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Emotional–Behavioural Profiles and Parental Support in Adolescents with Motor Vehicle Accidents

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Abstract

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Adolescents (aged 15–19) are involved in a high number of motor vehicle collisions (MVCs). MVCs are considered complex events that are influenced by personal characteristics and psychological functioning. We propose that adolescents' psychological functioning preceding road collisions could be associated with the accidents, which in turn could be similar to acting out caused by psychological discomfort. In this study, we want to verify whether the rates of MVCs among adolescents are associated with their emotional–behavioural functioning and low levels of family support. Specifically, the study aims to verify that adolescents involved in motorbike collisions show maladaptive emotional–behavioural functioning and difficulties in identifying and describing their own emotions. The sample was composed of N = 100 adolescents without a psychiatric diagnosis who attended an emergency department following a road accident. They filled out self-report questionnaires to assess their emotional–behavioural functioning (YSR/11–18, *Youth Self-report*), difficulties in identifying and describing their emotions (TAS-20, *Toronto Alexithymia Scale*) and perceived levels of family support (PFSE, *Adolescents' Perceived Filial Self-efficacy*). We divided the sample into three groups on the basis of the number of MVCs they had experienced. The results show that adolescents involved in more motorbike accidents presented with more maladaptive emotional–behavioural functioning and more difficulties in describing and identifying their emotions. Additionally, lower perceived family support predicted more maladaptive emotional–behavioural functioning (internalizing and externalizing difficulties) and difficulties in describing and identifying their emotions. We concluded that problematic psychological functioning (difficulties in identifying and describing their emotions) was associated with higher MVC rates in adolescents. Thus, MVCs among adolescents can be considered as a form of acting out caused by their own psychological state. Moreover, the level of family support, as perceived by adolescents, can be considered as a protective factor or as a risk factor for the development of adolescent disorders.

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Keywords: Adolescents; motor vehicle collisions; emotional–behavioural functioning; alexithymia; family support.



1. Introduction

Adolescents suffer from a high number of unintentional injuries, especially from various road traffic accidents, with a three-fold increased crash risk compared to older drivers (Insurance Institute for Highway Safety, 2012). In Italy, motor vehicle collisions (MVCs) are the primary cause of death for people under 30 and more than half of these injuries involve adolescents driving motorbikes (Marengo, Settanni, Vidotto, & Ciairano, 2012); thus, unintentional injuries are reported as the largest cause of death among adolescents (aged 15–19).

Recent research in the field of MVCs has highlighted the complex aetiology in which personal characteristics and psychological functioning play an important role (Hole, 2008). Particularly, among the variables that seem strongly correlated with MVCs, the key disorders associated with an increased risk for an MCV are borderline personality disorder (First, Frances, & Pincus, 2002), antisocial personality disorders and obsessive–compulsive disorders. However, one of the main issues affecting driving style and the likelihood of collisions that has been proposed is adolescents' personality, particularly when the following features are involved: sensation seeking (Rimmo & Aberg, 1999), anger and aggressiveness (Chliaoutakis et al., 2002), hostility, low empathy and poor parent–offspring attachment quality (Tambelli, Cimino, Cerniglia, & Ballarotto, 2015) and anxiety (see also Lucidi et al., 2010). Beyond these personality characteristics and measures, the role of impulsiveness in collision involvement in mid-adolescence (Steinberg, 2008) has also been heavily studied by researchers as a factor that could in turn increase the likelihood of road accidents (Dahlen, Edwards, Tubrè, Zyphur, & Warren, 2012; Paciello, Fida, Cerniglia, Tramontano, & Collie, 2012; Paciello, Fida, Tramontano, Collie, & Cerniglia, 2012; Lajunen & Summala, 1995).

On the other hand, the relevance of environmental factors and family functioning regarding a reduction in the risky driving behaviour of adolescents has been studied (Cerniglia, Cimino, & Ballarotto, 2014; Cimino, Cerniglia, & Paciello, 2014; Lucarelli, Cimino, D'Olimpio, & Ammaniti, 2013). Parents' priorities and values, alongside good communication with their offsprings seems to be a very important protective factor against adolescent involvement in risky driving behaviour (Taubman-Ben-Ari & Katz-Ben-Ami, 2012; Beck, Shattuck, & Raleigh, 2001).

2. Problem statement

Personal and environmental factors represent multiple variables for the study of adolescents' risky behaviour and clinicians and researchers have been discussing its expressions and different cases for many years.

In our opinion, there is a gap in the current literature on maladaptive behaviours in adolescence, as very few studies have attempted to link certain maladaptive behaviours in adolescence, such as motor vehicle accidents, to psychological functioning by taking into account family support. Moreover, research has narrowly focused on adolescents' emotional–behavioural functioning preceding road collisions and on the role of family support (Day, Brasher, & Bridger, 2012), paying more attention to the outcomes after the accident in terms of possible acute or chronic psychological consequences.

Our theoretic perspective takes inspiration from the recent remarks by Carbone (2009, 2010), who, instead, proposed that adolescents' psychological functioning preceding an MVC could increase the possibility of a collision, and that psychological difficulty and difficulties in identifying and coping with emotions could play an important role in this type of event (for instance, alexithymic traits are suggested to be associated with risk taking in adolescence (Dahl, 2008; Paivio & McCulloch, 2004)). Consequently, from our perspective, accidents in adolescence might be considered not as fated or as the result of careless acts, but as expressions of psychological distress that the adolescent is unaware of, and emergency department visits can thus be interpreted as a cry for psychological help.

