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Original article

Bullying in Autism Spectrum Disorder: prevalence and consequences in adulthood

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SUMMARY

Autism Spectrum Disorder (ASD) is characterized by typical pattern of communication and relational skills associated with repetitive verbal and motor behaviors and restricted patterns of interest. Among neurodevelopmental disorders, autistic students are at increased likelihood of being bullying victims. In autism, bullying victimization is significantly associated with internalized and externalized symptoms and poor quality of life.

The present study aims to verify the presence of bullying victimization in autistic people, the distribution of such phenomenon among autism severity levels and inquires the presence of psychopathological co-occurrence in autistic adults who were victims of bullying with respect to non-bullied ones. The present study demonstrates that bullying is common among autistic people. Within autism wide expression range, bullying occurs in almost all situations related to ASD Level 1. Finally, bullying is a trigger for psychopathology in adolescence and adulthood.

Key words: autism, bullying, adult, psychopathology

Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by persistent deficits in social communication and interaction as well as restricted and repetitive behaviors with a prevalence of 1:44% in the general population [1,2]. ASD is characterized by deficits in socio-emotional reciprocity, impaired verbal and non-verbal communication skills, and an inability to develop and maintain adequate social relationships with peers, often associated with repetitive verbal and motor behaviors, restricted patterns of interest, need for a predictable and stable environment and hypo- or hypersensitivity to sensory inputs and social vulnerability [2].

Several studies have indicated that students with disabilities are at greater risk for experiencing bullying than typically developing students [3]. Between neurodevelopmental disorders, ASD students are notably vulnerable to bullying involvement [4,5]. This is due to deficits in social communication [6], as well as difficulty with empathy [7,8], difficulties in social understanding and in their own and others behaviour comprehension [9,10]. Furthermore, behavioral difficulties, insistence on sameness or hyper-responsiveness to sensory stimulus, are risk factors for bullying victimization as well [11-13].

According to Olweus (1994; p. 1173): *A student is being bullied or victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other students*. Bullying is characterized by the following criteria: (a) It is an aggressive behavior or intentional "harmdoing" (b) which is carried out "repeatedly and over time" (c) in an interpersonal relationship characterized by an imbalance of power [14].

In the general population, researchers suggested that bullying victimization in children and adolescents has enduring effects, which may persist into adulthood [15-17]. Studies have examined adverse health and psychosocial problems associated with bullying victimization. Children who were

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victims of bullying are at high risk for internalising problems in young and middle adulthood (18-50 years of age) [18]. Being bullied at school is identified as a precursor of later development of depression and anxiety [19-21], personality disorders [22-24] and an increased risk for displaying psychotic experiences at age 18 [25].
In children and adolescents with ASD, bullying victimization was significantly associated with higher levels of internalizing and externalizing mental health problems [26-29]. Children who have been victimized have a higher risk of depression [27], anxiety [30], suicide [31], poor quality of life [32] and poor educational outcomes [33]. Additionally, among the wide ASD expression range, high rates of bullying victimization are reported in ASD level 1 [34,35].
In adolescence and later in adulthood, bullying is a trigger for psychopathology [36]. The high level of psychopathologies comorbidities that may arise, the specific needs and a wide array of difficulties due to ones insertion in society, make autism condition increasingly complex to handle in adulthood.
The present study aims to verify the presence of bullying victimization in ASD individuals, the distribution of such phenomenon among autism severity levels and inquires the presence of psychopathological co-occurrence in ASD adults who were victims of bullying with respect to non-bullied ones.

Participants

Participants were adults referred to the Regional Centre for Autism in Adulthood. All participants are diagnosed with ASD. 78% (n = 361) individuals are male, 22% (n = 103) are female. Age ranges between 18 and 50 years old, with a mean value (M) of 29,93 and a standard deviation (SD) of 6,83. Among all ASD individuals, 42% (n = 194) are diagnosed with ASD level 1; 30% (n = 138) are diagnosed with ASD level 2; 20% (n = 91) are diagnosed with ASD level 3 (ASD levels according to DSM5 criteria - APA, 2013).

Methods

Each participant was evaluated utilizing the *Multistep Network Model* (as described in Keller et al., 2020). It is a multistep diagnostic and evaluation assessment, which integrates diagnostic evaluation with an individualized life project.
The *Multistep Network Model* is summarized in the following for ease of reference. For a detailed description of each step, please refer to Keller et al., 2020.

