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Teenagers in quarantine, social networks as allies for teaching and emotional education. Experimental research

Adolescenti in quarantena, i social network come alleati per la didattica e l'educazione emotiva. Ricerca sperimentale

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Abstract
The present work describes and analyses the educational research tools and techniques used so as to suggest guidelines to the educational figures, who must plan pedagogical intervention activities.
The aim was to collect information on psychophysical well-being on a sample of adolescents during the lockdown period due to covid-19. The purpose is to highlight how, through educational research, it is possible: to identify concrete methods of intervention to respond to the needs that emerge in educational and training processes; to adapt practices to the characteristics of users and contexts; to evaluate the adequacy and efficiency of practices; and, to replace the "continuous emergency" perspective with a perspective of planning and evaluation. Therefore, the main aim of the research work is the understanding of the lockdown behavioral phenomena implemented by adolescents in order to develop educational practices that are more likely to be effective. They are indeed the starting point of the methodological reflection, since method, tools, and aims are closely linked.

Keywords: Educational Research; Adolescents; Social Network; Guidelines; Covid-19.

Riassunto
Il presente lavoro descrive e analizza gli strumenti di ricerca educativa e le tecniche utilizzate suggerendo linee guida alle figure educative, che devono programmare attività di intervento pedagogico.
Lo scopo è stato quello di raccogliere informazioni sul benessere psicofisico su un campione di adolescenti durante il periodo di lockdown dovuto al covid-19. Il fine è di evidenziare come, attraverso la ricerca educativa, sia possibile individuare metodi concreti di intervento per rispondere alle esigenze che emergono nei processi educativi e formativi; adattare le pratiche alle caratteristiche degli utenti e dei contesti; valutare l'adeguatezza e l'efficienza delle pratiche; sostituire l'ottica dell'"emergenza continua" con una prospettiva di pianificazione e valutazione. Pertanto, lo scopo principale del lavoro di ricerca è la comprensione dei fenomeni comportamentali legati al periodo di lockdown messi in atto dagli adolescenti al fine di sviluppare pratiche educative che abbiano maggiori probabilità di essere efficaci. Esse sono il punto di partenza della riflessione metodologica, in quanto metodo, strumenti e fini sono strettamente legati fra loro.

Parole chiave: Ricerca Educativa; Adolescenti; Social Network; Linee Guida; Covid-19.

Credit author statement

Stefania Morsanuto is the author of paragraphs 1, 2, 4, 5 and conclusion. Stefano Rendina is the author of paragraph 3 and conclusion.

1. Introduction

The contribution of Buccolo, Ferro, Allodola, Mongili (2020) illustrates the results on the impact that the restrictions imposed by the Italian government have produced on the population, paying attention also to the adolescents, who, until a short time before, were living a normal life and suddenly had to face increasing restrictions on their personal and social freedom, interrupting for an unknown time their usual way of life. The research follows an integrated approach to the social perceptions of COVID-19. Areas that require intervention are those of emotional education, the redesigning of lives, sustainable educational planning in view of prospects for change. The present work describes and analyses the educational research tools and techniques used, suggesting guidelines to educational figures, who need to plan pedagogical intervention activities.

The aim was to collect useful information on a sample of adolescents in order to highlight how, through educational research, it is possible to: identify concrete methods of intervention to respond to the needs that emerge in educational and training processes; to adapt practices to the characteristics of users and contexts; to evaluate the adequacy and efficiency of practices; and, to replace the perspective of "continuous emergency" with a planning and evaluation perspective. As Trinchero (2002) suggests, the work privileges the synergic relationship between critical reflection and practical action.

Psychoanalysis has highlighted the pathogenic probabilities of trauma involving a personal experience of impotence and loss of self-control, particularly during adolescence, as they can seriously compromise the individual evolutionary process. The main determining factors are drive pressures, deriving from physical maturation, which are closely related to the psychic organization and the fragility of the ego organization due to psychological detachment from parental figures, which can lead to an identity crisis. Social confrontation allows the experimentation of multiple roles in order to build an original and individual synthesis. Therefore, both the need to insert oneself in other relational systems and the push to leave the family context in order to face and manage one's own conflicts and anxieties are fundamental. The comparison in the peer group offers the possibility to experiment one's own "style" in relation to the "others" and to create a common set of meanings, with an effective reflection for the definition of one's own identity (Mancaniello, 2020).

The sense of time, moreover, is a basic dimension in the development of the subject and in his perception of life. The circadian rhythm feeds and integrates the complex processes of the sense-motor, emotional, and cognitive organization with the environmental variables in which the subject grows. The subjective temporal evaluation is essential from the social environment of belonging, as it is a construct that defines the contents and the modalities of relationship between living subjects (Mancaniello, 2020).

This research paper has set as its general objective the evaluation of the emotional functioning of a school sample of adolescents during the lockdown and the analysis of possible correlations between anger, stress, and anxiety with the characteristics related to personality, sleep disturbance, the use of technological supports both for study (DaD), and entertainment. The aim is to detect objective characteristics in adolescent's behavior that may indicate situations of fragility and malaise. The recognition of individual vulnerability factors and risk or protection variables and their link with the young person's living environment is facilitated (Cicchetti & Cohen, 1995) and helps educational intervention to be targeted effectively and efficiently.

Therefore, it seems important to investigate the functional and/or dysfunctional areas of the adolescent, in order to try to clarify which phenomena can influence the discomfort. In particular, this study has established the following specific objectives: 1. Evaluating the emotional functioning, considering the effect of the subjects' gender and age. 2. Analysing the specific domains of the personality inventory (PID-5, DSM-V). 3. Detecting possible alterations in sleep. 4. Acquiring information about screen time (self-assessment of the time of usage of technological devices used to study or recreation and their typology). 5. Assessing the nature and extent of correlations between the data collected.

1.1 Alteration of sleep: dependent, objectively detectable, and decisive variable

A survey conducted by Pollo (2004), born from a methodological path carried out together with groups of adolescents, brought attention to the meaning and significance of pupils' choices of "nightlife", regardless

of social factors, like the city of origin or schooling. The results and the consideration proposed by the authors aim to make us understand how much freedom is given to adolescents allowing them to decide how much time and activities they can engage in. This reflection was useful for those who have to co-design educational and welfare interventions aimed at young people.

An interesting line of research aimed at primary and secondary prevention of psychiatric disorders investigated possible alterations in circadian rhythms in a healthy sample and in the "pre-morbid" period of subjects who would have developed panic disorder in adulthood (Bersani et al., 2012). Several behaviours were detected, discovering that some of them, such as time of falling asleep, waking up, greatest level of appetite, highest perceived energy, and the highest capacity of cognitive functions, showed a delay or phase advance in subjects with a depressive disorder or a behavioural disorder. Differences in circadian rhythm were present in subjects even before the clinical manifestation of the disease (Iannitelli & Biondi, 2020).

Another study investigated the relationship between chronotype and depression in a non-clinical population of adolescents, indicating a correlation between serotine chronotype and depression.

In healthy adolescent subjects with serotine chronotype, the humoral dimension would be more sensitive to seasonal changes, compared to morning or intermediate chronotypes (Tonetti et al., 2012) and the mood disorder would seem to be the only significant predictor of the subject's self-perceived quality of sleep (Tonetti et al., 2014).

The pathogenetic mechanisms involved mainly concern CLOCK genes, GSK3, melatonin, hypothalamic-pituitary-adrenal axis, and body temperature regulation.

The authors of the analysis argue that it is extremely important to educate in "chronotherapy" through personalised pathways aimed at a vital dimension that considers the subject from an ecological point of view (Iannitelli & Biondi, 2020). Sensitizing adolescents to a conscious use of time and its fair distribution among the activities of the day could allow educational agencies to intervene not only from an educational point of view, but also from a preventive one. The detection of time and sleep quality can be easily detected also through the technological devices of the adolescents themselves.

2. The research

As Pellerey (2005) points out, the experimental approach aims to examine the quality of new methods of intervention decontextualizing them, and aspires to reach generalized conclusions.

Therefore, the main aim of this research work is the understanding of the lockdown behavioral phenomena implemented by adolescents in order to develop educational practices that are more likely to be effective. They are indeed the starting point for methodological reflection, since method, tools, and aims are closely linked.

