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The development and initial validation of the parent anger scale

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Abstract

Anger is a frequently experienced negative emotion that occurs identified in all ages and across all cultures (DiGiuseppe & Tafrate, 2007). Parent anger is concerning because it has been associated with dysfunctional discipline strategies, child abuse, child noncompliance, and various emotional problems during childhood (see Smith Slep & O'Leary, 2001). The Parent Anger Scale is a new measure for parent anger developed based on new data in the field. The purpose of this study was to psychometrically validate the Parent Anger Scale (PAS). Results show adequate properties of the scale based on a 1-factor solution.

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1. Introduction

Within the field of parenting research, there are general anger scales (for adults) and a few parent anger scales that are utilized to measure parent anger. The current scales used to measure parent anger however, fail to address important new developments in the study of anger (e.g., motives). The Parent Anger Scale (PAS) is a new self-report scale of parent anger, that we built based on existing anger models and current research in the field of parent anger.

Parent Anger Scale was developed by DiGiuseppe, DelVecchio, and Gavita, based the SPARRS model of emotions (Power & Dalglis, 2008) used to create the Anger Disorders Scale (DiGiuseppe & Tafrate, 2007). The PAS measures four domains related to parent anger: arousal, cognitions, motives, and behaviors. The four domains measure various aspects that may relate to experience and expression of parent anger. Although there is limited research on these domains specifically related to parent anger, there is recent robust research and analyses on parent anger that supports aspects related to each of the four domains mentioned (see DiGiuseppe & Tafrate, 2007). The PAS items were derived from the Anger Disorder Scale-Short Form (ADS-SF; DiGiuseppe & Tafrate, 2004), which follows the SPAARS model. In contrast to the ADS-SF, the PAS items were developed to be specific to the parent-child context. Starting from this original set of items, we added several other items salient to parent child relationship.

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We conceptualized the PAS as having either one or two-factor structure, for greater clinical utility. Thus, we hypothesized that (1) an internalizing and externalizing factors would emerge or (2) one main factor. The anger experience factor (Anger-E) includes the scope of provocations that elicit anger, the intensity, frequency, and length of parent anger episodes, cognitions, and motives. The anger behavior factor (Anger-B) was designed to measure the behaviors and actions that a parent generates when angered. The Anger E factor consists of items within the arousal, cognition, and motivation domains and Anger B consists of the items within the behaviors domain. Based on the literature, triggers that may provoke parent anger are disrespect, irritation, annoyance, disobedience, behavioral intentions, and children's level of control (Brestan, Eyberg, Algina, Bennett Johnson, & Boggs, 2003; Carpenter & Halberstadt, 2000; Del Vecchio & O'Leary, 2008). The parent-child relationship may elicit a number of triggers that are specific to the individual relationship and therefore, rather than measuring each specific trigger, the scale addresses the range of provocations.

Notti (2010) provided the first psychometric data on English-speaking population for the PAS, in a doctoral thesis. The PAS had strong psychometrical evidence with good internal consistencies and concurrent validity. The factor structure of the scale was examined through exploratory and confirmatory factor analysis. A two factors model (hypothesized factor Anger E and Anger B) and one factor model were supported by the confirmatory factor analyses. The Cronbach's alpha of the PAS Total score and each factor score suggested that the items have high internal consistency (Notti, 2010; Total Score PAS $\alpha = .93$; Anger E factor $\alpha = .89$; and Anger B $\alpha = .83$). As expected, the PAS also correlated with the Over-reactivity and Hostile factors of the Parenting. No modifications were made to the scale based on this study (Notti, 2010).

This study further explored the psychometric validity (i.e., reliability and validity) of the Parent Anger Scale (1) on a sample of parents of kindergarten to high-school aged children and (2) on Romanian population. We assessed internal consistency as measure of reliability. We examined the validity of the PAS through concurrent and criterion-related validity. We proposed a number of specific validity-related hypotheses. The first hypothesis was that the Parental Anger Scale would measure parent anger intensity and therefore would positively correlate with the Parent Anger Inventory. We also hypothesized that parent anger would be related to, but distinct from, general adult anger. Also, we anticipated that the high scores in PAS would be associated with parental reported distress.

