Psychopathology and Sibling Violence in a Sample of Portuguese Adolescents

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Abstract Sibling violence appears to affect the psychological well-being of adolescents, making them susceptible to the development of psychopathological symptomatology. In a sample of 463 Portuguese adolescents with siblings, we intended to ascertain to what extent psychopathological symptomatology varies depending on age and gender; and to analyze whether the tactics of conflict resolution exert a predictor effect on psychopathological symptomatology. The results of the current study showed that females and older adolescents (17–20 years old) seem to be the most vulnerable to psychopathological symptomatology development. We also found that the perpetration of psychological aggression is the only type of violence that positively predicts the evaluated psychopathological symptomatology. Therefore, high rates of sibling violence can be an alert to psychopathological problems that might ensue. Psychological aggression can lead to mental health problems for siblings, so it would be important to implement prevention and intervention programs in this area.

Keywords Violence · Siblings · Adolescents · Psychopathology

Adler (1984) was the first author to emphasize the importance of sibling relationships, characterizing them, like Minuchin (1990), as the first social laboratory through which

siblings set their first horizontal relationships, providing a preparation for the social context adaptation. According to Dunn (1983), sibling relationships are formed and strengthened in childhood, which is the period in which siblings spend more time together, influencing themselves reciprocally and decisively. In adolescence, siblings undergo major changes and experiences that cause a normalized distance, as young people leave home and create new extra-familial relationships, particularly with pairs or loving figures. In adulthood, and especially in old age, after children leave home and/or individuals become widowed, siblings may return together, and became the mainstay in this phase of life.

Siblings allow the sharing of experiences, affection, support, guidance and mutual protection, as well as it enables the development of intimacy (Fernandes 2005). Button and Gealt (2010) also indicate that healthy sibling relationships support the growth of social, cognitive and emotional skills, which lead to positive and healthy results. Volling (2003), however, argues that sibling relationships may favor or condition emotional and social development of individuals, both in childhood and in adolescence. Fernandes, in 2002, clarifies that, in fact, besides the positive feelings that exist between siblings, it may also arise a great destructive potential within that relationship of deep intimacy. In this sense, when the interactions between siblings are ruled by conflicts, being conducted by a negative interaction, they may give rise to the manifestation of maladaptive or even violent behaviors (Goldsmid and Féres-Carneiro 2007).

Sibling Violence

The first studies conducted in the USA about sibling violence pointed to a high prevalence (Steinmetz 1977; Straus et al. 1980). In Portugal, the first research focused on this

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theme found similar data (Relva et al. 2014), indicating that sibling violence seems to be the most common form of intra-familial violence (Finkelhor et al. 2006), although such violence is “normal” and commonly accepted within the family (Simonelli et al. 2002).

The existing tolerance towards sibling violence can bring about devastating results, as parents tend to accept the conflict environment between the children or to omit the protection of the weakest favors the raise of sibling rivalry (Caffaro and Conn-Caffaro 2005). The exposure to violence (Relva et al. 2012b), as well as the absence of availability, lack of supervision and/or the differentiated parental treatment are also associated with sibling violence (Wiehe 1997). According to Houston (2012), children and adolescents that witness a violent occurrence tend to consider violence as an admissible behavior and start using it as a way of conflict resolution.

Relva et al. (2012a) show that there seems to be some ambiguity concerning the delimitation of “normal” and inappropriate behaviors between siblings, which hampers the distinction between abusive and non-abusive sibling interactions. These authors note that the use of different words (abuse, aggression, violence, conflict or rivalry) to classify similar behaviors generates confusion, hampering the definition of violence. One way to distinguish rivalry and violence is, as Straus (2007) explains, by the repetition of behavior: it is violence when an intentional and repeated pattern of physical and/or psychological aggression acts occurs on a sibling and it entails suffering for him/her.

