Self-reported aggressive and antisocial behaviors in Moroccan high school students

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The aims of the present study were to map the level and distribution of aggressive and antisocial behaviors in a sample of Moroccan high school students and to define the level of these behaviors in adolescents who reported parental alcohol use problems and/or experienced abuse. In total, 375 high school students completed the “Mental and Somatic Health without borders (MeSHe)” survey that includes the Life History of Aggression scale. Male students had significantly higher scores for aggression and antisocial behaviors than female. The students who reported experience of abuse or parental alcohol use problems scored significantly higher for aggression, self-directed aggression, and antisocial behaviors compared to students not reporting these negative psychosocial factors. Previously shown gender-specific patterns in aggressive and antisocial behaviors, but not in self-harm behaviors were confirmed in these Moroccan high school students. Reported experience of abuse and/or parental alcohol use problems were associated with increased frequency of aggressive and antisocial behaviors.

Key words: adolescents, aggression, antisocial behaviors, abuse, gender, parental alcohol use

Highlights:

- Male students reported higher levels of aggressive and antisocial behaviors than their female classmates.
- No gender differences in self-harm behaviors were observed.
- Aggressive and antisocial behaviors were positively associated with the experience of physical and/or psychological abuse and with parental alcohol use problems.
- Students reporting the experience of physical and/or psychological abuse also reported significantly more frequent self-harm behaviors compared to their classmates.

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In Morocco, over three million individuals are aged between 15 and 19 years (High Commission for Planning, 2014). Compared to the population age distributions observed in Western countries, this percentage represents a substantial proportion of Morocco’s population, namely 8.9% (High Commission for Planning, 2014). Consequently, the promotion of the health of adolescents is a major focus of several Moroccan government bodies, such as the Ministry of Health and the Ministry of Education and Youth, working together to improve the psychosocial development (United Nations Educational, Scientific and Cultural Organization, 2012). During adolescence, individuals adopt and develop skills for adult life that allow them to make decisions about their lifestyle, learning, relationships and self-autonomy (i.e., Greenberger, 1984; Zarrett & Eccles, 2006). This period of personal development includes several risk factors and increased vulnerability to the possible development of negative life styles, substance use, destructive behaviors and mental ill-health (i.e., Schulte-Körne, 2016; Welsh et al., 2017). Despite its importance, the mental health and well-being of Moroccan adolescents is literally unexplored.

During childhood, the level of aggressive antisocial behavior is measured by the presence of physical aggression, lying, cheating, vandalism, and violation of rules, and is labeled as conduct disorder (Kim-Cohen et al., 2005; Searight et al., 2001). Aggressive behavior is often associated with mental disorders, for instance attention deficit/hyperactivity disorder and autism spectrum disorder (Macmillan, 2014; Kerekes et al., 2014). This association can be explained mainly by the distinct social interaction problems experienced by these youngsters (Kerekes et al., 2014). Childhood and adolescent aggressive and antisocial behaviors have been also associated with defined negative psychosocial factors in the youngster’s life. Physical or psychological abuse of children may entail the development of various forms of psychopathology, including both internalizing and externalizing symptoms (Alizzy, Calvete, & Bushman, 2017; De Bellis, 2001; De Sanctis et al., 2012; Jung et al., 2017). Numerous studies have demonstrated that adolescents who experienced abuse as children were more likely to exhibit internalizing problems, such as depression (e.g., Fergusson, Horwood, & Lynskey, 1996; Moylan et al., 2010; Widom, 2000; Wolfe et al., 2001), as well as externalizing behavior problems, such as delinquency and violent criminality (Fergusson, Horwood, & Lynskey, 1996; Fergusson & Lynskey, 1997; Herrenkohl, Égolf, & Herrenkohl, 1997; McCabe et al., 2005; Moylan et al., 2010; Smith & Thornberry, 1995; Widom, 2000; Wolfe, 1999). The experience of parental alcohol use problems during childhood, with or without the experience of abuse, has also been found to be associated with conduct and emotional problems (Christensen & Bilenberg, 2000), as well as a variety of internalizing and externalizing behaviors (Hussong et al., 2008; Hussong et al., 2010).