2. Method

2.1. Participants

Parents of children aged 4 to 17 years were recruited to participate in a study measuring parent anger. Parents were recruited from ten kindergartens and two schools in the county of Cluj, Romania. 331 parents completed the questionnaires that were eligible for the study. The mean age for parents participating to the study was 35.01 years ($SD = 4.94$). The majority (87.9%) of the mothers were married. 88.2% of the parents were mothers and 11.8% were fathers. The majority of the parents had some level of college education, with 56.3% having completed attaining a Bachelor's Degree. Parents completed questionnaires on their children who ranged from preschool through high school (Mean age = 6.42, $SD = 3.03$), and were 48.3% male and 50.2% female (1.5% did not indicate child gender). 85.5% of the parents were employed; 9.4% were unemployed, and 5.1% were on maternity leave (which lasts up to two years, as is the current law in Romania).

2.2. Measures

- *Parent Anger Scale (PAS)*. The PAS (see Appendix) comprises 30 items, which assess arousal (e.g., "I get so angry with my child that I feel my muscles get tight"), cognitions (e.g., "I resent all the time and energy I put into parenting"), motives (e.g., "I use my anger to get my child to behave"), and behaviors (e.g., "When I get angry with my child, I feel like screaming, cursing, or yelling at them"). Participants rated each item on a 6-point Likert scale (1 to 6) that vary based on the specific item (i.e., some items range in frequency such as "less than once a month" to "several times a day" or "a few minutes" to "several days", while others intensity such as "not at all angry" to "extremely angry". High score reflect a high level of parent anger.

- *The Parent Anger Inventory (PAI; Hansen & Sedlar, 1998)*. PAI is a 50-item measure that measures anger experienced by parents of children 2 to 12 years old in different child related situations. The measure consists of two

subscales, the Problem Scale, and the Anger Intensity Scale, which were both used in this study. Items present child related situations and parents are instructed to rate whether the situation is problematic and then how angry they feel in the situations, on a four-point Likert scale, ranging from “not at all” to “extremely”. Higher scores on each scale suggest a higher frequency and intensity of self-reported parent anger. Adequate psychometric properties were reported for the PAI (internal consistency coefficients for the problem scale $\alpha = .96$, and the anger intensity scale $\alpha = .81$; test-retest reliability $r = .80$ for the problem scale, and $r = 0.79$ for the anger severity scale; Hansen & Sedlar, 1998).

- *The State-Trait Anger Expression Inventory-2* (STAXI-2; Spielberger, 1999). STAXI is a measure of anger, which consists of 57 items. The STAXI-2 includes six scales such as state anger, trait anger, anger expression in, anger expression out, anger control in, and anger control out. In this study, the anger expression index was used and it is comprised of the following scales: anger expression in, anger expression out, anger control in, and anger control out. The STAXI-2 has strong reliability and validity (Spielberger, 1999). High score indicate a high level of anger.

- *The Profile of Mood States-Short Form* (POMS-SF; Shacham, 1983). POMS was developed to assess transient distinct mood states. The POMS-SF is a 37-item scale that measures six identifiable mood states: Tension-Anxiety (T), Depression-Dejection (D), Anger-Hostility (A), Vigor-Activity (V), Fatigue-Inertia (F), and Confusion-Bewilderment (C). Each item of the POMS short form is scored on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The Total Mood Disturbance was used in this study, which is calculated by subtracting the score on the one positively scored subscale, Vigor-Activity, from the sum of the other five subscales. Internal consistency estimates (Cronbach’s alpha) for the total score, the coefficient range is between .87 and .92 (Curran et al., 1995). A high score indicates a high level of distress. The measure was adapted on Romanian population with internal consistency coefficients ranging from .75 to .94 (Opris & Macavei, 2007), which are considered adequate values for a self-report instrument.

