地待我。	**0.509**	0.261	**0.550**	0.143	0.155
C20*	I feel that what __says expresses exactly what he/she is feeling and thinking at that moment.	我覺得 _ 口中所表達的,正是他當下心中所感受的及他腦中所想的。	0.105	0.194	**0.547**	0.128	0.171
C8*	I feel that __ puts on a role or front with me.	我覺得 _ 戴著面具跟我相處。	0.290	0.410	**0.547**	0.055	-0.002
Em54	__ understands me.	_ 了解我。	0.467	0.232	0.476	0.398	0.123
U43	__ approves of me in some ways or sometimes, and plainly disapproves of me in other ways/other times.	_ 有的時候會用某些方式肯定我，但有的時候也會用別種方式明確地表達不認同。	-0.140	0.145	-0.474	-0.111	-0.051
U23*	I can/could be openly critical or appreciative of __ without making him/her feel differently about me.	我可以放心地批評或讚美 _ ,(因為)這並不會影響他對我的感受。	0.227	0.129	0.440	0.327	0.304

See resource *The Relationship Inventory A Complete Resource and Guide* for the original Barrett-Lennard Relationship Inventory (Barrett-Lennard, 2015).
*Items appear both in the B-L RI (OS-40) and B-L RI:M-C (OS-40).
**Items, which are positive items in the B-L RI (OS-64) and B-L RI:M-C (OS-64), are presented in a negatively worded form in the B-L RI (OS-40) and B-L RI:M-C (OS-40).
Extraction Method: Principal Component Analysis.
a. Fixed Number of Component: 5, Display Format: Absolute value ±0.49
b.Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 13 iterations.

Confirmatory Factor Analysis

The confirmatory factor analysis of Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 was completed using the same sample of individuals, who had reflected on one specific example of their relationship with a friend. The present data set satisfied

the confirmatory factor analysis requirement of comparative fit (Schreiber, 2006). The correlation matrix of four latent factors: level of regard (R), empathic understanding (Em), unconditionality of regard (U), and congruence (C), is displayed in Table 5 where all the factors showed logical interrelationships. R correlated highly with Em (r= 0.89, p<0.001), U (r= -0.82, p<0.001) and C (r= 0.89, p<0.001). Em correlated highly with U (r= -0.85, p<0.001) and C (r= 0.88, p<0.001), and lastly, C was also correlated significantly with U (r= -0.84, p<0.001).

Table 5: Correlation Matrix of Independent Variables of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64

	Level of Regard (R)	Empathic Understanding (Em)	Unconditionality of Regard (U)	Congruence (C)
Level of Regard (R)	1.00			
Empathic Understanding (Em)	0.89	1.00		
Unconditionality of Regard (U)	-0.82	-0.85	1.00	
Congruence (C)	0.89	0.88	-0.84	1.00

Software: LISREL Version 8.7

The model of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 (Fig 2) demonstrated a satisfactory Normed Fix Index (NFI)=0.95 (≥0.95 for acceptance), Comparative Fit Index (CFI)=0.97 (≥0.95 for acceptance), Incremental Fix Index (IFI)=0.97 (≥0.95 for acceptance), Root Mean Square Residual (RMR)= 0.069 (smaller, the better), and Root Mean Square Error of Approximation (RMSEA)=0.092 (<0.6 to 0.8 with confident interval) (Nasser & Wisenbaker, 2003, p.733). Despite item Em46 (r =0.04) and Em14 (r =0.23) in empathic understanding sub-scale, U3 (r =0.16), U7(r =-0.25), U11 (r =0.12), U15 (r

=-0.28), U35 (r =0.12) and U43 (r =0.27) in unconditionality of regard sub-scale, and C24 (r =0.07) and C32 (r =0.34) in congruence sub-scale revealing lower loadings in the confirmatory factor analysis, most of the items in each sub-scale in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 had heavy loadings respectively.

