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Depression States, Behavioral, and Cognitive Components in Developmental age: factorial analysis of a short assessment tool

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Abstract

Objective: Detecting clinically significant symptoms of Major Depressive Disorder (MDD) in childhood and adolescence is not easy. For this, the Depression State Scale (DSS) (a 42-items questionnaire that evaluates Depression, Anxiety and problems in Interpersonal relationships) has been developed and it seems to be able to detect clinically significant symptoms of depression. The main purpose of this study is to investigate a possible alternative subscale structure using the statistical process of factor analysis.

Materials and methods: The DSS was administered to 601 students: 329 females, average age=13.1, SD = 0.7 and 272 males, average age=12.9, SD = 0.87. Principal component analysis with Varimax rotation was used to investigate the factor structure of the scale. The reliability of the new scales, built based on the results obtained, was then calculated. Analysis of variance was conducted with both new and original scales to assess whether significant gender differences emerged.

Results: The factors that emerged reflect the DSM-5 criteria of MDD. The expectation of academic achievement is able to significantly influence anxiety and mood; the components of the depression seem to be closely related to the prevailing cognitive styles. Moreover, school performance and interpersonal relationships seem to influence each other. Finally, the school environment is generally seen as more repressive and strenuous rather than welcoming and stimulating.

Conclusion: The DSS is able to detect the main symptoms of MDD and to describe the most affected psychopathological dimension. Finally, it emerged that the student's representation of the school can influence not only psychological well-being but also social functioning.

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1. Introduction

Depression is the most common affective disorder in the general population: the 12-month prevalence of major depressive disorder in the United States is about 7%, with marked differences by age group: the prevalence in individuals aged 18 to 29 is three times higher than that of individuals aged 60 or older (DSM-5, APA, 2013). Although the prevalence in Italy is lower, it is still around 5.5% (ISTAT, 2018). The first observations of childhood behaviors identifiable as depressive manifestations date back to Spitz (1946, 1965). Bowlby (1963) was one of the first authors to describe the manifestations of mood disorders in childhood. Research in this field becomes ever more in-depth and involves ever larger syndromes: from psychosomatic disorders (Toolan, 1962), to dissocial behaviors (Bowbly, 1963), to mental pseudo-insufficiencies (Bollea, 1961), to school phobia (Prince, 1968), to obsessive manifestations (Guareschi-Cazzullo & Bertolini, 1979; Ekman & Davidson 1994). Theoretical positions in the literature oscillate between different orientations.

Biological theories highlight the role that biological factors play in the predisposition to the onset of mood disorders. Some studies suggest that depression may be linked to endocrine dysfunction describing a kind of genetic predisposition by referring to an excessive response of the amygdala to stress and/or hyperactivity of the HPA axis following stressful events occurring during early childhood (Birmaher et al., 1996; Dahl et al., 2000; Herane-Vives et al., 2018; Puig-Antich et al., 1978; Ryan et al., 1994; Waterman et al., 1994). In particular, a study by Dean and Keshavan (2017) highlight the importance of genetics influences in the sense of a sort of natural predisposition to depressed mood, in particular as a response to stressful events or situations. Furthermore, so many studies have highlighted the existence of a strong gene-environment interaction in the onset of depression (Caspi et al, 2003, 2010; Sokratous et al., 2013). According to Caspi et al. (2010), this interaction would reside at the level of the serotonin transporter system. Individuals with one or two copies of the short allele of the 5-HTT promoter polymorphism, compared to individuals homozygous for the long allele, seems to have more likely to receive a diagnosis of Major Depressive Disorder following "stressful life events" that can occur mainly during childhood or early adolescence.

The approach that focuses on the environmental, educational and emotional influences that can lead to depressive behaviors is the cognitive-behavioral one (Kuyken et al., 2001; Oud et al., 2019; Stilwell & Galvin, 1985). The theoretical core focuses on the possibility that cognitive limits can modify the experience and expression of emotions in general. According to this approach, depression is mainly a learned phenomenon, related to the negative interactions between the individual and his environment (Antonuccio et al., 1989; Beck & Alford, 2009;

Seligman, 1975). The first explanations proposed by this model argued that depression occurs due to the suspension of reinforcement of previously reinforced behaviors (Ferster, 1966; Lewinsohn, 1975), an excess of avoidance behaviors and a lack of positive reinforcement (Ferster, 1966) or the loss of efficiency of positive reinforcements (Costello & Lazarus, 1972). Lewinsohn (1975) argued that depressive disorder could have its origins at an early age when behaviors such as crying, complaining or guilt, that initially receive attention and are reinforced by the social environment, favor the assumption of attitudes of rejection by others.