The initial hypothesis is that the lockdown period and the use/abuse of technology may have affected adolescents' moods, generating anxiety, stress, anger, and behavioural disturbances and consequently affected the quality of sleep. The tests administered were extracted from the DSM V assessment scales. Their choice was based on several general points: the symptom is always less determining in formulating a diagnosis, but it nevertheless holds value within the association with distinct clinical patterns. Severity or disability are not reported to the individual, but rather to the adaptive needs they represent. The concept of specificity is also very interesting. As a matter of fact, the DSM-5 interrupted the process of inflation of diagnostic categories. According to Ammaniti, Cornoldi and Vicar (2015) the reduction of diagnostic categories has also been influenced by a more plastic vision of development, influenced by the neuro-constructive perspective, in which, especially in the evolutionary field, the single components of the mind are only partially dissociated. Darrel A. Regier, the coordinator of the new edition of the DSM, who was designated in 2000 by NIMH, (Kupfer & Regier, 2011) included two important features among the new version: the separation of the concept of disability from the diagnostic assessment, and the addition of dimensional criteria to the diagnosis. The assessment scales are proposed in order to examine transversally the symptomatology and, subsequently, the severity of the disorders. Overall, we could define these tools as articulated into several levels: the first is represented by the family of first level transversal symptom assessment scales, while the second level of transversal symptom assessment scales is aimed at investigating the need for further in-depth analysis (Zannaro, 2015).

Considering the characteristics of the tests, it should be noticed that the research aimed only to detect the behavior of children in quarantine without diagnostic purposes. The data were analyzed in their entirety. Informed consent was negotiated with the children involved and re-negotiated while the research was carried out. Pseudonyms replaced the proper names of participants. Participants (including child participants) were given the opportunity to withdraw from the study at any time.

Design research must lead to shared theories encompassing the processes of transmission, behaviors, and attitudes that are intentionally and unintentionally implemented, and which imply the need for awareness and planning by those who intervene, also including in the process of awareness-raising those who learn and have chosen to participate in the research.

Data analysis can provide relevant information in different contexts. The study of variables can be taken into analysis both in relation to the individual and to the group. It can be useful both from the educational Microcontext level (educator, teacher, teaching methods, classroom structure, social benefits...) and from a Mesosystem level (organization of school time, available resources...) and finally at the Macrosystem level (structural reforms, changes in curricula, changes in the evaluation system).

3. Methods

3.1 Participants

This research involved 84 adolescents, (47 females and 37 males, average age 15 ± 2 years). All the participants answered anonymously, through the administration of an online survey created with Google Form service. The purpose of the research was explained to all participants through a detailed description before the start of the test, including also a part relating to informed consent and its acceptance.

Given the lockdown situation imposed by the Covid-19 pandemic, the choice to use a technologically mediated administration was natural, also considering the studies that demonstrate the non-influence of the medium on the reliability and validity of online questionnaires (Buchanan, 2002; Vallejo et al., 2007; Riva et al., 2013).

3.2 Protocol

This study was conducted in a specific period, namely during the last two weeks of the so-called "*phase 1*" decreed by the Italian government, more than a month after the start of the lockdown. The choice of timing was decided in order to collect data after a situation of prolonged exposure to the critical event. Five questionnaires were used worldwide and also validated in Italian language: The Personality Inventory for DSM-5 –Brief Form (PID-5-BF) – Child Age 11-17 (American Psychiatric Association, 2013); PROMIS – Sleep Disturbance – Short Form – Child Age 11–17; Severity Measure for Generalized Anxiety Disorder – Child Age 11-17 (American Psychiatric Association, 2013); National Stressful Events Survey Acute Stress Disorder Short Scale [NSESSS]– Child Age 11–17 (American Psychiatric Association, 2013) and PROMIS Emotional Distress – Calibrated Anger Measure – Pediatric (PROMIS Health Organization, 2008-2012).

3.2.1 The Personality Inventory for DSM-5 – Brief Form – Child Age 11-17

The PID-5-BF is a 25-item self-report questionnaire which was designed to assess the five AMPD trait dimensions of Negative Affectivity (NA), Detachment (De), Antagonism (An), Disinhibition (Di), and Psychoticism (Ps) in both adults and adolescents; each domain scale consists in 5 items. Each PID-5-BF item is scored on only one PID-5-BF trait scale. The PID-5-BF items come from the 220-item self-report PID-5. As in the PID-5, each PID-5-BF item is rated on a 4-point scale (i.e., 0 = very false or often false; 1 = sometimes or somewhat false; 2 = sometimes or somewhat true; 3 = very true or often true). Different from other versions of the PID-5, the PID-5-BF yields a score for the overall measure (Fossati et al., 2015).

3.2.2 PROMIS – Sleep Disturbance – Short Form – Child Age 11–17

The Level 2 Assessment Scale - Sleep disorders - Subject from 11 to 17 years is an 8-item version of the PROMIS Sleep Disturbance Form that evaluates only the domain of sleep disorders in children and adolescents. The scale must be completed by the subject prior to the clinical visit. Each item requires the subject to assess the severity of their sleep disturbances in the past 7 days.

Each item is rated on a 5-point scale (1 = Not at all; 2 = A little bit; 3 = Somewhat; 4 = Quite a bit; 5 = Very much). The total score ranges from 8 to 40; the higher the scores, the greater the severity of the sleep disturbances (Hanish et al., 2017).

3.2.3 Severity Measure for Generalized Anxiety Disorder – Child Age 11-17

The Severity Rating Scale for Generalized Anxiety Disorder - Subject from 11 to 17 years is a 10-item tool which assesses the severity of generalized anxiety symptoms in children and adolescents. The tool was developed to be filled in by the subject (the care recipient) following the diagnosis of Generalized Anxiety Disorder (or clinically relevant symptoms of Generalized Anxiety Disorder) and, subsequently, before follow-up visits with the clinician. Each item requires the subject to assess the severity of generalized anxiety in the last seven days. Each item is rated on a 5-point scale (0 = Never; 1 = Occasionally; 2 = Half of the time; 3 = Most of the time; 4 = All of the time). The total score ranges from 0 to 40; the higher the scores, the greater the severity of the Generalized Anxiety Disorder.

3.2.4 National Stressful Events Survey Acute Stress Disorder Short Scale [NSESSS] – Child Age 11–17

The Acute Stress Symptom Severity Scale - Subject 11 to 17 Years is a 7-item tool that evaluates the severity of acute stress disorder symptoms in children and adolescents 11 to 17 years of age after an event or an extremely stressful experience. The tool was developed to be completed by the subject (the care recipient) following the diagnosis of acute stress disorder (or clinically relevant acute stress symptoms) and, subsequently, before the following visits with the patient.

Each item requires the subject to assess the severity of the acute stress disorder in the past seven days. Each item is rated on a 5-point scale (0 = Not at all; 1 = A little bit; 2 = Moderately; 3 = Quite a bit; 4 = Extremely). The total score ranges from 0 to 28; the higher the scores, the greater the severity of the acute stress disorder (Lebeau et al., 2014).

3.2.5 PROMIS Emotional Distress – Calibrated Anger Measure – Pediatric

The Emotional Distress scale comprises five to six short statements (e.g. “I felt angry”) completed on a 1 (*never*) to 5 (*always*) scale. Anger is included in many diagnoses, but the closest example in the DSM-5 is the chapter titled “Disruptive, Impulse-Control, and Conduct Disorders,” whose disorders can include angry moods (APA, 2013g). Although this chapter of the DSM-5 is most likely intended for children and adolescents, all the criteria listed in the DSM-5 for angry/irritable mood from the diagnosis of oppositional defiant disorder (ODD) are included in the PROMIS measures for anger. Furthermore, because anger is present in many diagnoses in DSM-5, all measures can be helpful in providing information on anger depiction with individuals.

The DSM-5 Level 2—Anger—Child Age 11–17 measure is the 6-item PROMIS Calibrated Anger Measure that assesses the pure domain of anger in children and adolescents. The measure is completed by the child prior to a visit with the clinician. Each item asks the child receiving care to rate the severity of his or her anger during the past 7 days. Scoring and Interpretation Each item on the measure is rated on a 5-point scale (1=never; 2=almost never; 3=sometimes; 4=often; and 5=almost always) with a range in score from 6 to 30 with higher scores indicating greater severity of anger (Irwin et al., 2011).

