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The Violent Content in Attenuated Psychotic Symptoms

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Abstract

The relationship between psychosis and violence has typically focused on factors likely to predict who will commit violent acts. One unexplored area is violence in the content of subthreshold positive symptoms. The current aim was to conduct an exploratory analysis of violent content in the attenuated psychotic symptoms (APS) of those at clinical high risk of psychosis (CHR) who met criteria for attenuated psychotic symptom syndrome (APSS). The APS of 442 CHR individuals, determined by the Structured Interview for Prodromal Syndromes, were described in comprehensive vignettes. The content of these symptoms were coded using the Content of Attenuated Positive Symptoms Codebook. Other measures included clinical symptoms, functioning, beliefs and trauma. Individuals with violent content had significantly higher APS, greater negative beliefs about the self and others, and increased bullying. The same findings and higher ratings on anxiety symptoms were present when participants with self-directed violence were compared to participants with no violent content. Individuals reporting violent content differ in their clinical presentation compared to those who do not experience violent content. Adverse

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life events, like bullying, may impact the presence of violent content in APS symptoms. Future studies should explore violent content in relation to actual behavior.

Keywords

Violent content; Clinical high risk; Attenuated psychotic symptoms

1. Introduction

The majority of individuals who experience an episode of psychosis will never engage in any sort of violent behavior and in fact are more likely to be victims of violence (Walsh et al., 2003). However, a modest relationship has been found to exist between untreated psychosis and violence (Large and Nielssen, 2011). The majority of this work has been conducted with both hospitalized and out-patients and with forensic populations with schizophrenia spectrum disorders. Typically, the focus of this research has been to determine the risk factors for committing acts of violence. Many factors have been found to contribute to an increase in violent behavior such as active psychotic symptoms (Taylor, 1985), presence of anger (Coid et al., 2013; Reagu et al., 2013), trauma (Bosqui et al., 2014), and persecutory delusions in untreated patients (Keers et al., 2014). Finally, a recent meta-analysis demonstrated that in first-episode psychosis populations, correlates of violence included lower levels of education, younger age, and being male (Large and Nielssen, 2011). One criticism of past research is that the majority of the studies were conducted retrospectively, often with chronic schizophrenia populations after they had engaged in a violent act. Since various studies have suggested that the violence associated with psychosis is also related to specific psychotic symptoms, it has thus been recommended that an analysis of content and themes could be informative in identifying possible risk for violence (Junginger, 1996; Taylor, 1985).

While most of the work on symptom content has been conducted in samples with established psychotic illnesses (Raune et al., 2006), more recently, a few studies have examined the content of attenuated psychotic symptoms in those who meet well-established criteria for being at clinical high risk (CHR) of psychosis (McGlashan et al., 2010). These studies focused on the impact of trauma on symptom content or the association of symptom content and conversion to psychosis (Falukozi and Addington, 2012; Thompson et al., 2013; Thompson et al., 2010; Thompson et al., 2009; Velthorst et al., 2013). The presence of violence in the content of attenuated psychotic symptoms has received little attention. One study reported that violent content was present in the attenuated psychotic symptoms of those at CHR (Marshall et al., 2014). A second study, (Hutton et al., 2012) explored the presence of violent content in a CHR population that was receiving routine clinical care. It was found that 21% of the sample disclosed experiencing violent images or thoughts to their treatment provider. However, one criticism of this study is the lack of distinction made between violence within the content of their symptoms compared to expressions of violence, such as uttering violent threats.

The first aim of this exploratory study was to determine if those CHR individuals who reported experiencing violent content differed in any way from those who did not in terms of demographics, clinical symptoms, functioning, schematic beliefs about self and others and experiences of trauma. The second aim was to compare those with others-directed violence to those with self-directed violence on the same domains mentioned above. We hypothesize that (1) those reporting violent content will have higher ratings on attenuated psychotic symptoms, and anxiety and depression, lower functioning, more negative beliefs about self and others, as well as more experiences of trauma, and (2) those with self-directed violence will have higher positive SOPS scores and depression and anxiety, more negative beliefs about the self, and more experiences of trauma.

