

Development and Validation of Pro-Social Behavior Assessment Scale (PBAS) for Children with Developmental Psychopathologies

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Abstract

Pro-social behaviors are those behaviors that create a sense of harmony and compassion among people. These are the behaviors that promote the “social-good” in a society. The children with developmental psychopathologies are ignored for their positive attributes and more attention is focused on their undesirable behaviors and hence the larger body of assessment of children with developmental psychopathologies deals with their undesirable behaviors. This paper presents the systematic development of an indigenous measure to assess pro-social behavior in children with developmental pathologies. Initially 67 items were gathered from an item pool which was generated through semi-structured interviews from experts which were then validated by experts for their significance and relevance to the construct. Total 37 items with the highest endorsement rates were retained for the scale and it was then administered on 148 children with Intellectual Deficiency 5 to 17 years ($M = 11.56$, $SD = 3.04$). Factor analysis revealed four factors contributing to Pro-social behaviors namely; Social Competence, Initiative Taking, Task Adherence and Selflessness. Results are discussed in terms of factors in indigenous scenario and the psychometric properties of the scale.

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Introduction and Literature Review

Prosocial behavior is broadly defined as voluntary actions intended to benefit others, including helping, sharing, and comforting (Dovidio, Piliavin, & Schroeder, 2004; Eisenberg, 1986; Padilla-Walker & Carlo, 2014). Myers (2005) describes it as the “opposite of antisocial behavior,” emphasizing its role in fostering empathy and altruism, where individuals prioritize societal well-being over personal gain. Such behaviors are essential for the cohesion and survival of communities, as they strengthen emotional bonds and promote collective responsibility. Research further highlights that prosociality in children can be nurtured through parental modeling and school-based interventions (Spinrad & Gal, 2018).

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Parental warmth both prosocial tendencies and emotion regulation, while higher levels of prosocial behavior are linked to adaptive outcomes and peer acceptance (Collie et al., 2019). Children with stronger prosocial skills often enjoy positive developmental trajectories and are well-liked by peers, reinforcing the importance of cultivating these behaviors early in life (Smorti & Ponti, 2018). According to Sagi and Hoffman (1994) all infant has an inborn empathic ability through which they can relate to others. But as the children grow the development of this innate empathic ability to relate to others depends largely on the relations of the children with others, which means that essentially all children do have a tendency to relate and feel with others. It is our actions and reactions that teach the children the manners of behavior. To put it simply, pro-social behavior can be groomed in a child as they are born with such tendencies.

Some researchers have recorded pro-social behavioral effects on children, such as cooperation, helping, friendliness, sharing, delay of gratification, imaginative play, and altruistic behavior (Lovelace & Huston, 1983; Paik, 1995). Generosity has been found to be one similar construct in most of the studies examining pro-social behavior. According to Brenner (1997) pro-social behavior includes those behaviors that are “generous, friendly, and self-controlled.” Generosity and helping are forms of pro-social behavior (Comstock, 1993; Potter & Ware, 1989). Pro-social has also been defined as cooperative behavior (Goldberg & Gorn, 1979). Prosocial Behavior has also been linked to Friendship Quality in School children (Hashmi & Iftikhar, 2025). It has been also shown that Prosocial behavior in young children has been consistent through different domains and subtypes in young childhood (Paz, et.al. 2023).

Andrade, Brown and Tannock (2014) state that pro-social behaviors are important and necessary for the adjustment and appropriate social functioning of the children as pro-social behaviors help to develop a sense of acceptance from others towards them. These behaviors bring them closer to both their families and their peers. They also state that children with disruptive disorders do tend to receive more rejection as they keep getting in trouble. They even conclude that the children having oppositional defiant disorder and conduct disorder can have better social functioning if aside from teaching them not to engage in disruptive behavior, they are also taught pro-social behavior. This helps the children to find peer acceptance and warrants better social functioning of the children.

There are multiple theoretical approaches proposed to understand the pro-social behavior. Eisenberg and Mussen (1989) state that the roots of pro-social behavior development, in the light of the psychodynamic theory, can be traced into the superego element of the personality. The superego which is the internalized representative of the society’s morals develops in a child around five to six years of age. And once it develops, the child through the process of identification with their parents adopts on their traits. This adoption of certain traits later leads to a path which helps the child to form his personality with a pro-social element in it along with other characteristics.

