

Factor analysis of the revised scale of prosocial tendencies among secondary school female students in Ahwaz, Iran



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ABSTRACT

The present study aimed to investigate the factor structure, validity, and reliability of the revised measure of prosocial tendencies among secondary school female students in Ahwaz. The statistical population included all secondary level of secondary school female students in Ahwaz during 2017-2018, about 200 of whom were selected by using a multi-stage random sampling method. Cronbach's alpha, Spearman-Brown and Gutman formula were used to calculate the reliability of the instrument and all results indicated good significant condition. Further, the confirmatory factor analysis was used to calculate the construct validity of the mentioned instrument. This instrument has significant factor loadings with favorable fit indices and could be applied in health school studies as $\chi^2 = 232.09$, $DF = 170$, $P = 0.0001$, $\chi^2/df = 1.37$, $AGFI = 0.91$, $GFI = 0.88$, $LFI = 0.94$, $TLI = 0.93$, $CFI = 0.94$, and $RMSEA = 0.04$. The instrument as the first Persian scale which measures prosocial tendencies within juveniles alike other foreign formats could be used in educational settings and colleges.

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1. Introduction

Undoubtedly, man enjoys indescribable abilities, some of which are inherent and some are acquisitive. Flourishing his potential abilities, their proper orientation, and acquiring the necessary knowledge and skills, human can turn into an unmatched asset, and provide him and others with a dynamic and constructive life in a decent way. If necessary, education is a delicate and specialized skill with a lot of complexity. A large body of research is conducted around the world to understand the problems and difficulties in this field and searching for more efficient, profitable and effective measurement and educational and training content, methods and instruments indicate the significance of education. On the other hand, an improvement in the learners' mental abilities, as well as the acquisition and improvement of ethical skills and values are considered among the most important duties of educational centers (Ghahremani et al., 2018). Ethical and human values are one of the important issues that have played a fundamental role in human life, and the prophets also aimed to complete the moral wisdom and refine the self.

Ethical values include those which are worthy to be displayed by educated people in different educational environment as well as their personal, social and professional life. These ethical values include veracity, feeling responsible to others, kindness, sympathy, conscience, justice, and respecting others (Borba, 2016). According to Narvaez (2010), ethical and health skills can be enhanced and promoted by training and educational health (Ghahremani et al., 2014). Some people consider ethical principles as important and pivotal while others do not conceive it as a key factor in decision makings related to satisfaction and success in life (Hafizah et al., 2012).

Psychology of ethics is an interdisciplinary field seeking to examine human behavior in terms of ethics, and seeks help the achievements of both scientific psychology and moral philosophy. In fact, moral psychology is an area which pursues both intrinsic and fundamental interests and practical and scientific interests (Doris and Stich, 2006), among which "cognitive developmental approach" is regarded as the most important approach.

Based on Piaget (1932) methodology and cognitive developmental approach in studying the formation of morality in humans, Kohlberg (1978) introduced his six-step stages in three levels (Gibbs et al., 2007). He believes that children passively ignore cultural norms as morals, and their moral thinking can be strengthened by discussing with others who can argue one stage higher than

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themselves. Like [Piaget \(1932\)](#), [Kolhberg \(1978\)](#) believed that peer interactions leads to further moral thinking because peers have the same status and power with the child. Therefore, children discuss ethical rules with their peers and resolve disagreements with argumentation. In addition, peer interaction provides children with opportunity to role play.

"Learning to serve" the community and accepting community responsibility is a form of moral education which promotes social responsibility and serving the community. One of the goals of this training is to make students less self-centered and create more motivation to help others. This kind of learning takes the education into the community and is beneficial for both the receiver of the help and the helper. Researchers have found that teaching to serve the community helps the helper to improve his grades, be more motivated to help others, target more goals, be more self-confident, have less feeling of alienation with the environment and think more about the moral order of society.

Different views and definitions of ethical behavior in scientific-psychological investigations can justify emphasizing on more operational terms such as "prosocial behavior". In fact, prosocial behavior focuses on others' welfare ([Carlo and Randall, 2001](#)). The "prosocial behavior" called "voluntary behavior" is one of the prosocial behaviors which benefits others and society as a general set. [Padilla-Walker and Carlo \(2014\)](#) emphasized the multi-dimensionality of this behavior. In addition, one of the basic features which distinguish prosocial behavior from other prosocial behaviors is the lack of any direct benefit for the doer of the behavior which entails risk for him even in some cases ([Martin-Raugh et al., 2016](#)). Although gender may influence such behaviors, it is only in terms of its appearance and the original issue still persists. The most important factors affecting the prosocial behavior are considered as caused by the biological, psychological and social dimensions of individuals, which are resulted from hormonal effects, social expectations, and personal aspects among individuals ([Panksepp and Lahvis, 2016](#)).