In adolescence, siblings are physically able to inflict serious injuries, through the practice of negative behavior to solve conflicts, they often have differences in physical strength, and they spend substantial time together without supervision (Roscoe et al. 1987). According to Hoffman and Edwards (2004), these circumstances provide an opportunity for an abusive and even violent sibling interactions. Button and Gealt (2010) found that 42% of their adolescent sample had experienced some form of sibling violence in the month prior to research. However, while some authors find high rates of sibling violence in adolescence, others verify that violence is more common before 13 years of age. Relva et al. (2014) found that violence tends to decrease from early adolescence, likely due to the acquisition of better language skills, enabling individuals to argue, instead of acting impulsively which commonly includes violent behaviors.

When siblings are adolescents, common reasons of conflicts include the demarcation of the territory (usually the adolescent’s room) and the use of personal belongings without a prior request for authorization (Goldsmid and Féres-Carneiro 2007). However, Kiselica and Morrill-Richards (2007) clarify that, between 9 and 13 years old, violence is more used to set physical boundaries, while adolescents older than 14 years old use it to deal with conflicts concerning responsibility and social obligations. Moreover,

adolescents feel the need to exert power and intimidation on others, as well as they are particularly sensitive to their appearance and actions, being more susceptible to verbal insults and provocations (Graham 2004). Daily disputes between siblings do not imply that there are negative conflicts among them because sibling violence only arises when conflicts become repeated and intentional acts, being then considered pathological disputes (Rapoza et al. 2010).

Sibling Violence and Psychopathology

In the present study, the main objective was to explore the relationship between sibling violence and psychopathology, which follows from some studies that have revealed that sibling violence harms psychological well-being, both of victims and perpetrators (Shadik et al. 2013; Whipple and Finton 1995).

Finkelhor et al. (2006) argue that physical assault and psychological aggression have a very strong relation with psychopathology, having a devastating effect on individuals and repercussions at the family, school and societal levels. A review of Miller-Perrin et al. (2009) showed, nonetheless, that the only psychopathological symptomatology predictor is psychological aggression. Concerning siblings, Relva et al. (2014) indicate that sibling violence generates serious consequences on several aspects of their lives, including in adulthood (Tucker et al. 2013).

In adolescence, sibling violence leads to the triggering of psychopathological symptomatology (Tucker et al. 2014), which tends to manifest itself through internalization (Stocker et al. 2002) and externalization disorders (Garcia et al. 2000). According to Button and Gealt (2010), the first consist on emotional and mood changes, like sadness, social isolation or inhibition, while the latter refer to dysfunctional behaviors both for the individuals themselves and for the other.

Assis et al. (2009) expand and explain that the internalization disorders tend to be more present in females and to increase with age, whereas externalization disorders are mostly found in males and tend to decrease with age. Kettrey and Emery (2006) found that female gender exhibits a higher prevalence of internalization disorders, such as anxiety and depression, while male gender reveals more externalization disorders, related to behavior problems. More recently, Lemos (2010), in a study with 628 young people aged between 12 and 19, concluded that there is a higher vulnerability of female gender and older youth to develop psychopathology.

Dealing with negative experiences associated with high emotional charge can be very harmful for adolescents (Morrill-Richards and Leierer 2010), since their physical and psychological integrity is threatened (Lai 1999). Additionally,

according to Reichenheim et al. (1999), such experiences lead to more serious behavioral and health problems in the future. In this regard, the individuals may develop depression (Stocker et al. 2002), anxiety, disruptive behavior (Peltonen et al. 2010), alcohol abuse (Button and Gealt 2010), antisocial behaviors (Natsuaky et al. 2009), eating disorders (Wiehe 1997), low social competence and criminality (Haj-Yahia and Dawud-Noursi 1998).

Some of the consequences of being a victim of sibling violence are low self-esteem, tending to get involved in delinquent behaviors and bullying (Criss and Shaw 2005), fear, apathy, confusion, emotional instability and aggressiveness (Kiselica and Morrill-Richards 2007). Bordin et al. (2006) also showed that adolescents whose sibling relationship is or was marked by violent acts tend to exhibit insecurity, incompetence feelings and conduct problems, as well as adolescents display difficulty in establishing and maintaining intimate relationships.