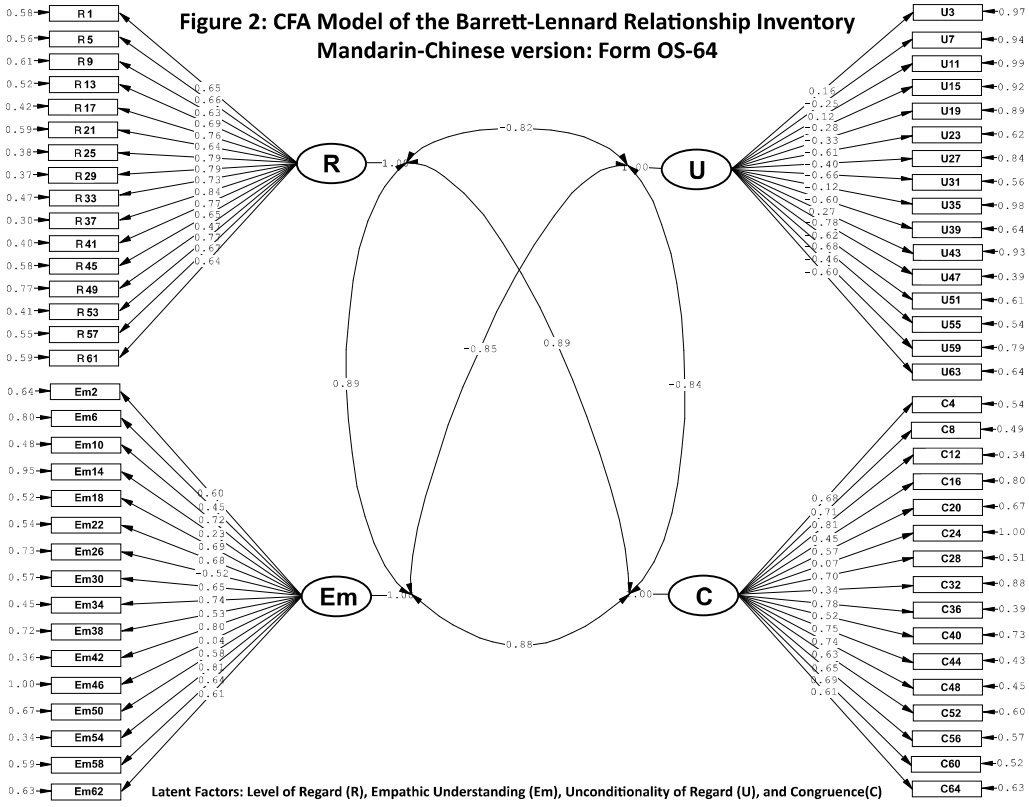


Figure 2: CFA Model of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64

The Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-40 which 40 items in the original Barrett-Lennard Relationship Inventory were included in the 64 items of the original Barrett-Lennard Relationship Inventory: Form OS-64. The level of regard scale includes 10 of 16 items from the OS-64, which are R1, R5, R9, R13, R17, R21, R25, R29, R33, R37. The 10 items of empathic understanding scale are Em2, Em6, Em10, Em14, Em18,

Em22, Em30, Em34, and Em38. The 10 items for unconditionality of regard scale are U3, U7, U11, U15, U19, U23, U27, U31, U35 and U39. The 10 items for congruence scale are C4, C8, C12, C16, C20, C24, C28, C32, C36 and C40. However, only C16, Em30 which were positive items in the Barrett-Lennard Relationship Inventory: Form OS-64, are presented in a negatively worded form in the form OS-40. For example, "_____ doesn't expresses his/her true impressions and feelings with me" and "_____doesn't understand me" in the OS-40, whereas "_____ expresses his/her true impressions and feelings with me" and "_____understand me" in the OS-64. Because the data was collected following by the OS-64, the data of item C16 and Em30 were recoded into reversed variables to meet the OS-40 in the software SPSS version 23.