In terms of the distinguishing the features related to prosocial behavior, it is believed that it is voluntary and which aimed to benefit and provide the welfare and comfort of another person or persons, rather than the person himself, regardless of external motivations and rewards ([Zahn-Waxler and Schoen, 2016](#)). Prosocial behaviors have favorable social and psychological outcomes and in fact, are contrary to behaviors such as brutality, cruelty, selfishness, and lack of sense of responsibility and ignoring and indifference to the needs and pain of others, aggression, violence and prejudice ([Asadollahi et al., 2013](#)). Due to the spread and variety of prosocial behavior, they are separately classified and explained in the following categories:

Altruistic behaviors: It is a type of behavior done for the sake of happiness and welfare of another person, without expecting rewards or reciprocation

([Janoff-Bulman and Carnes, 2016](#)), and include behaviors such as sacrifice, dedication and preferring the interests and needs of others on his own.

Compliant behavior: In this type of behavior, the individual learns to follow helping to verbal and non-verbal request of the fellowman for the sake of compliance and acceptance ([Xu, 2016](#)). Responding behavior is accompanied with behaviors such as kindness, adaptability, agreement, accompaniment, admission, assistance, and compassion on behalf of the helper.

Emotional behavior: It is the biological aspect of the social's behavior, which suggests that the biological and internal conditions of the individual undergo some changes in emotional and exciting conditions which are observable and measurable in the form of positive and negative excitements. The same conditions may prepare or discourage the person to behave in a scarifying manner ([Tang and Ye, 2016](#)). Emotional behavior prompts an individual to help people in an emotional and exciting state, if necessary.

Public behavior: According to the definition of [Eberly-Lewis and Coetzee \(2015\)](#), the distinctive feature of the public social's behavior is helping others with the presence of scene witnesses in order to get the confirmation and respect of the attendants. In this type of behavior, the helper helps individuals in need of help in the presence of others.

Dire: It refers to the relationship between biologic, social, personal and psychological aspects of the helper in emergency conditions and includes attitudes and services of helper in abnormal and risky conditions ([Rotolo et al., 2015](#)). Tough behavior refers to helpers' behaviors in serious, important, tough, risky, urgent and emergency situations.

Anonymous behavior: It indicates that the helper remains anonymous ([Xygalatas et al., 2016](#)), and is considered to be based on metaphysical beliefs and a kind of external reward. Further, it may be considered as pure type of behavior based on the helper's intrinsic motivations ([Kraus and Callaghan, 2016](#)). Anonymous social's behavior means providing assistance and services in a situation when there is no external surveillance behavior and the helper remains anonymous.

Prosocial behavior can be scientifically analyzed at different levels. At the micro level of analysis, the biological and evolutionary foundations of the prosocial behavior are discussed in the form of the term "altruism". From the evolutionary point of view, mechanisms such as kin altruism, reciprocal altruism, and group selection can be investigated regarding the survival of prosocial behavior throughout the history of human evolution. The genetic bases of prosocial behavior can be studied in the form of temperamental disparities in pre-readiness of prosocial behavior such as sympathy and stability of behavior during growth. The stability of prosocial behavior as a personality trait throughout life as well as neurophysiology of this

behavior, for instance in the form of difference in performance of cerebral hemispheres or a brain inhibition system, or physiological readiness for experiencing some emotions through prosocial behavior are regarded as other issues raised in studying prosocial behavior at micro level (Penner et al., 2005).

At the macro level of analysis, prosocial behavior can be studied in the form of a term such as "volunteerism" (volunteering to perform activities of public utility). The volunteering consists of social activities which are planned in an organizational context and continue over time. Economic, sociological, and psychological explanations try to examine the voluntary acts and the social and organizational context in which these behaviors take place. An example of these voluntary behaviors is the Organizational Citizenship Behaviors (OCB) including those behaviors which are done voluntarily and performed beyond the role set for the individual by the organization and without any demand from the part of staffs. Research and theoretical models suggested at the macro level of scientific analysis in order to study the voluntary behaviors could be applied well to explain Organizational Citizenship Behaviors (Penner et al., 2005).

