RELIABILITY AND VALIDITY OF THE MATSON EVALUATION OF SOCIAL SKILLS WITH YOUNGSTERS (MESSY II) FOR CHILDREN WITH AUTISM SPECTRUM DISORDER

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Abstract
The aim of this study was to confirm the “Matson Evaluation of Social Skills with Youngsters (MESSY II)” (Matson, Neal, Worley, Kozlowski, & Fodstad, 2012) for children with autism spectrum disorder. The internal consistency of the MESSY II was also examined. The research was carried out with the participation of 269 pupils studying in schools which accept children who are within the spectrum of autism, from different areas of Greece. The participants were 222 boys and 74 girls. The Greek version of MESSY-II for children with autism spectrum disorder was used. The validity and reliability of the questionnaire were checked by performing a confirmatory factor analysis and an internal consistency analysis. From the analysis of the results and the discussion that followed we come to the following conclusions: a. The Greek version of MESSY II has shown stable psychometric properties, which partially support its use in the Greek school context for children with autism spectrum disorder. b. The pupils seem to present satisfactory levels of social skills.

Key words: social skills, autism spectrum disorder, confirmatory analysis.

Introduction
In the last decade, there has been a dramatic increase in the frequency of the appearance of autism. The new data from the World Health Organization estimate that the global mean of autism is 62/10,000, which states that one out of 160 children can be diagnosed with Autism Spectrum Disorder (ASD). Nevertheless, this estimation seems to be altering significantly since modern researches present data showing a more frequent (one out of 68 children) appearance of the disorder, during the last decade (Centre for Disease, Control and Prevention-CDCP 2014; Notas, 2006; Tsiantis, 2001). Yet, what is autism? Autism is a developmental disorder which appears in the early years of a person’s life and is present for the rest of it. It influences the way one perceives and experiences oneself and the world, as well as the way in which one learns (Frith, 1989). The nature of the disorder is complex, since it affects three developmental areas: social interaction, communication and imagination (Wing& Gould, 1979). Still, autism is not a new disorder. It is almost certain that there has been present forever. Frith (1999) has found and recorded evidences throughout history. There are various legends in almost every civilization, referring to simple, naïve people with strange behavior and an impressive lack of understanding social rules. However, it was only in 1943, when Kanner, an American psychiatrist, first studied the cases of 11 children and published his research trying to underline a series of characteristics describing the disorder of these children such as excessive autistic loneliness, anxious and depressive desire to maintain resemblance, excellent memory, delayed utterance, hyper-sensitivity to stimuli, restriction in the diversity of impulsive activities, good cognitive skills, families with high mental status. The clinical image of autism is not homogenous.

It ranges from mild, with minimal autistic elements and normal intelligence, to severe, with heavy mental deprivation and behavior problems. That is the reason we refer to the disorder as autistic spectrum.

Genetic causes of autism
Initially, autism was attributed to psychogenic causes. Family and especially the disturbed relation with the mother were incriminated for the appearance of autism in a child (Bettelheim, 1967). Today we know that autism has a neuro-biological basis, although we are still unaware of the brain areas which cause this serious and irreversible disorder (Bailey, Le Couteur, Gottesman, Bolton, Simonoff, Yuzda & Rutter, 1995; Baily, Phillips & Rutter, 1996; Gillberg & Coleman, 1992, Minshew, 1996). Autism exists since birth and develops during the first three years of life. Today, the incriminating causes are believed to be genetic factors (family autism background, asperger syndrome), viral infections during pregnancy, encephalitis, inherent metabolism problems, anti-epileptic pills taken during pregnancy, neuro-developmental disturbances and environmental factors. It has been ascertained that only 23% of people with autism have an IQ higher than the normal (Gilberg & Coleman, 1992). 50% have a moderate or light mental retardation and 27% have a heavy retardation (Mesibov, Adams&klinger, 1997).