4. Data analysis[1]

Sample registry

Gender	%
Female	56 %
Male	44 %

Table 1: Subdivision of the sample by gender

School	%
High school	60 %
Middle school	40 %

Table 2: Subdivision of the sample by educational level

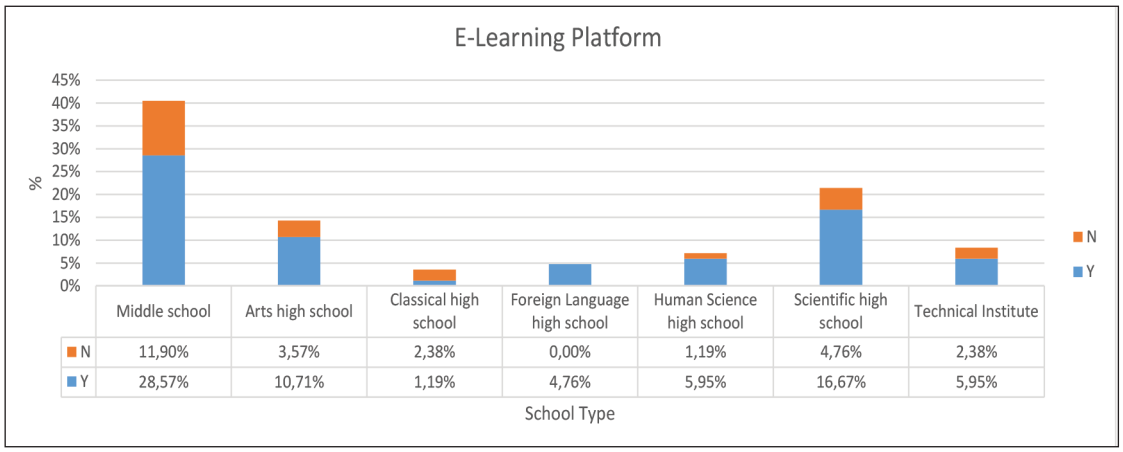


Figure 1: Use of e-Learning platforms by educational level

E-Learning Platform	%
Yes	73,81 %
No	26,19 %

Table 3: Use of e-Learning platforms

1 The data analysis was carried out with the SPSS software.

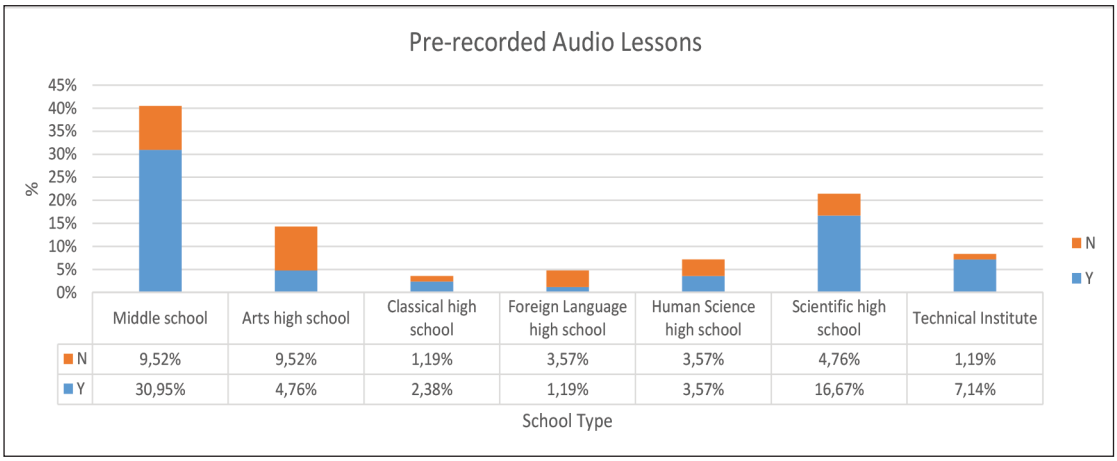


Figure 2: Use of pre-recorded audio lesson by educational level

Pre-recorded audio lesson	%
Yes	66,67 %
No	33,33 %

Table 4: Use of pre-recorded audio lesson

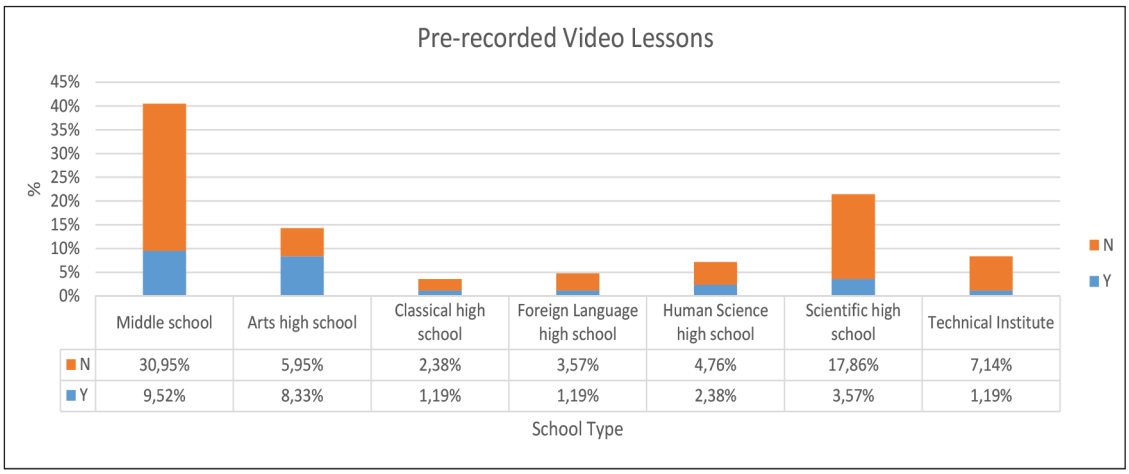


Figure 3: Use of pre-recorded video lesson by educational level

Pre-recorded video lesson	%
Yes	27,38 %
No	72,62 %

Table 5: Use of pre-recorded video lesson

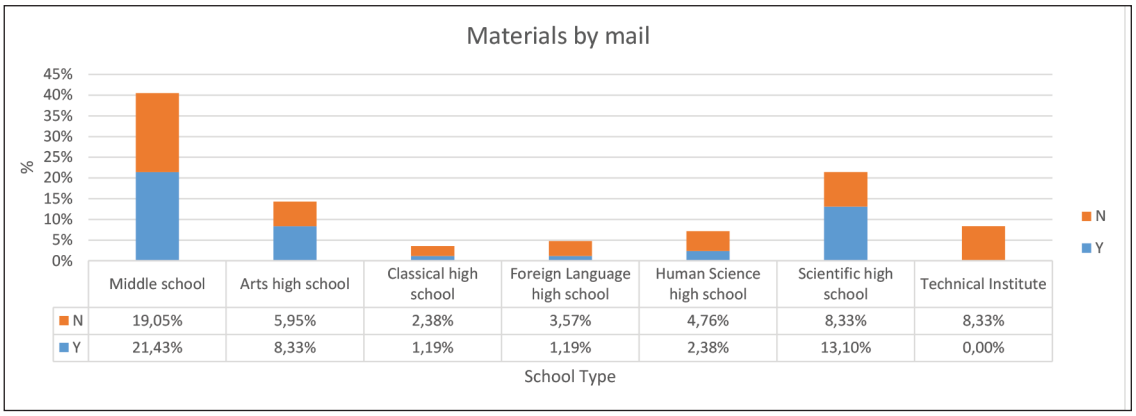


Figure 4: Use of material by email by educational level

Materials by e-mail	%
Yes	47,62 %
No	52,38 %

Table 6: Use of materials by e-mail

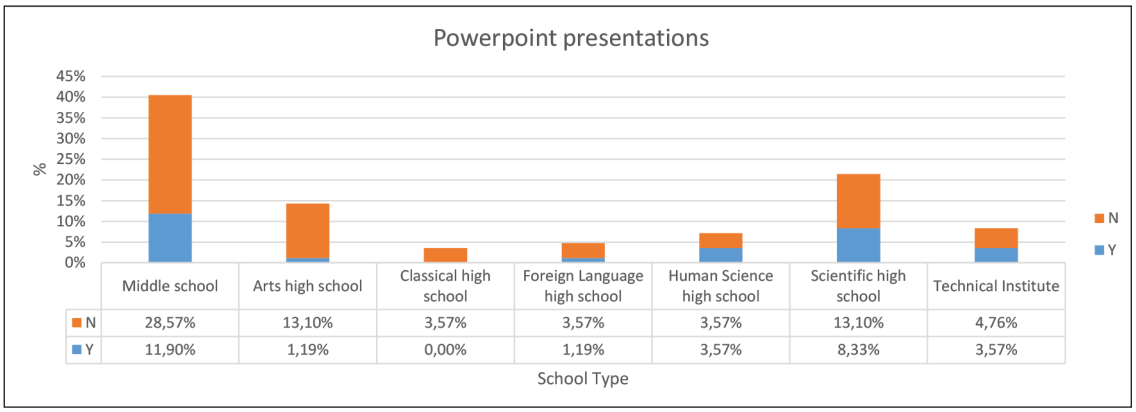


Figure 5: Use of PowerPoint by educational level

PowerPoint presentations	%
Yes	29,76 %
No	70,24 %

Table 7: Use of PowerPoint presentations

Independent Samples T-Test Conditions

1. Independent observations. This often holds if each case in SPSS represents a different person or other statistical unit. This apparently holds for our data.
2. Normality. The dependent variable must follow a normal distribution in the population. This is only required for samples smaller than some 25 units. We will see the actual samples sizes used for our t-test after running it, so we won't bother about normality until then.
3. Homogeneity: the standard deviation of our dependent variable must be equal in both populations. We only need this assumption if our sample sizes are (sharply) unequal.

We use SPSS tests if this holds when we run our t-test. If it doesn't, we can still report corrected test results.

