

Psychometric Properties of Object Relation Scale: Factor Structure and Relationship to Mental Health

Masayo Uji

Department of Nursing, Yasuda Women's University, Hiroshima, JAPAN

Makiko Kawaguchi

Kyushu Chuo Rehabilitation Gakuin

ABSTRACT

Background: Object Relations Scale (ORS: Iume, Hirai, Aoki & Baba, 2006) was developed for accessing an individual's object relation pattern. It consists of five domains: Insufficiency of Intimacy, Superficiality in Interpersonal Relations, Egoistic Manipulation, Excessive Need for Identification, and Abandonment Anxiety. However, its factor structure using confirmatory factor analysis (CFA) is still undetermined. **Purpose:** This study aims at evaluating the psychometric properties of ORS, in particular, confirming its factor structure using CFA, and examining the relationship of object relation maturity, to mental health as well as to psychological distress. **Methods:** The subjects of this study were 547 medical college students in Japan. CFA were conducted in order to determine the best fit model. The relationships of maturity level of one's object relation pattern to his/her mental health as well as psychological distresses were examined by t-tests. **Results:** A four-factor model, a modified version of the original five-factor model showed the best fit. Among the four factors, three were those included in the original model. They were Insufficiency of Intimacy, Superficiality in Interpersonal Relations, and Abandonment Anxiety. The last factor consisted of items originally included in the remaining two factors, Egotistic Manipulation and Excessive Need for Identification. Each ORS subscale score positively correlated with that of mental health problems as well as those of psychological distresses of one or more domains at significant levels. **Conclusion:** The four-factor model, which does not necessarily negate the original five-factor model proposed by Iume et al., showed the best fit. Immaturity and instability in object relation relationship contributed to a variety of distresses as well as poor mental health.

Keywords: Object Relation Scale, Factor structure, Mental health, Psychological distresses.

INTRODUCTION

The concept of *object relations* was originally developed in the psychoanalytic realm. Theories concerning object as well as object relations have been differentiated after Freud who focused on instinctual drives. Some scholars (Ainsworth, 1969; Bellack, 1973; Fujiyama, 2002; Greenberg, & Mitchell, 1983) have reviewed theories on object relations proposed by psychoanalysts from a wide range of schools. The main differences between the schools are the origin and development processes of object relations. Klein (1946) described object relation as phenomena within an infant's instinctual phantasy where projection and introjection

incessantly occur. The concept of *internal object* was the product of re-introjection. She did not mention much about roles taken by an external object, the actual mother. She identified the origin of infant's object in its innate phylogenetic images of human body organs. Based on these images the infant's phantasy concerning the dynamic interaction between its ego and the object is developed in a very graphic manner, more specifically, projection and re-introjection of body parts or body organ contents. Although the object she described was non-specific, her work contributed in bridging Freud's ego psychology and later object relation theories by shifting the main theme from instinctual drive to object relation.

Jacobson (1964), one of Freud's successors in the ego psychology school, discussed that along with ego development, mental representation of object relations is formed between self and object worlds. Fairbairn (1994), who took into account the role of the external object, wrote that representation of object relations are developed by an infant internalizing the dynamic relationship between external object and ego. Based on the previous psychoanalysts' theories on object-relations, Fujiyama (2002) defines object relations as "representation of the relationship between self and object in an individual's inner world, which determines his/her attitudes and behaviors within interpersonal relationships."

Bellak (1973) tried to assess the nature of an individual's object relations from the following four aspects: "The degree and kind of relatedness to others, degree of closeness or distance, and degree of flexibility and choice in maintaining object relations", "primitivity-maturity of object relations", "the extent to which the person perceives and responds to others as independent entities rather than extensions of himself", and "the extent to which he can maintain *object constancy* (Hartman, 1952, pp. 163)." The concept of object constancy refers to a form of object relation in which the infant is able to keep stable trust and affection regardless of whether the object is existent or momentarily absent. This is independent from the infant's needs. The object constancy is one of the crucial roles taken by ego (Hartman, 1964).