Social skills and their development within the spectrum of autism
The central lack in autism is thought to be the restricted or deficient “Theory of Mind” (Mind blindness), which means that autistic people do not possess the intuitive ability to perceive that the others do not know automatically the emotions and...
desires that they experience, nor that the others have different emotions and thoughts, something which normal children are capable of realizing since the age of four (Powell & Jordan, 1997; Howlin, Baron – Cohen & Hadwin, 1999; Hill & Frith, 2005; Varvogli, 2007). This lack of “Theory of Mind” of autistic people can explain some of their communicative difficulties. The basic characteristic of the autistic spectrum disorders is the qualitative deviation concerning social interaction, communication and creative imagination, according to DSM-IV (Diagnostic and Statistics Manual, 4th edition, American Psychiatric Company, 1994) and ICD-10 (International Classification of Diseases 10th edition, 1987). Autistic people are deprived of the ability for “combined attention”. Combined attention i.e. the instantaneous splitting of attention, enables people to comprehend their own thoughts and the thoughts of others simultaneously, so as to realize the intentions, needs, emotions and desires of both themselves and the others and thus adapt their social behavior accordingly. The social dimension of development is of defining significance in autism. “Normal infants present a very energetic interest in people, almost immediately after birth” (Frith, 1999).

However, autistic children are described as “socially insufficient” since the moment they come to life (Jordan & Powell, 2000). It is also clear that this social deficiency influences all strands of learning and behavior (Jordan, 2000). Also, autistic children find it difficult to be part of various social groups such as the “dual” relationship with their mother, or their family, their school, their community and their peers (Jordan & Powell, 2000). In autism, there is a wide spectrum of social behaviors. The typically pathetic, lonely and withdrawn child is indicative for only one autistic category and these characteristics can alter later on, according to the development of the disorder (Wing, 2000). Few autistic children create personal relationships and friendships of any depth. On the contrary, their communication focuses on the satisfaction of a need or the acquisition of information (Jordan & Powell, 2001).

Autistic children can express joy, fear, anger and other psychological moods, but they are often found outside the range of social expectations (Wing, 2000). They are often in the margin of the social networks of their class (Chamberlain et al. 2007, Kasari et al., 2011) and their participation in these networks deteriorates as they continue studying at school (Rotheram-Fuller, Kasari, Chamberlain & Locke, 2010). Nevertheless, although the social insufficiency of autistic people is obvious, their tendency to “wrap up” in themselves is reduced as they get older, when there is a specialized intervention, since learning experience contributes to the improvement of social behavior significantly (Peeters, 2000). According to the Analytical Educational Program (A.E.P.) concerning children with autism, this specific student category presents a great dissimilarity in relation to disordered sociability. Some children lack the ability to interact, which in some cases becomes evasion from interaction, i.e. they avoid being touched or even seen. Some other children seek interaction energetically, but they either lack the required empathy or they interact in a repetitive, monotonous way. The field of social skills is of primary significance for the development of students since, according to researchers, the acquisition of social skills is a barometer for the social acclimatization of children. Training people with autism to acquire social skills should be based on flexible teaching strategies and personalized programs. The basic condition for the development of social skills is the existence of motives for social contacts and relationships which are meaningful for such children (A.E.P., 2003).

Evaluation of social skills

According to an observation list, autistic children appear to be disadvantaged when playing, while normal children and children with mental deprivation do not differ significantly, in social skills (Ingrametal, 2007). Thus, it is perceptible that the basic and constant target when training children with autism is the improvement of their social interaction and their social skills in general. Family, school and other social groups are the pillars for learning social skills (Brooks, 1984). There are many tools, plenty of which are credible, for evaluating social skills. Some of them have been translated and used in Greece. The most popular are the Autism Diagnostic Observation Schedule (ADOS, Lordetal. 1999, 2000), the Social Responsiveness Scale (SRS, Constantino 2002), the Early Social Communication Scales (ESCS, Mundy et al. 2003) and the Vineland Adaptive Behavior Scales (VABS, Sparrow et al. 1984). Yet, there is need for specialized personnel in order that they are applied. On the contrary, the “educational evaluation tool for autistic children in the field of social skills” created by Apteris, Mitropoulos and Tsakpinis (2005) can be used by all Special Education Teachers in all stages of education.

