Assessment of Prosocial Moral Reasoning on Iranian: Evaluation of the Measurement Models and Validation of the Measure of Prosocial Moral Reasoning on Iranian University Students

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ABSTRACT

Measure of Prosocial Moral Reasoning (PROM-R) assesses 5 types of prosocial moral reasoning. Besides considering measurement model with 5 latent variables, other different factor models for this measure can be considered. The present study was designed for examining validity and studying these measurement models on Iranian. PROM-R was administered on 438 Iranian undergraduate students, also two measures for assessing empathy and social desirability was administered on 182 persons of them. Confirmatory factor analysis showed that 5 factors model has better fitness than 4, 3, and 2 factors models. Convergent and divergent validity of PROM-R' subscales by empathy and social desirability was good. Internalized reasoning and overall score of prosocial moral reasoning had significant and positive relationship to empathy. But any of subscales or overall score hadn't any significant relationship to social desirability. Also the reliability of PROM-R's subscales that studied by internal consistency and test re test method was good. The gender differences study showed that males had higher score in the lie/nonsense and approval oriented subscales. But females had higher score in internalized moral reasoning and overall score of prosocial reasoning.

Keywords: Prosocial Moral Reasoning, Measure of Prosocial Moral Reasoning (PROM-R), Empathy, Social Desirability

INTRODUCTION

In the view of some philosophers like Kant, rationality can be cause of moral behavior [1]. So for years studying the moral reasoning was core concentration in the mainstream of moral psychology [2]. In the Kohlberg approach the moral reasoning levels is more about justice; but there is another approach to moral reasoning. This approach considers another type of moral reasoning that can be named as care based (or prosocial) moral reasoning [3]. Prosocial moral reasoning is defined as decision making regarding helping opportunities when there is a conflict between one's own and others' psychological or physical needs, in situations where there are no laws or formal social guidelines [4]. Types of prosocial reasoning showed that somewhat are related to age [5] and somewhat are related to prosocial behaviors [6].

Carlo et al. [7] made an objective measure of adolescent prosocial moral reasoning (PROM). The measure assesses five types of prosocial moral reasoning: Hedonistic prosocial, approval-oriented, need –oriented, stereotypic and internalized prosocial moral reasoning. According to Carlo et al., [8], hedonistic reasoning is reasoning about helping according to a hedonistic gain to the self (orientation to gain for oneself), b) direct reciprocity (orientation to personal gain because of direct reciprocity or lack of reciprocity from the recipient of an act) and c) affectional relationship (orientation to the individual's identification or relationship with another or liking for the other).

Approval and interpersonal orientation is orientation to others' approval and acceptance in deciding what is the correct behavior [6]. Needs oriented is orientation to the physical, material, or psychological needs of the other person. Stereotypes are considering good or bad according to stereotyped images of a good or bad person.

And higher level of reasoning or internalized prosocial moral reasoning that can be sympathetic, perspective tacking, internalized affects, or abstract internalized reasoning [8].

These types of prosocial moral reasoning are according to Eisenberg's studies (see Eisenberg, Carlo, Murphy, & Van Court, 1995). Indeed Carlo et al. [8] combined some Eisenberg's types of prosocial moral reasoning to getting these 5 types. For example internalized reasoning is combination of Levels 4 and 5 in Eisenberg's idea [9]. But beside 5 factors model there are some other models for PROM. Carlo et al. [1], according previous studies proposed three models for PROM. 5 factors model, 3 factors model and 2 factors models were models that Carlo et al. [1], examined in their study on adolescents from USA and Berzil.

Two factors model include self-oriented (i.e. hedonistic, approval-oriented) versus other-oriented (i.e. needs-oriented, stereotyped, internalized). 3 factors model include two lowest developmentally sophisticated types (i.e. hedonistic, approval-oriented), the two middle developmentally-Sophisticated types (i.e. needs-oriented, stereotyped) and the highest developmentally-sophisticated type (i.e. internalized) [8]. 3 factors model include two lowest developmentally sophisticated types (i.e. hedonistic, approval-oriented), the two middle developmentally-Sophisticated types (i.e. needs-oriented, stereotyped) and the highest developmentally-sophisticated type (i.e. internalized)

Four latent variables made by Carlo et al. [4], because the high positive correlation between internalized and stereotypic prosocial moral reasoning. This model is similar to 5 latent variables but there is combination of stereotypic and internalized prosocial moral reasoning as a factor. In the study of Carlo et al. [4], all models had reasonable fitness but 4 factor models was slightly better fitting model. Also the 5 factors model was better than 3 and 2 factors model.