In subsequent years, cognitive theories such as the learned helplessness model emerged (Abramson et al., 1978). Learned helplessness is linked to cognitive attributions, which can be specific / global, internal / external and stable / unstable. Global attribution implies the belief that negative event is contextually consistent rather than specific to a particular circumstance. Internal attribution is related to the belief that the adverse situation occurs due to individual conditions rather than external circumstances. Stable attribution is the belief that the adverse situation is immutable over time (Abramson et al., 1978; Hiroto & Seligman, 1975; Miller & Seligman, 1975). People predisposed to depression, including children and adolescents, attribute negative events to internal, stable and global factors (Abramson et al., 1978; Gladstone & Kaslow, 1995; Peterson et al., 1993). More recent studies have described the direct effect of the perception of control on the onset of depressive symptoms (Myles et al., 2020) confirming what has already been highlighted in other studies regarding the causal role of this factor in the development of depression (Bjørkløf et al., 2018; Cheng et al., 2013; Crandall et al., 2018; Volz et al., 2018). This effect is mediated by personality factors such as Neuroticism: in fact, high Neuroticism is associated with low Perceived Control and greater depressive symptoms (Assari, 2017; Myles et al., 2020). An opposite effect, on the other hand, was observed with the personality traits Extraversion and Conscientiousness: in fact, perceived self-efficacy mediates the reationship between extraversion and depression (Ebstrup, 2011; Myles et al., 2020; Sahin & Cetin, 2017).

Early theories belonging to the psychodynamic orientation argued that it was not possible to define the presence of a depressive syndrome in childhood or before adolescence due to the incomplete internalization of the Super-Ego (Finch, 1960; Frommer, 1968; Rie, 1986). Instead, the more recent psychoanalytic theories refer to attachment theories (Ainsworth et al., 1978; Bigelow et al., 2018; Bowlby, 1977). Attachment was the term used by Bowlby (1958) to refer to the emotional, intimate, constant and long-lasting bond that binds two members of a dyad in order to guarantee their closeness, protection and security that allows creating a secure base and that if interrupted manifests with separation anxiety. Bowlby (1969, 1958), argued that closeness, protection and reactivity in the first interactions with caregivers, were fundamental for the

development of the mental representations of the caregiver, of the mutual relationship and of oneself as a subject worthy of care. According with him, these representations, called "Internal Working Models", influence all subsequent interpersonal relationships in the life of the individual. Therefore, the vulnerability to depression would derive from the lack of emotional contacts and from the presence of prolonged, frequent and early detachments from the caregiver (Bowlby, 1977, 1969, 1958; Pancheri, 1982; Reda, 2016). In support of the attachment theory, there are numerous studies on institutionalized children conducted by Spitz (1946) and, more recently, by Fox and colleagues (2011). These authors, in their longitudinal study, found serious impairment in global functioning, reporting deficits at the cognitive level and describing a psychiatric symptomatology common to all children, including internalizing and externalizing symptoms. Recent studies (Beebe et al., 2011; Bigelow et al., 2018; Murray et al., 2007; Nicol-Harper et al., 2007) have also focused on the phenomenon of the postpartum depression in which the mother is unable to connect emotionally with her own baby (Jonsson et al., 2001; Stern, 1985) and neglects the demands made by the child. Often in these cases a situation of inverted reciprocity is also established (Bowlby, 1980): the child is asked, implicitly or explicitly, to act as an attachment figure to his parent which generates a sense of responsibility, and sometimes guilt for the inability to raise the parent's morale, as well as a situation of forced autonomy characterized by loneliness (Reda, 2016).

Already from the previous theoretical approaches illustrated, the importance of the socio-cultural factor in favoring the onset and / or maintenance of depressive symptoms in developmental age emerges. Among the various variables, the parenting style was the one most frequently examined (Barber et al., 2005; Heider et al., 2006; Rohner & Khaleque, 2003). In particular, parental behavior was studied taking into account two factors: warmth and control. Warmth, linked to aspects such as commitment, expression of affection, respect and positive concern, appears to be negatively associated with anxious and depressive manifestations (Bernaras et al., 2019; Rohner & Khaleque, 2003; Yap et al., 2014).