The evolutionary perspective tries to explain pro-social behaviors in terms of their importance in ensuring the survival of the human race. The best mechanisms to explain this view are kin selection (Hamilton, 1964), reciprocal altruism (Trivers, 1971) and group selection (Sober & Wilson, 1998).

The learning and conditioning theories have been a very dominant theme throughout in the history of psychology since its advent. The learning theories focus only on how we develop our associations with certain events and how we repeat certain behaviors in those situations whose outcomes turn out to be favorable for us. The operant conditioning principle implies that we learn certain behaviors as they end up in favorable consequences and we don't repeat certain behaviors as they result in unfavorable consequences (Miltenberger, 2008).

Most importantly the social learning theory by Bandura (1977) implies that we learn certain behaviors just from our surrounding environments through mere observation. We see other people carrying them out, and so we tend to try them ourselves too. Usually these other people are the persons who we take as credible authority, such as parents. And once we see that these actions are met with a favorable response, we assume and adopt those behaviors permanently.

The present study aimed to explore the construct of pro-social behavior in indigenous cultural scenario in children with developmental psychopathologies. There is relatively little research on specifically pro-social behaviors in children with developmental psychopathologies. Most of the assessment and interventions focus on the problems of the child and largely ignore the positive interaction and abilities of the child. The existing assessment measures also follow the same pattern and assess the problems more than their positive potential, thus ignoring it completely. There are no indigenous measures of the pro-social behavior for children with developmental psychopathologies. And even when there are some, they do not fully assess the construct of pro-social behavior. Trotter (2009) states that the definitions of pro-social behavior may vary from culture to culture as their definitions are rooted in social and cultural norms. Hence, while defining pro-social behaviors it is important to keep in mind the cultural context in which these behaviors are to be studied.

Objectives of the Study

1. To explore the phenomenology of pro-social behavior in children with developmental psychopathologies.
2. To construct an indigenous, valid, reliable, and culture-specific measure for assessing pro-social behavior in these children.

Material and Methods

The study was conducted in three phases. In Phase I, the phenomenology of pro-social behavior was explored. In Phase II, items measuring pro-social behavior were empirically generated and administered to a sample of children with developmental psychopathologies. In Phase III, the results were analyzed to establish the psychometric properties of the scale.

Phase I

Step 1: Exploration of the Phenomenology of Pro-social behavior and Item Generation.

Formulation of Semi Structured Interview. In order to explore the types of behaviors regarded as being "pro-social" in the cultural scenario the phenomenology of the construct was explored. In order to develop a semi-structured interview for this purpose 5 experts in the field were contacted. They were professional Clinical Psychologists having at least 5 years of experience in the field. Pro-social behaviors were operationally defined as any form of behavior which is intended towards the good of other person and bring people together and creates

harmony in the society. In this way questions were generated for the semi-structure interview which assessed helped explore the construct in different dimensions.

Step 2: Semi Structured Interview

Semi-structured interviews were carried out with 19 experts which included Special Education Teachers, Professional Clinical Psychologists and Psychiatrist. They were asked to describe and give examples of pro-social behavior on the basis of their observation and experience. All the experts had a minimum of three years of professional experience. In this way 67 items were generated.

Step 3: Degree of Agreement

Degree of agreement on items was sought in order to select the items that were the most suitably assessing the construct of pro-social behavior and were relevant as well as to rephrase any ambiguities in how the items were asked. Opinions and degree of agreement was sought from 15 experts having at least three years' experience in the relevant field, from Lahore. They were given a standard definition of pro-social behavior and were asked to rate the items, on a 4 point rating scale, on the basis of their relevance to the given standard definition of pro-social behavior. 0 meant not at all, 1 a little, 2 to some extent and 3 to great extent. The items that had less than 50% degree of agreement were dropped and this left a total of 37 items at this stage which constituted the scale.