In cases where the object constancy is not established, i.e., trust towards the object under its temporary absence is lacking, good object and bad object represented as *partial object* (Klein, 1946) are not integrated as *whole object* (Klein, 1946). In this situation, corresponding to the object split, the self is also split. During infancy, this mechanism functions as defense in order to protect good object from an infant's destructive impulses. However, when it continuously lasts into adulthood mental life, it brings about deteriorating effects on an individual's mental life, characterized by unstable interpersonal relationship as a result of excessive idealization and devaluation, as well as low self-esteem and lack of ability to trust others.

Iume, Hirai, Aoki, & Baba (2006) pointed out that Bell Object Relations and Reality Testing Inventory (BORRTI) (Bell, 1995; Bell, 2005), which had been the only tool with a self-report questionnaire style for assessing an individual's characteristics of object relations, was difficult to use and time-consuming for scoring due to its complicated factor structure. They therefore developed Object Relation Scale (ORS) to assess the maturity level of object relations. ORS is based on the theories of Bellak (1973) and Kernberg (who integrated Klein's idea on early object relation into Hartman's idea regarding ego-development) and consists of 29 items with a five-factor structure: Insufficiency of Intimacy, Superficiality in Interpersonal Relations, Egoistic Manipulation, Excessive Need for Identification, and Abandonment Anxiety, proven by exploratory factor analysis (EFA), with six, five, five, six, and seven items respectively. Examples

of the factors are: “I am afraid of getting close to other people [non-reverse item]” for Insufficiency of Intimacy, “I value an interpersonal relationship in which I am able to gain a lot [reverse item]” for Superficiality in Interpersonal Relations, “I tend to manipulate others in order to fulfill my needs as I desire [non-reverse item]” for Egoistic Manipulation, “I am seeking somebody who I can feel is a part of me [non-reverse item]” for Excessive Need for Identification, and “I sometimes have the fear of being betrayed by someone who is very close to me [non-reverse item]” for Abandonment Anxiety.

Although Iume et al. (2006) conducted EFA, they did not conduct confirmatory factor analysis (CFA), i.e., its factor structure has been undetermined. In order for the ORS to be utilized in a variety of psychological research, its factor structure has to be determined. Therefore, the first purpose of this study was to determine its factor structure by CFA. In order to do this, we examined compatibility of the five-factor model to our data. If the fitness level was not satisfactory, we planned to explore alternative models that would meet the acceptable fitness levels.

After that, we examined whether the object relations maturity level was related to mental health, as well as psychological distresses including not only interpersonal domain but also any other domain including academic domain. It is easily predicted that an individual with a low maturity level in object relation is more likely to have stresses in interpersonal relationships. In addition to their hyper-sensitivity of others' negative feelings towards them, they actually cause negative life events due to the following personality pathologies. They have excessive needs to be loved by significant others. However, they lack in confidence of being accepted and loved by them, and are always afraid of rejection. They cannot communicate straightforwardly, impelling them to test and manipulate the others by applying self-destructive behaviors. As a result, the others stay away, or in more miserable consequences actually reject them.

As can be seen, they are almost always preoccupied, worrying about others' attitudes towards them. This prevents them from being able to work creatively by themselves and/or enjoying activities with others. If they are students, they cannot enjoy academic performance. For them, studying is no more than stress. According to self-determination theory (Deci, & Ryan, 2000; Ryan, & Deci, 2000), their motivation for studying is in many cases, external, i.e., to get their parents to evaluate them higher than their siblings or to avoid the feeling of shame when they fail. As their ego function is weak, they rarely are able to finish what they started, which invites other stresses. Furthermore, they cannot cope with difficulties they encounter, due to intolerance of anxiety caused by ego vulnerability and low self-esteem, worsening the situations they are in. These lead us to hypothesize that an individual with an immature level of object relation is more likely to experience a variety of stresses.

To summarize, this study aimed at:

- 1) Determining the ORS factor structure by CFA, and
- 2) Examining the hypothesis that an individual with an immature object relation tends to have stresses in a variety of domains as well as impaired mental health.

METHODS

Procedures

This research is a part of the longitudinal follow-up study to explore psycho-social factors which have influence on Japanese college student academic performance. The study protocol was approved by the institutional review board. A questionnaire survey was conducted twice a year, in July and December, starting in 2014. Anonymity and voluntary participation were guaranteed. Scales and questions used for this particular study were included in the questionnaire distributed to second year college students in December from 2014 to 2016.