However, in the meso-level of analysis, the situation and location like emergency or non-emergency and cause such as hypocrisy or sympathy are analyzed in terms of psychology and social psychology. Investigation of helping individuals inside and outside the group, the effect of audiences on helping process, the effect of emotions like empathy and sympathy and the effect of moral reasoning and cognition, beliefs and self-images on the individual on his prosocial behavior can all be analyzed at this level (Penner et al., 2005).

Significance of the study: A valid instrument to measure the social tendencies of teenagers aged between 11 and 16 was first translated in Iran and its reliability and validity was determined by the researcher and supervisor in the present study which can be useful for future educational research measure. In addition, students, as the largest human capital of the community, are regarded as the future managers for progress and development. Therefore, it is worthy to spare no effort in helping learners to acquire better life skills and enhance the ability to face up the challenges and the serious human and social responsibilities ahead. Further, education experts believe that timely and appropriate diagnoses play a pivotal role in improving and expanding the current performance and future capabilities among the students. Thus, it is necessary to provide easier and more accurate identification ways to enhance individuals' social skills through appropriate measurements. Furthermore, the results of the present study will have some applications and implications in educational, training, counseling and clinical settings since the previous findings showed that disregarding the social tendencies of children and adolescents prevents from developing their

helper's moral and human values and causes social activity problems, behavioral disorder and abnormalities, leading to an increase in differences and conflicts in their interpersonal relations. . Further, since the majority of the personality is formed in childhood and adolescence, by informing the future generation of the extent of this moral helper virtue, the results of applying this measurement instrument can encourage them to achieve and enhance this prodocial values and behaviors and probably prevent them from attempting immoral and anti-altruistic behaviors. Finally, the present study aimed to evaluate the extent of social tendencies of adolescents. Therefore, the findings of the present study can be implemented to predict and improve the helping behaviors in charity and help agencies and to strengthen the behaviors which are required by institutions such as the Red Crescent in order to engage the community in volunteering for charity.

2. Material and methods

The present research is based on a psychometric study. The statistical population included all female students in the second grade of secondary school from the four parts Ahvaz, among whom 200 students were selected based on multi-stage random sampling method. In other words, two districts were selected from four educational district of Ahwaz and three female secondary schools from each were selected by using simple random selection. Then, regarding the population of the 11th grade of these secondary schools, 200 students were randomly selected. Table 1 indicates the number of schools and sample related to the reliability and validity of the instrument.

As shown in Table 1, 200 students were selected by using simple random sampling method. After selecting the sample, they completed the revised measure of social tendencies. In order to observe the ethical considerations of the research, the subjects were provided with a brief explanation regarding the responding method before distributing the questionnaire, and they were assured at the beginning of the experiment by saying that "completing the test is merely a research and your responses will confidential by assigning your test a code". In addition, attempts were made to avoid the mistakes caused by social desirability. Given the number of items, it takes about 20 minutes to perform the test in each class.

2.1. Instrumentation

The revised measure of prosocial tendencies, which is a pencil-paper questionnaire, was used in the present study. This measure was first developed by Carlo and Randall (2002) through studying research literature and past measures, exploratory and confirmatory factor analysis, as well as examining reliability through test-retest and internal consistency and checking convergent and divergent

validity, and validated through implementing among university students. The results indicated its desirability for American university students. Then, its revised version (PTM-R) was validated by Carlo et al. (2003), by applying the measure on adolescents. For the first time in Iran, this instrument was translated, edited, and its reliability and validity determined by the researcher and supervisor of the present study. To this end, the measure was translated by the researcher and the translation was revised and modified by the supervisor. In addition, it was provided to the focus group including 10 second grade secondary school female students in order to understand its understandability and formal validity. Following this one-hour session, some modifications were made on a measure, and the sample was validated. This measure includes 21 items which measure six types of prosocial behavior including altruism, compliant, emotionality, publicity, dire and anonymity. The response is based on a 5-point Likert measure (1=does not describe me at all, 5=describes me a lot). The minimum and the maximum achievable scores are 21 and 105, respectively. A sample of items of this measure includes "when people ask me for help, I do not hesitate and help them quickly".

Table 1: Number of schools and sample related to the reliability and validity of the instrument

District	Number of selected schools	Number of selected students
1	3	138
4	3	62
Total	6	200

3. Results

Carlo et al. (2003) measured the psychometric properties of this measure by applying it on adolescent boy and girl students. Carlo et al. adapted the items of this measure to work with the age group 11 to 16, which included lexical simplification for the target age group. They used convergent and divergent methods to calculate the validity of this instrument and the correlation between its sub-scales and the results were significant at $p < 0.01$ and $p < 0.05$ levels. A confirmatory factor analysis was

performed on the items of this measure using the AMOS-22 Gestalt structural analysis software to determine the validity of this toll in the present study, the structural functional of which was confirmed. Table 2 illustrates the standard coefficients of the revised measure of social tendencies in the present study.