It is important to note that psychosocial factors, including family history of mental disorder and suicide attempts, exposure to adverse life events, psychosocial stress, low emotional and social self-efficacy, can increase the likelihood of receiving a diagnosis of depressive disorder up to the risk of attempting to suicide in young adults (Gomez et al., 2019; Gomez, 2020).

The clinical picture of depressive disorder is similar in children, adolescents and adults (Puig-Antich et al., 1978), according to a psychiatric approach. The DSM-III-R (APA, 1980) was based on this theoretical position in which the diagnostic criteria for depressive disorders were proposed regardless of the patient's age. Differently, in DSM IV (APA, 2000) and in the last

DSM-5 (APA, 2013) some symptoms are considered characteristic of depressive manifestations during childhood and adolescence. Furthermore, some of them are even considered specific to one or the other phase of development: for example, irritable mood would be more frequent in children, together with sadness, while psychosomatic reactions would be more frequently found in adolescents. What has remained over time is the division between two types of depressive illness: an endogenous / psychotic one (with monopolar and bipolar forms that refers respectively to the actual Major Depressive Disorder and the Bipolar Disorder, type I and type II, of the DSM-5) and the other reactive / neurotic, recognizable in the Adjustment Disorder. Due to the non-uniqueness of the concept of depressive disorder in children and adolescents, a similar division in developmental age is difficult to do.

Another approach distinguishes depression as a symptom from the full-blown syndrome, less common in childhood (Carlson & Cantwell, 1980; Donohue et al., 2019; Oh et al., 2020). In the developmental age, depression does not manifest in a recognizable way, but with a variety of disorders (hyperactivity, irritability, aggression) or with psychosomatic manifestations (headaches, abdominal pain, school phobias) (Kovacs et al., 1994, 2016; Oh et al., 2020). This uncertainty may be because a child is a developing organism and moods are more subject to continuous and sudden changes. This theoretical uncertainty entails a non-unity of the diagnostic criteria, leading researchers to rely on clinical descriptions, which mainly report behavioral characteristics: sadness, little interest, social isolation, boredom, insomnia.

Furthermore, we can identify a dimensional perspective according to which some symptoms, such as crying, are present in all subjects in developmental age: in fact, analyze the frequency and the maintenance over time allows to make a diagnosis.

The scientific literature seems to agree on the hypothesis that psychosomatic aspects are prevalent in preschool age (e.g. headache, loss of appetite) as well as irritability and social withdrawal, while psychomotor slowing, hypersomnia and delusions are more frequent in adolescence (Kovacs et al., 2016; Quach et al., 2018). In fact, in these patients it is important to pay attention to non-verbal language, facial expressions and posture, tone of voice, rhythm of speech and level of activity. In late school age, cognitive symptoms (feelings of inferiority and self-depreciation, suicidal ideas) are the main culprits for impaired individual and social functioning (Kovacs et al., 2016; Oh et al., 2020). Other cognitive symptoms, such as impaired ability to think or concentrate, may be more evident at school causing a decline in school performance (Pedersen et al., 2019).

Moreover, in the developmental age, very often the symptoms do not respect a single psychopathological category: in pubertal children, the major depressive episodes can co-occur

with other mental disorders, such as disruptive behavior, attention deficit disorders and anxiety disorders. In adolescents, however, depressive episodes are not only associated with disruptive behavior, attention deficit disorders, anxiety disorders, but also with substance-related disorders and eating disorders (Cummings et al., 2014; Griffith et al., 2020). According to the DSM-5 (APA, 2013), all depressive disorders have one common feature, namely the presence of sad, empty or irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual's capacity to function. They may become a serious health problem if persist for long periods and occur with a moderate-to-severe degree of intensity. One important consequence of depression is the risk of suicide, which is, according the World Health Organization (2007), the second most common cause of death among young people aged between 15 and 29.