In the present study we aimed to define the level, type and gender-specific distribution of self-reported aggressive and antisocial behaviors in an urban sample of Moroccan high school students. In addition, the aim was to analyze the associations between parental alcohol use problems or experiencing physical/psychological abuse and levels of aggressive and antisocial behaviors.
Method

Study Population

This study was carried out within the framework of the “Mental and Somatic Health without borders” (MeSHe) project (http://meshe.se), which is an international project focusing on culture-specific patterns of mental health coupled to substance use and aggressive antisocial behavior in adolescents. The study population included high school students ($N = 375; 45.3\%$ male) conveniently selected from classes including the $10^{\text{th}}, 11^{\text{th}},$ and $12^{\text{th}}$ grades of four high schools in the Moroccan city of Tetouan. During the academic year of 2014/15 data was collected from four high schools, which housed 97 classes of $10^{\text{th}}, 11^{\text{th}},$ and $12^{\text{th}}$ grades. Two classes from each grade and from each school were selected to participate in the study. In these 24 classes there were 876 students enrolled, of which 375 ($43\%$) completed the survey. This sample represents a conveniently selected $2.42\%$ of the high school student population in Tetouan ($N = 15,506$ students spread across 17 high schools). The age range of the participants was from 15 to 18 ($M = 16.56, SD = 1.04$) years.

Measures

**Background inventory.** Age, gender, the presence of clinically diagnosed somatic and/or mental health problems, and psychosocial environmental factors were assessed by a background questionnaire. Two questions of importance for the present study were “Have you ever been physically and/or psychologically abused?” and “Do you have a parent who has problems with alcohol?”.

**Life history of aggression.** The Life History of Aggression scale (LHA; Coccaro, Berman & Kavoussi, 1997) measures the occurrence of aggressive and antisocial behaviors from the age of 13 years. For the data collection in the Moroccan high school student population, the Arabic version of the MeSHe survey was used including the Arabic translation of the LHA. The translations were performed in two steps: the first step was to translate LHA from English to Arabic and the second step was a back-translation by an independent translator from Arabic to English. After several adjustments, the project leader (NK) approved a final version of the Arabic LHA. The LHA total scale consists of three subscales: (1) a five-item Aggression subscale (measuring temper tantrums, verbal aggression, fighting, physical assault, and destruction of property); (2) a four-item Antisocial Behavior subscale (assessing school behavioral problems, problems with supervisors, antisocial behavior not involving the police, and antisocial behavior involving the police); and (3) a two-item Self-Directed Aggression subscale (reporting suicidal and self-harm behavior). All items are scored on a six-point Likert scale based on the total number of occurrences of the behavior. The scores are coded as follows: $0 = \text{no occurrences}, 1 = \text{one occurrence}, 2 = \text{two or three occurrences}, 3 = \text{four to nine occurrences}, 4 = \text{10 or more occurrences recalled},$ or $5 = \text{more occurrences than can be counted}$. In this study, the LHA total scale’s Cronbach’s alpha for internal consistency was .74.

Ethical Considerations

The MeSHe survey is designed in accordance with the Helsinki declaration (World Medical Association, 1964) and its completion is voluntary and anonymous. All potential participants received a short written and oral presentation of the MeSHe project and its aims. They were offered opportunities to discuss the study and their participation therein with a responsible researcher. They were also informed that they were free to leave the classroom if they did not wish to participate in the study, and they were assured that their decision whether to participate in the study would in no way affect their academic file. The data were collected on anonymous survey sheets in order to guarantee the respondents’ anonymity. Completion of the survey was considered as consent to participate. The survey was approved with the registration number 557, by the Regional Directorate of the Ministry of National Education in Tétouan, responsible for
managing and directing all matters concerning students from primary to high school education at Tetouan province and by the Faculty of Science, University Abdelmalek Essaadi. The use of the survey also was approved by each high school’s director and parents’ association.