In addition to standard social skill tests, it is equally beneficial to apply a more interactive, atypical evaluation test for social intelligence, as it provides special, functional information which allows the development of treatment strategies and promotes the development of social thinking (Winner, 2001-2002). Also, teaching and evaluating social skills can be achieved with the use of various video-applications, developed in the last years (Shukla-Mehta et al, 2010). The use of the above mentioned tool concerning social skills has been decided after taking into account the teachers’ need to have a questionnaire at their disposal, which is not diagnostic, it does not require specialized knowledge to use and it does demand the isolation of the child from the rest of the class to fill in. It depends on observation and it covers a wide range of social skills, in addition to the basic ones. Finally, it can be used for the initial, middle and final evaluation of the students’ social skills by tracing the achievement of the goals posed during the intervention program. The aim of this study was to confirm the “Matson Evaluation of Social Skills with
Youngsters (MESSY II) (Matson, Neal, Worley, Kozlowski, & Fodstad, 2012) for children with autism spectrum disorder. The internal consistency of the MESSY II was also examined.

**Methods**

**Participants**

The research was carried out with the participation of 296 pupils studying at schools which accept autistic children, all over Greece. The pupils studied in 20 schools which were chosen randomly, after ballot. For the formation of the sample, the researchers took into account the international data (Christensen, 2016) according to which boys with autism are four or five times as many as girls. Thus, boys constitute the vast majority (222) of the sample in comparison to girls (74). All members of the sample are pupils with autism and of low functionality.

**Instruments**

The Greek version (Kouderi, Filippou, Derri & Albanidis, 2016) of Matson Evaluation of Social Skills with Youngsters (MESSY-II) (Matson, Neal, Worley, Kozlowski, & Fodstad, 2012) was used. Anumberof 39 questions were used out of the initial questionnaire because, according to the researchers, they responded to the qualities and characteristics of the sample. These questions were divided into three factors which investigate three parameters of social skills: the first factor is called “Hostile” and consists of eighteen (18) items (e.g. Threatens others), the second factor is called “Adaptive/Appropriate” and consists of thirteen (13) items (e.g. Says “thank you”) and the third factor is called “Inappropriately Assertive/Overconfident” and consists of eight (8) items (e.g. Bossy). The answers were given in a five-point Likert type scale, with one standing for “absolutely disagree” and five standing for “absolutely agree”. For the translation and adaptation of the questionnaire to the Greek reality, the methodology used was that of the double translation, suggested by Banville, Desroirers and Genet-Volet (2000).

**Measurement process**

The pupils participated in the research after written parental consent. The questionnaires were filled in by the pupils’ teachers and the personnel of the schools of special education (social workers, psychologists, speech therapists, occupational therapists etc) both during the lessons and during break time.

**Data analysis**

The questionnaire’s validity and reliability were examined by using a confirmatory factor analysis (CFA) and an internal consistency analysis using Cronbach’s alpha. Descriptive statistics were calculated to broadly examine the degree of social skills. Both the general and the partial (for each individual factor) evaluation of social skills were of negative direction. That is why there was not a reversal of answers for the variants composing the factor Adaptive/Appropriate. High grading (both partial and general) shows a low level of social skills, while low grading shows a good/acceptable level of social skills.

**Results**

**Confirmatory analysis**

A confirmatory factor analysis was performed through LISREL 8.80 on the three subscales of the MESSY - II. The hypothesized model consists of three latent variables, namely “Hostile”, “Appropriate”, and “Inappropriately Assertive”. The total variance accounted for by the three factors model was 79.32%. First factor (Hostile) accounted for 40.53% of the variance. Questions 2, 3, 5, 13, 15, 17, 22, 23, 30, 32, 43, 46, 52, 53, 60, 62, 63 and 64 constitute this factor. Second factor (Appropriate) accounted for 30.78% percent of the variance. Questions 10, 19, 25, 26, 28, 34, 37,42, 47, 50, 51, 54, and 59 form this factors.

Third factor (Inappropriately Assertive) accounted for 8.01% of the variance. Questions 4, 6, 7, 29, 38, 48, 55 and 57 constitute this factor.