- *The Parental Stress Scale* (PSS; Berry & Jones, 1995). PSS is a self-report scale having 18 items that describe positive themes of parenthood (i.e., emotional benefits, self-enrichment, personal development) and negative indicators (i.e., demands on resources, opportunity costs and restrictions). Parents are instructed to rate each item on a five-point scale, representing their typical relationship with their child, from “strongly disagree” to “strongly agree”. Higher scores on the scale indicate greater stress. The scale assesses parental stress for both mothers and fathers of children with and without clinical problems. The Parental Stress Scale demonstrated good internal reliability ($\alpha = .83$), and test-retest reliability ($r = .81$). Similar levels of internal consistency were demonstrated on Romanian population (Cronbach’s alpha, $\alpha = .85$, $N = 194$), obtained from the sample included in this study.

2.3. Procedure

Principals of each school received a letter describing the study, and all forms of recruitment were approved with each individual kindergarten and school’s administration before any process began. The teachers distributed the packets to the parents. The packets included an informed consent form, demographic sheet, PAS, PAI, STAXI-II, POMS and PSS.

3. Results

Exploratory factor analytic techniques were utilized to explore the structure of the one factor and two-factors design. The factor designs were developed based on the current research related to parent anger (Anger-E and Anger-B). Additionally, internal consistence was examined for the total scores and for each factor derived from the factor analytic results. Lastly, a series of correlations were used to test the predicted hypotheses regarding the relationship between Parent Anger Scale and other related scales.

Demographic Analyses. Independent samples *t*-test revealed that there were significant differences between the mother and father groups in terms of reported age ($M = 34.52$, $SD = 4.60$ for the female group; $M = 37.94$, $SD = 5.91$ for the males group), $t(329) = 4.50$, $p < .01$. Additionally, analyses were conducted and determined that the

demographic information was not significantly different between the group of mothers and fathers (i.e., occupational status, marriage status; all p s > .05).

Factor Analyses (FAs). Principal axis factoring with Oblimin rotation was run on the sample to determine the factor structure. In order to determine the factor model, three aspects were examined: (1) the number of eigenvalues greater than one, (2) that each factor has at least three item loadings, and (3) the theoretical construct of the factor.

Within the exploratory factor analysis, four factors had eigenvalues greater than one and the factors accounted for 58.23% of the total variance. Item loadings within a single factor were considered (based on the Cattell graphic criterion) if the factor loading was greater than .30. Only two factors had three or more items loading at least .30 or greater (see figure 1).

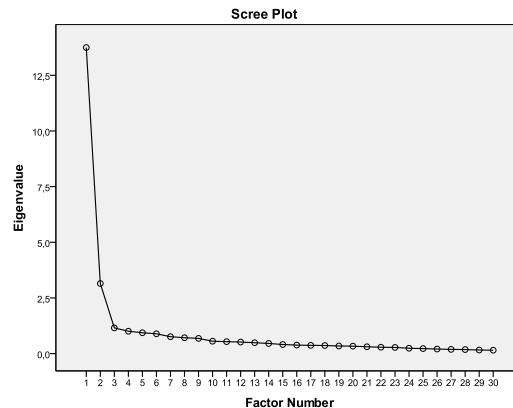


Fig. 1. Scree plot indicating the factors and eigenvalues of the PAS

An exploratory factor analysis with the constraint for a one-factor model using Oblimin rotation was conducted for further examination. The total variance explained by the factor is 44.07 %. Using a one-factor model, all items had factor loadings greater than .30, with factor loadings ranging from .35 to .81. Additionally, an exploratory factor analysis was conducted with the constraint for a two-factor model with Oblimin rotation. The total variance explained by adding an additional factor is 53.4%. Similar to the one factor model all items had a factor loading of .30 or greater for at least one of the factors, with factor loadings ranging from .31 to .84.

The theoretical construct of a one- or two- factors model was supported by the developmental research of the scale. However, the sets of items that loaded onto each of the factors within the two-factor model lacked coherent rationales for each set of items being combined into subscales. Also, some items in the two factors model loaded on both factors with loadings greater than .30. Given the scree plot, the theoretical construct of each model, and the factor loadings, the one-factor model appears to be a more parsimonious and interpretable solution. Based on the data obtained, the PAS could be scored by getting the PAS Total score.