Statistical Analysis

Sample characteristics were described by descriptive statistics. Because LHA scores were not normally distributed in the study population, non-parametric statistical analysis was used. The Mann-Whitney U-test was used for comparing LHA scores for males and females. The Kruskal-Wallis H-test was applied to compare the means ranks between adolescents reporting neither parental alcohol use problems or experience of abuse (CG), adolescents reporting parental alcohol use problems (PAP), adolescents reporting experience of physical and/or psychological abuse (PPA), and adolescents reporting both parental alcohol use problems and some form of abuse (PAP + PPA). Of the 375 students participating in this study, 18 did not answer one or both of the psychosocial environmental questions and were therefore excluded from the comparison between groups. Based on their answers to these two questions the adolescents were classified into either of four groups: (1) high school students not reporting having parents with alcohol problems or the experience of being abused (Comparison Group, CG; n = 250); (2) high school students reporting having parents with alcohol problems (PAP; n = 33); (3) high school students reporting the experience of physical and/or psychological abuse (PPA; n = 55); or (4) high school students reporting both parental alcohol use problems and the experience of physical and/or psychological abuse (PAP + PPA; n = 19). Post hoc (Fisher’s least significant difference) tests were applied for multiple testing regarding the differential interactions between these groups. All the analyses were two-tailed, and the significance level was defined at \( p < .05 \).

Results

The mean LHA total score was 8.64 (\( SD = 7.49 \); Table 1) for the entire sample. Males (\( n = 165–169 \), depending on the subscales scores) had significantly (\( p < .001 \)) higher LHA total scores, as well as the Aggression subscale and Antisocial Behavior subscale scores compared to females (\( n = 196–204 \), depending on the subscales). There were no statistically significant differences in the Self-Directed Aggression subscale score (Table 1). On the LHA total scale, 8.6% of the participants (6.1% of the males and 10.7% of the females) scored zero. On the subscale level, 9.1% (6.6% of the males and 11.1% of the females) scored zero on the Aggression subscale, 70.5% (71.4% of the males and 69.7% of the females) scored zero on the Self-Directed Aggression subscale, and 74.3% (61.5% of the males and 84.8% of the females) scored zero on the Antisocial Behavior subscale.

Table 1

<table>
<thead>
<tr>
<th>Score</th>
<th>Total M (SD)</th>
<th>Males M (SD)</th>
<th>Females M (SD)</th>
<th>U-test</th>
<th>( p^a )</th>
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<tr>
<td>Total</td>
<td>8.64 (7.49)</td>
<td>10.53 (8.31)</td>
<td>7.05 (6.31)</td>
<td>11991</td>
<td>&lt;.001</td>
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<tr>
<td>Aggression</td>
<td>6.93 (5.35)</td>
<td>8.16 (5.75)</td>
<td>5.9 (4.77)</td>
<td>12677.5&lt; .001</td>
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<tr>
<td>Self-Directed Aggression</td>
<td>0.76 (1.52)</td>
<td>0.73 (1.4)</td>
<td>0.8 (1.62)</td>
<td>16651.5</td>
<td>.78</td>
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<td>Antisocial Behavior</td>
<td>0.93 (2.35)</td>
<td>1.63 (3.17)</td>
<td>0.34 (1.01)</td>
<td>12921.5</td>
<td>&lt;.001</td>
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*Note. LHA = Life History of Aggression.*

