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The Matson Evaluation of Social Skills with Youngsters (MESSY) and its Adaptation for Brazilian children and adolescents

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Abstract

The present study reports the psychometrics properties of the adaptation of the Matson Evaluation of Social Youngsters (MESSY) to a Brazilian sample. The MESSY and the Family Identification Test (FIT) were completed by 382 children (215 females, 167 males) from urban middle-class areas and favelas (slums) of Belo Horizonte, Brazil, from 7 to 15 years (M=10.30; SD=2.24). Results from factor analysis yielded a four-factor model with good internal consistency. One-Way Anova analyzes described boys as having higher scores on Factor 1 than girls (Aggressiveness/Antisocial). Children from urban middle-class areas performed better on factor 2 (Social Skills/Assertiveness) than those from others (parents, teachers, etc.) about the child (e.g. I like to play with other boys). Social skills are a fundamental factor for the formation of relationships, for the quality of social interactions and even for the individual’s mental health. Implications of the results are discussed.

Keywords: Children (Brazil); adolescents; social skills.

Resumo

O presente estudo descreve as propriedades psicométricas da adaptação da Matson Evaluation of Social Youngsters (MESSY) para uma amostra brasileira. A MESSY e o Teste de Identificação Familiar (FIT) foram completados por 382 crianças (215 meninas, 167 meninos) de áreas urbanas de classe média e favelas de Belo Horizonte, Brasil, de 6 a 15 anos (M=10,30; DP=2,24). Resultados da análise factorial produziram um modelo com quatro fatores de consistência interna. Análises de Variaência One-Way mostraram que os meninos obtêm escores superiores no fator 1 (Agressividade/Comportamento Anti-social), meninas das áreas urbanas de classe média mostraram uma melhor performance no fator 2 (Habilidades Sociais/Assertividade) do que aquelas das favelas. Implicações sócio-culturais dos resultados são discutidas.

Palavras-chave: Crianças (Brasil); adolescentes; habilidades sociais.
which factorial structure best explains the data because the results of former studies showed a different number of factors and different arrangements of items.

Thus, the objectives of the present study are to examine the psychometric properties of the MESSY for the first time in Latin America, i.e. in a Brazilian sample and to compare the results to foregoing studies with the MESSY in other socio-cultural contexts. Moreover, it will investigate the differences of social skills in children from urban middle-class areas and favelas (slums).

Materials and Methods

Sample

The sample included 382 children (215 females, 167 males) from four public schools in urban middle-class areas of Belo Horizonte, the third largest city in Brazil (3.5 million). 234 children were from schools A and B, located in urban middle-class areas (96 males and 138 females), and 148 children were from schools B and C, sited in so-called favelas (71 males and 77 females). Age ranged from 7 to 15 years ($M$=10.30; $SD$=2.24). The demographic composition of the sample is shown in Table 1.

Instruments

The Matson Evaluation of Social Skills with Youngsters (MESSY) is a self-report measure developed by Matson, Rotatori and Helsel (1983). The scale consists of 62 items, which are rated by the child or adolescent according to a five-point Likert scale. The items are related to 6 factors/dimensions originally named ‘Appropriate Social Skill’, ‘Inappropriate Assertiveness’, ‘Impulsive/Recalcitrant’, ‘Overconfident’, ‘Jealousy/Withdrawal’ and ‘Miscellaneous Items’ (rest of the items difficult to classify).

The MESSY was translated into Portuguese by three native speakers. Subsequently this version was modified by two other Brazilians in order to achieve a better understanding by persons with lower levels of formal education, while at the same time, retaining the original meaning of the items.