2. Methods

2.1. Sample

The sample for this project consisted of 442 individuals at CHR for psychosis (male = 256, female = 186), the majority of which were Caucasian ($n = 256$). Average age was 18.75 ($SD = 4.16$; range = 12–35) years. All participants were recruited as part of the North American Longitudinal Prodrome Study 2 (NAPLS-2). Specific details about ascertainment and inclusion and exclusion criteria has been described in detail elsewhere (Addington et al., 2012). The inclusion criterion for this specific symptom content project was that all participants had to have met attenuated psychotic symptom syndrome (APSS) criteria of the Criteria of Prodromal States (COPS) based on the Structured Interview for Prodromal Syndromes (SIPS; McGlashan et al., 2010). APSS includes the onset or worsening of non-psychotic level experiences with unusual thought content, suspiciousness or persecutory ideation, grandiosity, perceptual abnormalities, and/or disorganized communication over the past year. Since this project only focused on those who presented with certain attenuated psychotic symptoms (discussed below), the sample for this project comprised a subset of the larger NAPLS-2 sample.

2.2. Measures

2.2.1. Clinical and functional rating scales—APSS criteria were evaluated using the SIPS and the positive, negative, disorganized, and general symptoms were assessed using the Scale of Prodromal Symptoms (SOPS; McGlashan et al., 2010). Depressive symptoms were measured using the Calgary Depression Scale for Schizophrenia (CDSS; Addington et al., 2014). The Self-Rating Anxiety Scale (SAS; Zung, 1971) was used to measure anxiety symptoms. Social and role functioning was measured using the clinician-rated Global Functioning: Social and Global Functioning: Role scales (Cornblatt et al., 2007) respectively. Schemata were evaluated using the Brief Core Schema Scales (BCSS; Addington and Tran, 2009). The BCSS is a 24-item self-report scale of the information processing structures that individuals use in rendering their cognitive appraisals of themselves and others. The scales are used widely within psychosis and psychosis-risk samples and several analyses report strong reliability and validity coefficients (Fowler et al., 2006). Finally, traumatic and bullying experiences that occurred prior to the age of 16 years were documented using the Abuse/Trauma Questionnaire (Janssen et al., 2004) which probes emotional neglect, psychological abuse, physical abuse, and sexual abuse as well as

queries derived from Kelleher and colleagues (2008) work on both physical and psychological school age bullying. This composite instrument was administered in an interview format. A trauma score was created by totaling the number of ‘Yes’ responses an individual endorsed to emotional neglect, psychological abuse, physical abuse and sexual abuse. The range was from 0 – 4. A bullying score was created by totaling the number of ‘Yes’ responses to psychological and physical bullying. The range was from 0 – 2.

2.2.2. Case vignettes—Vignettes were developed for each participant at baseline and were used on the NAPLS multi-site consensus diagnostic call to determine entry criteria to the NAPLS 2 project. Each vignette was generated to contain detailed and content-rich descriptions of each of the five attenuated psychotic symptoms from the SOPS, including unusual thought content, suspicious ideas, grandiose ideas, perceptual abnormalities, and disorganized communication.

2.2.3. Content of Attenuated Positive Symptoms Codebook—The Content of Attenuated Positive Symptoms Codebook (CAPS; Marshall et al., 2011) was used to document participants’ violent content expressed as part of their reported attenuated psychotic symptoms. The CAPS codebook was developed to systematically code the content of attenuated positive symptoms, as assessed by the SOPS, and covers four positive psychosis-risk symptoms: Unusual Thought Content (P1), Suspiciousness/Persecutory Ideas (P2), Grandiose Ideas (P3), and Perceptual Abnormalities (P4). The content analysis system of the CAPS does not include coverage of Disorganized Communication (P5) as this positive symptom is a behaviorally assessed index of disturbances in communication that varies in severity (i.e., extent of vocal communicative disorganization) but not content. The CAPS is arranged such that each of the four positive attenuated psychotic symptoms of the CAPS contains overarching categories and specific content items under each category. See Marshall et al., (2014) for full enumeration of the CAPS codebook structure and contents. CAPS codebook items are assigned a numeric code with items dichotomously coded as 0 (absent in the vignette) or 1 (present in the vignette). Using this coding scheme, a prior inter-rater reliability analysis (Marshall et al., 2014) reported ‘acceptable’ (Krippendorff, 2012), reliabilities for the majority (83.33%) of CAPS items with Krippendorff’s alpha’s ranging 0.09–1.00. Krippendorff’s alpha was selected as the measure of reliability as it is able to handle any number of raters, data types, and sample sizes (Lombard et al., 2002; Krippendorff, 2004). The flexibility of Krippendorff’s alpha allowed for a consistent measure to be used at different points in the study regardless of the number of raters involved in the coding.