Personality inventory for DSM-5 - Short version (PID-5-BF) - Subject from 11 to 17 years of age

The Independent Samples T-Test has been performed to verify whether or not the difference of the average values obtained in the test for two independent categories is significant.

a. Categories Males and Females

The descriptive statistics are summarised in the table below.

	Gender	N	Mean	Std. Deviation	Std. Error Mean
PID-5-BF_NegativeAffectivity	Male	37	1,389	,6054	,0995
	Female	47	1,694	,6295	,0918
PID-5-BF_Detachment	Male	37	1,032	,5647	,0928
	Female	47	,974	,5415	,0790
PID-5-BF_Antagonism	Male	37	,746	,5199	,0855
	Female	47	,672	,6064	,0884
PID-5-BF_Disinhibition	Male	37	1,157	,6149	,1011
	Female	47	1,272	,5476	,0799
PID-5-BF_Psychoticism	Male	37	1,276	,7139	,1174
	Female	47	1,298	,6964	,1016
PID-5-BF_AvgTotalScore	Male	37	1,119	,4514	,0742
	Female	46	1,211	,3889	,0573

Table 7: Groups statistics - Categories Males and Females

		Levene's Test for Equality of Variances		I-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	f	df	Sig.(2-tailed)	Mean	Std. Error	Lower	Upper
PID-5-BF_NegativeAffectiv1ty	Equal variances assumed	,424	,517	-2,238	82	,028	-,3044	,1361	-,5751	-,0338
	Equal variances not assumed			-2,248	78,726	,027	-,3044	,1354	-,5740	-,0349
PID-5-BF_Detachment	Equal variances assumed	,354	,554	,478	82	,634	-,0580	,1213	-,1833	,2992
	Equal variances not assumed			,476	75,870	,636	-,0580	,1219	-,1848	,3007
PID-5-BF_Antagonism	Equal variances assumed	,529	,469	,588	82	,558	-,0736	,1253	-,1756	,3228
	Equal variances not assumed			,598	81,364	,551	-,0736	,1230	-,1711	,3183
PID-5-BF_Disinhibition	Equal variances assumed	,753	,388	-,910	82	,366	-,1156	,1271	-,3683	,1372
	Equal variances not assumed			-,897	72,784	,373	-,1156	,1288	-,3724	,1412
PID-5-BF_Psychoticism	Equal variances assumed	,004	,949	-,143	82	,886	-,0222	,1548	-,3301	,2857
	Equal variances not assumed			-,143	76,529	,887	-,0222	,1552	-,3313	,2869
PID-5-BF_AvgTota1Score	Equal variances assumed	,488	,487	-,997	81	,322	-,0920	,0923	-,2755	,0916
	Equal variances not assumed			-,980	71,437	,330	-,0920	,0938	-,2789	,0950

Table 7: Independent Samples Test - Categories Males and Females

Levene's test on the equality of variances gives a p-value always greater than 0.05. Therefore, we can consider the variances equal and consequently consider only the first line of each type of test. Considering the T-Test on Equality of Averages (Null Hypothesis), we notice a p-value lower than 0.05 only in the

case of Negative Affectivity. Hence, we can reject the Null Hypothesisof equality between male and female averages. Moreover, the fact that the 0 is outside the confidence interval reinforces this conclusion.

Therefore, from the descriptive statistics we can deduce that females (1.694) have a greater dysfunction in the specific personality trait domain related to Negative Affectivity compared to males (1.389) and this difference is statistically significant.

b. Categories Middle and High school

	School	N	Mean	Std. Deviation	Std. Error Mean
PID-5-BF_NegativeAffectivity	Middle school	34	1,641	,6359	,1090
	High school	50	1,504	,6328	,0895
PID-5-BF_Detachment	Middle school	34	1,047	,5550	,0952
	High school	50	,968	,5486	,0776
PID-5-BF_Antagonism	Middle school	34	,876	,5416	,0929
	High school	50	,588	,5605	,0793
PID-5-BF_Disinhibition	Middle school	34	1,353	,6345	,1088
	High school	50	1,132	,5231	,0740
PID-5-BF_Psycholicism	Middle school	34	1,429	,7171	,1230
	High school	50	1,192	,6785	,0960
PID-5-BF_AvgTotalScore	Middle school	34	1,274	,4481	,0768
	High school	49	1,098	,3838	,0548

Table 8: Groups statistics - Categories Middle and High school

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-tailed)	Mean	Std. Error	Lower	Upper
PID-5-BF_NegativeAffectiv1ty	Equal variances assumed	,058	,811	,973	82	,333	,1372	,1409	-,1432	,4175
	Equal variances not assumed			,972	70,790	,334	,1372	,1411	-,1441	,4185
PID-5-BF_Detachment	Equal variances assumed	0,18	,892	,645	82	,521	,0791	,1225	-,1647	,3228
	Equal variances not assumed			,644	70,471	,522	,0791	,1228	-,1658	,3239
PID-5-BF_Antagonism	Equal variances assumed	,290	,592	2,347	82	,021	,2885	,1229	-,0439	,5330
	Equal variances not assumed			2,362	72,623	,021	,2885	,1221	-,0451	,5319
PID-5-BF_Disinhibition	Equal variances assumed	,291	,591	1,742	82	,085	,2209	,1268	-,0314	,4732
	Equal variances not assumed			1,679	61,683	,098	,2209	,1316	-,0421	,4840
PID-5-BF_Psychoticism	Equal variances assumed	,052	,820	1,538	82	,128	,2374	,1543	-,0696	,5444
	Equal variances not assumed			1,522	68,347	,133	,2374	,1560	-,0738	,5487
PID-5-BF_AvgTota1Score	Equal variances assumed	1,982	,163	1,913	81	,059	,1756	,0918	-,0070	,3582
	Equal variances not assumed			1,860	63,782	,068	,1756	,0944	-,0130	,3642

Table 9: Independent Samples Test - Categories Middle and High school

Again, Levene's test on the equality of variances shows a p-value always greater than 0.05. Therefore, we can consider the variances as equal, and thus consider only the first line of each type of test. Analysing the T-Test on the equality of the averages (Null Hypothesis), we notice a p-value lower than 0.05 only in the case of Antagonism. We can therefore reject the Null Hypothesisof equality between Middle and High School averages. Moreover, the fact that the 0 is outside the confidence interval reinforces this conclusion.

From the descriptive statistics, it can be deduced that in Middle School (0.876) children show a greater dysfunction in the specific personality trait domain related to Antagonism compared to High School children (0.588) and this difference is statistically significant.

PID-5-BF Areas / Age - Correlation Matrix

		Age	PID-5-BF Negative Affectivity	PID- 5-BF Detachment	PID-5-BF Antagonism	PID-5- BF Disinhibition	PID- 5-BF Psychoticism	PID-5-BF AvgTotalScore
Age	Pearson Correlation	1	-,105	-,027	-,256*	-,211	-,153	-,229*
	Sig. (2-tailed)		,343	,810	,019	,054	,164	,037
	N	84	84	84	84	84	84	83

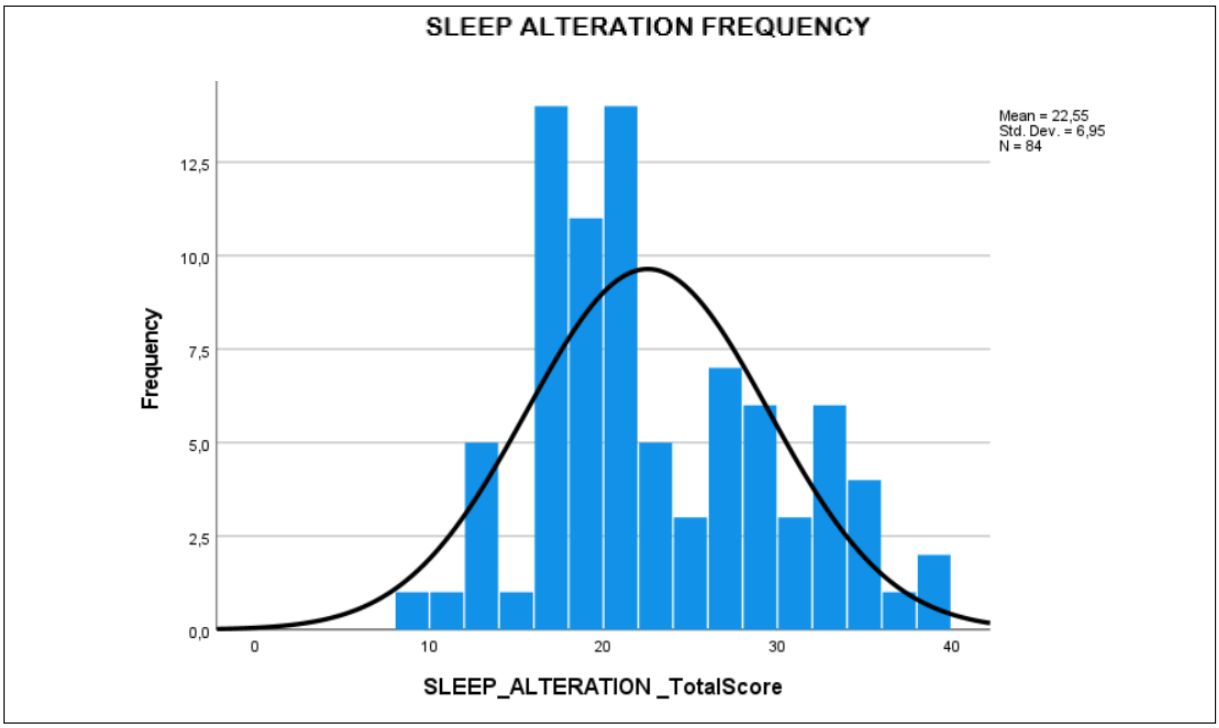
*. Correlation is significant at the 0.05 level (2-tailed).