The Family Identification Test (FIT; Remschmidt & Mattejat, 1999) is an instrument that was developed in Germany for the assessment of self-congruence. The child has to describe him/herself (real self), how he/she would like to be (ideal self), and subsequently the most appropriate dimensional structure for the given data

Anxius, moody, nervous, content, calm, lively, understanding, respectful, friendly) derivated from personality concepts: ‘Social Activity’, ‘Asocial Resonance’ and ‘Emotional Stability/Lability’. The child has to describe him/herself (real self), how he/she would like to be (ideal self), and subsequently the family members or significant others (his/her parents, a best friend of him/her and his/her teacher). Each item has to be evaluated in reference to the other person and the real self (real identification with this person). The identification patterns are obtained indirectly through the correlation between the description of another person and the real self (real identification with this person). The results were compared with personality concepts: ‘Social Activity’, ‘Asocial Resonance’ and ‘Emotional Stability/Lability’. The child has to describe him/herself (real self), how he/she would like to be (ideal self), and subsequently the family members or significant others (his/her parents, a best friend of him/her and his/her teacher). Each item has to be evaluated in reference to the other person and the real self (real identification with this person).

Results

In the current study, as the first step, exploratory factorial analysis was conducted in order to find the most appropriate dimensional structure for the given data set. Next, the model found was submitted to an analysis of internal consistence. The results were compared with personality concepts: ‘Social Activity’, ‘Asocial Resonance’ and ‘Emotional Stability/Lability’.
Exploratory Factor Analysis

Exploratory factor analysis was performed using the principal components method (PCA) and Oblimin rotation with the Statistical Program for Social Sciences (SPSS 8®). As the most widely used criterion to determine the number of factors the scree plot method was chosen (Cattel, 1966).

The items and their loadings, and the variance explained by each factor are shown in Table 2. The result of the Kaiser-Meyer-Olkin measure of sampling adequacy was .827, indicating appropriateness of the factor analysis.

The initial results suggested a four factor solution that explained 29.7% of the total variance. A set of six items showed saturation lower than .30 (Item 08 and 62 from the first factor, Item 01 and 58 from the second factor and items 10 and 54 from the fourth factor). Nevertheless these items were maintained in the model in order to retain the possibility for international comparison.

The first factor explained 13.6% of the total variance and was named 'Aggressiveness/Antisocial Behavior'. The second factor, 'Social Skills/Assertiveness', explained 9.4% of the variance. The third factor, 'Conceit/Haughtiness', explained 3.5% of the variance and the last factor, 'Social Anxiety', explained another 3.2% of the variance.

Correlations Among the MESSY Factors

The correlations among the four factors are shown in Table 3. There are three significant correlations at the level of \( p < .01 \): between factors 1 and 3 (\( r = .54 \)) and between factors 1 and 4 (\( r = .36 \)) and between factors 3 and 4 (\( r = .33 \); \( p < .01 \)). Another significant difference at the level of \( p < .05 \) was found between factors 2 and 4 (\( r = .12 \); \( p < .05 \)). Only two of six possible associations were not correlated significantly: factor 2 with factor 1 and with factor 3.

<table>
<thead>
<tr>
<th>Items of the MESSY and their Distribution to Factors after Oblimin Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>41. I speak too loudly.</td>
</tr>
<tr>
<td>35. I am stubborn.</td>
</tr>
<tr>
<td>30. I make fun of others.</td>
</tr>
<tr>
<td>06. I speak (interrupt) when someone else is speaking.</td>
</tr>
<tr>
<td>53. I get into fights a lot.</td>
</tr>
<tr>
<td>22. I pick on people to make them angry.</td>
</tr>
<tr>
<td>07. I take or use things that are not mine without permission.</td>
</tr>
<tr>
<td>11. I slap or hit when I am angry.</td>
</tr>
<tr>
<td>39. I make sounds that bother others (burping, sniffing).</td>
</tr>
<tr>
<td>21. I lie to get something I want.</td>
</tr>
<tr>
<td>17. I pick out other children's faults/mistakes.</td>
</tr>
<tr>
<td>02. I threaten people or act like a bully.</td>
</tr>
<tr>
<td>05. I gripe or complain often.</td>
</tr>
<tr>
<td>14. I give others children dirty looks.</td>
</tr>
<tr>
<td>38. I think that people are picking on me when they are not.</td>
</tr>
<tr>
<td>04. I am bossy (tell people what to do instead of asking).</td>
</tr>
<tr>
<td>19. I break promises.</td>
</tr>
<tr>
<td>29. I hurt others' feelings on purpose (I try to make people sad).</td>
</tr>
<tr>
<td>61. I hurt others when teasing them.</td>
</tr>
<tr>
<td>03. I become angry easy.</td>
</tr>
<tr>
<td>62. I want to get even with someone who hurts me.</td>
</tr>
</tbody>
</table>
Confirmatory Factor Analysis