Family dynamics are essential for the preservation of mental health (Assis et al. 2009). These authors found that adolescents who are exposed to situations of intra-familial violence are twice as likely to have psychological problems. Caffaro and Conn-Caffaro (1998) indicate, therefore, that when the experiences of violence gain magnitude, they can motivate serious consequences on mental health. However, Avanci et al. (2009) draw attention to the fact that, although violence undermines the development, not all adolescents develop psychopathology. This proves once again that causal interpretations about human behavior are difficult to establish, because there are many factors (such as resilience and a secure attachment) which can fortunately reverse some harms caused in the past.

But even aware of this fact, and since there are few Portuguese researches on this subject, we wanted to research the relationship between psychopathology and sibling violence: are these two problems correlated? So, this study aims: (a) ascertain in what extent psychopathological symptomatology varies depending on age and gender; and (b) to analyze whether the tactics of conflict resolution exert a predictor effect on psychopathological symptomatology.

Method

Participants

The sample consisted of 463 Portuguese adolescents, with siblings, between 14 and 20 years of age ($M = 16.26$; $SD = 1.17$) and more than half (63.1%) were females. All adolescents attended high school, with 173 (37.4%) in the 10th grade, 121 (26.1%) in the 11th grade and 169 (36.5%) in the 12th grade. As for the number of siblings, most (69.5%) had only one sibling, while 22.7% had two, 5% had

three siblings, 1.1% had four, 0.9% had five, and 0.8% had six or more siblings.

Measures

Sociobiographical Questionnaire (SBQ) The SBQ is a questionnaire based on Social Environment Questionnaire (SEQ), of Toman (1993), which was adapted for this investigation by Fernandes and Relva (2013). The questionnaire inquires individuals about their condition (gender, age, place of birth, grade, diseases and hospitalizations), their siblings (number of siblings, type, gender, age and diseases or disabilities) and their parents (age, socio-economic status and marital status).

The Revised Conflict Tactics Scales – Sibling Version (CTS2-SP) The CTS2-SP of Straus et al. (1995), adapted by Relva et al. (2013), consists on a scale to measure the tactics of conflict resolution between siblings, from the perspective of the participants. Respondents are instructed to answer about the frequency at which each presented behavior occurred, in this case, during the previous year. CTS2-SP questions are organized by pairs of relationships, each item is exhibited twice, one about the individual acts on sibling (perpetration) and another about the sibling acts on individual (victimization). The scale is constituted by 78 items, grouped into five subscales: (1) negotiation, (2) psychological aggression, (3) physical assault, (4) injury, and (5) sexual coercion. The latter has been excluded from this study. The scale of response reflects the frequency of each behavior over a period of time (0) this has never happened, (1) once a year, (2) twice a year, (3) 3–5 times a year, (4) 6–10 times a year, (5) 11–20 times a year, (6) more than 20 times a year, (7) not that year, but it happened. Regarding internal consistency, the value of the overall scale was adequate ($Cronbach \alpha = 0.92$). Regarding the subscales, the reliability values for perpetration were 0.78 for negotiation; 0.74 for psychological aggression; 0.80 for physical assault; and 0.62 for injury. In the context of the victimization, the values were 0.79 for negotiation; 0.74 for psychological aggression; 0.79 for physical assault; and 0.61 for injury. Internal consistency reliability of the CTS2 scales range from 0.79 to 0.95 (Straus et al. 1996). The confirmatory factor analysis for the perpetration scale of CTS2-SP, adjustment of values were corroborated, being $\chi^2(202) = 513.734$; $p = .001$; $Ratio = 2.543$; $CFI = 0.905$; $RMR = .047$ and $RMSEA = 0.058$. As for victimization, the values were also adjusted, being $\chi^2(202) = 509.783$; $p = .001$; $Ratio = 2.523$; $CFI = 0.905$; $RMR = .049$ and $RMSEA = 0.047$.