*a*significance by Mann-Whitney U-test
In overall, 55 (15.4%) students reported the experience of physical and/or psychological abuse, while 33 (9.2%) reported having at least one parent with problematic use of alcohol. Of all, 19 (5.3%) students reported to have experienced both physical and/or psychological abuse and having at least one parent with alcohol use problems. The results of the Kruskal-Wallis test showed significance difference ($p < .001$) between the groups (CG, PAP, PPA, and PAP+PPA) in the LHA total scale and the subscales scores. Students from each of the three groups (PAP, PPA, and PAP+PPA) scored significantly higher ($p < .001$) on LHA total ($p = .001, p < .001, p = .001$, respectively), Aggression ($p = .01, p < .001, p = .002$, respectively), and Antisocial Behaviors ($p < .001, p = .001, p = .01$, respectively) subscales compared to students from the CG (Table 2). On the Self-Directed Aggression subscale students reporting the experience of abuse (belonging to the PPA or PAP+PPA groups) had significantly higher scores ($p < .001, p = .02$, respectively) compared to the students in the CG. In addition, students from the PPA group had significantly ($p = .02$) higher scores than students in the PAP group (Table 2).

<table>
<thead>
<tr>
<th>Score</th>
<th>CG ($n = 250$)</th>
<th>PAP ($n = 33$)</th>
<th>PPA ($n = 55$)</th>
<th>PAP+PPA ($n = 19$)</th>
<th>Difference between groups</th>
<th>Post hoc analysis: $p^a$</th>
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<td>7.02 (6.48)</td>
<td>11.38 (8.6)</td>
<td>12.93 (8.5)</td>
<td>13.06 (8.05)</td>
<td>42.36***</td>
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<td>PAP vs. PPA: .02</td>
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<td>CG vs. PPA+PAP+PPA: .001</td>
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<td>a significance by Post Hoc test</td>
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Note. CG = Comparison Group; PAP = High school students reporting Parental Alcohol use Problems; PPA = High school students reporting the experience of Physical and/or Psychological Abuse; PAP+PPA = High school students reporting both PAP and PPA.

Discussion

Moroccan male high school students reported significantly higher levels of antisocial and aggressive behaviors than their female classmates. This gender aspect of aggressive and antisocial behaviors has been observed long ago. In the 1980s, it was commonly agreed that males exhibit greater levels of aggression than females (e.g., Maccoby & Jacklin, 1980). In the 1990s, the argument was made that males and females express aggression in different ways...
and that one should view the matter of gender-specific aggression more in terms of qualitative than quantitative differences (e.g., Björkqvist, 1994). Nowadays, a softer conclusion is drawn from ongoing sociopsychological studies, namely that males are slightly more aggressive than females (Finigan-Carr et al., 2016; Shaheen & Jahan, 2014). Various factors are hypothesized to explain both the qualitative and quantitative differences in aggression levels, for instance potential biological and evolutionary influences (Archer, 2004), associations between testosterone levels and aggressiveness during adolescence (Yi-Zhen & Jun-Xia, 2009), psychosocial health profiles (Piko, Keresztes, & Pluhar, 2006), and parental differential treatment of males and females (Mandara et al., 2012).

The scores in terms of aggressive and antisocial behaviors in our sample showed a strongly skewed distribution. Most of the students scored zero or only a few points while there were few students with high scores. The mean of the Aggression and Antisocial Behavior subscales’ score ($M = 7.86; SD = 6.68$) found in the present study was very similar to that obtained in 18 years old Swedish twins ($M = 7.90; SD = 6.45$) (Hovey et al., 2016). The general lack of relevant comparison data internationally points to a need for further studies on aggressive and antisocial behaviors, in order to be able to describe cultural differences in the general population and, particularly, in young adults.