Step 4: Translation of Social Competence Scale

In order to establish the concurrent validity of the PBAS, "Social Competence Scale" (Center for Disease Control and Prevention, 2005) was used. It was translated in Urdu as the PBAS was in Urdu as well and in order to establish concurrent validity it was required that both the scales be in the same language. Social Competence Scale (Center for Disease Control and Prevention, 2005) was selected on the basis of its relevance to the construct that it measured in children. This scale is comprised of two subscales, one subscale is used to assess the level of social competence and the other one measures the presence of pro-social behaviors. The second subscale was used in the present study and was translated in to Urdu language. A standardized translation process was followed (Beaton, Bombardier, Guillemin, Ferraz, 2000). After the comparison of the forward and backward versions of translations, no conceptual discrepancies were found in the translated version and it was comprehensible and bore construct equivalence.

Step 5: Validation Study

In order to validate the final forward translation, the original version of Social Competence Scale and its forward translation were administered on 15 physically handicapped children, age range 7 to 15 years ($M = 12.30$, $SD = 2.71$) with a gap of one week, respectively. The response options were given on a 5 point Likert point rating scale where 0 meant for not at all, 1 for a little, 2 for to some extent, 3 for to good extent and 4 for to great extent. Next, item by item and item total correlation was carried out. All the items were above the 0.5 – 0.01 level. And finally an empirical translation of the subscale of Social Competence Scale was achieved.

Phase II

Exploring the Factor Structure of Pro-Social Behavior Assessment Scale

In the final step factor analysis was conducted on the 37 items of the scale. Other psychometric properties such as concurrent validity were also found.

Participants

In order to assess the psychometric properties of the PBAS a sample comprising of 148 intellectually disabled children taken from 5 special education intuitions of Lahore. A purposive sampling strategy was used to get the sample. The age range selected for the sample was from 5 to 17 years ($M = 11.56$, $SD = 3.04$). The children with a co-occurring problem such as, Autism, or any physical disability such as vision and hearing impairment was excluded as these problems may or may not hinder with their ability to engage in pro-social behaviors.

Measures

Following measures were used in this phase.

Informed Consent

Permissions to collect data were sought from the special education institutions after briefing them about the purpose of the study. Informed consent was sought from the teachers of the participants. They were informed about the nature and purpose of the study and their rights pertaining to participate or to withdraw at any point of the study.

Demographic Sheet

Demographic variables were also used and information was taken from the primary caregivers of the participants. This included age, family system, parental education and any problem of sight or hearing. These variables were included in the demographic sheet in the light of literature review.

Social Competence Scale

The translated version of Social Competence Scale (Center for Disease Control and Prevention, 2005) was used to assess the pro-social behavior of the children in the light of teacher's perception, along with newly constructed *Pro-social Behavior Assessment Scale (PBAS)*. It is a 5-point Likert rating scale. It has 19 items and two subscales; pro-social behavior and emotional regulation. The subscale of pro-social behavior was used.

Procedure

In order to administer the measures mentioned above, permissions from 5 different Special Education Institutes of Lahore was sought. The institutions were informed of the nature and purpose of the research and permissions to conduct research were sought from the heads of the intuitions on permission letters. After permission to conduct the research was sought then the Informed Consent was sought from the primary care takers of the children who in this case were their teachers. They were informed about the nature and purpose of the study and of their right pertaining to be a part of the study. The teachers were asked to monitor each child and rate them on their level of pro-social behavior on PBAS by keeping in mind the child's behavior in the last three months. The teachers observed each child to assess his or her pro-social behavior individually and after their observation, they rated each child individually on the scales.

Results

This section deals with the factorial structure of the PBAS and its psychometric properties.

Factor Structure of PBAS

Principal Component Analysis (PCA) with Varimax rotation was applied to 37 items of PBAS to maximize simplicity, interpretability, and variance. Several criteria were used to determine the number of factors, including Eigenvalues greater than 1, scree plot examination,

and Kaiser's criterion of total explained variance. The Kaiser-Guttman rule initially suggested a seven-factor solution, but this was considered over-extraction. Subsequent analyses tested six- and four-factor solutions. The four-factor solution was identified as the most suitable, offering minimal dubious items and a clear, interpretable structure. Items with factor loadings below .50 were excluded, resulting in the removal of six items.