Brief Symptom Inventory (BSI) The Brief Symptom Inventory, developed by Derogatis (1982), was translated and adapted for the Portuguese population by Canavarro

(1999) and it is a shortened version of SCL-90 (Symptom Checklist – 90). This self-report inventory has as goal to evaluate psychopathological symptoms through nine symptomatology dimensions (somatization, obsessions-compulsions, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism), and it is comprised of 53 items, wherein individuals classify the level at which each problem has affected them in the last week, in a Likert scale ranging from (0) *never* to (4) *a lot of times*. Regarding reliability, the value of the overall scale is good (*Cronbach α* = 0.96). As for the subscales, the values of the internal consistency were 0.81 for somatization; 0.77 for obsessions-compulsions; 0.83 for interpersonal sensitivity; 0.88 for depression; 0.78 for anxiety; 0.81 for hostility; 0.74 for phobic anxiety; 0.77 for paranoid ideation; and 0.73 for psychoticism. The internal consistency reliability in the original study for BSI ranged between 0.75 (psychoticism) and 0.85 (depression) (Derogatis and Melisaratos 1983). Regarding confirmatory factor analysis, the adjustment of values is corroborated, being $\chi^2(288) = 948.677$; $p = .001$; *Ratio* = 3.294; CFI = 917; RMR = 0.05 and RMSEA = 0.07.

Procedure

We contacted five high schools in northern Portugal, obtained institutional permissions and then collected informed consent from parents or guardians of the adolescents. Informed consent was also obtained from all individual participants included in the study.

The instruments were administered in a group context in a classroom. Researchers presented the general goals of the study and provided instructions for completing the questionnaires and we evidenced voluntary participation, as well as the responses confidentiality and anonymity. When questionnaires were completed, individuals returned them to the researcher and they were placed in an envelope.

Statistical Analysis

Statistical analyses were performed with the Statistical Package for Social Sciences – SPSS, version 20.0, and for the calculation of the psychometric properties of the instruments we used the Structural Program Equation Modeling Software – EQS for Windows, version 6.1. After cleaning the database, normality was tested, based on the statistical inference process of the normal distribution of Gauss. Multivariate analyses of variance (MANOVAS) were conducted with post-hoc tests for multiple comparisons, using the Scheffé test. An independent *t* test was also conducted. Finally, multiple hierarchical regressions were realized.

Results

Differential Analysis: Psychopathological Symptom Differences According to Age

To verify the extent to which psychopathological symptoms vary with age there were two age groups (from 14 to 16 and from 17 to 20 years) and a multivariate analysis of variance (MANOVA) was performed. The results show there were significant differences in psychopathological symptoms depending on the age [$F(9,453) = 2.217$; $p = .020$; $\eta^2 = 0.896$], highlighting significant differences between groups with respect to the variable anxiety [$F(1,461) = 5.800$; $p = .016$; $\eta^2 = 0.671$], with a CI 95% [0.68, 0.80], where adolescents ages between 17 and 20 present a significant anxiety high value compared ($M = 0.82$; $SD = 0.72$) whit adolescents age ranged 14 to 16 years old ($M = 0.67$; $SD = 0.61$). The same happened with hostility [$F(1,461) = 4.648$; $p = .032$; $\eta^2 = 0.576$], with a CI 95% [0.93, 1.08], where adolescents with aged 17 and 20 present a significant hostility high value compared ($M = 1.09$; $SD = 0.85$) to adolescents age ranged 14 to 16 years old ($M = 0.93$; $SD = 0.77$). There are also significant differences between groups in the variables phobic anxiety [$F(1,461) = 4.502$; $p = .034$; $\eta^2 = 0.563$], with CI 95% [0.38, 0.49] and paranoid ideation [$F(1,461) = 4.990$; $p = .026$; $\eta^2 = 0.606$], with CI 95% [1.07, 1.22], where adolescents aged 17 to 20 years ($M = 0.49$; $SD = 0.62$ and $M = 1.23$; $SD = 0.79$, respectively) have a higher value in phobic anxiety and paranoid ideation when compared with adolescents aged 14 to 16 years ($M = 0.38$; $SD = 0.53$ and $M = 1.06$; $SD = 0.84$, respectively).

