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Motor vehicle accidents and adolescents: An empirical study on their emotional and behavioral profiles, defense strategies and parental support

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ABSTRACT

Background: Research has limitedly focused on adolescents' emotional–behavioral functioning preceding road collisions and on the role of family support. *Objective:* To verify whether the rates of motorbikes collisions among adolescents are associated with their emotional–behavioral functioning, their use of specific defense strategies and family support. *Method:* $N = 150$ adolescents who visited an emergency department for road accidents were selected and completed self-report questionnaires assessing emotional–behavioral functioning, difficulty in identifying and describing emotions, use of defense strategies and perceived family support. *Results:* Higher rates of motorbike collisions are associated with more maladaptive emotional–behavioral functioning. Higher perceived family support is associated with lower rates of collisions. *Conclusions:* Recidivism of motor vehicle collision among adolescents can be considered as a form of acting-out caused by their psychological difficulties.

1. Introduction

Unintentional injuries are reported as the largest cause of death among adolescents (aged 15–19) and more than sixty percent of these injuries are consequences of motor vehicle collisions (MVCs). Nonfatal road crashes involve more than 1.5 million adolescents every year only in the US, who are treated in emergency departments and this trend has been stable for decades (Sarma, Carey, Kervick, & Bimpeh, 2013). Adolescents are involved in a high number of collisions and they have a three-times risk of crashes if compared to older drivers (Insurance Institute for Highway Safety, 2012). In Italy, road traffic accidents are the first cause of death for people aged under 30% and 67% of these collisions involve adolescents driving motorbikes, composing the second largest proportion in Europe after Greece (Marengo, Settanni, Vidotto, & Ciairano, 2012).

Most collisions are usually attributed to human errors, inexperience or other factors (such as alcohol or drug use, fatigue or distraction). Drivers' errors can be defined as unintended omission of actions, due to limited skill connected to fatigue and/or to the use of mobile phones or other in-vehicle information systems (IVIS – especially during night hours) or deliberate violations of safe practices and road rules, frequently associated to alcohol or drug use (Reason, Manstead, Stradling, Baxter, & Campbell, 1990). Clarke, Ward, and Truman (2005) suggested that most adolescents willingly violate rules, by driving

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through red traffic lights, intentionally missing stops and so forth. But recent research in this field has suggested that MVCs are events with a much more complex etiology including personal characteristics and psychological functioning (Hole, 2008). It has been underlined that subjects with a borderline personality disorder frequently show reckless and impulsive driving (First, Frances, & Pincus, 2002) and that antisocial personality disorders, ADHD, impulse control and obsessive–compulsive disorders seem to be related to motor vehicles collisions. Moreover, other psychiatric conditions such as psychotic disorders, mood disorders and sleep disorders have been connected to MVCs (Galovsky, Malta, & Blanchard, 2006). Adolescents' personality has been proposed as one of the main issues affecting driving style and likelihood of collisions. Rimmo and Aberg (1999) demonstrated that sensation seeking is connected with an increased risk of crashes, as it is primarily associated with a high rate of violations. It has also been proposed that anger and aggressiveness are common personality characteristics of young drivers (Chliaoutakis et al., 2002) often resulting in an aggressive driving (AD) style, while Ulleberg (2001) suggested that riskiness should be considered as related to a wider constellation of personality measures including low altruism, normlessness, hostility, high anger, low empathy, neuroticism, poor parent-offspring attachment quality (Tambelli, Cimino, Cerniglia, & Ballarotto, 2015) and anxiety (see also Lucidi et al., 2010). Impulsivity has also been related to collision involvement especially in mid-adolescence (Steinberg, 2008) and some authors have suggested the use by these subjects of non-cognitive (i.e. affective) signals to make decisions while driving (Dahlen, Edwards, Tubrè, Zyphur, & Warren, 2012). It has been found that externality is related to anxiety (Paciello, Fida, Cerniglia, Tramontano, & Collie, 2012; Paciello, Fida, Tramontano, Collie, & Cerniglia, 2012), which in turn increases the likelihood of road accidents (Lajunen & Summala, 1995) but other studies showed that internality and depressive symptoms are associated with dissociative driving styles and errors, resulting in collisions (Holland, Geraghty, & Shah, 2010).