Table. 1

Results from Factor Analysis of Pro-Social Behavior Scale (PBAS)

PBAS Items	PBAS Items	Factor Loadings			
		1	2	3	4
Factor 1: Social Competence					
PBAS11	Help in household	.50	.38	.45	.09
PBAS 15	Mingle easily	.60	.49	.15	.16
PBAS 16	Accept new people	.53	.37	.12	.15
PBAS 18	Observe	.72	.22	.11	.28
PBAS 19	Feel emotions	.60	.24	.11	.52
PBAS 20	Feel empathy	.68	.20	.30	.14
PBAS 21	Tell elders	.72	.20	.11	.27
PBAS 22	Help selflessly	.57	.14	.38	.38
PBAS 24	Help pick dropped items	.61	.26	.41	.22
PBAS 25	Invite in play	.66	.28	.49	.31
PBAS 26	Help in play	.65	.25	.41	.61
PBAS 29	Bring forgotten items	.53	.13	.40	.41
PBAS 30	Care for others	.64	.17	.44	.23
PBAS 32	Express happiness	.60	.37	.31	.10
PBAS 33	Talk openly	.51	.45	.28	.13
PBAS 36	Play with others	.64	.30	.40	.11
Factor 2: Initiative Taking					
PBAS 3	Praise others	.13	.69	.18	.12
PBAS 6	Greet	.34	.66	.24	.16
PBAS 7	Smile	.24	.80	.15	.12
PBAS 8	Attachment	.20	.81	.10	.20
PBAS 14	Inquire farewell	.42	.54	.13	.46
Factor 3: Task Adherence					
PBAS 5	Share	.10	.50	.56	.14
PBAS 23	Control emotions	.22	.12	.60	.21
PBAS 34	Observe cleanliness	.24	.12	.56	.28
PBAS 35	Wait for turn	.13	.18	.52	.54
PBAS 37	Care for younger	.53	.12	.55	.12
Factor 4: Selflessness					
PBAS 12	Imitate good behavior	.24	.30	.24	.67
PBAS 13	Pray	.12	.46	.13	.66
PBAS 27	Help cross road	.10	.15	.30	.71
PBAS 28	Find solution	.36	.14	.44	.68
	Eigen Values	8.17	5.60	4.54	4.02
	% of Variance	22.08	15.11	12.29	10.88
	Cumulative Variance	22.08	37.20	49.49	60.37

Note. $N = 148$, PCA = Principal component analysis, Varimax Rotation, Factor loadings $> .50$.

Table 1 presents the results of factor analysis for the Pro-social Behavior Assessment Scale (PBAS), identifying four distinct factors. Each factor had an Eigenvalue greater than 1, indicating high variance and strong construct validity. From an initial pool of 36 items, 30 were retained based on the criterion of factor loadings above .50, ensuring appropriate item quality

and strong associations with the overall scale. Item analysis confirmed the effectiveness and reliability of individual items, supporting their inclusion. Principal Component Analysis with Varimax rotation was employed to maximize interpretability, and the retained items were clustered into four meaningful factors. These factors were labeled according to item commonalities, establishing a clear and coherent factor structure for PBAS. The factors were labeled as Social Competence, Initiative Taking, Task Adherence and selflessness.

Factors Description

Exploratory factor analysis with Varimax rotation was conducted on the data to group the items in factors on the basis of the similarity. The factor analysis yielded four factors which were assigned names on the basis of their similarity of items.