In order to prove the four factors structure, a confirmatory factor analysis (CFA) was carried out with the Lisrel 5.51® program (Jöreskog & Sörbom, 2001). The CFA model has four latent variables, which are the four factors found in the exploratory analysis. In order to have a proper measurement model with at least two observed variable, each factor was divided in two parallel tests according to their correlation matrices (called sub01_A, sub01_B, sub02_A, sub02_B, sub03_A, sub03_B, sub04_A and sub04_B respectively). Additionally, their total sums entered the model. The correlations between the parallel tests are .81 (for the first factor's subtests), .75 (for the second factor's subtests), .62 (for the third factor's subtests) and finally .38 (for the fourth factor's subtests). The factors were allowed to covary freely in the model, and each item received two paths, one from its respective latent variable and another from the 'error'-term. All the paths from the latent variable were fixed in 'one' and the paths from the error were let free. The latent variables are displayed in ellipses and the observed variables in rectangles.

Goodness of fit was evaluated with a number of indicators including the Root-Mean-Square Error of Approximation (RMSEA), Goodness-of-Fit-Index (GFI) and the Adjusted-Goodness-of-Fit-Index (AGFI) (Bentler & Bonett, 1980).

Table 3: Correlations among the MESSY Factors in the Brazilian Sample

<table>
<thead>
<tr>
<th>MESSY Factors</th>
<th>Aggressiveness/Antisocial Behavior</th>
<th>Social Skills/Assertiveness</th>
<th>Conceit/Haughtiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggressiveness/Antisocial Behavior</td>
<td>-.091</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Social Skills/Assertiveness</td>
<td></td>
<td>-.043</td>
<td>-.333**</td>
</tr>
<tr>
<td>Conceit/Haughtiness</td>
<td>.541**</td>
<td>.124*</td>
<td>-.333**</td>
</tr>
<tr>
<td>Loneliness/Social Anxiety</td>
<td>.357**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Byrne, 1989; Carmines & McIver, 1981). The model and its standardized values are shown in Figure 1.

Before the final evaluation of the Model’s fit, it is important to underscore to some results shown in Figure 1. First, the paths from the latent to the manifest variables showed high scores, meaning that the latent variable could explain a high percentage of variance related to manifest scores. The error measures, however, showed small contributions to manifest variables.

In sum, the results confirmed the hypothesis that the four-factor model provides a good fit with the data set. The chi-square ($X^2$) was 48.03 with 18 degrees of freedom. Goodness of fit was highly confirmed (RMSEA= .065; GFI= .97 and AGFI= .94).

Reliability
The reliability of the scale was calculated by the internal consistency coefficients (Cronbach’s alpha). The total alpha was .85. The first factor (Aggressiveness/Antisocial Behavior) represented an alpha of .87, factor 2, Social Skills/Assertiveness, showing an alpha of .84. The third factor, Conceit/Haughtiness, is characterized by an alpha of .74 and the last factor, Loneliness/Social Anxiety, showed an alpha of .47.

Correlation with the Family Identification Test (FIT)
Table 4 displays the Pearson correlations between the four factors of the MESSY and the results obtained by the Family Identification Test (FIT). There are many significant associations between the two instruments, especially with factor 1 of the MESSY (Aggressiveness/Antisocial behavior), which is (negatively) correlated with almost all indicators of the FIT on the self-concept, identification and personality dimension level. There are also positive correlations between factor 2 (Social Assertiveness) and the FIT’s social activity and social resonance dimension ($p<.001$) as well as with real identifications towards mother and best friend ($p<.05$). Factor

Gender, Age and different school environments
Analyses of Variance (Anova) with subsequent single t-Tests were conducted in order to determine differences regarding gender, age and school context. The level of significance was defined as $p<.01$. Table 5 offers the means and standard deviations for the four factors of the MESSY differentiated by gender and school environment.