Differential Analysis: Psychopathological Symptom Differences by Gender

To test the differences of psychopathological symptoms according to gender we conducted a *t* test. The results showed significant differences of psychopathological symptoms by gender in all dimensions, particularly in somatization [$t(421) = 4.186$; $p = .001$], with CI 95% [0.11, 0.31], on obsessions-compulsions [$t(461) = 3.668$; $p = .001$], with CI 95% [0.11, 0.37], on interpersonal sensitivity [$t(427) = 5.490$; $p = .001$], with CI 95% [0.28, 0.59], on depression [$t(414) = 5.548$; $p = .001$], with CI 95% [0.28, 0.60], on anxiety [$t(424) = 6.002$; $p = .001$], with CI 95% [0.23, 0.46], on hostility [$t(461) = 2.478$; $p = .014$], with CI 95% [0.04, 0.34], on phobic anxiety [$t(444) = 4.882$; $p = .001$], with CI 95% [0.14, 0.34], on paranoid ideation [$t(398) = 5.480$; $p = .001$], with CI 95% [0.26, 0.55] and on psychoticism [$t(418) = 5.318$; $p = .001$], with CI 95% [0.22, 0.48]. Females ($0.51 < M < 1.29$; $0.61 < SD < 0.95$) present more psychopathological symptoms compared to male subjects ($0.28 < M < 0.92$; $0.44 < SD < 0.78$).

Prediction of Psychopathological Symptoms by Gender and Conflict Tactics Resolution

Aiming to determine which independent variables best predict the psychopathological symptoms, hierarchical multiple regressions analyses were conducted and inserted into three blocks, for each dimension. Block 1 corresponded to the gender variable (dummy); block 2 perpetrators of conflict resolution tactics; and block 3 the victims of conflict resolution tactics.

For somatization prediction, block 1 had a significant contribution [$F(1,461) = 15.528$; $p = .000$] and explains 3.3% of total variance ($R^2 = 0.033$), contributing individually with 3.3% of variance to the model; block 2 had a significant contribution [$F(5,457) = 7.750$; $p = .000$] and explains 7.8% of total variance ($R^2 = 0.078$), contributing individually with 4.6% of variance to the model; and the block 3 had a significant contribution [$F(9,453) = 4.425$; $p = .000$] and explains 8.1% of total variance ($R^2 = 0.081$), contributing individually with 0.3% of variance to the model. When analyzing the individual contribution of each independent variable from blocks, two variables present a significant contribution ($p \leq .05$), by order of importance: female gender ($\beta = -0.187$) and psychological aggression of perpetrators ($\beta = 0.137$), as somatization predictors.

Concerning obsessions-compulsions, block 1 had a significant contribution [$F(1,461) = 13.451$; $p = .000$] and explains 2.8% of total variance ($R^2 = 0.028$), contributing individually with 2.8% of variance to the model; block 2 had a significant contribution [$F(5,457) = 8.993$; $p = .000$] and explains 9.0% of total variance ($R^2 = 0.090$), contributing individually with 6.1% of variance to the model; and block 3 had a significant contribution [$F(9,453) = 5.197$; $p = .000$] and explains 9.4% of total variance ($R^2 = 0.094$), contributing individually with 0.4% of variance to the model. Therefore, two variables present a significant contribution ($p \leq .05$), by order of importance: psychological aggression of perpetrators ($\beta = 0.251$) and female gender ($\beta = -0.154$), as predictors of obsessions-compulsions.

On interpersonal sensitivity, block 1 had a significant contribution [$F(1,461) = 26.353$; $p = .000$] and explains 5.4% of total variance ($R^2 = 0.054$), contributing individually with 5.4% of variance to the model; block 2 had a significant contribution [$F(5,457) = 10.375$; $p = .000$] and explains 10.2% of total variance ($R^2 = 0.102$), contributing individually with 4.8% of variance to the model; and block 3 had a significant contribution [$F(9,453) = 6.280$; $p = .000$] and explains 11.1% of total variance ($R^2 = 0.111$), contributing individually with 0.9% of variance to the model. Therefore, two variables present a significant contribution ($p \leq .05$), presented by order of importance: psychological aggression of perpetrators ($\beta = 0.248$) and female gender ($\beta = -0.233$), as predictors of interpersonal sensitivity.