Reliability analysis. Internal consistencies were examined for the PAS Total score. The Cronbach's alpha was adequate for the PAS Total Score, $\alpha = .95$.

Validity analyses. Significant relationship was obtained between PAS total score and PAI, Anger Intensity Subscale, $r(329) = .44, p < .01$. Additionally, as hypothesized, the PAS correlated with the problems subscale of the PAI, indicating the levels of child behavioral problems, are significantly related to parental anger, $r(329) = .22, p < .01$.

The PAS Total score was significantly related to the general anger, the STAXI-II AX-I, $r(329) = .20, p < .01$. Also, the PAS correlated significantly with the subscale Anger/Hostility of POMS, $r(329) = .36, p < .01$. The correlations suggest that PAS and its factor scores are associated with scales measuring general anger in adults. The strength of the correlations tended to be rather moderate; therefore, parent anger appears to be distinct from general adult anger, as hypothesized.

Significant correlations were obtained also between the PAS total score and general distress (POMS). PAS correlates moderately with the general distress (Total Disturbance Score of the POMS), anxiety, and depression, and

negatively with the Vigor subscale. A significant correlation was obtained also for the parental stress scale (see Table 1).

Table 1. Correlations among the PAS and the investigated constructs (N = 331)

Variables	Parental Anger (PAS)
Tension / Anxiety - POMS	.38**
Depression - POMS	.30**
Anger / Hostility - POMS	.36**
Vigor - POMS	-.16*
Fatigue - POMS	.32**
Confusion - POMS	.31**
POMS - Total Disturbance	.41**
Parental stress - PSS	.57**

Note. All correlations are Pearson Correlations. ** Correlations were significant at the 0.01 level (two-tailed). * Correlations were significant at the 0.05 level (two-tailed).

Finally, a number of multiple regression analyses evaluated whether the PAS uniquely predicts parental stress (PSS) after controlling for general anger. The Anger/Hostility subscale significantly correlated with the parental stress. When both anger scales were introduced in the regression equation, only PAS had a significant contribution (see Table 2).

Table 2. Summary of multiple regression analysis for general anger (Anger/Hostility subscale of the POMS) and PAS total score in predicting parental stress

Variable	B	SE B	β
Step 1			
Constant	33.47	.97	
Anger/Hostility	0.97	0.10	.26**
Step 2			
Constant	21.41	1.84	
Anger/Hostility	0.42	0.11	.02
PAS Total	0.25	0.03	.56**

Note. **p < .01;

4. Conclusions and discussion

The main goal of this study was to further develop and test a new self-report measure of parent anger. The results of this study provide preliminary support for the use of the PAS with parents of children ages 4 to 17 years old.

The PAS has appropriate psychometrical properties, evidencing good internal consistencies and validity. The factor structure of the scale was examined through factor analysis. Initially, the exploratory factor analysis derived a four-factor model. The four-factor model however had less than three items for majority of the factors and the factors lacked interpretable reasoning for grouping items together. Additionally, the scree plot indicated a one- to two-factors model therefore each was examined and the one-factor model appeared to be the more parsimonious model and thus the PAS Total score was derived from the factor analyses.

The hypothesized factor Anger E and Anger B were weakly supported by the factor analyses in this study. The lack of distinction between the anger experience factor and the anger behavior factor could be explained by the social undesirability in Romanian culture (maybe different from USA-culture) for reporting engaging in behaviors and actions by parents when angered. Future studies should investigate this aspect. Future studies should include a measure of impression management.

As hypothesized, the PAS Total score was positively correlated with scores from the PAI, POMS and PSS. The PAI, one of the few available measures of parent anger, moderately correlated with the PAS Total score, suggesting that, they measure slightly different areas of parent anger, which may account for the moderate relation between the scales. Specifically, the Anger Intensity factor within the PAI measures the level of anger given a specific trigger whereas the PAS measures parent anger as a multidimensional construct. We believe that the multidimensional nature of the PAS probably explains its significant correlations with the general anger measure.

We hypothesized that the PAS would uniquely predict parent distress after controlling for general anger, and this was supported by multiple regressions. Results of the regressions indicated that the general anger alone significantly predicted parental stress. However, when the PAS was entered in the equation, the linear relation to the general anger was no longer significant. These results support the utility of the PAS in assessing parent anger rather than general anger scales.