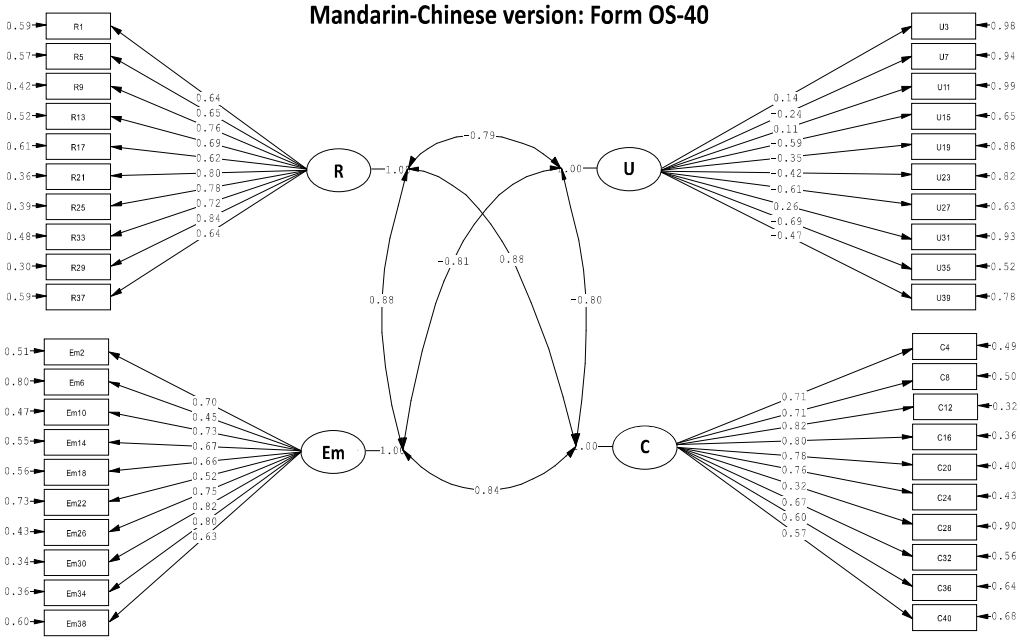
Four latent factors of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-40: level of regard (R), empathic understanding (Em), unconditionality of regard (U), and congruence (C), were displayed in the correlation matrix (Table 6) where all the factors showed logical interrelationships. R correlated highly with Em ($r = 0.88$, $p<0.001$), U ($r = -0.79$, $p<0.001$) and C ($r = 0.88$, $p<0.001$). Em correlated highly with U ($r = -0.81$, $p<0.001$) and C ($r = 0.84$, $p<0.001$), and lastly, C was also correlated significantly with U ($r = -0.80$, $p<0.001$).

Table 6: Correlation Matrix of Independent Variables of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-40

	Level of Regard (R)	Empathic Understanding (Em)	Unconditionality of Regard (U)	Congruence (C)
Level of Regard (R)	1.00			
Empathic Understanding (Em)	0.88	1.00		
Unconditionality of Regard (U)	-0.79	-0.81	1.00	
Congruence (C)	0.88	0.84	-0.80	1.00

Software: LISREL Version 8.7

Figure 3: CFA Model of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-40



Latent Factors: Level of Regard (R), Empathic Understanding (Em), Unconditionality of Regard (U), and Congruence (C)

The OS-40 four-factor solution model (Figure 3) demonstrated a satisfactory Normed Fix Index (NFI)=0.95 (≥0.95 for acceptance), Comparative Fit Index (CFI)=0.96 (≥0.95 for acceptance), Incremental Fix Index (IFI)=0.96 (≥0.95 for acceptance), Root Mean Square Residual (RMR)= 0.069 (smaller, the better), and Root Mean Square Error of Approximation (RMSEA)=0.091 (<0.6 to 0.8 with confident interval) (Nasser & Wisenbaker, 2003, p.733). Despite item Em6 (r=0.45) in empathic understanding sub-scale, U3 (r=0.14), U7(r=-0.24), U11 (r=0.11), U19 (r=-0.35), U23 (r=-0.42), U31 (r=0.26) and U39 (r=-0.47) in unconditionality of regard sub-scale, and C28 (r=0.32) in congruence sub-scale revealed lower loadings in CFA, most of the items in each sub-scale in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-40 had heavy loadings respectively.

Discussion

The Barrett-Lennard Relationship Inventory Mandarin-Chinese version aims to provide a Mandarin-Chinese version of relationship measurement to the Mandarin-Chinese community. Historically, the previous studies on the development and validation of the Barrett-Lennard Relationship Inventory had reinforced the need for evaluating relationships using psychometric assessment instruments, such as for the therapeutic relationship, friendship, and teacher-student relationship, etc. Despite previous studies with the Barrett-Lennard Relationship Inventory using exploratory factor analysis supporting its validity, to our knowledge no other investigation has been conducted using confirmatory factor analysis. This means that for the first time in over half century there are data available to confirm the theoretical model underpinning the therapeutic relationship questionnaire proposed by Barrett-Lennard (1962). This study has also reported the CFA validation of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 and Form OS-40 in a sample of people (n=658), whose first language is Mandarin-Chinese and are 18 years old and above evaluating their perceptions of a relationship with a friend.