Factor 1: Social Competence

This domain includes items that are more likely related to social competence. The total number of items in this domain is 16. These items are related to *Helping in Household Chores, Inquire Farewell, Sharing, Greeting and Helping Others, Praising Others, Imitating Good Behavior, Feel Empathy and Feel Emotions, etc.*

Factor 2: Initiative Taking

This domain includes items that are more likely related to initiative taking. The total number of items in this domain is 5. The items in this domain are related to *Helping Pick up Dropped Items, Helping Selflessly; Invite Others in Play and Controlling Emotions, etc.*

Factor 3: Selflessness

The items in this domain are most likely related to selflessness. The total number of items in this domain is 4. The items in this domain are related to *Waiting for Turn, Cooperative Play and Care for Younger Siblings, etc.*

Factor 4: Task Adherence

This domain includes items that are likely related to task adherence. The total number of items in this domain is 5. The items in this domain are related to *Imitate Good Behavior, Pray for Others, Help Cross Road and Finding Solution etc.*

Cronbach Alpha Reliability (Internal Consistency)

The Cronbach's alpha of the PBAS is .96, which shows high internal consistency, and for the subscales it ranged from ($\alpha = .94$ to $\alpha = .76$) for its subscales. The PBAS requires 5 to 7 minutes to administer.

Table 2

Cronbach's Alpha of Four Subscales and Total Items of PBAS

Subscales	K	α
Social Competence	16	.94
Initiative taking	6	.87
Task adherence	5	.76
Selflessness	4	.80
PBAS Total	31	.96

Table 2 shows that the Cronbach Alpha of the scale is ($\alpha = .96$) which is highly significant. The table also shows that the subscales of Social Competence has high internal consistency ($\alpha = .94$). The subscales of Initiative Taking, Task Adherence and Selflessness have Cronbach's Alpha values of ($\alpha = .87$, $\alpha = .76$, $\alpha = .80$) respectively. Overall the table shows that the PBAS and its subscales have high internal consistency.

Table 3*Correlation Matrix, Means and Standard Deviation of PBAS and its Subscales (N = 148)*

Scales	Factor 1	Factor 2	Factor 3	Factor 4	PBAS Total
Social Competence	-	.74**	.73**	.66**	.96**
Initiative Taking		-	.59**	.58**	.83**
Task Adherence			-	.62**	.82**
Selflessness				-	.77**
Total PBAS					-
M	27.97	11.79	8.20	4.15	51.95
SD	11.39	4.33	3.52	3.13	19.95

Table 3 shows Inter-correlation between the Pro-social Behavior Assessment Scale scores, its subscales social competence, Initiative taking, Task adherence and Selflessness was computed. Inter-correlation revealed highly significant correlation ($p < 0.01$) indicating the strong association between pro-social behavior found in children with developmental psychopathologies and its subscales (social competence, initiative taking, task adherence and selflessness).

Determining the Reliability of the PBAS

Alpha Reliability

The alpha reliability of PBAS was found out to be $r = .75$ which shows that the reliability of the PBAS is good which signifies that it is rightly assessing the construct of pro-social behavior.

Test-retest Reliability

The PBAS was re-administered on 15 intellectually deficient children, between age range of 6 to 15 years ($M = 10.33$, $SD = 2.94$), after a gap of one week in order to assess its test-retest reliability. The test-retest reliability of the PBAS was found to be 0.83 which is excellent correlation.

Concurrent Validity

To assess the concurrent validity of PBAS, the translated version of Social Competence Scale (Center for Disease Control and Prevention, 2005) was used. The concurrent validity of the PBAS was found to be 0.85.

Split Half Reliability

The split half reliability of the PBAS was found by dividing the scale into odd and even numbers. The reliability of the first half was found to be 0.93 and the reliability of the second half was also found to be 0.93.

Discussion

Pro-social behaviors are any form of behavior that are intended towards the benefit of other people. These behaviors are found in children and adults alike. In the first part of the study an indigenous Pro-social Behavior Assessment Scale was formed. A construct may vary from culture to culture due to the differences in customs and expected behaviors in each culture (Macionis, 2004). Trotter (2009) states the pro-social behavior also may be different from culture to culture as its definitions are rooted in cultural and social norms. Hence, an indigenous

measure for pro-social behavior for children with developmental psychopathologies was developed. The construct was explored in the Pakistani cultural scenario to explore the cultural manifestation of the construct in children with developmental psychopathologies. The results showed the range of pro-social behaviors was spread over different situations such as home, school and with peer, as it was already expected as well.