Concerning gender differences, there was only one single statistically significant result found, indicating lower score for...
In their paper they did not mention the percentage of variance explained. Spence and Liddle (1990) found a model with seven factors, which explained 77% of the variance. The similarities between the two first factors were high in the North American model, the authors decided to continue with the original model with five factors. In the study they also used the principal component method with Varimax rotation and the criterion of Kaiser to determine the number of factors.

The most recent studies were an adaptation of the MESSY to the Latin cultural context with the translation into Spanish (Méndez, Hidalgo, & Inglés, 2002) and into Portuguese (in the current study). The findings of both studies were similar. Spence and Liddle (1990) found a model with seven factors, which explained 33.28% and 29.7% respectively. In the current study the method used to define the appropriate number of factors was the scree plot in contrast to the former studies. The global analysis of factorial structures given in Table 6 revealed that all studies found approximately the same first two factors. In the study of Conceit/Haughtiness and Loneliness/Social Anxiety the similarities between the two first factors of the Australian and the current study were high. However, due to the differences in the sample characteristics and the variations in the sampling procedure, the similarities between the other factors were not so high. Moreover, no other significant difference was found relating to factors 1 (Aggressiveness/Antisocial Behavior), 3 (Conceit/Haughtiness) and 4 (Loneliness/Social Anxiety).

Univariate Analyses with these variables (sex, age and different schools) were also performed. The results showed no significant interactions among these variables.
The model with four factors was verified by confirmatory factor analysis carried out in Lisrel. The fit showed that it is an appropriate model of the Brazilian study sample. More specifically, Table 6 presents a comparison of MESSY factor structure among different studies.

Table 6
Comparison of MESSY Factor Structure among Different Studies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Factor structure</th>
<th>Item numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matson, Rotatori &amp; Helsel (1983) from the U.S.</td>
<td>Factor 1: Appropriate Social Skills</td>
<td>9, 10, 12, 13, 31, 32, 34, 35, 50, 52, 55, 56, 2, 7, 11, 14, 15, 18, 25, 26, 27, 45, 47, 48, 49, 50, 52, 55, 56, 57, 58, 59</td>
</tr>
<tr>
<td></td>
<td>Factor 2: Inappropriate Assertiveness</td>
<td>39, 41, 53, 60</td>
</tr>
<tr>
<td></td>
<td>Factor 3: Impulsive/Recalcitrant</td>
<td>3, 4, 5, 6, 35</td>
</tr>
<tr>
<td></td>
<td>Factor 4: Overconfident</td>
<td>8, 33, 36, 57</td>
</tr>
<tr>
<td></td>
<td>Factor 5: Jealousy/Withdrawal</td>
<td>15, 38, 49, 54</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous Items</td>
<td>1, 18, 25, 26</td>
</tr>
<tr>
<td>Spence &amp; Liddle (1990) from Australia</td>
<td>Factor 1: Appropriate Social Skills</td>
<td>9, 12, 13, 16, 31, 32, 34, 35, 47, 50, 52, 55, 56, 2, 3, 4, 5, 6, 7, 18, 21, 29, 30</td>
</tr>
<tr>
<td></td>
<td>Factor 2: Aggressive/Antisocial</td>
<td>19, 21, 22, 29, 41, 42, 53, 54</td>
</tr>
<tr>
<td></td>
<td>Factor 3: Overconfident/Competitive</td>
<td>18, 33, 36, 43</td>
</tr>
<tr>
<td></td>
<td>Factor 4: Loneliness/Hostility</td>
<td>22, 38, 41, 46</td>
</tr>
<tr>
<td></td>
<td>Factor 5: Friendship</td>
<td>10, 28, 52</td>
</tr>
<tr>
<td></td>
<td>Factor 6: Miscellaneous</td>
<td>23, 54, 61</td>
</tr>
<tr>
<td></td>
<td>Factor 7: Cruelty/Social Anxiety</td>
<td>19, 26, 29, 30</td>
</tr>
<tr>
<td></td>
<td>Items deleted from the scale</td>
<td>1, 25, 39, 57</td>
</tr>
<tr>
<td>Méndez, Hidalgo, &amp; Inglés (2002) from Spain</td>
<td>Factor 1: Aggressive/Antisocial Behavior</td>
<td>2, 3, 4, 5, 6, 7, 19, 21, 22, 29, 41, 42, 53, 54, 55, 56</td>
</tr>
<tr>
<td></td>
<td>Factor 2: Social Skills/Assertiveness</td>
<td>1, 9, 10, 12, 14, 28, 31, 32, 34, 46, 47, 50, 52</td>
</tr>
<tr>
<td></td>
<td>Factor 3: Conceit/Haughtiness</td>
<td>18, 33, 36, 45</td>
</tr>
<tr>
<td></td>
<td>Factor 4: Loneliness/Social Anxiety</td>
<td>10, 25, 26, 29, 30, 41, 42, 53, 54, 55, 56</td>
</tr>
<tr>
<td>Teodoro et al. (current study) from Brazil</td>
<td>Factor 1: Aggressive/Antisocial Behavior</td>
<td>2, 3, 4, 5, 6, 7, 19, 21, 22, 29, 30, 41, 42, 53, 54, 55, 56</td>
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<tr>
<td></td>
<td>Factor 2: Social Skills/Assertiveness</td>
<td>1, 9, 12, 13, 14, 21, 31, 32, 34, 37, 47, 50, 52, 55</td>
</tr>
<tr>
<td></td>
<td>Factor 3: Conceit/Haughtiness</td>
<td>15, 18, 33, 36</td>
</tr>
<tr>
<td></td>
<td>Factor 4: Loneliness/Social Anxiety</td>
<td>10, 25, 26, 41</td>
</tr>
</tbody>
</table>