1. Meeting with the parents or direct meeting with the person, in case of suspected ASD high functioning. This meeting is individualized and dialogue-based but foresees a structured information's recollection about: a) a wide range of life history topics (for example: the course of gestation, onset of speech, possible bullying, etc.); b) carried out interventions; c) needs and expectations;
2. Meeting with the patient him- or herself. This meeting is intended for: a) welcoming and creating a human supporting relationship; b) clinical evaluation of the symptoms presented; c) clinical evaluation of any psychopathological symptom in co-occurrence; d) objective neurological evaluation; e) clinical evaluation of cognitive functioning with WAIS-IV [37] or Leiter-3 [38];
3. Assessment of the intellectual profile by using appropriate tests for the level of clinical functioning and, if necessary, neuropsychological testing;
4. Evaluation tests for suspected autism: ADI-r [39], ADOS module 4 [40] or RAADS [41];
5. Evaluation of the adaptive functioning profile with ABAS-II [42]. Test evaluation of psychopathological functioning – if there is a clinical suspicion – with SCID-5 [43] or MMPI-2 [44] for intellectual functioning evaluation.
6. Medical evaluation focused on general health and specific conditions of neurodevelopment, including neuroimaging, genetic, metabolic evaluation, Electroencephalogram (EEG);
7. Network meetings between the Centre for Autism in Adulthood, family members and all the operators involved in the clinical management of the patient, aimed to the creation of a life project;
8. Activation of an enabling path provided directly by the centre and/or presentation of the project to a Medico-Legal/Social Health Assessment Committee for evaluation of its appropriateness and budget allocation.

All clinical evaluations and testing were conducted in the centre upon written informed consent signed directly by the participants or their legal guardians, authorizing data collection and processing as well.

Results

With respect to the total ASD sample, 30% (n = 137) of individuals experienced bullying. Specifically, 77% (n = 105) individuals are male and 23% (n = 32) are female. Age ranges between 18 and 50 years old, with a mean value (M) of 30,04 and a standard deviation (SD) of 6,97. Complete data are reported in Table I and Figure 1. As shown in Figure 1, among all bullied ASD individuals, 65% (n = 89) are diagnosed with ASD level 1; 21% (n = 29) are diagnosed with ASD level 2; 7% (n =9) are diagnosed with ASD level 3 (ASD levels according to DSM5 criteria - APA, 2013). The remaining 7% of individuals is currently under evaluation.
Co-occurrence can be found in 65% (n = 89) of ASD bullied individuals. Relevant psychopathological co-

TABLE I. *Bullied ASD sample description.*

Sample	N	%	
Male	105	77	
Female	32	23	
Age	M = 30.04	SD = 6.97	Range: 18-50 years
ASD*	**N**	**%**	
Level 1	89	65	
Level 2	29	21	
Level 3	9	7	
Evaluation in progress	10	7	

**according to DSM5 criteria (APA, 2013)*

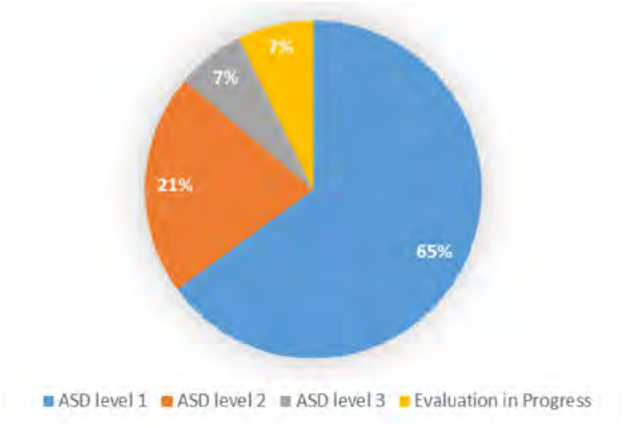

FIGURE 1. *Bullying across ASD levels.*

morbidities: Personality Disorders (18%; n = 24); Attention Deficit Hyperactivity Disorder (ADHD) (8%; n = 11) and Challenging/problem behaviour (7%; n = 10); Psychosis (7%; n = 10); Obsessive-Compulsive Disorder (DOC) (7%; n = 9); Depression (6%; n = 8). Co-occurrence wad found in 54% (n = 177) of non-bullied ASD individuals. Relevant psychopathological comorbidities: Challenging/problem behaviour (14%; n = 46); Personality Disorders (8%; n = 26); Attention Deficit Hyperactivity Disorder (ADHD) (5%; n = 17); Depression (4%; n = 12); Psychosis (3%; n = 10) and Obsessive-Compulsive Disorder (DOC) (2%; n = 8). The complete data are described in Table II.