Viewing the development of moral reasoning as universal or culturally related, is a controversial subject in moral psychology [9, 10]. The aim of present investigation is studying validity and reliability the Persian translation of PROM-R on Iranian university students and evaluation the different factor models of this scale. Carlo et al. [4] showed 4 factors model is best fitting model on Brazilian and American. The question of this study is about best factors model on Iranian.

For convergent validity empathy was considered and for divergent validity social desirability was considered. Empathy can define as "intellectual or imaginative apprehension of another's conditions or state of mind" [11]. According to the research of Carlo, et al. [8], sympathy negatively related to lower types of prosocial moral reasoning (approval and hedonistic prosocial moral reasoning), and positively related to internalized prosocial moral reasoning. Empathy is a construct near to sympathy [12, 13]. So empathy was predicted that has negative relationship to approval and hedonistic prosocial moral reasoning, and has positive relationship to internalized prosocial moral reasoning. Also according to Carlo et al. [8], empathy was predicted that has positive relationship to overall score of prosocial reasoning.

Social desirability is "a tendency of self-report instruments to respond according to what is perceived socially desirable rather than on personal true characteristics" [13]. Albeit social desirability in the research of Carlo et al. [4], had a negative relationship to need oriented prosocial reasoning, according to Carlo et al. [8], social desirability was predicted that has not any significant relationship to types of prosocial moral reasoning.

Gilligan [14] believed that female's moral reasoning is care oriented (prosocial) but male's moral reasoning is justice oriented. Meta-analyses showed that there are gender differences in moral reasoning and moral orientation but these differences are small [15]. According to Carlo et al. [8], there are some gender differences in internalized and stereotypic prosocial moral reasoning in young adolescent (females subject's score is more than males), but these differences in internalized disappeared in mid-adolescents. Some researchers also showed that adolescent's boys report more approval-oriented prosocial moral reasoning than adolescent girls [16]. Although this research is doing on university student and not teenagers, according to Gilligan[14], female participants predicted that will be show more score in overall prosocial moral reasoning score or at least in some higher prosocial moral reasoning.

MATERIALS AND METHODS

Participants: the measures were administered on 470 Iranian undergraduate students from Shahid Chamran University of Ahvaz (in Iran). But because some of them didn't respond to measures completely, the sample of this research decreased. Hence finally 438 completed measures (64.8 % female) were remained. The age mean of them were 20.68 (SD: 1.91). 182 participants from the 438 sample completed empathy subscale of Bar-On Emotional Quotient Inventory (EQI) beside other measures. Others just completed PROM-R and Marlowe-Crowne social desirability scale. Time of responding was approximately 35 minute.

Participants were from 5 faculties and from 33 classrooms. 94.2% of participants announced their religion as Muslim and Shia and other participant had preferred that didn't announce their religion. The questionnaires were nameless but for motivating participants, if they had wanted, they received a code and by it they could afterward see the content and result of their questionnaires (by comparing with mean of other participant) in a weblog.

By the same manner (but not by using nameless questionnaires) for study reliability by test re test method (after 55 days) 34 under graduate junior (first semesters) student in psychology and counseling courses were used (21 female, M age 19.67, SD: 1.36). Also 12 junior (first semesters) undergraduate students of education (6

female) were used for discussing about comprehension the Persian items of PROM-R, for doing some modification, if the measure was not comprehensible.

Measures: Adult Versions of the Prosocial Reasoning Objective Measure (PROM-R): Adolescent and adult version of prosocial reasoning objective are illiterate item for lie/illiterate responding. This measure has two versions for males and females. Both versions have same story and reasons. The just difference is male or female characters in stories .