The findings of this study suggest that the translated 64-items in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version can reliably assess the effect of level of regard, empathic understanding, unconditionality of regard and congruence in relationships. The Cronbach's alpha of the sample set of 658 variables (162 males, 495 females, and one other) exceeds .96 which was higher than the original English version (.80) and indicates a high internal consistency across individual items (Barrett-Lennard, 2015, pp. 17-18, 43). The Cronbach's alpha of both male and female sample groups also shows strong internal correlation between

each item. Thus, the reliability of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version is as significant as the original version and it can be applied towards all genders. Furthermore, the separate Cronbach's alpha of each sub-scale is .94 for level of regard, .84 for empathic understanding, .75 for unconditionality of regard and .89 for congruence scale, which is considered an excellent level of reliability across 16 items in each sub-scale in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version. The results of Gurman's validation study reported that the mean coefficient for the sub-scales were .91 for level of regard, .84 for empathic understanding, .74 for unconditionality of regard and .88 for congruence scale (Barrett-Lennard, 2015, p. 43; Gurman, 1977). It implies that the Barrett-Lennard Relationship Inventory Mandarin-Chinese version also provided strong internal consistency in the entire scale and individual sub-scales as did the Barrett-Lennard Relationship Inventory.

The Barrett-Lennard Relationship Inventory Mandarin-Chinese version has been confirmed theoretically. It has found that the first five components in the Barrett-Lennard Relationship Inventory Mandarin-Chinese version could be extracted and identified as representative of the four latent factors in the original Barrett-Lennard Relationship Inventory through PCA. In the CFA conducted within this study, the results of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version: Form OS-64 and Form OS-40 further support the original hypothesized four-factor structure which were designed to measure therapeutic relationships. Both the OS-64 and OS-40 models exhibit a good fit for the data and present a consistent correlation between each of the four factors. The result of our analysis of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version has revealed the scale translation can be used to measure relationships using the four factors of the Rogerian therapeutic relationship in a Mandarin-Chinese context. Due to the data was collected from people in general with different

occupations evaluating their friendships, it further implies that Taiwanese people are capable of differentiating between the different relationship factors important to therapeutic relationships and based on Rogers's person-centred theory. Regarding the friendship length, 63.7% respondents associated the term "friendship" intuitively with a person, excluding family relations or romance, with whom they have shared a long-term relationship. For example, a more-than-5-year friendship in this study. This phenomenon might evoke a thought whether a therapeutic relationship in clinical settings can be developed in three to five sessions between the Mandarin-Chinese speaking therapists and clients? Barrett-Lennard (1962) has suggested that at least five sessions of psychotherapy are required before an accurate rating could be gained, yet Murphy and Cramer's study in 2014 revealed that after three sessions people can predict the outcome using the scores of the Barrett-Lennard Relationship Inventory and similarly other studies have shown early ratings predict later improvement (Barrett-Lennard, 2015; Murphy & Cramer, 2014; Murphy et al., 2012). However, the existence of a high percentage of the respondents evaluating the long-term friendships in this study did not countervail the reliability of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version but might have exceeded it instead, and it might also have reinforced the validity of the translated inventory.

In terms of those few low loading single items which exist in each sub-scale. For instance, there is one in level of regard, three in empathic understanding, nine in unconditionality of regard and three in congruence sub-scale in the OS-64. The Unconditionality of Regard items involve quite subtle distinctions, difficult to render clearly even in English and for respondents with differing attitudes. Even with the care taken in the translation process in the present study, it is possible the items were not quite as well translated and understood by respondents in Mandarin as they might in English wherein they were originally constructed. Nevertheless, the

analytical result provided strong internal consistency, reliability and construct validity, thus the Barrett-Lennard Relationship Inventory Mandarin-Chinese version could be considered as a well-translated version that manages to evaluate relationships in Chinese culture.

Implication

The study has reported very promising results regarding the reliability and construct validity of the Barrett-Lennard Relationship Inventory Mandarin-Chinese version for the measurement of relationships. A survey on the Chinese counselling approach conducted in 1988 revealed that behaviourism, psychoanalysis and cognitive therapy have been the mainstream theoretical orientations of Chinese counsellors (Chang, Tong, Shi, & Zeng, 2005). Although there are few studies on the practical approaches of person-centred counselling in the development of counselling and psychotherapy in China, the result of validating the Barrett-Lennard Relationship Inventory Mandarin-Chinese version has provided evidence that the translation imparts and establishes the sensitivity of the original Barrett-Lennard Relationship Inventory. It also indicates that the therapeutic conditions of Rogers's person-centred therapy can be identified by the people in Taiwan and also applied in the Mandarin-Chinese community. Thus, transcending Carl Rogers's person-centred theory into a variety of fields in Chinese Society, such as the therapeutic relationship within social services and clinical settings, teacher-student relationship in education, family relationship, relationship between organizations, relationship in business, etc., to grow a mutual understanding of humanistic interaction.