2.3. Procedures

All diagnostic instruments and clinical rating scales were administered at baseline. Raters were experienced research clinicians who demonstrated adequate measure-specific reliability at routine reliability checks. “Gold standard” ratings were established for the SOPS items and interclass correlations were used to compare raters’ agreement with this standard, which ranged from 0.92 to 0.96 for the SOPS positive symptoms (Addington et al., 2012). Rater generated baseline case vignettes were evaluated for consensus at weekly case conferences chaired by J.A. and included members from each NAPLS-2 site. The NAPLS-2

protocols and informed consents were reviewed and approved by the ethical review boards of all study sites.

2.3.1. Symptom coding and group assignment—Symptom coding of case vignettes was completed by two raters, each of whom was trained on the CAPS codebook described by Marshall and colleagues (2014). For the present study, two grouping strategies were used. First, the CHR sample ($n = 442$) was divided into violence and non-violence groups based on the dichotomous present/absent coding scheme of the CAPS. Specifically, ten items of the CAPS were used to identify those who did and did not report violence in the content of their attenuated psychotic symptoms. These ten items included: *Physical Violence*, *Sexual Violence*, *Unspecified Violence*, *Self in Violent Thoughts*, *Others in Violent Thoughts*, *Ideas of Being Harmed Physically*, *Violent Voices*, *Violent Images*, *Perceptual Abnormality of Harm to Self*, and *Perceptual Abnormality of Harm to Others*. Participants were included in the violence group if they endorsed one of these 10 CAPS items. Second, the violence group was further categorized as having either self-directed violence or other directed violence. Participants were coded as having self-directed violent content if they reported the presence of *Self in Violent Thoughts*, *Ideas of Being Harmed Physically*, or *Perceptual Abnormality of Harm to Self and there was an absence of Others in Violent Thoughts and Perceptual Abnormality of Harm to Others*. Participants were coded as having others-directed violent content if they endorsed the presence of *Others in Violent Thoughts* or *Perceptual Abnormality of Harm to Others and there was an absence of Self in Violent Thoughts, Ideas of Being Harmed Physically, and Perceptual Abnormality of Harm to Self* (Fig. 1).

2.3.2. Statistical Analyses—Chi-square and t tests were used for comparisons between violence and non-violence groups. Chi-square and one-way ANOVAs were used to evaluate differences between the self-directed, others-directed, and non-violence groups. For violent content, chi-square and one-way ANOVAs were used. For all trauma comparisons, nonparametric tests were used, including Mann-Whitney and Kruskal-Wallis. As the analysis was exploratory in nature, no corrections were applied. All analyses were conducted using SPSS software Version 21.

3. Results

3.1. Sample

Demographic details are presented in Table 1. Chi-square and t tests indicated that there were no significant group differences in demographic variables. Twenty-four percent of participants reported experiencing one violent item, 12% two violent items, 8% reported three, 3% reported four, 1% reported five and one participant reported experiencing six violent content items. The number of participants who endorsed experiencing each item of violent content is presented in Table 2 as is the descriptive and reliability statistics for violent content CAPS items endorsed within the CHR sample.

3.2. Violence content versus no-violence content

Results of the comparisons between those who reported violence in their symptoms compared to those who did not are presented in Table 3. Those CHR individuals who reported violence in their attenuated psychotic symptoms tended to have increased attenuated psychotic symptoms, anxiety, negative beliefs regarding the self and others, and bullying compared to CHR participants who did not report violent symptom content. Groups did not differ on other clinical symptoms, functioning or trauma. With respect to trauma we also checked if the groups differed on individual traumas including emotional neglect, psychological abuse, physical abuse, sexual abuse, psychological bullying and physical bullying. Again there were no differences.

3.3. Self-directed and others-directed violence

The group who reported violence was divided into those whose content reflected self-directed violence versus those whose violent content reflected that it was directed towards others. Results of the ANOVA and Chi-square analysis are presented in Table 4. The groups differed on attenuated psychotic symptoms, anxiety, negative self-schemas and other-schemas and bullying. Post hoc analyses indicated that the statistically significant group effect observed was in each case accounted for by those in the “self-directed violence” group, in that they had increased attenuated psychotic symptoms, panic and somatic anxiety, negative core beliefs regarding themselves and others and bullying relative to those in the “no violence” group.