Main psychopathological co-occurrence comparing bullied and non-bullied ASD sample across levels are reported in Figure 2.

TABLE II. *Psychopathological and neurological co-occurrence in bullied and non-bullied ASD sample.*

Co-occurrences	N (B|NB)	% (B|NB)
Personality disorders	24 | 26	18% | 8%
Attention Deficit Hyperactivity Disorder (ADHD)	11 | 17	8% | 5%
Challenging/problem behavior	10 | 46	7% | 14%
Psychosis	10 | 10	7% | 3%
Obsessive-Compulsive Disorder (DOC)	9 | 8	7% | 2%
Depression	8 | 12	6% | 4
Epilepsy	5 | 18	4% | 6%
Anxiety disorders	4 | 6	3% | 2%
Specific learning disorder	2 | 2	1% | 1%
Down syndrome	2 | 3	1% |1%
Bipolar disorder	1 | 4	1% | 1%
Tourette syndrome	1 | 2	1% | 1%
Deafness	1 | 2	1% | 1%
Turner syndrome	1 | 0	1% | 0%
Others*	0 | 21	0% | 8%

*Notes: B: bullied; NB: non-bullied; *others: movement, eating, language oppositional defiant disorders, Fragile X Syndrome, Blindness, Chron, Gastrointestinal diseases*

Discussion

The primary aim of this study was to investigate bullying victimization among ASD people. Our results showed that a high percentage (30%) of the total ASD sample have experienced bullying in their life. Autistic condition makes ASD people more involved in bullying victimization. These findings are in line with research suggesting that students with ASD are at higher bullying victimization risk compared to typically developing students [45,46]. In our study, autism severity plays a role in bullying victimization. It is interesting to note the high levels of bullying presence – 65% – in ASD level 1 among the bullied sample (DSM5 criteria, ASD Requiring support [2]). One plausible explanation for the higher percentage of bullying victimization in ASD level 1 could be related to the minor protection dedicated to them with respect to ASD level 2 and 3. ASD level 1 individuals spend much time in less protected settings, this in turn may expose them at greater risk of being bullied [27]. This interesting finding would help explain the high rates of ASD level 1 victimization that have been reported in previous research [34,35,47].

Above all, among the different autism levels, patients in ASD level 1 are the most undiagnosed and they appear to be at high risk of psycho-traumatic events. Thus, it is

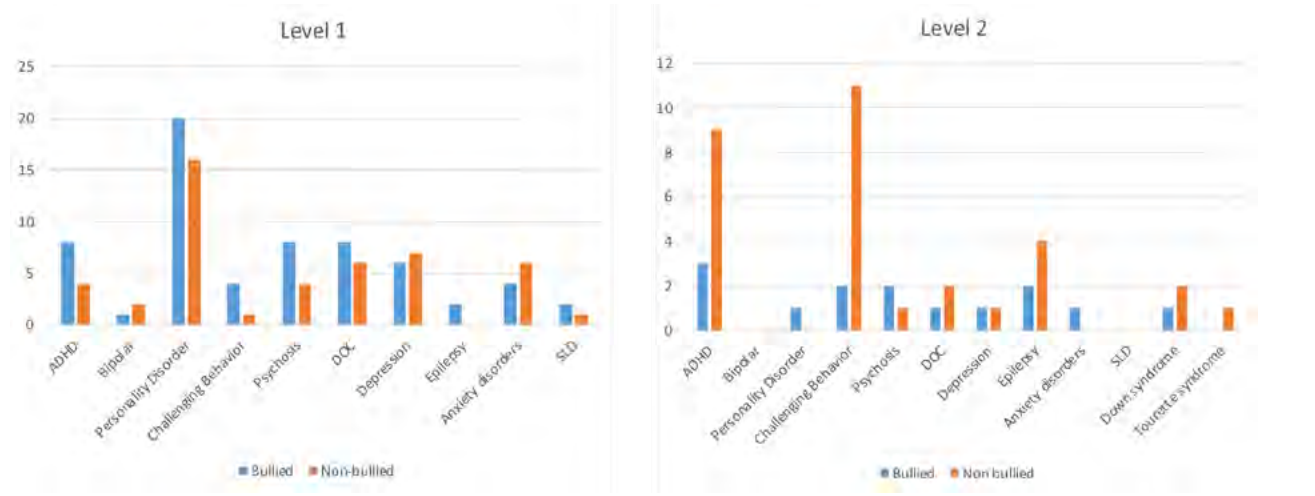

FIGURE 2. *Main psychopathological co-occurrence comparing bullied and non-bullied ASD sample across levels.*