Table 10: Correlations – PID-5-BF Areas /Age

There is a negative correlation between:
- Age and Antagonism
- Age and Avg Total Score

Therefore, as age increases, the Antagonism decreases, with a 95% confidence interval. This data is in accordance with the previous paragraph. The average of the total personality profile alteration score also decreases with increasing age, with the same confidence interval.

DSM-5_Level2_AlterationsSleep_Subject11-17 years' old



T-Test - Sleep Alteration

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
SLEEP_ALTERATION_ TotalScore	Male	37	21,92	6,739	1,108
	Female	47	23,04	7,144	1,042

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
SLEEP_ALTERATION _TotalScore	Equal variances assumed	1,674	,199	-,734	82	,465	-1,124	1,532	-4 ,171	1,923
	Equal variances not assumed			-,739	79,303	,462	-1,124	1,521	-4 ,151	1,904

Table 11: T-Test – Sleep Alteration / Gender

T-Test - Sleep Alteration

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
SLEEP_ALTERATION_ TotalScore	Middle school	34	21,76	8,453	1,450
	High school	50	23,08	5,742	,812

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
SLEEP_ALTERATION _TotalScore	Equal variances assumed	13,081	,001	-,850	82	,398	-1,315	1,547	-4 ,394	1,763
	Equal variances not assumed			-,792	53,416	,432	-1,315	1,662	-4 ,648	2,017

Table 12: T-Test – Sleep Alteration / School

The T-Tests show that the Null Hypothesis of equality between the averages cannot be rejected, and therefore, for the specific personality domain trait, statistically significant differences between the average results of males and females and those of middle and high school cannot be highlighted.

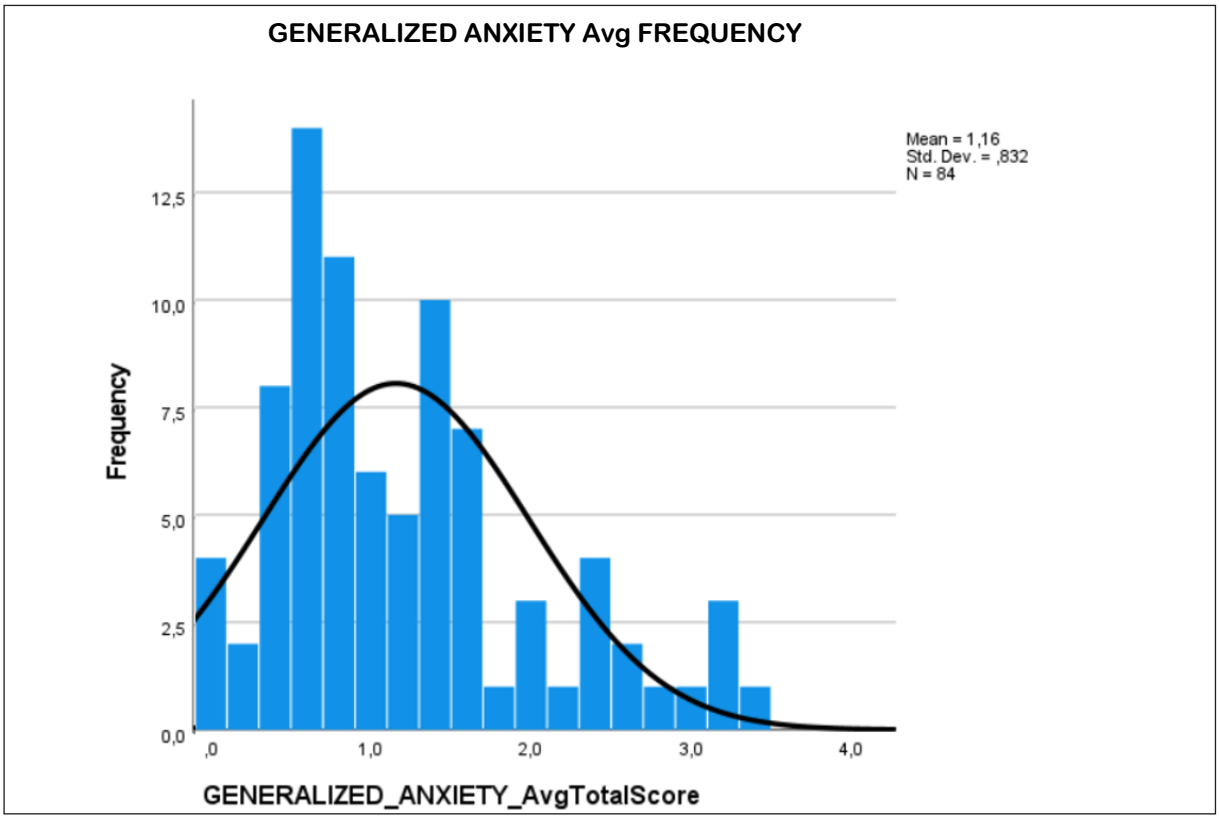
Age / Sleep Alteration Correlation Matrix

		Age	SLEEP ALTERATION Total Score
Age	Pearson Correlation	1	,164
	Sig. (2-tailed)		,137
	N	84	84
SLEEP ALTERATION TotalScore	Pearson Correlation	,164	1
	Sig. (2-tailed)	,137	
	N	84	84

Table 12: Correlation – Age / Sleep Alteration

There is no correlation between Age and Sleep Alteration.

DSM-5_Gravity_Generalized_Subject11-17 years' old



T-Test - Generalized Anxiety

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
GENERALIZED_ANXIETY_TotalScore	Middle school	34	1,029	,9200	,1578
	High school	50	1,242	,7635	,1080

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means				95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
GENERALIZED_ANXIETY_TotalScore	Equal variances assumed	,196	,659	-1,152	82	,253	-,2126	-,1845	-,5796	,1544
	Equal variances not assumed			-,1,112	61,990	,270	-,2126	-,1912	-,5948	,1696

Table 13: T-Test – Generalized Anxiety / School

T-Test - Generalized Anxiety

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
GENERALIZED_ANXIETY_TotalScore	Male	37	1,089	,9107	,14 97
	Female	47	1,209	,7698	,1123

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means				95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
GENERALIZED_ANXIETY_TotalScore	Equal variances assumed	1,388	,242	-,651	82	,517	-,1193	,1834	-,4842	,2456
	Equal variances not assumed			-,638	70,445	,526	-,1193	,1871	-,4925	,2539

Table 14: T-Test – Generalized Anxiety / Gender

The T-Tests show that the Null Hypothesis of equality between the averages cannot be rejected, and, therefore, due to the specificity of personality domain trait, statistically significant differences between the average results of males and females and those of Middle and High School cannot be highlighted.