Research has shown that the frequency of anger increases in families of children with behavior problems (Dix, 1991). The sample of this study consisted of children predominately without significant behavior problems. Therefore, it would be interesting to examine the utility of this scale with parents whose children are presenting disruptive behavior.

The current study utilized traditional exploratory factor analysis to examine the factor structure, which could be considered a limitation. Structural equation modeling is a more powerful and flexible alternative to traditional factor analytic methods (DeVellis, 2003). Due to the exploratory nature of this study, this will be done in future studies.

Clinical Implications. Parents, through their own expression of anger, can negatively influence and shape their children's emotions. Therefore, the aim of the development of the PAS is to contribute to identifying parental dysregulated affect.

The validation of the PAS could have a number of implications to the field of parenting research and interventions. Specifically, the Parent Anger Scale may lead to further understanding into the parents reasoning in selecting different discipline strategies, such as adaptive or maladaptive responses (Gavita, Dobrea, & David, 2010; Gavita, Joyce, & David, in press). The PAS may also facilitate to register the evolution of symptoms following participation to parent management training or group therapy sessions (see Gavita & Joyce, 2008).

Overall, after considering the limitations of this study, the preliminary results suggest that the PAS can provide a valid self-report measure of parent anger, validated both on both American and Romanian samples. The PAS may be a potentially useful measure for predicting parental discipline and can be a useful tool for parent training groups to assess parent anger.

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Appendix

No	Items	Domains	Factors
3	When I get angry with my child, I feel like screaming or yelling at my child.	Behavior	Anger-B
4	When I feel angry with my child, I boil inside, don't show it, and keep things inside of me.	Behavior	Anger-B
8	I get angry with my child and I feel like spanking or hitting my child.	Behavior	Anger-B
10	Even though I hold it in and do not show it, I get angry with my child.	Behavior	Anger-B
13	I get so angry with my child that I do not do things that I know my child wants me to do.	Behavior	Anger-B
15	When I get angry with my child, I tell relatives and friends so they will know how bad my child has behaved.	Behavior	Anger-B
18	I get angry with my child and feel like throwing things, slamming doors, or banging the table.	Behavior	Anger-B
23	I get so angry with my child that I grab or push my child.	Behavior	Anger-B
24	I get so angry with my child that I say mean things, use bad language, curse or insult my child.	Behavior	Anger-B
25	I get so angry with my child that I scream or yell at my child.	Behavior	Anger-B
26	I get angry with my child and I spank, slap or hit my child.	Behavior	Anger-B
27	I get angry and break or throw away some of my child's things.	Behavior	Anger-B
28	I get angry with my child and throw things, slam doors, or bang the table.	Behavior	Anger-B
29	When I get angry with my child, I feel like saying mean things to my child.	Behavior	Anger-B
2	I lose my temper with my child.	Arousal	Anger-E
7	I get so angry with my child that I feel my muscles get tight.	Arousal	Anger-E
16	I get angry with my child.	Arousal	Anger-E
19	When I get angry with my child, I stay angry for.	Arousal	Anger-E
20	On average how angry do you get at your child?	Arousal	Anger-E
22	I get so angry with my child that I just want to make the tension go away.	Arousal	Anger-E
30	I get so angry with my child that I feel my blood boil.	Arousal	Anger-E
5	I get angry and have a problem controlling my behavior toward my child.	Cognition	Anger-E
6	I lose control of my anger with my child.	Cognition	Anger-E
9	I get angry and cannot stop thinking about the way my child behaved.	Cognition	Anger-E
14	I get so angry with my child that I cannot control my behavior.	Cognition	Anger-E
17	I think my anger with my child is justified because of the way my child behaves.	Cognition	Anger-E
21	I resent all the time and energy I put into parenting.	Cognition	Anger-E
1	I use my anger to get my child to behave.	Motives	Anger-E
11	I think that I have a harder job being a parent than other people.	Motives	Anger-E
12	I think that my child deserves to be punished for misbehaving.	Motives	Anger-E