Concerning depression, block 1 had a significant contribution [$F(1,461) = 27.629$; $p = .000$] and explains 5.7% of total variance ($R^2 = 0.057$), contributing individually with 5.7% of variance to the model; block 2 had a significant contribution [$F(5,457) = 10.923$; $p = .000$] and explains 10.7% of total variance ($R^2 = 0.107$), contributing individually with 5.0% of variance to the model; and block 3 as significant contribution [$F(9,453) = 6.852$; $p = .000$] and explains 12.0% of total variance ($R^2 = 0.120$), contributing individually with 1.3% of variance to the model. Therefore, two variables present a significant contribution and had a significant contribution ($p \leq .05$), presented by order of importance: psychological aggression of perpetrators ($\beta = 0.245$) and female gender ($\beta = -0.238$), while variable predictors of depression.

Regarding anxiety, block 1 had a significant contribution [$F(1,461) = 31.725$; $p = .000$] and explains 6.4% of total variance ($R^2 = 0.064$), contributing individually with 6.4% of variance to the model; block 2 had a significant contribution [$F(5,457) = 13.402$; $p = .000$] and explains 12.8% of total variance ($R^2 = 0.128$), contributing individually with 6.3% of variance to the model ($R^2_{change} = 0.063$); and block 3 had a significant contribution [$F(9,453) = 7.713$; $p = .000$] and explains 13.3% of total variance ($R^2 = 0.133$), contributing individually with 0.5% of variance to the model. Looking individually to each independent variable in blocks, two variables had a significant contribution ($p \leq .05$), by order of importance: female gender ($\beta = -0.254$) and psychological aggression of perpetrators ($\beta = 0.232$), as variable predictors of anxiety. Concerning hostility, block 1 had a significant contribution [$F(1,461) = 6.140$; $p = .014$] and explains 1.3% of total variance ($R^2 = 0.013$), contributing individually with 1.3% of variance to the model; block 2 had a significant contribution [$F(5,457) = 17.187$; $p = .000$] and explains 15.8% of total variance ($R^2 = 0.158$), contributing individually with 14.5% of variance to the model; and block 3 had a significant contribution [$F(9,453) = 9.937$; $p = .000$] and explains 16.5% of total variance ($R^2 = 0.165$), contributing individually with 0.7% of variance to the model. Three variables presented a significant contribution ($p \leq .05$), by importance order: psychological aggression of perpetrators ($\beta = 0.356$), negotiation of perpetrators ($\beta = -0.132$) and female gender ($\beta = -0.115$), as predictors of hostility.

Concerning phobic anxiety, block 1 had a significant contribution [$F(1,461) = 20.038$; $p = .000$] and explains 4.2% of total variance ($R^2 = 0.042$), contributing individually with 4.2% of variance to the model; block 2 had a significant contribution [$F(5,457) = 6.729$; $p = .000$] and explains 6.9% of total variance ($R^2 = 0.069$), contributing individually with 2.7% of variance to the model; and block 3 had a significant contribution [$F(9,453) = 3.917$; $p = .000$] and explains 7.2% of total variance ($R^2 = 0.072$), contributing individually with 0.4% of variance to the model; We can see that only female

gender ($\beta = -0.204$) presents a significant contribution ($p \leq .05$), as variable predictor of phobic anxiety.

Concerning paranoid ideation, block 1 had a significant contribution [$F(1,461) = 27.813$; $p = .000$] and explains 5.7% of total variance ($R^2 = 0.057$), contributing individually with 5.7% of variance to the model; block 2 had a significant contribution [$F(5,457) = 12.495$; $p = .000$] and explains 12.0% of total variance ($R^2 = 0.120$), contributing individually with 6.3% of variance to the model; and block 3 had a significant contribution [$F(9,453) = 7.177$; $p = .000$] and explains 12.5% of total variance ($R^2 = 0.125$), contributing individually with 0.5% of variance to the model. It was found that in our sample, two variables presented a significant contribution ($p \leq .05$), by order of importance: psychological aggression of perpetrators ($\beta = 0.244$) and female gender ($\beta = -0.239$), as predictors of paranoid ideation.