The present study reinforces the general finding that Moroccan males engage in more frequent and more serious extrovert aggressive acts compared to females (i.e., Finigan-Carr et al., 2016; Shaheen & Jahan, 2014; Yi-Zhen & Jun-Xia, 2009), but no gender differences could be measured in the frequency of self-harm behaviors, which seems to contradict a previous report. Among Australian adolescents, self-harm behavior was significantly more frequent in females (10%) than in males (6%) (Moran et al., 2012), whereas in the Moroccan sample we did not find any significant difference in the frequency of self-harm behavior between male (0.73%) and female (0.76%) students. The higher incidence of self-harm in Australian females during adolescence was independently associated with the presence of depression, anxiety, social problems, high-risk alcohol use, cannabis use, and cigarette smoking (Moran et al., 2012). The absence of gender-specific differences in the frequency of self-harm obtained in the present study despite the fact that Moroccan high school females report a higher level of psychological distress, including anxiety and depression, than their male classmates (Zouini et al., submitted), may be related to the collectivist Moroccan culture, which may provide a protective factor against the manifestation of anxiety in the form of self-harm behaviors. In fact, it has been found that belief in Islam reduces suicide rates (Shah & Chandia, 2010), and that these considerably lower rates of suicide and self-directed aggression seen generally in Muslim population could be explained by respect for the normative structures of collectivism, which values the acceptance of traditional authority, and the adherence to religious and moral traditions (Kemmelmeier et al., 2002).

The question whether aggressive and antisocial behaviors in adolescents are related to psychosocial factors is of major importance. Various studies in this area have shown positive associations between parental alcohol use problems/
dependence and conduct disorder or severe aggressive and antisocial behaviors in children (Finan et al., 2015; Gabel & Shindledecker, 1993; Keller et al., 2011). Our results agree with these studies. We found that students who reported that they had at least one parent with alcohol use problems also reported increased levels of aggressive and antisocial behaviors, overt aggression, and norm-breaking behaviors in comparison to students who did not report parental alcohol use problems. These results may be explained by the fact that parental alcohol use is often combined with family discord and dysfunction (Dube et al., 2001; Rothenberg, Hussong, & Chassin, 2017), paternal criminality or antisocial behavior (Corman & Mocan, 2015; Hammerton et al., 2017), parental psychiatric illness (Grant et al., 2015), and child abuse (Dube et al., 2001). These parental factors (including parental alcohol use problems) affect the child’s socioemotional and cognitive development and may provide the foundation for the development of an aggressive, antisocial behavior pattern in the youngster (Barnow et al., 2002; Bennett et al., 1988; Jansen et al., 1995; Keller et al., 2008).

Our results also show that students reporting the experience of physical and/or psychological abuse scored significantly higher in the self-reported measure of aggressive and antisocial traits, overt aggression and norm-breaking behavior, than those not reporting these negative experiences. These results may be explained by the “cycle of violence theory” (Widom, 1989a), which suggests that exposure to abuse in childhood increases the risk of engaging in violent criminal offenses or aggressive behavior in adolescence (Widom, 1989b), and by the fact that the experience of childhood abuse may be heavily involved in a developmental pathway leading to the possible onset of post-traumatic stress disorder and depression (Powers et al., 2015; Wielaard et al., 2018), consequently increasing future levels of aggressive and antisocial behaviors (Auslander et al., 2016; Kendra, Bell, & Guimond, 2012). However, the connection between childhood abuse and adolescent aggression has also been explained by social learning theory hypotheses suggesting that aggression may be a learned behavior through direct or observed violent interactions (Burton, Miller, & Shill, 2002). According to this explanation, the more frequent and intense the adolescents’ traumatic events are, such as physical or psychological abuse, the more likely it is that they learn to engage in aggressive behavior. Similarly, adolescents may choose to be aggressive towards themselves or others, in order to cope with their own feelings, thus repeating what they have learned from their attackers (Felson & Lane, 2009).