The fit indices which were considered and their acceptable values are: namely minimum discrepancy (CMIN or χ²), degrees of freedom (D.F.), minimum discrepancy divided by the degrees of freedom (χ²/d.f.) <5, Root Mean Square Error of Approximation (RMSEA) <.08, Standardized Root Mean Square Residual (SRMR) <.05, and incremental indices Comparative Fit Index (CFI) >.90, Normed Fit Index (NFI) (Bentler, 1990; McDonald & Marsh, 1990; Mulaik et al., 1989; Zetou, Filippou, Filippou, Vernadakis, 2016)).

All are presented in table 2.

**Table 2. Model Fit Indices**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>X²</th>
<th>DF</th>
<th>X²/D</th>
<th>NF</th>
<th>CF</th>
<th>RMSE</th>
<th>SRM</th>
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<tbody>
<tr>
<td>Mod</td>
<td>29</td>
<td>1.937</td>
<td>69</td>
<td>2.77</td>
<td>.9</td>
<td>.9</td>
<td>.078</td>
<td>.033</td>
</tr>
</tbody>
</table>

**Reliability analysis**

Questionnaire’s reliability control was carried out by calculating the values Cronbach’s α, for each factor separately. As appears in table 3, the values of the factors were satisfactory (α>.70).

**Table 3. Factors’ Mean, Standard Deviation & Cronbach’s alpha**

<table>
<thead>
<tr>
<th>Factor</th>
<th>M</th>
<th>SD</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostile</td>
<td>2.42</td>
<td>1.20</td>
<td>.97</td>
</tr>
<tr>
<td>Appropriate</td>
<td>2.47</td>
<td>1.35</td>
<td>.98</td>
</tr>
<tr>
<td>Inappropriately Assertive</td>
<td>1.65</td>
<td>.67</td>
<td>.97</td>
</tr>
</tbody>
</table>

**Mean and standard deviation**

As appears in table 3, the sample does not present negative social skills since the factor “Appropriate” presents the highest M (M =2.47 & SD=1.35) and factor “Inappropriately Assertive” the lowest (M=1.65 & SD=.67).
Discussion and conclusion

The initial impulse for the execution of this research was the absence of a credible and convenient instrument for specialized or non-specialized teachers to evaluate the social skills of children within the spectrum of autism. The specific measurement instrument was chosen after considering the needs of the teachers who work in special schools, which accept children within the spectrum of autism, so that they can be provided with a questionnaire which is neither diagnostic nor requires specialized knowledge to use. In fact, the specific teachers need a questionnaire which they will utilize without interrupting their lesson or without isolating any pupil in order to answer it. What is more, they need a questionnaire that covers a wide range of social skills, in addition to the basic ones. So, the aim of this study was to confirm the “Matson Evaluation of Social Skills with Youngsters (MESSY II)” (Matson, Neal, Worley, Kozlowski, & Fodstad, 2012) for children with autism spectrum disorder. The internal consistency of the MESSY II was also examined. Regarding the validity of the factors and the structure itself, MESSY II has shown a structure of three oblique factors, coinciding with the findings of Matson et al, (2012). As far as reliability is concerned, results have shown the required internal consistency and temporal stability of the scale, with results similar to the findings of Matson et al, (2012). As concerns the level of social skills, the sample of the research was far from presenting a low level. On the contrary, the results allow us to support that social skills were on a good level, since they presented a low mean, with the factor Inappropriately Assertive being the lowest (1.65). From the analysis of the results and the discussion that followed we have come to the following conclusions: a) The Greek version of MESSY II showed stable psychometric properties, which partially support its use in the Greek school context for children with autistic spectrum disorder. b) The pupils seem to present satisfactory levels of social skills.

References


POUZDANOST I NEPOBITNOST MATSON EVALUACIJE DRUŠTVENIH VIJEŠTINA MLADEŽI (MESSY II) ZA DJECU SA POREMEĆAJEM SPEKTRA AUTIZMA

Sažetak

Ključne riječi: socijalne vještine, autizam spektra poremećaja, potvrda analiza.

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