In order to address concerns about the risk of over diagnosis and treatment of pediatric bipolar disorder, a new diagnosis has been added between depressive disorders in DSM-5 (APA, 2013) for children up to 12 years of age. The Disruptive Mood Dysregulation Disorder refers to the clinical picture of children with persistent irritability and frequent episodes of extreme behavioral dyscontrol. The main feature of this disorder is a chronic, severe and persistent irritability that occurs with persistently or chronically angry mood and frequent outbursts of anger. These outbursts often occur as the result of frustration; in order to be considered a diagnostic criterion they must be inconsistent with the individual's developmental level and occur three or more than three times per week for at least a year in different settings (at home, at school, etc.).

Children with this symptomatology typically develop unipolar depressive disorders or anxiety disorders when they enter adolescence or adulthood (Eldesouky et al., 2018; Kovacs et al., 2016).

A clear depressive onset is more easily discernible in adolescents than in pre-pubertal children but even in adolescence there is the problem of diagnosing clinical depression. Some authors argue that there is no real depression but depressive equivalents and masked depression, where the symptoms are denied and not visible and easily identifiable (Carlson & Cantwell, 1980; Donohue et al., 2019; Oh et al., 2020).

Typically, the symptoms are grouped in four areas:

- Psychomotor, ideas and verbalization slowdown and spatial-temporal orientation disorders;
- Psychosomatic reactions, such as headaches, sleep disturbances, food irregularities, etc.;
- Sadness and disinterest in usual activities, including recreational activities;
- Feelings of distrust, low self-esteem and learned helplessness.

These are often associated with anxiety and anguish. In early adolescence, symptoms are similar to that of the child, while in late adolescence the picture is more similar to that of the adult. However, in adolescence, separation and loss play a very important role. The adolescent faces various losses, both at the family level and at the body level. The family environment also gives a very important role, because even episodes such as a divorce or a parent death can trigger a depressive syndrome (Hamilton et al., 2016; Tracy et al., 2019).

Very often, depressive syndrome occurs when a new school cycle begins, especially with the beginning of middle and high school. Analyzing the literature, we can trace two main orientations. The aim of the first approach is to highlight the pathogenesis of disorders: for some authors, a learning disorder can cause a depressive reaction (Bandura, 2000; Hendren et al., 2018; Weiner, 2005); for others, however, depression itself blocks and deforms the links between reality, memory and thought, causing learning problems (Culpepper et al., 2017; Saleh et al., 2017). The other orientation tries to demonstrate the convergence of affective, cognitive and learning problems (Fontana et al., 2012; Pruneti & Baracchini Muratorio, 1996).

In the adolescent period, the process of separation between the individual and the family environment begins, the demand for school performance and possible failures increase, and these can be amplified by feelings of self-devaluation. Furthermore, it is easy to find learning difficulties or an intellectual slowdown in depressed subjects. Depressed subjects also manifest inhibition and easy fatigue with refusal and disability for learning processes and consequent maladaptive behavior in the school field (Tracy et al., 2019).

School is the environment in which the teenager lives, develops his social life, given by the relationship with his classmates and adults. As a result, we may have a school overinvestment or a drop in performance. In the first case, the teenager has a school hyperactivity, with improved performance. This overinvestment is an attempt to control for fear of leaving the stability and balance of childhood; it can be temporary or can be maintained over time by associating with other psychopathological manifestations (anorexia, bulimia, severe insomnia). A drop in performance occurs at least once for each adolescent; it can appear for no specific reason and can lead to a real lack of school interest. The downturn becomes lasting when the teenager focuses on the latter self-image. Therefore, the depressive void manifests itself with difficulty in maintaining concentration on a thought or an exercise, and anorexic, bulimic, delinquent behaviors may appear. A prolonged series of failures can lead to early school leaving (Bonell et al., 2019; Islam et al., 2017; Ware et al., 2017).

In order to describe accurately the phenomena connected to the peculiar aspects of depression in developmental age, a short self-administration questionnaire, called Depression State Scale (DSS) was developed, which has proven to be able to provide a valid contribution in the

identification of depressed subjects, also using extensive epidemiological studies. This scale has shown that it can effectively discriminate children affected by depressive pathology and healthy ones.

The main purpose of this study is to investigate a possible alternative structure of the subscales, built in the original test using the rational logical method, this time using the statistical process of factorial analysis.