Finally, on psychoticism, block 1 had a significant contribution [$F(1,461) = 25.212$; $p = .000$] and explains 5.2% of total variance ($R^2 = 0.052$), contributing individually with 5.2% of variance to the model; block 2 had a significant contribution [$F(5,457) = 11.541$; $p = .000$] and explains 11.2% of total variance ($R^2 = 0.112$), contributing individually with 6.0% of variance to the model; and block 3 had a significant contribution [$F(9,453) = 6.672$; $p = .000$] and explains 11.7% of total variance ($R^2 = 0.117$), contributing individually with 0.5% of variance to the model. Individually analyzing the contribution of each independent variable of the blocks, it appears that three variables have a significant contribution ($p \leq .05$), by order of importance: psychological aggression of perpetrators ($\beta = 0.249$), female ($\beta = -0.228$) and negotiation of perpetrators ($\beta = -0.090$), as predictors of psychoticism (Table 1).

Discussion

As discussed earlier, many authors agree that violence has a strong association with psychopathology. Bordin et al. (2006) demonstrated that when violence occurs between siblings, psychological well-being is affected, causing serious consequences, both for victims and for perpetrators. The results obtained in our research have shown that older teenagers (17–20 years) tend to have higher levels of anxiety, hostility, phobic anxiety and paranoid ideation. Perhaps this is because teenagers, particularly older teenagers, are at a stage that tends to have great difficulties coping with frustration, and because they cannot understand their psychic pain, transfer it to the outside through, for example, hostility or phobic anxiety (Elkind 1967).

In childhood, but much more in adolescence, boys and girls have different developmental aspects, facing their experiences differently (Graham 2004). Regarding psychopathology, we also found gender differences. Assis and

collaborators (2009) indicated that females have higher rates of psychopathological symptoms than males, an aspect which was also confirmed by our study. One reason can be explained by the fact that females can be more internalizing (Assis et al. 2009) so more vulnerable to psychopathology when compared to males, who tend to more externalizing leading with violence.

In general, it seems that perpetration of psychological violence predicts positively diverse psychopathological symptoms in the study, which implies that psychological violence can be potentially more destructive than other forms of violence (Miller-Perrin et al. 2009), with negative consequences for mental health of children and adolescents (Tucker et al. 2013). Our findings also show that victims of sibling violence seem to be healthier, in terms of mental health, than perpetrators. Indeed, some studies show that sibling violence perpetrators have low self-esteem (Whipple and Finton 1995) and may exhibit some somatic complaints, nightmares, phobias, depression and aggressiveness (Kiselica and Morrill-Richards 2007).

An interesting result, and perhaps expected, was that hostility and psychoticism dimensions have a significant relationship, but negative, with negotiation, which shows that siblings who use negotiation as a tactic for resolving conflicts tend to have healthier relationships (Goldsmid and Feres-Carneiro 2007), preserving their mental health and consequently preventing the onset of psychopathological symptoms.

Conclusion

The first studies in Portugal about sibling violence were carried out by Relva et al. (2012a, b, 2013, 2014, 2017). Their 2014 study applied to young adults with siblings, who were asked to report retrospectively (specifically, to conflict resolution tactics used), when they were about 13 years old. Our research contributes new data to this initial study, as it was carried out with teenagers, and adds an association between sibling violence and psychopathological symptoms.

We conclude, therefore, that physical and psychological violence disrupts the development of individuals and compromises their mental health (Wiehe 1998). Finkelhor et al. (2006) found that 35% of 2030 children and teenagers attacked a sibling at least once in a year. This study, like others (Rapoza et al. 2010; Relva et al. 2014), reveals high rates of sibling violence, which should be a warning for potential consequences that might ensue. More awareness from parents and practitioners is needed to prevent and reduce the occurrence of sibling violence. For example, at school, sibling violence should be evaluated since some studies have pointed this kind of violence as being associated with bullying at school (Duncan 1999) and with violence in dating

Table 1 Prediction of psychopathological symptoms by gender and conflict tactics resolution