5, which are present only in the first study, showed Eigenvalues of 1.91, 1.18 and 1.09 respectively. This could be – as an alternative to the hypothesis of cultural differences - another explanation for the variation of factor numbers in these studies. In fact, the method of Kaiser has already been criticized by many authors (e.g. Reise, Waller, & Comrey, 2000; Zwick & Velicer, 1986) for overestimating or underestimating the number of factors.

Another difference in the type of analysis used refers to the method of rotation. All the studies, except for the present one, used varimax, which rotation Varimax that does not allow the factors to be correlated to each other. Due to the lack of theoretical evidences for the non-inexistence of correlation among factors, the use of Oblimin was chosen for this study. It is important to point out that this method does not exclude the possibility of an orthogonal solution, if it really exists. However, the findings showed in fact many significant correlations between the factors.

The model with four factors was verified by confirmatory factor analysis carried out in Lisrel. The fit showed that it is an appropriate model of the Brazilian study sample. Moreover, analyses with Cronbach's Alpha showed satisfactory reliability indicators for the Brazilian version of the MESSY.
Méndez, Hidalgo and Inglés (2002). Only the original study
(Matson, Rotatori, & Helsel, 1983) did not find any gender
 differences. Related to age the results showed an inconsistent
 pattern among the studies with the MESSY. While the present
 study did not find any significant differences, the others found
 some covariations with age.

 The present study also investigated different groups of
 children living in diverse social contexts (urban middle-class
 and very poor areas). The results revealed that children from
 middle-class neighborhoods scored higher on appropriate
 social behavior than children from favelas. The low scores in
 social behaviors indicate deficits in these children’s behavior
 repertoire, which are probably due to psychosocial stress
 factors associated with poverty. The socio-economic
 conditions in which these children grow up generate a risk
 pattern for unstable family relationships, diseases,
 unemployment and, as a consequence, the children’s
 circulation among different primary caretakers (Schmiedt
 Streck, 2000). Such constantly changing and complex living
 conditions can easily be imagined as offering fewer
 opportunities for adequate modeling processes in relationships
 and social interactions, what also contributes to a deficit in the
 acquisition of behaviors considered socially more adequate in
 these children (Eisenberg, Fabes, Schaller, Carlo, & Miller,

 As a final conclusion, the current study presented a
 successful adaptation of the Matson Evaluation of Social Skills
 with Youngsters (MESSY) to the Brazilian context. The results
 on psychometric properties are convincing and confirm the
 Spanish results from Méndez, Hidalgo and Inglés (2002).
 Subsequent studies are necessary to further evaluate the
 instrument itself (e.g. in terms of its temporal stability in
 longitudinal designed studies) as well as its application in
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