Furthermore, some studies have highlighted different association patterns for males and females (Breslau et al., 2017; Derry et al., 2015; Hodes & Epperson, 2019), so it was considered interesting to analyze whether significant differences regarding gender emerge both for the original scales and for those derived from factorial analysis.

2. Material and Method

2.1 Sample

The parents of the participants of this observational research completed an informed consent; all the data have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. Patient's anonymity was preserved and the obtained data were used exclusively for scientific purposes.

In this non-probabilistic sampling for accessibility, of three different Institute in Northern West Tuscany were recruited for a total of 601 subjects.

The questionnaire was administered in the second semester. The distribution of the gender is almost equivalent with 329 females of average age 13.1 (SD = 0.7) and 272 males, average age 12.9 (SD = 0.87).

Criteria for inclusion in the study: age between 13 and 14 years, signed informed consent of their legal guardians, completion of the DSS questionnaires.

Exclusion criteria from the study: age over 14 years (only the subjects whose age corresponded to the class attended were involved), subjects whose legal guardians refused to sign the informed consent, subjects with a positive history of psychiatric and/or neurological syndromes (eg previous head trauma, epilepsy, etc.).

2.2 Tool

The DSS questionnaire was administered (Pruneti et al., 1990, 1995, 1996, 2001). This test consists of 42 true/false items divided into 3 subscales, which evaluate:

- **D** Depression (Cronbach's α = .78);
- **A** Anxiety (Cronbach's α = .67);
- **I** Interpersonal relationships (Cronbach's α = .72).

The questionnaire was already several times administered on general young population (Pruneti et al., 1990, 1995, 1996, 2001) and it has a good reliability: the total value of Cronbach's α, that is a measure of internal consistency, is equivalent to .869.

2.3 Administration

The questionnaire was administered collectively with qualified psychologist of different sex during normal teaching hours in the presence of the curricular teacher.

2.4 Statistical Analysis

All the analyses were performed in SPSS. The analysis of the main components with Varimax rotation was used to investigate the factorial structure of the scale. The reliability of the new scales, built based on the results obtained, was therefore calculated.

The analysis of variance was conducted with both new and original scales to assess whether significant gender differences emerged.

3. Results and Discussion

3.1 Factorial Analysis

The factorial modification was performed with the extraction of the main components (varimax rotation). The chosen criterion was eigenvalue > 1, confirmed by the scree test.

When an article is saturated in more than one factor, we used two criteria to group the articles:

- The magnitude of saturation

- The relevance and thrift of the element with that particular factor.

Articles with saturation >.30 are reported.

Five factors emerged (see Table 1) which together accounted for 34% of the variance.

Table 1.

Factorial analysis and item-total correlation

	Factors of the DSS questionnaire					
Item	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*	*Factor 5*	*ITC*
D2	0.5545					0,504
D3	0,5582					0,467
D4	0,3031					0,117
D6	0,5407					0,477

D8	0,3730				0,363
D9	0,5646				0,478
D11	0,3593		0,3164		0,380
D12	0,5969				0,554
D16	0,3782				0,436
D17	0,3701				0,452
D18	0,5871				0,467
D23	0,5335				0,519
D26	0,5310				0,491
D27	0,5278				0,515
D29	0,3059				0,374
D32	0,3369				0,364
D33	0,4094				0,344
D39	0,4145				0,293
D42	0,6773				0,471
D5	0,4216	0,4306			0,490
D7		0,4125		0,3628	0,303
D10		0,3224			0,182
D14		0,4422			0,320
D24		0,5206			0,355
D25		0,4918			0,160
D28		0,5602			0,397
D34	0,4008	0,4498			0,502
D40		0,3941			0,322
D1			0,3586	0,3261	0,293
D15			0,7790		0,256
D30			0,5010		0,346
D38			0,7387		0,247

D21				0,6059		0,172
D35				0,4369		-0,105
D37				0,3119	0,3076	0,259
D41	0,3890			0,3715		0,195
D13					0,2639	0,179
D19					0,3820	0,210
D20					0,3227	0,312
D22					0,4132	0,409
D31					0,4438	0,187
D36					0,5755	0,433

Eigenvalue	7,508153	2,062736	1,763663	1,496188	1,344661	
Explained variance	17,87656	4,91128	4,1992	3,56235	3,20157	
Cumulative variance	17,87656	22,78783	26,98703	30,54938	33,75096	
Alfa st.	0,8494	0,6625	0,5821	0,3159	0,466	0,8699

The distribution and the grouping of these factors are coherent with some of the description present on the DSM. In particular, Factor 1, seems to reflect a criterion considered fundamental in the diagnosis of the Major Depressive Episode according to DSM-5 (APA, 2013): in fact, criterion A1 refers precisely to the presence of depressed mood, described by the individual as sad, hopeless, discouraged and "out of sorts".