Regarding the mental health professionals' training, Barrett-Lennard has revealed one of his studies on the experiences of helping mental health professionals' experiential learning in three 2-week workshops where Barrett-Lennard and his colleagues had indicated that the Barrett-

Lennard Relationship Inventory was used as a rating instrument to evaluate the outcome effects of the learning (Barrett-Lennard, 2017, p.331-338). Therefore, the Barrett-Lennard Relationship Inventory Mandarin-Chinese version could be used in educational settings in the Mandarin-Chinese speaking world. Taking China as an example, the counselling and psychotherapy services in medical settings like special counselling and mental health centres have been developed rapidly since the 1980s because of the increasing psychological problems, such as depression and suicide (Chang et al., 2005; Higgins et al., 2008; Qian et al., 2011). Using adapted forms of Barrett-Lennard Relationship Inventory Mandarin-Chinese version, such as the Other toward Self (OS) and Me toward Other (MO) forms, to evaluate the effectiveness of training programs from therapists' and clients' perspective (Barrett-Lennard, 2017, p.331-338).

Last but not the least, the Barrett-Lennard Relationship Inventory Mandarin-Chinese version would be one of the vehicles which give the current Chinese counselling and psychotherapy services the momentum to go beyond the medical settings for their communities. The theoretical structure in the Barrett-Lennard Relationship Inventory, which Carl Rogers's person-centred approach emphasizes an interpersonal relationship with unconditional positive regard would carrying out psychological changes for clients, would meet Chinese culture where Mandarin speaking clients' adjustment often relates to their relationship with others, such as family and friends, and the interaction with their social circles, such as neighbours, teachers at school, colleagues at work, etc. The full 64-item and 40-item Form of Barrett-Lennard Relationship Inventory has been gradually adapted into many versions, for instance 'other toward self' (OS), 'myself toward other' (MO-40), 'observer' (Obs-40), 'teachers toward students' (MO-40:TS), 'students toward teachers' (OS-40: T-S), 'other toward young children' (OS-40CH), 'other in close relationship toward self' (OS-LR-40) and relationships between

'groups or organizations' (GS-40) version, which the researchers use to measure relationships from different points of view (Barrett-Lennard, 1978, 2015, 2017, p.338; Gurman, 1977). Through the previous contributions of the Barrett-Lennard Relationship Inventory, the validated 64-item and 40-item Mandarin-Chinese versions can easily be transformed into the specific versions when it is needed. Hence, this Barrett-Lennard Relationship Inventory Mandarin-Chinese version would contribute to the international research community and extend the borders of the community of counselling and psychotherapy to those in the Mandarin-Chinese speaking world.

Limitations

There are several limitations to the present study. Firstly, the instrument of data collection could be further refined. Among the 658 respondents, only 2 people appeared in the age group of 66 and over. This might be related to varying levels of familiarity of computer usage and willingness to access and complete online surveys. Thus, distributing not only an online survey but also a paper and pen version of a questionnaire could multiply and better represent the sample size of older age groups.

Secondly, understanding of the scale item wording was varied as suggested by the feedback in an open dialogue box included at the end of the survey. For example, there might be scope for more intuitive translation that could be provided. It took approximately 30 minutes to complete the scale, therefore tiredness might have affected some online respondents. However, it should be noted that the item wording in the English version of the scale is reported to be quite complex and the full 64-item scale is time consuming to complete. In this sense, there is modest difference between the two versions of the scale. Items that require some careful consideration

before responding can make participants really work to understand what they are being asked. Doing this, to the end of the task, may have been too much for some. Face to face administration could yield higher or more even validity.

Lastly, this study has gone some way to being the first study to translate the original version of the Barrett-Lennard Relationship Inventory into the Mandarin-Chinese version and examine the construct validity using confirmatory factor analysis. Whilst this was reported with satisfactory results in this study, both the OS-64 and the OS-40 scales are long and time-consuming. The test-retest reliability could be conducted if a shorter version of the scale for future use could be developed. Therefore, it would be useful to pilot in a clinical sample as the next step which is using the shorter time frame for relationships and also test-retest statistics to be calculated.

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