Participants

Among the 618 students who participated in the second year questionnaire conducted in December, 547 (male: 242, female: 305) answered every item in the ORS. The mean age and SD were 21.8 and 5.0 respectively. Missing data were analyzed, proving missing completely at random (MCAR). Therefore, we used the data obtained by the 547 students' responses.

Scales

ORS (Iume et al., 2006)

We got approval to use ORS in our study from Iume who developed it. ORS consists of 29 items with seven point scale. Each participant was instructed to choose the number of the answer that best applied to him/her, 6 being the most and 0 being the least applicable. As mentioned earlier, it consists of five factors: Insufficiency of Intimacy, Superficiality in Interpersonal Relations, Egoistic Manipulation, Excessive Need for Identification, and Abandonment Anxiety, and only the five items included in Superficiality in Interpersonal Relations are reverse items, and the other 24 items were non-reverse items. The higher the score, the lower the respondent's object relation maturity.

Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM, Evans et al., 2000, 2002)

In order to evaluate the participants' mental health, CORE-OM was applied. The CORE-OM was developed as a standardized brief outcome measure for use in both routine clinical training and psychotherapy research. The reliability and validity of the Japanese version of the CORE-OM was confirmed (Uji, Sakamoto, Adachi, & Kitamura, 2012). It consisted of 34 items, including dysphoric mood, life functioning, psychological well-being, and, risk to self and others. Each participant was instructed to choose the number of the answer that best applied to him/her, 5 being the most and 1 being the least applicable. The higher score indicates more seriously impaired mental health.

Psychological distresses

Psychological distresses were evaluated in the three domains: academic, interpersonal, and the other domain. Distresses in the other domains consisted of all those not categorized under the academic and interpersonal domains. The participants were instructed to give distresses they experienced scores from 0 (indicating absence of distress) to 100 (indicating extremely high distress).

Statistical analyses

CFA was conducted for ORS to evaluate whether the five-factor model proposed by Iume et al. (2006) showed either desirable or acceptable levels of fitness. If we found cases where the

fitness was either undesirable or unacceptable, we planned to explore other models which fit to the data better. The compatibility of the five-factor model with the data was evaluated by the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and χ^2/df . According to conventional criteria, a good fit would be indicated by CFI >.97, RMSEA <.05, and χ^2/df <2, and an acceptable fit by CFI >.95, and RMSEA <.08, and χ^2/df <3. We also used the Akaike Information Criterion (AIC), in which lower AIC was judged as being preferable. The best fit model was then analyzed simultaneously between genders in order to verify the configural, metric, and scalar invariance. SPSS version 26.0 and Amos version 26.0 were used for CFA. Furthermore, correlations of the ORS subscale scores with the scores of the three domains of psychological distress and CORE-OM were examined using the t-test.

RESULTS

CFA

We conducted CFA for the 29 items of ORS to evaluate whether the five-factor model originally proposed by Iume et al. (2006) showed favorable fitness, but found that the result was poor (CFI: .881, RMSEA: .063, χ^2/df : 3.198). This necessitated us to develop an alternative model. The model which showed the best fitness level was a four-factor model (CFI: .949, RMSEA: .054, χ^2/df : 2.597), though the number of items was further reduced to 20. Three factors originally included in Iume et al.'s five-factor model were replicated in the four-factor model. They were Insufficiency of Intimacy, Superficiality in Interpersonal Relations, and Abandonment Anxiety. The last factor of the four-factor model was the compound of items included in the two factors in the original model: Egotistic Manipulation and Excessive Need for Identification. This factor was named as Egotistic Manipulation & Excessive Need for Identification. The number of items included in the Insufficiency of Intimacy, Superficiality in Interpersonal Relations, Egotistic Manipulation & Excessive Need for Identification, and Abandonment Anxiety were five, four, four, and seven, respectively. The fitness levels of these two models are shown in Table 1.

With regard to the four-factor model, standardized correlations between each factor and other factors as well as the factor loading of each item are shown in Figure 1, where each factor is indicated as a latent variable and each item is indicated as an observable variable.