The scoring of this measure can be by overall score or can be by scores for any 5 subscales. Carlo et al. [1] in their study for making this measure showed the reliability and validity of this measure. The 5 types of prosocial moral reasoning in this measure is hedonistic ($\alpha = 0.72$), approval oriented ($\alpha = 0.78$), need oriented ($\alpha = 0.56$), stereotypic ($\alpha = 0.67$), and internalized ($\alpha = 0.70$). But Carlo et al. [1] found that a four-factor model of this measure is slightly better fitting model than the five-factor model across USA and Brazil adolescents. Anyway several studies showed adequate reliability and validity evidence on the English and other language versions of the PROM [1].

After translation this measure to Persian by one of authors of this article, 3 Iranian university professors that was Persian native and familiar to English language compared the Persian translation to original replica and according to their comparison, some modification was done on the Persian translation. Then 12 under graduate students in a meeting read the measure and tell about their perceiving of this measure. After meeting some modification was done on the Persian phrase of this measure. Some modifications were done on this measure for adaptation it to Iranian culture: The name of stories characters Change to Iranian Name (Persian or Arabic) and in the sample story (Bike story) the character of story in the female replica was became mal (Because the Biking for females is unusual in Iran.

Empathy: for measuring the empathy, empathy subscale of Bar-On Emotional Quotient Inventory (EQI) [18] was used. This subscale has 6 items and scored at 1 (completely disagree) to 5 (completely agree). Translation and validation the EQI to Persian was carried out by Shamsabadi [19] and in his study Cronbach's alpha of empathy subscale was 0.55. By the data of present study Cronbach's alpha of this subscale was 0.75 .

Social desirability: for measurement the social desirability 13 item Marlowe-Crowne social desirability scale was used. This Scale was made by Crowne et al. [20], and its validation has been done in several researches [21, 22, 23], and in several societies [24]. Translation and validation of this scale to Persian has done by Najarian [25] and that's validity (by using L subscale of MMPI) was satisfactory. Because the response of this measure is consist of true and false responding, for study internal consistency, Formula of Kuder-Richardson (KR20) was used [26] by data of present research. The internal consistency from this method was 0.51.

Data analysis: Confirmatory factor analysis was run with the software of AMOS16 [27]. The indices that were used included: Bentler–Bonett normed fit index (NFI), Comparative fit index (CFI), Goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), Ratio of chi-square divide to degrees of freedom (X2/df) and The Steiger–Lind root mean square error of approximation (RMSEA). NFI, CFI, GFI and AGFI are range from 0-1 and higher level is indicates better fit. If the X2/df is less than 3 there is usually the good fit. A rule of thumb tell that RMSEA value of 0.05 indicates close approximate fit, values between 0.05 and 0.08 suggest reasonable error of approximation, and RMSEA 0.1 Suggests poor fit [28]. For comparing the models Akaike information criterion (AIC) and expected cross-validation index (ECVI) were used. The model with the smallest AIC and ECVI is chosen as the one most likely to replicate [29].

For reliability Cronbach's alpha and correlation coefficient (between tests and retests) were used. For divergent and convergent validity, correlations of PROM's subscales to empathy and social desirability were studied. Also inter correlation between PROM's subscales were studied. For study gender differences, multiple analysis of variance (MANOVA) and T test were used.

RESULTS

The indices of confirmatory factor analysis for different factor models of PROM-R were presented by table 1. The RAMSEA of all models are between 0.05 and 0.08 and X2/df of all models was less than 3. So the fitness of all models was suitable. But AIC and ECVI of 5 latent variables model was less than other models, also this indices in 4 latent variables model was less than 3 and 2 latent variables model. So 4 latent variables model in compare to 2 and 3 latent variables model had better fitness and 5 latent variables model in compare to 2, 3, and 4 latent variables model have best fitness.

Table 1. Testing the fitness of PROM-R's models

	RMSEA	X²/df	CFI	NFI	GFI	AGFI	AIC	ECVI
2 latent	0.062	2.706	0.693	0.590	0.714	0.692	4239.036	9.700
3 latent	0.062	2.680	0.698	0.594	0.716	0.694	4198.556	9.608
4 latent	0.057	2.417	0.746	0.635	0.756	0.736	3807.855	8.714
5 latent	0.056	2.389	0.752	0.640	0.759	0.739	3764.731	8.615

Consideration that 5 factors model had best fitness on the population of present study, the reliability of the 5 subscales beside lie/nonsense subscale was studied. Reliability of PROM-R's subscale by internal consistency and test re test method were presented by table 2. Test re test was done after 55 days. Cronbach's alphas value is between 0.641 and 0.926 and correlation coefficients are between 0.599 and 0.803 and significant (all Ps< 0.01). So the reliability of subscales (subscale of 5 factors model) is desirable.