Through item generation a rich pool of items based on the indigenous cultural background was produced which had a total of 67 items. And from the generated items, some items were selected on the basis of their relevance to the construct and expert ratings, after which the total number of the items was 36. The scale administered was on a sample of 148 mentally retarded children ($M = 11.56$, $SD = 3.04$). Factor analysis was conducted which revealed four factors namely; Social Competence, Initiative Taking, Task Adherence and Selflessness. The total number of items retained for the final scale on the basis of the factor analysis was 30.

The Social Competence factor included items such as sharing, greeting, developing attachment and praising others. The Initiative Taking factor included items such as inviting others in play, controlling emotions and help pick up dropped items. The Task Adherence factor had items which ranged from finding a solution in difficulty to taking care of belongings. Finally Selflessness factor contained items such as waiting for turn and look after younger siblings. The literature also support all these descriptions of pro-social behavior found from these factors (Brenner, 1997; Comstock 1993; Goldberg and Gorn; 1979; Lovelace and Huston, 1993; Paik, 1995).

Our societal trends and attitudes have changed a lot as the use of technology has grown common. But we still do need to reassess our stance on some issue, especially in Pakistani society. Providing the children with developmental pathologies, a non-biased disposition is surely one of the things that we must do. It is a common observation in a majority of cases that the children with developmental psychopathologies are treated like second class citizens and the minutest of their undesired behavior is taken as a sign of their hostility. Mostly the children are ignored for their good potentials which is the slightest depiction of the societal attitudes towards developmental pathologies, though the effects of such attitudes are horrendous. It is important to understand that at times such behavior might not be the problem but the manifestation of it. And hence, these further stresses the need to focus on the positives of the child in order to help him or her grow more socially “good” or able.

On the basis of the findings from the present research it can also be concluded that children with other developmental disorder can also benefit from the intervention strategies to boost Prosocial behavior. Taylan and Çarşanbalı (2025) have found out that self-regulation skills determine the Prosocial behavior in a sample of Autistic as well as Non-Autistic Children. Another study by Zic, et.al. (2025) also highlighted the social and emotional competencies of children with Autism and Intellectual Developmental Disorders. The research highlighted that the children did not differ from each other a lot in terms of their competencies, however the parents of the children rated them as being different from each other. To conclude Prosocial competencies and skills are good for the social and emotional development of the children with developmental delays and needs.

Conclusion of the Study

The PBAS hence highlights many different domains where a child with developmental psychopathologies can be provided an opportunity to work on his pro-social behavior, in turn helping him to form better social ties, collaborative environment and an overall better quality of life. The PBAS has been found to be a reliable and valid measure to assess the pro-social behavior in children with developmental pathologies. This study helps to understand the dimensions in which pro-social behavior can occur. The study has produced an indigenous measure to assess pro-social behavior in children with developmental pathologies.

Limitations and Suggestion of Study

The present study has several limitations that should be acknowledged. First, the sample was restricted to the city of Lahore, which limits the generalizability of findings to broader populations; future research should include participants from multiple cities and diverse contexts to enhance representativeness. Additionally, only Exploratory Factor Analysis was conducted, and further studies should employ Confirmatory Factor Analysis to validate the factor structure of the Pro-social Behavior Assessment Scale. Cross-cultural comparisons are also recommended to examine whether ethnic or cultural differences influence prosocial behavior among children with developmental psychopathologies. Another limitation is the absence of discriminant validity testing, which should be addressed in subsequent research to strengthen the psychometric properties of the scale. Based on these limitations, it is suggested that prosocial behavior be assessed more comprehensively, integrated into individualized treatment plans, and actively promoted by teachers, parents, and caregivers through structured activities to enhance children's personal and social well-being.

Implications of the Study

PBAS can be used to develop Individualized Treatment Programs (ITP). It can be used to do behavioral assessments in an indigenous Pakistani society. It can help to improve the independent functioning of a child by helping the primary caregivers of the child understand his or her behavioral dispositions and responses. In further studies the scale can also be used with another scale to measure non-compliant or undesirable behaviors. The results of the assessment of pro-social behavior can render help in improve social skills of the children, by building on the already existing skills. The research implication will also facilitate the two way communication between the children and their primary caregivers or teachers by engaging them in pro-social behaviors and it will also improve their adaptive skills and help them become independent.

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