A chi-square analysis indicated a statistically significant association between the type of violence reported in unusual thought content and sex. Females were significantly more likely to report unusual thoughts containing content of self-directed violence compared to males ($X^2 = 5.06, p < 0.05$). No association was found for sex and perceptual abnormalities.

4. Discussion

To the best of our knowledge, this is the first attempt to study violent content in the attenuated psychotic symptoms of those at risk of developing psychosis. Twenty-four percent of the participants reported one type of violent content (e.g. violent voices) and 13% reported experiencing three or more types of violent content (e.g. ideas of being harmed physically, violent voices, violent images). Ideas of being physically harmed were the most commonly reported violent content, followed by physical violence and then self and others in violent thoughts. Individuals who reported experiencing violent content in their attenuated psychotic symptoms were more likely to have more severe ratings on the SOPS positive symptoms, anxiety, more negative beliefs about themselves and others, as well as higher incidents of bullying prior to age 16.

As described in the previous literature, being male, younger in age, and having a lower level of education correlated with increased risk of violent behavior, however, no significant differences were found on these demographics between CHR participants who experienced violent content and those who did not. However, experiencing negative life events, such as bullying, was associated with the presence of violent symptom content in the CHR

population. Our finding along with findings in previous studies, demonstrate that different types of endorsed adverse events are reflected in the content of positive symptoms. For example, Raune and colleagues (2006) found that specific types of adverse events, such as intrusive events (i.e. physical assault) were more likely to be associated with persecutory delusions. Thompson and colleagues (2009) found that those who experienced sexual trauma were more likely to report sexual related content in their attenuated psychotic symptoms. Falukozi and Addington (2012) also found a relationship between increased trauma and the presence of grandiose thoughts of status and power, as a possible way of coping with trauma.

Males reported more other-directed violence and females more self-directed violence which fits with other reports on violence where being male was significantly correlated with acts of violence (Large and Nielssen, 2011). It should be noted that the presence of other-directed violent content does not mean one will become violent, but rather that being male increases the likelihood of reporting others-directed violent content. It may be that previous studies have not found a relationship between being female and types of violence, as self-directed violence is often not captured in such studies.

Individuals who reported self-directed violent content were significantly more likely to have more severe attenuated psychotic symptoms and anxiety, more negative beliefs about themselves and others, and experienced more bullying prior to the age of 16 years. The finding of more severe attenuated psychotic symptoms is somewhat comparable with the relationship found between severity of delusions and incidents of self-harm (Haddock et al., 2013). Based on the current findings, reports of bullying was higher in those with the experience of self-directed violent content and not with other-directed content. Higher levels of anxiety was observed with the presence of self-directed violent content compared to other-directed content. The mere presence of self-directed violent content may cause individuals to become more anxious or it may be that anxious people worry more that bad things will happen to them.

We did not find evidence that negative beliefs about others are higher in those with other directed violent content, which may suggest that the presence of negative beliefs about others does not need to be present in order to experience others-directed violence. Interestingly, those with self-directed violent content had higher levels of past bullying, negative thoughts about the self and others and self-harm, implying that self-directed violent content is a function of low self-esteem.

Based on the current study, it may be worthwhile for clinicians to pay attention to specific symptom content that is presented in attenuated psychotic symptoms. Specific content may indicate the presence of other clinical and cognitive profiles, such as increased attenuated psychotic symptoms or anxiety and more negative beliefs about themselves and/or other people. The current findings further highlight the significance of clinicians asking about self-directed violence above and beyond self-harm and suicidal ideations. Being aware of symptom content may give clinicians more information about potential safety concerns (Aschebrock et al., 2003).

There are limitations to this study. First, we do not have data on history of violence or any behavioral difficulties for the participants. Secondly, since the vignettes used to code the presence of content were not written with this purpose of determining violent content, it is possible that some content was omitted. For example, the presence of violent content is not explicitly queried in the positive symptoms of the SIPS, with the exception of *Suspicious/Persecutory Ideas*. It is also possible that due to the sensitive nature of inquiring about violent content, participants, especially those with a history of violence, may have been reluctant to disclose the presence of such content to the interviewer, which may have biased the results. Future studies may benefit from obtaining historical accounts of violence and behavioral difficulties, asking direct questions regarding the presence of violent content. However, despite these limitations, the current findings add to the description and detail of attenuated psychotic symptoms experienced by a large sample of those at risk for psychosis.