The II factor explains about 5% of the variance and assesses the low self-esteem and propensity to blame of the subject who reports that he does not know how to deal with himself and to feel guilty for many things. This factor seems to refer to the DSM-5 (APA, 2013) criterion A7, according to which a depressive episode is associated with "unrealistic negative assessments of one's worth or concerns of guilt or ruminations on small past errors".

The III factor explains the 4% of the variance and analyzes the depressive symptoms related to the school context for which the child "does not stay willingly at school" and "has difficulty concentrating on homework at home". These aspects may be linked to the impaired ability to think and concentrate which is often associated with the depressive episode (criterion A8).

The IV factor is made up of only three items and explains 3.5% of the variance. It analyzes the social withdrawal reported by the child as disinterest in others and in their company. The game is also less interesting and is considered tiring. This factor seems to be related to the criterion A2 of the DSM-5 (APA, 2013), which describes a marked decrease in interest or pleasure for all, or almost all, activities: family members often notice the social withdrawal or the refusal of pleasant occupations.

Finally, the V factor analyzes the somatic symptoms of depression, such as psychomotor slowdown, sleep disturbances, headache. All symptoms that, because of the literature, are frequently associated with depressive symptoms.

3.2 Scale reliability

We calculated the reliability of the nine scales built based on the factorial structure.

The first factor shows good reliability (Cronbach's $\alpha = .85$); less good, but equally acceptable that of the second (Cronbach's $\alpha = .76$) and the third (Cronbach's $\alpha = .58$); definitely weak for the fourth (Cronbach's a = .38) and fifth (Cronbach's $\alpha = .47$). However, it should be taken into account that the fourth factor is made up of only three items and that the fifth includes a wide range of symptoms (from headache to motor slowdown).

The analysis of the total item correlation led us to exclude item 35 from the scale, which showed a strong negative correlation (-.10).

3.3 Anova

The groupings of items of the original DSS scales showed different trends for the scores obtained by the males and females. The analysis of variance (ANOVA) conducted on the original scales (Table 2), built at that time because of ICD-10 (WHO, 2004) and DSM-5 (APA, 2013) criteria for depression and according to clinical criteria shared by the different theoretical orientations, shows how girls achieve significantly higher scores in all the subscales.

Table 2.

Analysis of variance of the original scales

	Scores of the DSS subscales			
Group	*A*	*D*	*I*	*TOT*
Female	6.537	8.282	6.387	20.90
Male	4.408	5.883	4.979	15.30
Total group	5.687	7.324	5.825	18.67
p.	.000*	.000*	.001*	.000*

Therefore, it was considered appropriate to assess whether the new factorial scales also allow to detect significant differences between the two sexes, again through the same statistical method (ANOVA) and on a larger sample than the previous one (Table 3).

Table 3.

Analysis of the variance of the scales obtained from the verification of the factorial structure

	Values of the analysis of variance					
Factor	*Effect*	*Error*	*Error*	*Error*	*F*	*p*
1	1681.944*	32527.85*	599*	54.30359*	30.97297*	.000*
2	476.027*	9886.72*	599*	16.50538*	28.84073*	.000*
3	8.213	3139.46	599	5.24117	1.56704	.211
4	.226	391.28	599	.65323	.34548	.556
5	67.907*	3497.60*	599*	5.83907*	11.62978*	.000*

Finally, in Table 4, is possible to see the significance levels obtained in the male - female comparison for the five factorial scales.

Table 4.

Male - female comparison for the five factorial scales

	Scores of the DSS factors				
Group	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*	*Factor 5*
Male	8.836	6.32	1.927	.243	2.919
Female	5.420	4.50	2.166	.283	2.233
Total	7.472	5.595	2.023	.259	2.645

Of the five scales analyzed, three revealed significant differences, and, precisely, in correspondence of the factors 1, the stable depressed mood, 2 - low self-esteem and propensity to blame - and 5 - somatic symptoms).