	R ²	R ² change	B	SE	β	t	p
Somatization							
Block 1							
Gender (dummy)	0.033	0.033	−0.216	0.055	−0.181	−3.940	0.000
Block 2							
CTS2-SP (perpetration)	0.078	0.046					
Negotiation							
Psychological aggression			0.058	0.025	0.137	2.308	0.021
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.081	0.003					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Obsessions-compulsions							
Block 1							
Gender (dummy)	0.028	0.028	−0.246	0.067	−0.168	−3.668	0.000
Block 2							
CTS2-SP (perpetration)	0.090	0.061					
Negotiation							
Psychological aggression			0.131	0.031	0.251	4.268	0.000
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.094	0.004					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Interpersonal sensitivity							
Block 1							
Gender (dummy)	0.054	0.054	−0.437	0.085	−0.233	−5.134	0.000
Block 2							
CTS2-SP (perpetration)	0.102	0.048					
Negotiation							
Psychological aggression			0.166	0.039	0.248	4.240	0.000
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.111	0.009					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Depression							
Block 1							
Gender (dummy)	0.057	0.057	−0.446	0.085	−0.238	−5.256	0.000
Block 2							
CTS2-SP (perpetration)	0.107	0.050					
Negotiation							

Table 1 (continued)

	R ²	R ² change	B	SE	β	t	p
Psychological aggression			0.164	0.039	0.245	4.199	0.000
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.120	0.013					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Anxiety							
Block 1							
Gender (dummy)	0.064	0.064	−0.352	0.062	−0.254	−5.632	0.000
Block 2							
CTS2-SP (perpetration)	0.128	0.063					
Negotiation							
Psychological aggression			0.114	0.028	0.232	4.022	0.000
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.133	0.005					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Hostility							
Block 1							
Gender (dummy)	0.013	0.013	−0.193	0.078	−0.115	−2.478	0.014
Block 2							
CTS2-SP (perpetration)	0.158	0.145					
Negotiation			−0.072	0.024	−0.132	−3.039	0.003
Psychological aggression			0.214	0.034	0.356	6.291	0.000
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.165	0.007					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Phobic anxiety							
Block 1							
Gender (dummy)	0.042	0.042	−0.243	0.054	−0.204	−4.476	0.000
Block 2							
CTS2-SP (perpetration)	0.069	0.027					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.072	0.004					
Negotiation							

Table 1 (continued)

	R ²	R ² change	B	SE	β	t	p
Psychological aggression							
Physical assault							
Injury							
Paranoid ideation							
Block 1							
Gender (dummy)	0.057	0.057	−0.408	0.077	−0.239	−5.274	0.000
Block 2							
CTS2-SP (perpetration)	0.120	0.063					
Negotiation							
Psychological aggression			0.149	0.035	0.244	4.224	0.000
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.125	0.005					
Negotiation							
Psychological aggression							
Physical assault							
Injury							
Psychoticism							
Block 1							
Gender (dummy)	0.052	0.052	−0.355	0.071	−0.228	−5.021	0.000
Block 2							
CTS2-SP (perpetration)	0.112	0.060					
Negotiation			−0.046	0.022	−0.090	−2.031	0.043
Psychological aggression			0.138	0.032	0.249	4.274	0.000
Physical assault							
Injury							
Block 3							
CTS2-SP (victimization)	0.117	0.005					
Negotiation							
Psychological aggression							
Physical assault							
Injury							

B, *SE* and β for a significance level of $p < .05$

relationships (Simonelli et al. 2002). An ecological system analysis (Bronfenbrenner 1979) is needed regarding sibling violence. It is also important to develop psycho educational approaches with parents to help them to deal with sibling conflict, and use more positive ways of solving problems.

Limitations

Although Duarte et al. (2009) argue that the Child Behavior Checklist (CBCL) is the most widely used instrument to identify mental health problems, we used the Brief Symptom Inventory (BSI). The BSI has good levels of reliability and validity, and can be applied directly to the subject in

question while the CBCL is intended for adults, questioning them about a particular child or adolescent as an indirect measure.

Additional limitations include the issue of sample size, which is not representative of Portuguese adolescent's population and data was only collected from participant perspective. In future studies, it would be important to consider increasing the size of the sample, and to research the perspective of both perpetrator and victimized sibling. It would be also interesting to see if psychopathological symptoms triggered during adolescence later develop into psychological disorders in adulthood, by means of a longitudinal and retrospective study.

Compliance with Ethical Standards

Conflict of Interest Authors declare no conflict of interest.

Ethical Standards All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

Informed Consent Informed consent was obtained from all individual participants for being included in the study.

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