To our knowledge, this is the first paper to describe the violent content present in CHR attenuated psychotic symptoms. The presence of violent content appears to be associated with the experience of past psychological and physical bullying. Those with violent content also express more negative beliefs about others and themselves, which may be the result of adverse life events, such as bullying (Raune et al., 2006). Paying attention to specific symptom content may provide clinicians with insight into other potential past or future concerns. Future research should explore whether or not violent content is related to future violent behavior towards the self and others.

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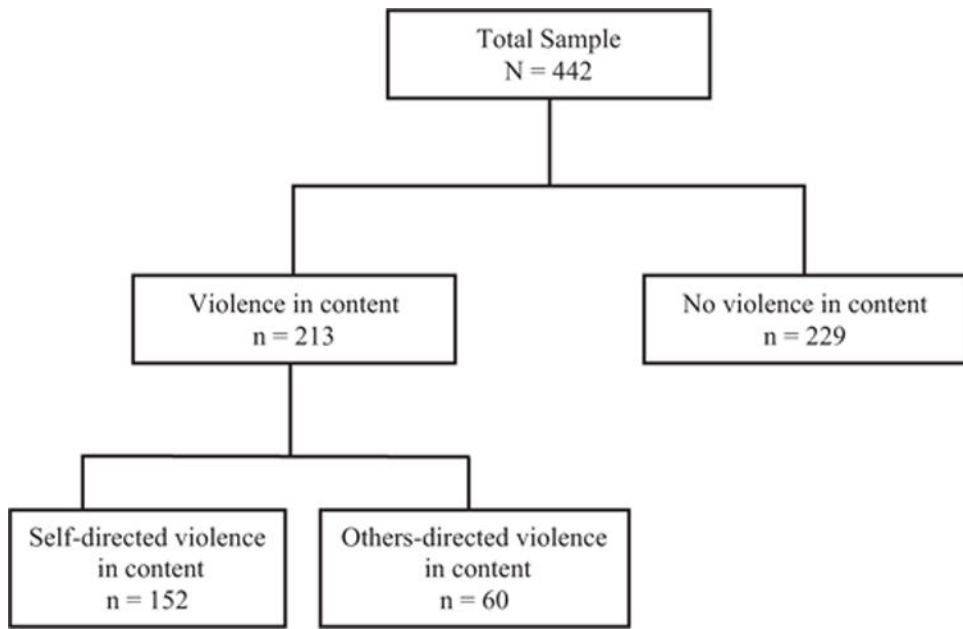


Fig. 1.
A stepwise separation of the sample

Table 1

Demographic characteristics.

Demographics	Violence in content (<i>n</i> = 213)	No violence in content (<i>n</i> = 229)	Test Statistic (χ^2 or <i>t</i>)	<i>p</i> -value
Age in years	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>t</i>	
	18.75 (4.16)	18.74 (4.17)	0.01	0.99
Education in years	11.50 (2.60)	11.48 (2.77)	0.08	0.94
	<i>n</i> (%)	<i>n</i> (%)	χ^2	
Sex				
Male	122 (57.28)	134 (58.52)	0.07	0.79
Female	91 (42.72)	95 (41.48)		
Race				
African American	28 (13.15)	40 (17.47)	2.17	0.70
Caucasian	128 (60.09)	128 (55.90)		
Interracial	26 (26.50)	29 (12.66)		
Asian	23 (10.80)	26 (11.35)		
Other	8 (3.76)	6 (2.62)		
Marital Status				
Single, never married	203 (95.31)	219 (95.63)	0.03	0.87
Other	10 (4.69)	10 (4.37)		
Employment				
Full-time	19 (8.92)	16 (6.99)	1.87	0.76
Part-time	40 (18.78)	46 (20.09)		
Not working	154 (72.30)	167 (72.93)		
Current student	172 (81.13)	192 (83.84)	0.56	0.45

Race: Other = First nations, West/Central Asia, Middle Eastern, & Native Hawaiian

Table 2

Frequency and reliability statistics for violent content CAPS items within CHR sample (n = 442).