Table 2: The standard coefficients (factor loadings) of the revised measure of the prosocial tendency

Factors	Items	β	b	SE	CR	Sig.
Publicity	1	.61	1.00	-	-	-
	3	.74	1.22	.16	7.65	0.0001
	12	.35	1.21	.16	7.74	0.0001
Emotional	2	.52	1.00	-	-	-
	11	.59	1.65	3.80	3.80	0.0001
	15	.61	1.67	3.95	3.95	0.0001
	19	.38	2.0	3.98	3.98	0.0001
	21	.74	1.23	3.29	3.25	0.0001
Altruistic	4	.56	1.00	-	-	-
	9	.62	.77	6.87	6.87	0.0001
	18	.24	.88	7.58	7.58	0.0001
	20	.69	.29	3.05	3.05	0.0001
Dire	5	.66	1.00	-	-	-
	8	.48	.92	7.12	7.12	0.0001
	13	.83	.92	5.65	5.65	0.0001
Compliant	6	.73	.92	-	-	-
	16	.71	1.00	6.25	6.25	0.0001
	7	.61	1.12	-	-	-
Anonymous	10	.73	1.00	7.65	7.65	0.0001
	14	.58	1.40	6.65	6.65	0.0001
	17	.81	1.04	7.91	7.91	0.0001

As illustrated in Table 2, all standard coefficients are over 0.30 in implementing the confirmatory factor analysis of the revised measure of the prosocial tendencies. In other words, all items had good loading and all regression values (β) with the respected sub-factor are significant ($P = 0.00001$). As shown in Table 3, the values of fitness indices show that this model has good fitness. In addition, the results of the confirmatory factor analysis indicated that the coefficients of the Root Mean Squares Approximation Error (RMSEA) index equals to 0.04, Comparative Fitness Index (CFI) 0.94, Goodness of Fit (GFI) 0.88, Adjusted goodness of Fit Index (AGFI) 0.9, Incremental Fitness Index (IFI) 0.94, and the index of Tooker-Lewis Index (TLI) was obtained as equal to 0.93, which implies the model is well-fitted with the data.

Table 3: The fitness indices of confirmatory factor analysis in the revised measure of prosocial tendencies

Fitness Indices	χ^2	DF	P	χ^2/DF	AGFI	GFI	LFI	TLI	CFI	RMSEA
Revised Measure of Prosocial Tendencies Scale	232.09	170	0.0001	1.37	0.91	0.88	0.94	0.93	0.94	0.04

Carlo et al. (2003) reported reliability coefficients between 0.54 to 0.86 for this scale and its sub-scales, by using Cronbach's alpha and test-retest methods. Three methods of Cronbach's alpha, Spearman-Brown and Guttman formula were used to calculate the reliability of the present study and 0.62, 0.70 and 0.59 coefficients were obtained, respectively. Further, the reliability coefficients of the sub-scales of this instrument were calculated between 0.60 and 0.78, using the Cronbach's alpha method and all of these coefficients are satisfactory. The results could prove the well-adjusted reliability and validity of the

instrument and its usefulness for the relevant studies.

4. Discussion and conclusion

The requirement to measure adolescents' prosocial tendencies is an instrument which can measure these tendencies in a reliable and valid way so that the plans can be set to create, strengthen and maintain these ethical values and attitudes based on such accurate measurements and take steady steps. The results showed that the instrument could

measure what it is designed to measure, and the confirmatory factor analysis for this instrument confirmed its constituent elements. In addition, it could confirm the fundamental theoretical framework of the construct validity of the questionnaire. Further, factor indices of factor analysis of the research questionnaire indicated suitable fitness of the model based on the collected data. In this regard, the results are in line with the findings of the designer of this instrument. Further, reliability and internal consistency of the research instrument were found to be desirable by using Cronbach's alpha, Spearman-Brown and Guttman formula. Therefore, it can be acknowledged that the reliability of this instrument and its sub-scales were confirmed. All of these results indicate the desirability of the psychometric features of this measure for secondary school students in Ahwaz.

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Patient consent

Written and verbal consent of patients was obtained before participating the study.

Conflict of interests

The authors declare that they have no competing interests.

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