The relationships of empathy and social desirability to PROM-R's subscales and overall score in order to getting convergence and divergent validity were presented by table 3. There was not any significant relationship between Social desirability and any subscale of PROM (and overall score). Empathy also had positive and significant (P<0.01) relationship to overall score and internalized prosocial moral reasoning.

Inter correlation between PROM-R's subscales and overall score presented by Table 4. Overall score of moral reasoning positively related to need oriented, stereotypic and internalized prosocial moral reasoning and negatively related to approval oriented, hedonistic reasoning and lie/nonsense subscale (all Ps<0.01). Lie/ nonsense subscale beside negative relationship to overall score (P <0.01), related negatively to internalized (P <0.05), need oriented (P <0.01) and approval prosocial reasoning (P <0.01). Internalized prosocial reasoning negatively related to hedonistic and approval oriented and positively related to stereotypic prosocial reasoning (all Ps<0.01). Stereotypic prosocial reasoning beside positive relationship to internalized reasoning, negatively related to hedonistic, approval and need oriented prosocial moral reasoning (all Ps<0.01). Need oriented beside negative relationship to stereotypic, negatively related to hedonistic and approval oriented reasoning (all Ps<0.01). And approval reasoning beside negative relationship to stereotypic and internalized and beside positive relationship to need oriented positively related to approval oriented (all Ps<0.01).

Table 2. Reliability of PROM-R's subscale

	Hedonistic	Approval	Need	Stereotypic	Internalized	Lie/nonsense
Alphas	0.819	0.926	0.641	0.657	0.657	0.789
test re test	0.803**	0.776**	0.703**	0.798**	0.798**	0.599**

Test re test: n = 34, after 55 days; **= P < 0.01

Table 3. Relationship of PROM-R's subscales and overall score to social desirability and empathy

	Hedonistic	Approval	Need	stereotypic	Internalized	Lie/nonsense	Overall score
Empathy	-0.133	-0.079	-0.13	0.128	0.225***	0.059	0.225**
Social desirability	-0.075	-0.028	-0.051	-0.001	0.065	0.053	0.165

**= P < 0.01

Table 4. Inter correlation of PROM-R's subscales

	Hedonistic	Approval	Need	Stereotypic	Internalized	Lie/nonsense	Overall score
Hedonistic	1						
Approval	0.247**	1					
Need	-0.202**	0.431**	1				
Stereotypic	-0.602**	-0.395**	-0.233**	1			
Internalized	-0.454**	-0.635**	0.003	0.230**	1		
Lie/nonsense	-0.075	0.257**	-0.137**	0.006	-0.116*	1	
Overall score	-0.685**	-0.824**	0.288**	0.514**	0.869**	-0.140**	1

**= P < 0.01 and *= P < 0.05

In order to studying gender differences of 5 types prosocial moral reasoning, overall score of prosocial moral reasoning, and subscale of lie/ illiterate, multivariate analysis of variance (MANOVA) was used. The Levene's Test of Equality of Error Variances was not significant (P> 0.05) and the variances were homogeneous. But because the high relationship (r= 0.869) between overall score and internalized subscale score (see table 4), for preventing of multi collinearity [30] gender differences of overall score calculated separately by independent T test.

Results of MANOVA showed that there was a significant multivariate main effect of gender on PROM-R's subscales, $F_{(5, 425)} = 6.093$, P< 0.001, Wilk's Lambda= 0.933, partial $\eta2 = 0.067$. Univariate Follow-up tests indicated that male participants had higher score in the lie/nonsense scales, $F_{(1, 429)} = 12.951$, P< 0.01, partial $\eta2 = 0.029$, and they had higher score in approval oriented prosocial moral reasoning, $F_{(1, 429)} = 18.947$, P< 0.001, partial $\eta2 = 0.042$. Female participants had higher score in internalized prosocial moral reasoning, $F_{(1, 429)} = 10.604$, P< 0.01, partial $\eta2 = 0.024$. But there were not any gender differences in stereotypic, $F_{(1, 429)} = .001$, P= 0.969, partial $\eta2 = 0.00$, need oriented, $F_{(1, 429)} = 2.790$, P= 0.096, Partial $\eta2 = 0.006$, and hedonistic prosocial moral reasoning, $F_{(1, 429)} = .239$, P< 0.625, partial $\eta2 = 0.001$. The mean and standard deviation in subscales and overall score of prosocial moral reasoning were presented by Table 5. T test was used for study

gender differences in overall score of PROM-R. The T test showed that female participate had higher overall score than male participates, T= -3.144 df = 495, p< 0.005.