Item	n (%)	Krippendorff's α
Ideas of Being Harmed Physically	143 (32.35)	0.89
Physical Violence	77 (17.42)	0.94
Others in Violent Thoughts	51 (11.54)	0.88
Self in Violent Thoughts	45 (10.18)	0.91
Violent Voices	23 (5.20)	1.00
Perceptual Abnormality of Harm to Self	21 (4.75)	1.00
Perceptual Abnormality of Harm to Others	14 (3.17)	1.00
Sexual Violence	10 (2.26)	1.00
Violent Images	10 (2.26)	1.00
Unspecified Violence	9 (2.04)	0.66

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Table 3

Clinical and functional differences between CHR individuals with violent and no violent content.

Measure	Violence in content (n = 213) M (SD)	No violence in content (n = 229)	Test statistic	<i>p</i> -value
			<i>t</i>	
SOPS				
Positive	12.73 (3.62)	11.80 (3.43)	2.77	0.01
Negative	11.58 (6.04)	11.61 (5.96)	0.05	0.96
Disorganized	4.89 (2.92)	5.24 (3.09)	1.22	0.22
General	9.40 (4.25)	9.13 (4.27)	0.66	0.51
CDSS	6.02 (4.79)	5.40 (4.8)	1.37	0.17
SAS	38.91 (10.42)	36.92 (10.14)	1.98	0.05
GF: Social	6.35 (1.60)	6.37 (1.57)	0.09	0.93
GF: Role	6.29 (1.96)	5.99 (2.31)	1.49	0.14
BCSS				
Negative Self	6.89 (5.99)	5.46 (4.80)	2.71	0.01
Negative Other	8.53 (6.15)	7.11 (5.42)	2.51	0.01
			<i>U</i>	
Trauma Score	1.27 (1.35)	1.02 (1.25)	18142.0	0.09
Bullying Score	0.99 (0.80)	0.80 (0.78)	17700.5	0.01

SOPS, Scale of Prodromal Symptoms; CDSS, Calgary Depression Scale for Schizophrenia; SAS, Self-Rating Anxiety Scale; GF: Social, Global Functioning: Social Scale; GF: Role, Global Functioning: Role Scale; BCSS, Brief Core Schema Scale

Table 4

Clinical and functional differences among CHR individuals with self-directed, others-directed, or no violent content.

Measure	Self-directed violence in content (n = 152) M (SD)	Others-directed violence in content (n = 60) M (SD)	No violence in content (n = 229) M (SD)	Test statistic	p-value
				<i>F</i>	
SOPS					
Positive	12.97 (3.54) ^a	12.13 (3.81)	11.80 (3.43)	5.03	0.01
Negative	11.55 (5.84)	11.58 (6.59)	11.61 (5.96)	0.01	1.00
Disorganized	4.88 (2.92)	4.88 (2.97)	5.24 (3.09)	0.78	0.46
General	9.60 (4.11)	8.78 (4.53)	9.13 (4.27)	0.97	0.38
CDSS	6.35 (4.64)	5.03 (4.98)	5.40 (4.80)	2.43	0.90
SAS	39.88 (10.52) ^a	36.43 (9.93)	36.92 (10.14)	4.25	0.02
GF: Social	6.43 (1.58)	6.17 (1.65)	6.37 (1.57)	0.59	0.55
GF: Role	6.31 (1.92)	6.27 (2.11)	5.99 (2.31)	1.16	0.32
BCSS					
Negative Self	6.95 (5.79) ^a	6.60 (6.42)	5.46 (4.80)	3.53	0.03
Negative Other	8.58 (5.96) ^a	8.45 (6.68)	7.11 (5.42)	3.17	0.04
				<i>X</i> ²	
Trauma Score	1.27 (1.31)	1.22 (1.42)	1.03 (1.24)	4.86	0.18
Bullying Score	0.99 (0.78) ^a	1.04 (0.84)	0.80 (0.78)	7.80	0.05

SOPS, Scale of Prodromal Symptoms; CDSS, Calgary Depression Scale for Schizophrenia; SAS, Self-Rating Anxiety Scale; GF: Social, Global Functioning: Social Scale; GF: Role, Global Functioning: Role Scale; BCSS, Brief Core Schema Scale

^aSignificantly different from no violence in content