Girls seem to be more depressed than male, confirming the literature data on the subject that sees depression more twice frequent in women than in male.

Girls also report a worse basic mood, low self-esteem and more physical symptoms. As an example, it has been represented in Fig. 1, where is visible the trend regarding factor 1 - *depressed mood* - .

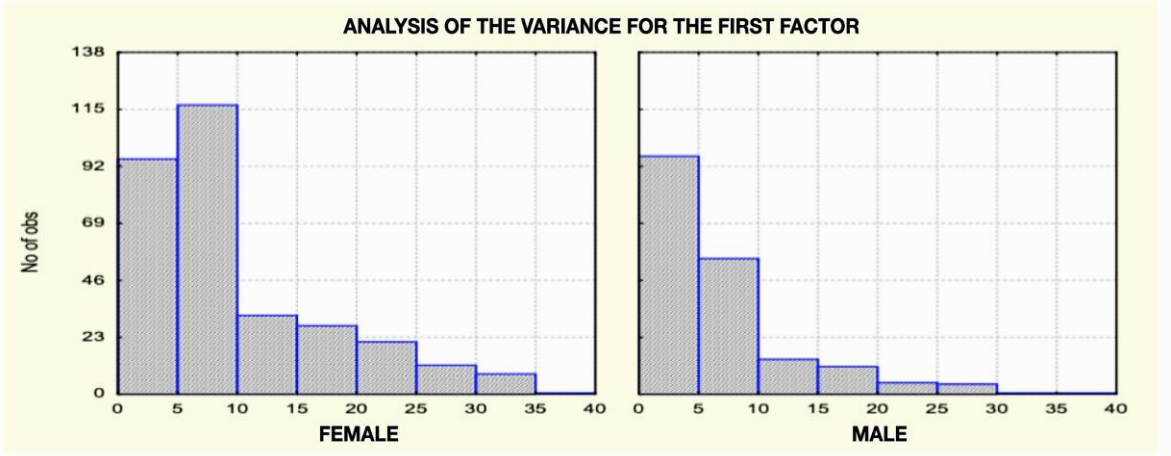

Figure 1. Histogram of the ANOVA between males and females regarding the Factor 1, Depressed Mood.

4. Conclusion

The results of the factorial study highlight interesting details.

The instrument used has proven to be sensitive in detecting the manifestations of depressive disorders: as reported by the National Institute of Mental Health (2018), depression is a mood disorder characterized by loss of interest, feelings of sadness, hopelessness and worthlessness, changes in appetite and thoughts of suicide.

The factors that emerged reflect the criteria required by DSM-5 (APA, 2013) to formulate the diagnosis of Major Depressive Episode. If the child scores high on most scales, it would be helpful to refer him to a clinical psychologist.

Furthermore, the type of rotation used guarantees relative independence from the analyzed dimensions, favoring a more detailed analysis of the clinical picture: the scores obtained allow the clinician to identify the area most involved and compromised by the disorder. In fact, this allows you to plan more targeted interventions, such as improving the relationship with yourself (if there are high scores in Factor 2), stimulating the relationship with peers.

The components related to mood seem to be closely related to the prevailing cognitive styles and in this the expectation of academic achievement seems to have an important role. In fact, the latter is able to significantly influence the variables related to mood and anxiety but is in turn influenced by the type and capacity of interpersonal relationships.

Finally, it emerged that the educational school environment is generally seen as more repressive or tiring rather than welcoming and stimulating.

These results confirm the quality of the tool, which had already been confirmed in previous studies. Furthermore, highlight the critical issues of this age, childhood and adolescence, to all operators and clinicians who deal with it (Pruneti et al., 1990, 1995, 2001, 2004; Pruneti & Baracchini Muratorio, 1996). Obviously, even within the limits of a 42-item questionnaire. Therefore, the importance of carrying out appropriate studies that take into account the origin, usually multifactorial, of many of the psychic disorders in childhood and adolescent, emerges.

Therefore, the need for a sensitive assessment emerges in order to detect possible cases at risk for psychopathologies, keeping in mind the challenges that children and adolescents must face in the school context, that is envisaged as stressful.