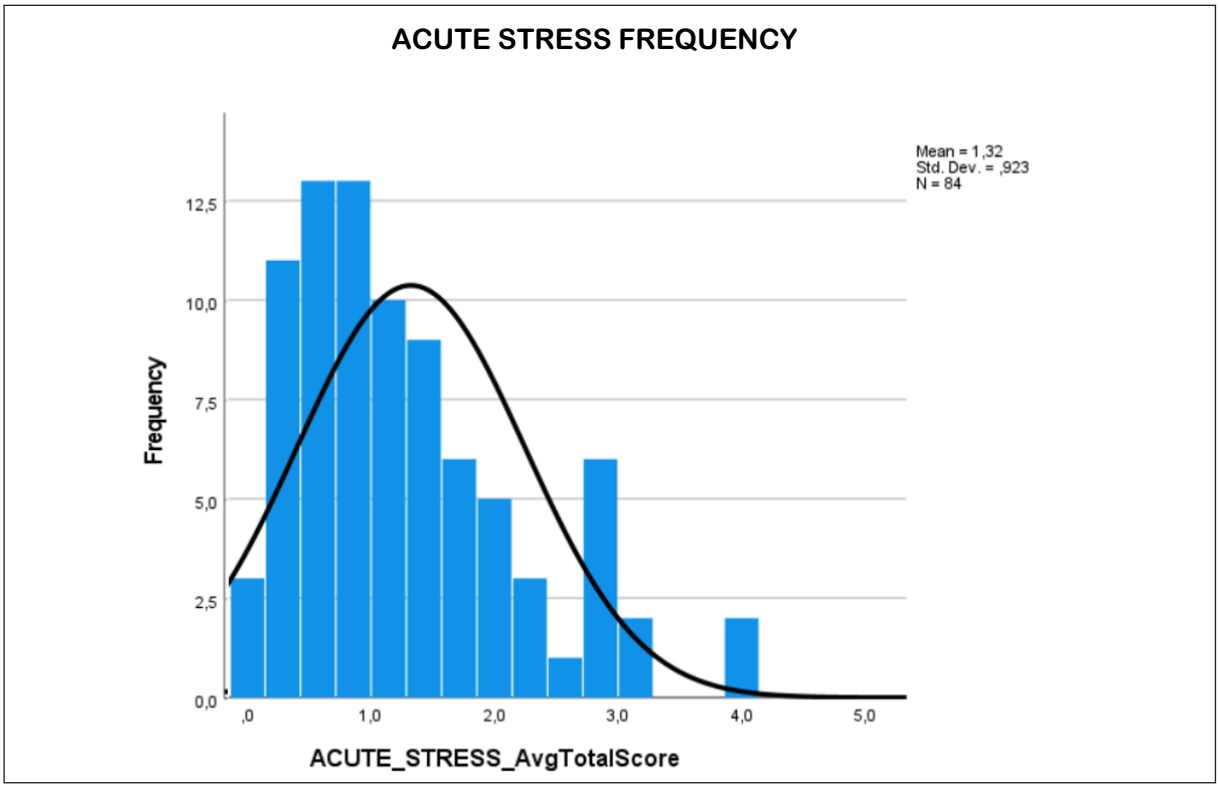
Generalized Anxiety / Age Correlation Matrix

		Age	GENERALIZED ANXIETY TotalScore
Age	Pearson Correlation	1	,064
	Sig. (2-tailed)		,563
	N	84	84
GENERALIZED ANXIETY TotalScore	Pearson Correlation	,064	1
	Sig.(2-tailed)	,563	
	N	84	84

Table 15: Correlation - Generalized Anxiety / Age

There is no correlation between Age and GENERALIZED ANXIETY

DSM-5_Acute_Stress_Subject11-17 years old



T-Test - Acute Stress

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
ACUTE_STRESS_AvgTot	Male	37	1,216	1,0305	,1694
	Female	47	1,407	,8308	,1212

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
ACUTE_STRESS_AvgTot	Equal variances assumed	,449	,505	-,941	82	,349	-,1911	,2030	-,5950	,2128
	Equal variances not assumed			-,917	68,279	,362	-,1911	,2083	-,6067	,2245

Table 16: T-Test – Acute Stress / Gender

T-Test - AcuteStress

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
ACUTE_STRESS_AvgTot_ TotalScore	Middle school	34	1,176	1,0169	,1744
	High school	50	1,423	,8498	,1202

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
ACUTE_STRESS_AvgTot	Equal variances assumed	,113	,737	-1,204	82	,232	-,2464	,2047	-,6535	,1607
	Equal variances not assumed			-1,163	62,320	,249	-,2464	,2118	-,6697	,1769

Table 17: T-Test – Acute Stress / School

The T-Tests show that the Null Hypothesis of equality between the averages cannot be rejected, and, therefore, due to the specificity of personality domain trait, statistically significant differences between the average results of males and females and those of Middle and High School cannot be highlighted.

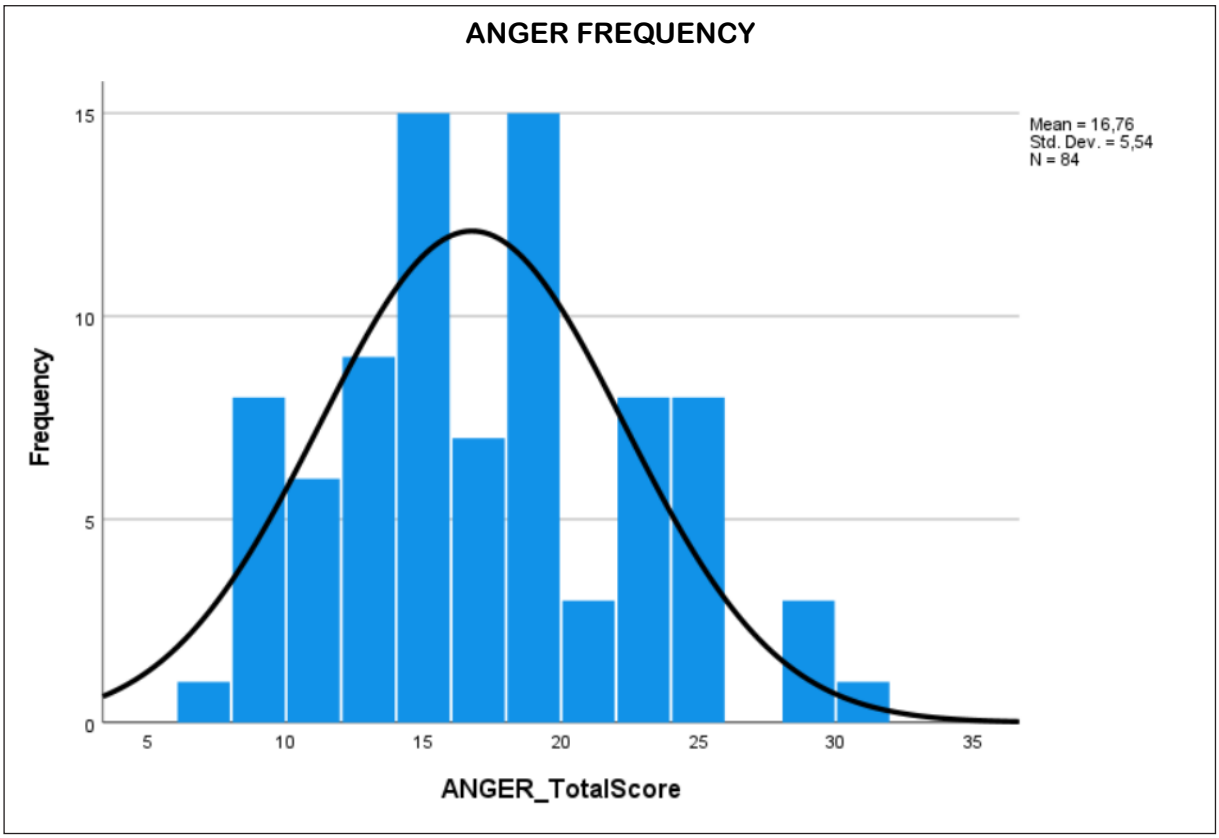
Acute Stress / Age - Correlation Matrix

		Age	ACUTE STRESS Avg Total Score
Age	Pearson Correlation	1	,168
	Sig. (2-tailed)		,127
	N	84	84
ACUTE STRESS Avg TotalScore	Pearson Correlation	,168	1
	Sig.(2-tailed)	,127	
	N	84	84

Table 18: Correlation - Acute Stress / Age

There are no correlations between Age and ACUTE STRESS

DSM-5_Level2_Anger_Subject11-17 years old



T-Test - Anger

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
ANGER_TotalScore	Male	37	15,73	5,606	,922
	Female	47	17,57	5,408	,789

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
ANGER_TotalScore	Equal variances assumed	,057	,811	-1,527	82	,131	-1,845	1,208	-4,248	,558
	Equal variances not assumed			-1,521	76,107	,132	-1,846	1,213	-4,261	,571

Table 19: T-Test – Anger / Gender

T-Test - Anger

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
ANGER_ TotalScore	Middle school	34	16,00	5,538	,950
	High school	50	17,28	5,357	,783

Independent Samples Test

		Levene's Test for Equality of Variances		I-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-ta iled)	Mean Difference	Std. Error Difference	Lower	Upper
ANGER_AvgTot	Equal variances assumed	,043	,837	-1,040	82	,301	-1,280	1,231	-3,729	1,169
	Equal variances not assumed			-1,041	71,013	,302	-1,281	1,232	-3,734	1,174