essential to diagnose it, in order to provide more protection trying to prevent peer aggression.

Concerning gender**,** it is well known that autism has a strong dominance in male gender. As expected, bullying was found being more frequent in autistic males (77%). This is due to the total sample composition, as previously stated 78% male and 22% female. The small sample of ASD females makes it difficult to assess gender differences in bullying-related behaviours. Females are the most often under-diagnosed ASD population, probably because they develop a socio-communicative compensatory ability and they seem more empathetic, compared to autistic males. On the other hand, they have a high social vulnerability that exposes them to the risk of abuse [48]. For this reason, autistic symptoms in females should be carefully assessed and recognized. Despite being common in literature to have a small proportion of ASD females [49,50], it is essential to conduct further research on bullying prevalence and gender difference.

On one hand, autism is widely recognized as a vulnerability factor for psychopathology co-occurrence in adulthood. On the other hand, many studies have focused on bullying consequences on autistic adults who were victimized. Those adults face both the psychopathological consequences of being bullied and the ones of being autistic. In order to verify the psychopathological comorbidities in ASD bullied adults, we performed a psychopathological co-occurrence analysis in both study samples (bullied and non-bullied ASD across levels).

Concerning the bullied ASD sample, co-occurrence was found in 65% (54% in non-bullied ASD). Consistent with literature, autism itself is a vulnerability factor for psychopathology co-morbidities [51-54]. Our results confirm that bullying victimization in ASD individuals is related to later development of psychopathology, behavioural and emotional problems [55-58]. Furthermore, considering ASD severity, co-occurrence for level 1 in bullied sample (71%, n = 63) is greater than non-bullied sample (50%, n = 47). At level 2, the bullied sample has the higher co-occurrence rate (51,85%, n = 27) compared to non-bullied sample (30,39%, n = 102). Eventually, when considering level 3 there are no significant difference among bullied (55,56%, n = 9) and non-bullied sample (55,13%, n = 78).

Firstly, Challenging/Problem Behaviour (CB) co-occurrence was found in 7% of bullied sample (14% in non-bullied ASD). CB is frequent in adults with ASD and it may increase the prevalence rates of mental health problems as a consequence of psychological and social interacting factors [59,60]. Particularly, in ASD population, being bullied is associated with higher levels of self-injurious and stereotypic behaviours [30]. Secondly, personality disorders co-occurence was found in 18% of bullied sample (8% in non-bullied ASD). This finding confirms other studies that indicated an increased risk of personality disorder co-occurrence in ASD [61,62]. Psychopathological co-occurrences revealed a similar comparison when considering comorbidity among ASD levels. As it can be seen in Figure 2, personality disorders are the main psychopathological co-occurrence in bullied ASD, primary in ASD level 1. The higher the ASD severity level the less is possible to find this co-occurrence between personality disorders and ASD. This is due to the high level of behavioural problems that are present in the majority of people with ASD at level 2 and 3. Interestingly, CB co-occurrence was found to

be higher in non-bullied ASD than in bullied ones when considering ASD level 2 and 3. The trend of challenging behaviour is the opposite in ASD level 1. The association between CB and ASD is well-reported in ASD literature [63-65].

Co-occurrence of Attention Deficit Hyperactivity Disorder (ADHD) was found in 8% of bullied ASD (5% in non-bullied ASD). Indeed, several studies have shown that ADHD is often co-morbid with ASD [66,67] even if this percentage should be regarded as continuous neurodevelopmental disorders instead of categorical comorbidities [68]. ADHD co-occurrence is more frequent in bullied ASD with respect to non-bullied ASD non considering differences across ASD severity levels. This result is in line with the literature. ASD children who were victims of bullying have higher levels of hyperactivity [30]. However, when considering differences among levels, the pattern is the opposite: hyperactivity diagnosis is more present in ASD level 2 non-bullied sample compared to bullied peers.