Table 5. Means, standard deviations and number of population of PROM's scores in males and females

	Lie/nonsense	hedonistic	approval	need	stereotypic	internalized	Overall
Males mean	24.35	18.35	13.59	22.38	22.39	23.28	191.34
Males SD	9.40	3	3.74	3.08	3.18	3.32	8.02
Males N	147	147	147	147	147	147	147
Females Mean	20.63	18.50	11.90	22.91	22.37	24.30	193.89
Females SD	10.56	3.25	3.87	3.16	3.61	3.03	7.97
Females N	284	284	284	284	284	284	284

DISCUSSION

Present study was in order to validation of prosocial moral reasoning in Iranian students. Confirmatory factor analysis showed that 5 factors model has better fitting than other models. This is according to approach of Carlo et al. [8], But this is somewhat different to the finding of Carlo et al. [1] that showed 4 factors model has better fitting.

Albeit in the study of Carlo et al. [1] 5 factors model had adequate fitness, but combination of stereotypic and internalized prosocial moral reasoning (4 latent variables model) had more fitting. The study of Carlo et al. [1] was on adolescents and college students from Berzilian and American. But finding of present study shows that in Iranian university students 5 latent variables model has better fitting, although that the 4 latent and another models have reasonable fitness. Iranian university students could inducted that more differentiate internalized prosocial moral reasoning and stereotypic prosocial moral reasoning; so the 5 factors model is more suitable for them.

Consideration that there were not any relationship between social desirability and any subscale of PROM-R (and overall score of PROM-R) the divergent validity of this measure has confirmed. Consideration that internalized subscale and overall score of prosocial moral reasoning significantly and positively related to empathy, Convergence validity of this measure confirmed. This is according to Carlo et al. [8], albeit according to them, hedonistic and approval oriented had been negative relationship to empathy, but finding of present research didn't show significant relationship between these.

Albeit in the study of Carlo et al. [8] the negative relationships were by sympathy and perspective taking and they didn't study general empathy. Although perspective taking and sympathy somewhat is similar to cognitive and affective dimensions of empathy [31] but these constructs is somewhat different to viewing empathy as general factor. Empathy as general construct for example includes (in the view of some researchers) or relates to some constructs like personal distress [33], and personal distress was predicted that in compare to other empathic constructs have different relationships to prosocial concerns [13, 12]. Similarly Carlo et al. [8] showed that personal distress has positive relationship to approval oriented reasoning and negative relationship to stereotypic and internalized prosocial moral reasoning. Then this is not stranger that prosocial reasoning had been somewhat different relationship pattern to empathy as general factor, rather than related constructs like sympathy and personal distress.

Finding about gender differences showed female university students had higher internalized reasoning and higher overall prosocial moral reasoning score. More score in overall prosocial moral reasoning and internalized reasoning as highest reasoning is according to view of Gilligan [15] about care oriented reasoning in women. Some researchers showed that approval oriented is higher in adolescent's boys than adolescent's girls [17]. According to them this research showed that approval oriented reasoning is more in Iranian male university students than Iranian female university students. An interesting finding about gender differences was higher score of male participant in lie/illiterate subscale. This finding can alarm researchers who use PROM-R that should be more conscious about lie/illiterate responding when they are working with male participants.

The reliability of this measure (test re test and internal consistency) was suitable. Finally the measure has suitable validity and reliability in order to using with Iranian university students. Eisenberge et al. [6] like Kohelberge considered moral reasoning as developmentally sophisticated phenomena. Present study just administered on age of undergraduate university students. There seem next researches for study ability of generalization the prosocial moral reasoning must be done on other ages and in development process.

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