Table 20: T-Test – Anger / School

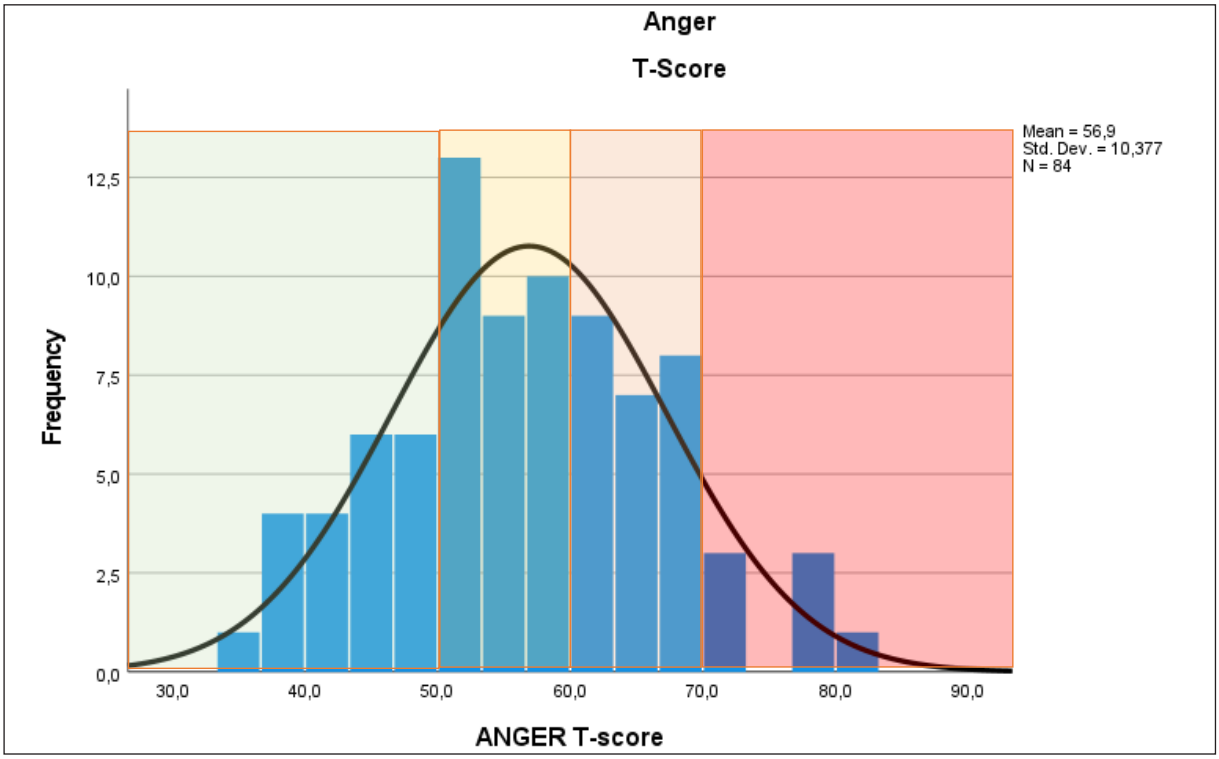
The T-Tests show that the Null Hypothesis of equality between the averages cannot be rejected, and, therefore, due to the specificity of personality domain trait, statistically significant differences between the average results of males and females and those of Middle and High School cannot be highlighted.

Anger / Age - Correlation Matrix

		Age	ANGER
Age	Pearson Correlation	1	,070
	Sig. (2-tailed)		,524
	N	84	84
ANGER	Pearson Correlation	,070	1
	Sig.(2-tailed)	,524	
	N	84	84

Table 21: Correlation – Anger / Age

There is no correlation between Age and ANGER



T-score must be interpreted as follows:
less than 55 = from aAbsent to Sporacic
55.0 – 59.9 = Mild
60.0 – 69.9 = Moderate
70 e più = Severe

Search for further Correlations

Assumptions
Independent observations;
Normality: our two variables must follow a bivariate normal distribution in our population. This assumption is not needed for sample sizes of N = 25 or more.

On the one hand, there are positive correlations between:

- Age and Average Lesson Hours per Day: as age increases, the number of hours of lessons per day increases;
- Time Spent Using Electronic Devices for Studying after Lessons and Time Spent Using Electronical Device for Social Media: as the time spent using electronic devices for studying after class increases, the time spent on social media grows.

On the other hand, there is a negative correlation between:

- Avg Lesson Hours for Day and Time Spent Using Electronic Devices For Playing: as the average number of hours of lessons per day increases, the number of hours spent playing on electronic devices decreases.

		Age	Average Lesson Hours Per Day	Time Spents Using Electronic Devices For Studing After Lesson	Time Spents Using Electronic Devices For Social Media	Time Spents Using Electronic Devices For Playing
Age	Pearson Correlation	1	,337**	,061	-,013	-,195
	Sig.(2-tailed)		,002	,582	,903	,076
	N	84	84	84	84	84
Avarage Lesson Hours Per Day	Pearson Correlation	,337**	1	84	-,189	-,248*
	Sig.(2-tailed)	,002		,062	,085	,023
	N	84	84	,576	84	84
Time Spents Using Electronic Devices For studing Afier Lessons	Pearson Correlation	,061	,062	1	,370**	-,170
	Sig.(2-tailed)	,582	,576		,001	,121
	N	84	84	84	84	84
Time Spents Using Electronic Devices For Social Media	Pearson Correlation	-,013	-,189	,370**	1	,122
	Sig.(2-tailed)	,903	,085	,001		,269
	N	84	84	84	84	84
Time Spents Using Electronic Devices For Playing	Pearson Correlation	-,195	-,248*	-,170	,122	1
	Sig.(2-tailed)	,076	,023	,121	,269	
	N	84	84	84	84	84

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Table 22: Correlation - Time spent on electronic devices / personality profile disorders-alteration

		Time Spents Using Electronic Devices For Studing After Lesson	Time Spents Using Electronic Devices For Playing	Time Spents Using Electronic Devices For Social Media	PID-5-BF AvgTotalScore	SLEEP ALTERATION TotalScore	GENERALIZED ANXIETY Avg Total Score	ACUTE STRESS Avg Total Score	ANGER
Time Spents Using Electronic Devices For studing After Lessons	Pearson Correlation	1	-,170	,370**	-,163	-,186	-,099	-,054	,022
	Sig.(2-tailed)		,121	,001	,142	,090	,370	,623	,839
	N	84	84	84	83	84	84	84	84
Time Spents Using Electronic Devices For Playing	Pearson Correlation	-,170	1	,122	-,117	-,135	-,155	-,150	-,185
	Sig.(2-tailed)	,121		,269	,293	,221	,159	,173	,092
	N	84	84	84	83	84	84	84	84
Time Spents Using Electronic Devices For Social Media	Pearson Correlation	,370**	,122	1	-,116	,038	,084	,140	-,009
	Sig.(2-tailed)	,001	,269		,298	,735	,449	,203	,935
	N	84	84	84	83	84	84	84	84
PID-5-BF AvgTotalScore	Pearson Correlation	-,163	-,117	-,116	1	,219*	,324**	,346**	,513**
	Sig.(2-tailed)	,142	,293	,298		,046	,003	,001	,000
	N	83	83	83	83	83	83	83	83
SLEEP ALTERATION TotalScore	Pearson Correlation	-,186	-,135	,038	,219*	1	,506**	,506**	,462**
	Sig.(2-tailed)	,090	,221	,735	,046		,000	,000	,000
	N	84	84	84	84	84	84	84	84
GENERALIZED ANXIETY Avg Total Score	Pearson Correlation	-,099	-,155	,084	,324**	,506**	1	,679**	,599**
	Sig.(2-tailed)	,370	,159	,449	,003	,000		,000	,000
	N	84	84	84	83	84	84	84	84
ACUTE STRESS Avg Total Score	Pearson Correlation	-,054	-,150	,140	,346**	,506**	,679**	1	,636**
	Sig.(2-tailed)	,623	,173	,203	,001	,000	,000		,00,
	N	84	84	84	83	84	84	84	84
ANGER	Pearson Correlation	,022	-,185	-,009	,513**	,462**	,599**	,636**	1
	Sig.(2-tailed)	,839	,092	,935	,000	,000	,000	,000	
	N	84	84	84	83	84	84	84	84

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Table 23: Correlation – Disorders-alteration of the personality profile

There are positive correlations between all disorders/alteration of the personality profile. This means that the increase of one of them is correlated with the increase of the others.

On the other hand, there are no correlations between time spent on electronic devices (for studying, playing or on social media) and personality profile disorders/alteration.

5. Discussion

As already stated, the main purpose of this research work is to understand the behavioural phenomena related to the lockdown period implemented by adolescents. The starting hypothesis is that the lockdown period, and use/abuse of technology may have influenced the mood of the adolescents, generating anxiety, stress, anger and disturbance in their behaviour and consequently affecting the quality of sleep.

The tests that have been used are those suggested by the DSM-V and are all internationally validated and used tests. The DSM-V evaluation questionnaires are designed to be completed independently. Although the validity and widespread use of mediated test administration has been demonstrated, the accuracy and reliability of the results are entrusted to the honesty of the respondents and their self-assessment skills.