The frequency of self-harm behavior in students reporting the experience of physical and/or psychological abuse was also significantly higher when compared to students who did not report any negative psychosocial factors, but also when compared to those who reported parental alcohol use problems. Indeed, Zoroglu et al. (2003) found a significant relationship between the number of different types of abuse (emotional, sexual, physical) and self-harm behaviors in Turkish high school students. The rate of suicide attempts and self-mutilation behaviors was increased 7.6 and 2.7-fold, respectively, in abused Turkish high school students compared to those not reporting any type of abuse (Zoroglu et al., 2003). The significant increase in self-harm injuries in abused adolescents was
associated with adverse contextual factors, including the family environment, the characteristics of the adolescents’ relationship with their parents, and the characteristics of the perceived parenting style, as well as psychiatric ill-health in the adolescent (the existence of diagnoses such as depression, disruptive behavior disorders, and/or substance abuse and dependence) (Brown et al., 1999; Burešová et al., 2015; Kaplan et al., 1997).

Interventions focused on enhancing prosocial skills and preventing the development of persistent aggressive and antisocial behavior may be important for promoting behavioral adjustments and increased well-being in adolescents living in negative psychosocial environments.

Limitations

Several limitations of the study must be discussed. First, the study has a cross-sectional design not allowing causality analyses. In addition, although the study included data from high school students conveniently selected, it is a limitation that all the schools were from one city (Tetouan) and that the study population size is only a small fraction of all high school students in this city and in the whole country. These limitations relating to the data collection strongly restrict the generalizability of the results. Furthermore, the assessment method included only one self-report. Similarly, the assessment of the negative psychosocial factors (presence of parental alcohol use problems or the experience of physical and/or psychological abuse) did not include any structured measures, archive or register information; consequently, the assessment of abuse did not include the degree or frequency of abuse, any associated disability, or information on the specific type of abuse experienced by the high school students.

Conclusion

Our results from a population of Moroccan high school students confirmed the previously reported gender differences in aggressive and antisocial behaviors, but not in regard to self-harm behaviors. The study also showed that parental alcohol use problems or the experience of physical and/or psychological abuse are associated with increased levels of aggressive and antisocial behaviors, while the experience of abuse is coupled to increased proneness to self-harm behavior. These results emphasize the need for support for adolescents with experience of abuse and/or parental alcohol use problems. Future studies confirming our data and addressing the limitations of this study should further extend the findings in order to draw valid recommendations for interventions.

References


Samoprocena agresivnog i antisocijalnog ponašanja kod marokanskih srednjoškolaca

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Ciljevi ove studije su bili mapiranje nivoa i distribucije agresivnog i antisocijalnog ponašanja kod marokanskih srednjoškolaca (Maroko je država u severozapadnoj Africi, prim. prev.) i određivanje prisustva ovih ponašanja kod adolescenata koji su naveli da njihovi roditelji imaju probleme vezane za upotrebu alkohola i/ili da su bili zlostavljeni. Ukupno 375 srednjoškolaca je učestvovalo u studiji “Mentalno i telesno zdravlje bez granica” (eng. Mental and Somatic Health without borders; MeSHe) u okviru koje su, između ostalog, odgovarali i na Skalu životne istorije agresivnosti (eng. Life History of Aggression Scale). Učenici su postigli značajno više skorove na agresivnosti i antisocijalnom ponašanju od učenica. Učenici koji su naveli da su njihovi roditelji imali probleme vezane za upotrebu alkohola ili da su bili zlostavljeni imali su značajno više skorove na agresivnosti, agresivnosti usmerenoj prema
sebi i na antisocijalnom ponašanju u odnosu na učenike koji nisu izvestili o ovim negativnim činocima. Prethodno utvrđeni polno specifični obrasci agresivnog i antisocijalnog ponašanja su potvrđeni kod ovih marokanskih srednjoškolaca. Postojanje polno specifičnih obrazaca nije potvrđeno kada je u pitanju samopovređivanje. Navođenje (u upitniku iz studije, prim. prev.) da su bili zlostavljeni i da roditelji imaju probleme vezane za upotrebu alkohola bili su povezani sa nivoom agresivnosti učenika.

**Ključne reči:** adolescenti, agresija, antisocijalno ponašanje, zlostavljanje, rod, roditelji koji koriste alkohol.

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