Other authors underlined the importance of considering environmental factors and family functioning in general and in studying risky behaviors and driving (Cerniglia, Cimino, & Ballarotto, 2014; Cimino, Cerniglia, & Paciello, 2014; Lucarelli, Cimino, D'Olimpio, & Ammaniti, 2013). Taubman-Ben-Ari and Katz-Ben-Ami (2012) proposed that parents have an important role in their offspring's driving behavior by conveying their priorities, values, perceptions and practices about safety and noted that the lack of an open and direct communication between parents and adolescents could be associated with a higher prevalence of risky driving among youths. Beck, Shattuck, and Raleigh (2001) suggested that the family can constitute a protection against the involvement of adolescent in risky behaviors. A developmental view suggests that adolescents involve in risky behaviors because of their need of perceiving themselves as skilled and independent or to gain popularity with their peers (Allen & Brown, 2008). The latter hypothesis seems confirmed by the fact that a higher presence of a passenger (of the same age) on the vehicle is associated to a higher rate of collisions, when the drivers are 14–18 years old (Simons-Morton, Lerner, & Singer, 2005).

Most of the scientific literature addressing emotional-adaptive psychological functioning connected to motor vehicle collisions in adolescence (as well as in adulthood) has focused on the outcomes after the accident in terms of possible acute or chronic psychological consequences, leaving the assessment of adolescents' emotional functioning *before* the accident limitedly explored (Day, Brasher, & Bridger, 2012). Carbone (2009, 2010), instead, proposed that adolescents' maladaptive psychological functioning preceding the MVC could increase the likelihood of a collision, which in turn could be considered an acting-out determined by a psychological sufferance, and in particular by adolescents' difficulties in identifying and coping with their own emotions [alexithymic traits and massive use of defense strategies such as denial, displacement and omnipotence are suggested to be associated with risk-taking in adolescence (Dahl, 2008; Paivio & McCulloch, 2004)]. In this perspective, the emergency department visits are to be interpreted by clinicians as adolescents' unconscious attempts to receive psychological help. The same author showed that motor vehicle collisions in adolescents' life are not isolated events occurring once in many years, but they can repeat several times in a relatively limited amount of time and suggested that adolescents with no other physical or mental illness can visit emergency departments up to four or five times in one year, due to the injuries reported in a MVC (mostly in accidents occurred while driving motorbikes).

While research have clearly demonstrated that adults may suffer from depression and post-traumatic stress disorder after a MVC, literature on negative psychological consequences in adolescents who were involved in motor collisions is scarce and often rely on case reports. Research has given very limited attention to psychological functioning of adolescents after road collisions except for those studies that addressed samples with PTSD disorders or symptoms and this resulted in a lack of studies addressing groups of adolescents who did not developed PTSD symptoms after a MVC (Le Brocque, Hendrikz, & Kenardy, 2010).

In the aim of deepening the understanding the etiology of motor collisions and planning effective preventive programs, Iversen and Rundmo (2002) have underlined that it is crucial gathering information about the facts and experienced feelings preceding and subsequent to the accident. In fact, their studies have shown that 30% of MVC are forgotten very rapidly, if their physical and psychological consequences are not severe. Coherently, it can be useful to assess the psychological impact of the accident and the mental conditions that have preceded it, both in the immediate preceding period and in the months before. This can be done, in Di Gallo, Barton, and Parry-Jones's (1997) view, in the emergency departments that adolescents visit after the collision, giving them also the opportunity of expressing feelings and limiting the avoidance which seem correlated for example to subsequent PTSD symptoms.

Prevention and intervention programs on adolescents who were involved in MVCs are usually conducted in schools and mostly focus information provision and psycho-education, mainly aiming at strengthening copying skills, in a cognitive–behavioral framework, to encourage and support safe driving and reduce risk of collisions (Cox, Kenardy, & Hendrikz, 2008). The results of these prevention programs worldwide have been mixed. Some of them produced good outcomes in