Table 1. Fitness of ORS to hypothesis models

	CFI	RMSEA	χ^2/df	AIC
Fitness of ORS to the three hypothesis models (n=547)				
Five-factor model (29 items) (Iume et al.)	.881	.063	3.198	1360.5
Four-factor model (20 items)	.949	.054	2.597	553.2
Configural, metric, and measurement invariances of the 20-item four-factor model: male (n=242) vs. female (n=305)				
Configural	.931	.045	2.110	954.4
Metric	.932	.044	2.036	931.7
Scalar	.918	.047	2.183	983.4

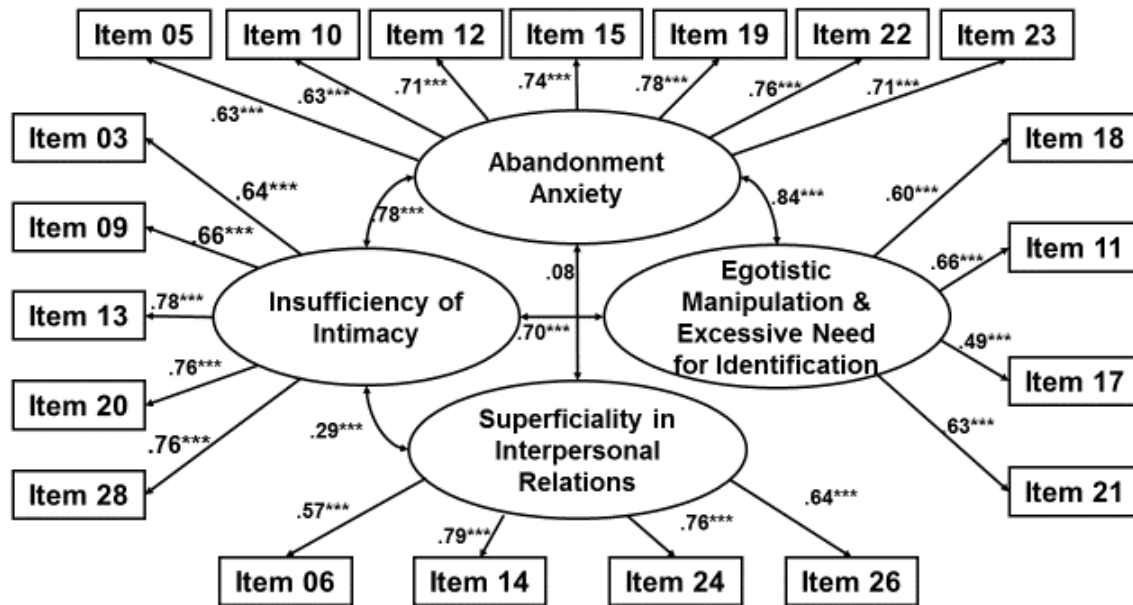


Figure 1. CFA for four-factor model. The item numbers are those of ORS. The numerical values of covariances and causal coefficients are standardized.
*** $p < .001$.

Although the five-factor model proposed by Iume et al. did not show an acceptable fitness level, our four-factor model is a minor-modified version of their five-factor model. The configural, metric, and scalar invariance between genders were also confirmed by simultaneous analysis of multi-groups (Table 1).

Internal consistency

Every item finally selected in our four-factor model is shown in Table 2. Cronbach's alpha, and correlations between each item score and its subscale score (Table 2) indicated favorable internal consistency (Table 2).

Table 2. Items in the four-factor model

Item number	Items	item-subtotal correlation	Cronbach's coefficient alpha	Mean (SD)
	Insufficiency of Intimacy		.84	9.8 (6.7)
03	I am afraid of getting close to other people.	.73**		
09	I tend to keep people away at a distance by building emotional barriers.	.77**		
13	I find it difficult to get close to other people.	.82**		
20	I often become tense and nervous when I am near someone.	.77**		
28	I have no idea how to meet and talk with other people.	.77**		