Additionally, we found depression co-occurrence in 6% of bullied sample (4% in non-bullied ASD). Anxiety co-occurrence was found in 3% in bullied sample (2% in non-bullied ASD). Consistent with previous findings, ASD victims of bullying in childhood are at increased risk of anxiety [69,70] and depressive symptomatology in adulthood [27,71]. These symptoms can lead to poor quality of life and lack of the necessary independence in adolescents and in adulthood. As expected, bullied ASD showed a bit higher level of co-occurrence depression with respect to non-bullied ASD. These findings are in line with the literature. Indeed, ASD victims of bullying in childhood are at increased risk of development a depressive [27,71]; even thought this co-occurrence has a small effect in our sample. In fact, small significant differences are found among depression when considering the comparison between bullied and non-bullied participants across levels.

We found psychosis co-occurence in 7% of bullied sample (3% in non-bullied ASD). In neurotypical individuals, continuous exposure to stress (as bullying) is related to the development of psychotic symptoms [25,72,73]. Peer victimization predicts psychotic experiences in early adolescence [74,75] and these in turn may increase the likelihood of later psychotic experiences [76]. Bullied ASD showed higher level of psychosis with respect to non-bullied ASD consistently at level 1 and 2. In the general population, having experienced bullying victimization in associated with psychotic symptoms in adulthood [25,72,76].

Finally, co-occurrence of ASD and obsessive-compulsive disorder (DOC) was found in 2% of bullied ASD participants (7% in non-bullied ASD). In the general population, childhood bullying experiences are associated with obsessive-compulsive symptom [77]. Bullied ASD showed higher level of DOC when compared to non-bullied ASD when considering ASD level 1. Instead, at level 2, an opposite trend is present. In the general population, childhood bullying experiences are associated with obsessive-compulsive symptom [77]. Lastly, as it can be seen in Figure 2, no relevant difference was found in the Specific Learning Disorder (SLD) and Bipolar disorder co-occurrence between the two samples.

Conclusions

Bullying is a worldwide phenomenon and needs to be urgently addressed. Autistic people are at greater risk for bullying-victimization and, as our study demonstrated, bullying has a negative impact on their psychosocial development.

Among autism wide expression range, bullying occurred in almost all situations related to ASD level 1, probably due to the minor protection they experience compared to the most sever ASD levels.

In the present study, several adult autistic people that have experienced bullying in life showed higher levels of psychopathological co-occurrence, when compared to ASD non-bullied individuals. Therefore, it could be argued that bullying is a trigger for psychopathology in adolescence and later in adulthood.

Careful attention must be given to autistic people starting from childhood. It is essential to protect these already vulnerable children from bullying. We need to rethink our school system, in order to create a cultural challenge where neurodiversity should be valorised and accepted. It might be worth creating specific school programs to make children encounter and embrace neurodiversity.

Limitations and future directions

Possible limitations of this study are the following: lack of bullying presence verification through psychometric instruments but only based on self-report.

Despite these limitations, the current study has a number of strengths. Our research relies on a very large sample size consisting uniquely of autistic people. It advances the understanding of the bullying among people with different autism severity levels. The findings reveal the need for careful investigation of bullying-related phenomena in ASD level 1 people. Moreover, it sheds light on the possible psychopathological co-occurrence later in adulthood.

Subsequent research should implement results on bullying victimization among autistic people with longitudinal studies.

Implication for practice

These data may offer useful indications for clinician in autism field. During ASD evaluation, it might be useful to

assess bullying victimization because this could have an impact on psychopathological co-occurrence development probability in adulthood. Finally, the present study may also be useful to raise schoolteachers' awareness in bullying prevention among autistic students.

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Conflict of interest statement

No conflict of interest was reported by the authors.

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Author contributions

Ferrigno S. and Keller R. conceived, planned and carried out the research. Ferrigno S. and Cicinelli G. contributed to the interpretation of the results. Ferrigno S. took the lead in writing the manuscript. All authors provided critical feedback and helped shape the research, analysis and manuscript.

Ethical consideration

The manuscript is a retrospective case report that does not require ethics commitee approval at the institutions. Written informed consent was obtained from each participant for study participation and data pubblication at the firm access to the mental health center.

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