A recent study (Sorrenti et al., 2019) that investigated the presence of emotional and behavioral disorders in two groups of students, with and without learning disabilities, described similar levels of externalizing symptoms between the two groups, showing how the school favors the development of symptoms in vulnerable subjects. Identifying those at risk, therefore those students who develop and experience learned helplessness, could provide a way to manage behavioral problems and prevent an initial risk condition from transforming into psychopathology.

Therefore, the complexity that characterizes clinical practice is highlighted (Overholser, 2014) and an approach that respects the various emerging dimensions is the "conditio sine qua non" to understand the link between clinical and educational psychology (Carrozzino et al., 2019; Ferreira et al., 2016; Ligorio & Pugliese, 2009). In fact, traditionally, clinical psychology has dealt with the study and evaluation of psychopathology but the absence of symptoms is a necessary but clinically insufficient criterion to define a positive mental health state (Bech et al., 2016; Carrozzino et al., 2019; Topp et al., 2015).

Several studies (Caffo et al., 2008; Flannery et al., 2014; McCabe et al., 2011; Miller & Nickerson, 2007; Roth et al., 2017; Taylor et al., 2017) found that positive psychology in school can significantly reduce the symptoms of psychological distress, depression and anxiety and at the same time promote a complete state of positive mental health (Carrozzino et al., 2019; Shoshani & Steinmetz, 2014). Furthermore, the levels of self-esteem, self-efficacy and optimism also benefit from these interventions (Shoshani & Steinmetz, 2014).

Moreover, there are several advantages in using this approach and they do not consist only in the reduction of the symptoms of anxiety and depression, whether they are internalizing or

externalizing: in fact, the reduction of the stigma associated with mental health services is favored and teachers and parents are educated (Carrozzino et al., 2019; Tomba et al., 2010).

Rather than focusing training exclusively on learning, the importance of structuring adequate psycho-educational interventions at school is emphasized to promote emotional regulation skills and to educate teachers to pay attention to the emotional-motivational aspects of students. Furthermore, this suggests the adoption of a bio-psycho-social approach also in everyday clinical practice by the clinician of the developmental age, the pediatrician, possibly using professional figures who can provide an accessory, but often decisive, clinical evaluation for the most appropriate treatment planning.

Finally, the DSS can be used both in prospective and epidemiological studies and for the evaluation of treatments, due to the characteristics of the tool, short but with a good descriptive capacity both at a psychopathological and at a predictive and prognostic level.

Conflict of interest statement

All authors have no conflicts of interest to declare.

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Appendix

Items of the DSS (answers are true/false):

1. What I normally do is too tiring for me
2. I often feel the desire to run away.
3. I can sleep very well.
4. I like to go out and play.
5. I often want to cry.
6. I am full of energy.
7. My stomach often hurts.
8. I am easily cheerful.
9. I feel very alone.
10. When I am sad, I can comfort myself.
11. I like do the things that I do.
12. It is hard for me to live.
13. I like what I eat.
14. Many nights I have bad dreams.
15. I do not like school.
16. I feel sad even if the others are cheerful.
17. I feel so bored.
18. I am happy to talk to everyone in my family.
19. I like to move a lot.
20. I cannot sleep as much as I would like.
21. I am not interested in others.
22. I often have a feeling of heaviness in my head.
23. Others don't understand me.
24. I do not know how to handle it alone.
25. I 'm worried about death.

26. I enjoy as much as my friends do.

27. I feel sad and in a bad mood.

28. I feel guilty about a lot of things.

29. I am good at the things I do.

30. I cannot concentrate on my homework.

31. Too much light bothers me.

32. Sometimes I don't want to see anyone.

33. I think that my parents don't love me as they used to.

34. It's hard for me to make myself understood.

35. I don't get angry even though I think I'm right.

36. I feel very tired.

37. Even playing is tiring for me.

38. I feel happy when I am at school.

39. Most people like me.

40.I am worried about what I gonna do tomorrow.

41. I like to stay with my friends.

42. In my family, we're all pretty cheerful.

Score: for items 1, 3, 4, 6, 8, 10, 11, 13, 18, 19, 26, 29, 38, 39, 41, 42, one point is given for each true answer and two points are given for each false answer; instead, for the remaining items two points are given for each true answer and one point for each false answer.