By choice and sense of research, no second-level surveys have been carried out, reducing the sensitivity of the data. Therefore, the research offers an outlook on the general situation of adolescents during the pandemic. The scoring of the tests was carried out following the guidelines of the DSM-5 Manual. The data analysis was carried out with the SPSS platform.

Since we do not have a T0 prior to the lockdown of the same sample of adolescents, it was not possible to compare the data, but only to provide a picture of the emotional state of the adolescents during the pandemic. It would be interesting to propose online training sessions in order to reach all the participants and administer the tests at the end of the course (T1).

Descriptive statistics show that girls (1,694) have a greater dysfunction in the specific personality trait domain related to Negative Affectivity (which includes a variety of negative emotions among which anger,

contempt, disgust, guilt, fear and nervousness) than boys (1,389), and this difference is statistically significant assuming greater emotional fragility for the female gender.

It should also be noted that in the Middle School (0.876) boys have a greater dysfunction in the specific personality trait domain related to Antagonism (i.e. all those behaviours that put people in conflict with each other) than boys in High School (0.588). This difference is statistically significant and therefore more attention should be paid to educational intervention in this category.

It should also be considered that there are positive correlations between all alterations in the personality profile. This means that the increase of one is strongly correlated with the increase of the others.

No correlations between the time spent on electronic devices (for study, social and play) and the disturbances/alteration of the personality profile are shown.

It can be observed that the sleep alteration data is distributed with respect to the normal curve, so that the highest frequency of cases is concentrated just before the average, highlighting medium/light sleep disturbances. There are completely absent cases in which the absence of sleep alteration is declared. The rest of the cases are at medium-high levels of sleep disturbance reaching the extreme (maximum) values.

In the Generalized Anxiety Disorder, the data frequency has a positive asymmetry, i.e. the most frequent data values are concentrated on low anxiety levels, but there are still cases of higher anxiety. The same reading, with a similar distribution of values, occurs for the stress curve.

From the graphs relating to anger, the curve shows a normal trend. This means that there are more frequent occasional cases of anger. Only slightly more than 8% reported severe states of anger.

Sleep disorders, although with a significant correlation to 0.05, are related to anxiety, stress, and anger. Therefore, we can argue that the observation of time and quality of sleep can be an objective and easily detectable feature in both domestic and socio-educational settings.

The positive correlations between Age and Average Lesson Hours per Day should also be underlined as age increases, meaning that the number of hours of lessons per day increases and the educational offer given at the High school is improved.

Another positive relationship is found between Time Spent Using Electronic Devices for Studying after Lessons and Time Spent Using Electronical Device for Social Media: as time spent using electronic devices for studying after class increases, so the time spent on social media grows. We can hypothesize that through social media children exchange information about their schoolwork, but also that distance learning, through the use of multimedia media, "justifies" their extra use.

Interesting is the negative correlation between Avg Lesson Hours for Day and Time Spent Using Electronic Devices for Playing, that is, as the average number of hours of lessons per day increases, the number of hours spent playing on electronic devices decreases.

Therefore, the "social" time increases at the expense of the cognitively more demanding "gaming" time.

6. Conclusions

Considering the data collected, it is essential to make the children reflect on their emotions, how to identify them, recognise them, evaluate them by intensity and, above all, to be able to correctly attribute them to the event. In fact, many adolescents are unable to read their emotional states and relate them to physical reactions. This makes it difficult to understand dramatic events, as they are unable to rely on an emotional code sufficient to read reality in objective terms. This form of "emotional poverty" often generates inner conflicts that are difficult to modify as they are composed of a cognitive value and an emotional one that are in contrast with each other, or totally autonomous towards each other, as if the individual were exposed to two irreconcilable dynamics. The consequence is the development of behaviours that are not appropriate to the context. Educational programmes should, therefore, be aimed to emotional literacy understood as (1) convergence between cognition and emotion, (2) competence of discrimination of emotions and related physical states. It is necessary, therefore, to implement an action of "cognitive connection" in order to express oneself (Morsanuto et al., 2020).

The key results of Natalie Rusk et al. qualitative research (2013) show that young people learn emotions through active and conscious processes of observation and analysis of their experiences; and they learn not only to regulate frustration, anger, and worry, but also to use the functional aspects of these emotions

in constructive ways through reflection on ongoing emotional episodes and reasoning about alternative strategies in problem solving.

As Blandino points out in his speech (2011), one grows and learns only within a relationship, therefore managing learning is managing the relationship (and vice versa), so the attention to the relational dimensions between educator/teacher and children is a necessity[2]. School is therefore the best environment in which to offer fertile situations which can enhance emotional literacy through didactics. An interesting example has been proposed by Supsi Department of Higher Education[3]. The didactic activities have been calibrated on the five main groups of social and emotional competences: self-awareness, the ability to manage oneself, social awareness, relational skills, and the ability to make responsible decisions. The project is divided into several phases: (1) The choice of the theme linked to everyday life. (2) Thinking about the objective, i.e. what you want to achieve both emotionally and strategically. (3) Preparation of materials. The project under consideration proposes the use of images and photographs that evoke situations as well as passages or stories. This work, on the other hand, aims to use social network platforms (Instagram, TikTok, Pinterest...) as tools to stimulate pupils.

Despite the results of the research, which on average the youngsters stated that they did not have any particular problems related to the lockdown, it was probably their familiarity with multimedia supports that facilitated them both in the management of the DDA and in the maintenance of relationships and the management and sharing of emotions. Given the intense use of social media, which emerged from the research, we suggest their use as tools for co-construction (between adolescent and educator) of "educational narrative" paths that start from themselves and that can find space and comparison with what is communicated through social platforms. As Badri et al. (2017) point out in their research, the fashion and popularity of social media are such that school educators are unlikely to be able to limit its use by students, therefore, the focus group recommended schools to encourage teachers to integrate social media in their classes, through the assignment of homework and projects. These positive opinions are also reported in literature (Blair & Serafini, 2014). Pimmer et al. (2017) developed a conceptual framework that illustrates the ways in which functional supervision, enculturation, empowerment, critical thinking and relationship development are achieved and formed by interaction with what is technological, functional, multimodal, and more broadly socio-cultural through the use of a group space on the social networking site Facebook used as a facilitator for supervising research for student teams.

The effectiveness of the pedagogical use of Twitter and Instagram has been demonstrated by the work proposed by Hortiguela-Alcalà et al. (2019) the use of social media has had a significant influence, increasing both the motivation and involvement of students and their degree of performance. The impact of age factors and the use of these tools, outside the classroom, on the knowledge acquired by students has been significant. This is in line with evidence suggesting that social networks are very useful in fostering the teaching-learning process. As this research shows, attention should be personalised according to the gender, bearing in mind the emotional fragility found in girls and the antagonism in boys.

This proposal is combined with the last point of the Supsi research, that is (4) the use of an explicit, focused and involving communicative methodology. In fact, the socio-emotional educational activity must not be limited to listening but it rather should presuppose the organization of discussions and role-playing that allow the awareness of oneself, of others and of the situations in which one finds oneself.

(5) The last recommended step is the gradualness of the intervention, i.e. the construction of paths on pre-knowledge: one does not learn the most complex emotions if one does not know the basic ones: happiness, sadness, anger, disgust, fear, surprise.

According to the results of the Supsi research, after two years of social-emotional educational intervention, anxiogenic states have decreased by 20%, non-aggressive behaviour problems have regressed by 17%, as opposed behaviour has decreased by 41% and aggressive behaviour by 19%. The ideas extracted from the article by Alvarez and Olivera-Smith (2019) seem to support two main notions:

(1) Social media offer potentially effective opportunities to improve students' learning. The proper

2 Blandino G., (2011). *Le risorse emotive nella scuola. Convegno Supsi: promozione della salute nella scuola.*

3 Project conceived and coordinated by D. Antognazza, L. Sciaroni, DFA Department of Education at the Department of Training and Learning SUPSI University of Applied Sciences and Arts in Locarno.

functioning of a learning group in a social network derives from multiple operations of exchange of knowledge and ideas between participants (teachers and students) who share common learning objectives in which to share their experiences; (2) The relevant scientific literature offers ample evidence of the effective use of social media to promote student learning.

As the authors point out, it is necessary to review the role of the teacher in these environments, and the search for methodological alternatives to foster collaboration among students, to contribute to self-regulation of learning and even innovation in evaluation.

Considering the literature and data obtained in this work, this research group intends to develop a teaching method that promotes emotional literacy and learning/teaching through socials.

The programme will be proposed on an experimental basis to a group of pilot classes (upper secondary schools). The intervention will promote a sense of community by taking into account socio-demographic variables, self-regulation, and emotional attention. It will be developed trying to adapt the individual differences and the diversity of the students' cognitive styles. Particular attention will be given to ethical and political issues such as social network selection criteria and privacy. The use of resources will include training teachers by offering them technical and theoretical support.

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