Superficiality in Interpersonal Relations		.79	7.6 (5.1)
06R	I value an interpersonal relationship in which I am able to gain a lot.	.73**	
14R	I have somebody who will help me when I am in trouble.	.78**	
24R	I have someone who understands the true me.	.78**	
26R	My relationships with friends are relatively stable.	.74**	
Egoistic Manipulation & Excessive Need for Identification		.73	6.1 (4.5)
18	I tend to manipulate others in order to fulfill my needs as I desire. (originally categorized in Egotistic Manipulation)	.76**	
11	I am seeking somebody who I can feel is a part of me. (originally categorized in Excessive Need for Identification)	.76**	
17	It's only natural for my mother (or surrogate mother) to make my wishes come true. (originally categorized in Excessive Need for Identification)	.73**	
21	I always feel that I need to be with a person I'm close to, no matter what the activity is. (originally categorized in Excessive Need for Identification)	.73**	
Abandonment Anxiety		.88	17.2
05	I sometimes have the fear of being betrayed by someone who is very close to me.	.72**	
10	I am sensitive to people's facial expressions when I come face-to-face with them.	.69**	
12	I get seriously hurt when my ideas are negated by someone close.	.75**	
15	I frequently become anxious because I feel I will be left behind at any time.	.78**	
19	I am sensitive to people's negative attitudes and behavior towards me, and easily get hurt.	.82**	
22	At times I feel afraid that someone precious (to me) might reject me.	.81**	
23	I feel rejected, when a person close to me is distracted by something other than me, and that hurts me.	.75**	

Notes: "Item number" refers to that in the original version developed by Iume et al. R stands for reverse, as in ORS 06R, ORS 14R, ORS 24R, and ORS26R.

The relationship of object relations maturity with mental health and psychological distresses

The relationships between each ORS subscale score and CORE-OM score as well as relationships between each ORS subscale score and psychological distresses are shown in Table 3. All the

ORS subscale scores have significantly positive correlations with the CORE-OM score and interpersonal distresses. Furthermore, Insufficiency of Intimacy as well as Abandonment Anxiety had significant positive correlations with academic distresses and distresses in the domain other than interpersonal and academic.

Table 3. Correlations of ORS subscale scores with the scores of psychological distresses and CORE-OM

	Psychological distresses			CORE-OM
	Academic domain	Interpersonal domain	Other domain	
Insufficiency of Intimacy	.14**	.33**	.16**	.60**
Superficiality in Interpersonal Relations	.04	.19**	.07	.43**
Egoistic Manipulation & Excessive Need for Identification	.07	.16**	.08	.09**
Abandonment Anxiety	.18**	.34**	.16**	.57**

**** $p < .01$.**

DISCUSSION

In this study, the ORS four-factor model was confirmed and its four subscale internal consistency was also proven. Furthermore, object relation immaturity assessed by the ORS was proven to be related to poor mental health.

We first would like to discuss why the four-factor model was supported instead of the original five-factor model. As noted, the four-factor model can be regarded as a modified version of the original five-factor model. The two factors in the five-factor model, Egotistic Manipulation and Excessive Need for Identification were merged into one factor in the four-factor model. This would be due to the fact that these two attitudes are closely related to each other: an individual with an intense need to identify with others would manipulate the others in any way he/she desires. On the other hand, the other three factors, Insufficiency of Intimacy, Superficiality in Interpersonal Relations, and Abandonment Anxiety kept their uniqueness as an independent factors, although all four factors are inter-correlated as significant levels of co-variances (Figure 1).

As predicted, an immature and unstable object relation was associated with impaired mental health indicated by high CORE-OM scores as well as stresses in the interpersonal domain. Furthermore, two subscales, Insufficiency of Intimacy and Abandonment Anxiety, were related with stresses in the academic domain and stresses in the domain other than interpersonal and academic. As mentioned in the Introduction, object constancy is one of the crucial roles of the ego. When an individual has immature and unstable object relations, other functions of the ego, such as predicting consequences of one's decisions and actions, and finishing what he/she started, are also weak. With students, this can manifest as low academic performance, followed by academic stresses. Regarding all of the stresses in the domain other than interpersonal and academic, a variety of stresses were included, such as one's sickness, parental divorce, and traffic accidents, among others. Some stressors were unavoidable. However, stress levels depend on an individual's appraisals of, and coping behaviors towards stressors. An individual

with immature object relation is unable to evaluate some negative life events objectively and cope with them in accordance to the reality principle.

Clinically, it is important to assess object relation maturity levels for those who experience a variety of stresses. If a patient's object relation is immature, psychological intervention to focus on the immaturity is required.

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