3. Research questions

Based on the conceptual model of developmental psychopathology, which approaches adolescents' unease by considering environmental factors and individual variables when studying risky behaviours, we are interested in investigating the contributions from problematic psychological functioning and perceived family support in adolescents' maladaptive behaviours. Indeed, we propose that the likelihood of MVCs among adolescents could be related to the specific psychological functioning that precedes such collisions.

With this approach, it may be relevant to ask whether problematic psychological functioning (difficulties in identifying and describing their emotions) could be associated with higher rates of MVCs in adolescents by considering the degree of perceived family support.

Constituting a study on maladaptive behaviour in adolescence and exploring the role of the preceding psychological functioning, rather than the psychological consequences among adolescents, could improve prevention programs and provide further information for the the debate on adolescents' suffering and risky behaviours.

4. Purpose of the study

As it is important to take into account the protean manifestations of the fundamental problems in adolescence, we intend to carefully evaluate the role of some personality and environmental variables in the experience of risky behaviours. On the basis of the above literature, this work aims to constitute a step forward compared to the current literature by examining if emotional-behavioural functioning preceding MVCs and the level of perceived family support could be considered as "facilitator" variables for assumed risky behaviours in adolescence.

In this study, we will explore the psychological profiles of adolescents and verify whether the rates of MVCs among adolescents are associated with their emotional-behavioural functioning and low levels of family support, factors that have been infrequently studied in other research.

Specifically, the study aims to verify that adolescents involved in motorbike collisions exhibit maladaptive emotional-behavioural functioning and difficulties in identifying and describing their own emotions (alexithymia).

More specifically, we aim to verify whether adolescents who have been involved in a motorbike collision:

1. Show a specific type of emotional-behavioural functioning;
2. Show difficulties in identifying and describing their own emotions; and
3. Report low family support, which, in turn, could contribute to the maladaptive psychological functioning and the possible impaired capacity for identifying and describing their emotions.

5. Research methods

5.1. Sample

The sample was recruited from a population of adolescents who visited an Italian emergency department for MVCs over a period of one year. They were involved in motorbike accidents and did not have a psychiatric diagnosis. For the purpose of this study, we excluded adolescents who were not driving the motorbike at the moment of the accident; adolescents who were reported to have serious injuries; adolescents whose parents denied consent for their son or daughter to participate in the research; and adolescents who refused to participate in the study. Based on the number of their visits to the emergency department, the final sample (N = 100; 49 males and 51 females) was divided into the following three groups:

Group A (N = 34): adolescents who had experienced four or more accidents;

Group B (N = 33): adolescents who had experienced three accidents;

Group C (N = 33): adolescents who had experienced one or two accidents.

The mean age of the subjects was 15.64 (SD = 0.882).

Most of the adolescents' families were Caucasian (92%), of middle socioeconomic status and were intact family groups. More than half of the adolescents were firstborns (60%).

In line with the Declaration of Helsinki, prior to the beginning of the study, La Sapienza University of Rome Ethical Committee approved the research plan. Every participant signed an informed consent document, and the privacy of their personal data and of the results was guaranteed.

5.2. Measures

The *Youth Self-report/11-18 (YSR/11-18)* (Achenbach, 1991; Italian version – Frigerio et al., 2001) is a self-report questionnaire that explores behavioural and emotional problems occurring in the previous 6 months. It consists of 112 problem items, scored on a 3-point scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very or often true*) and it includes the following syndrome subscales: Withdrawn, Somatic complaints, Anxious/depressed, Social problems, Thought problems, Attention problems, Delinquent behaviour, Aggressive behaviour and Self-destruction identity. The subscales 'Withdrawn', 'Somatic complaints' and 'Anxious/depressed' constitute the scale of 'Internalizing problems' (31 items), whereas 'Delinquent and Aggressive' behaviours together constitute the scale of

‘Externalizing problems’ (32 items; Achenbach, 1991). Higher scores on these scales indicate more maladaptive functioning. Some YSR/11–18 items are included in the ‘Other problems’ subscale (32 items). Achenbach and Rescorla (2001) found that the internal consistency for the empirically based problem scales was supported by Cronbach’s alphas ranging from .71 to .95.

The *Toronto Alexithymia Scale (TAS-20)* is a self-report scale composed of 20 items (Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994; Italian version – La Ferlita, Bonadies, Solano, De Gennaro, & Gonini, 2007). The items are scored on a 5-point Likert scale (1 = *strongly disagree*; 5 = *strongly agree*). The three-factor structure of the scale was found to be theoretically congruent with the alexithymia construct. Higher scores on these scales indicate more maladaptive functioning. The scale demonstrates good internal consistency and test–retest reliability (the total score’s internal reliability coefficient is .86).

The *Adolescents’ Perceived Filial Self-efficacy (PFSE)* (Bandura, Caprara, Barbaranelli, Regalia, & Scabini, 2011; Italian version – Smetana, 1996; Scabini, 1995) is a questionnaire that evaluates filial perceptions of parental support in everyday life and in hypothetical critical moments in adolescents’ lives. It is composed of 16 items rated on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*). Higher scores indicate higher perceived support from parents (Bandura et al., 2011). The scale shows a reliability coefficient of .87 (Bandura et al., 2011).

5.3. Data analysis

Before performing the analyses, a preliminary screening of the data was conducted and only a few data items were missing for each instrument. We carried out multivariate analyses of variance (MANOVAs) in Groups A, B and C, considering age and gender, to evaluate the adolescents’ psychological profiles. Various linear regressions were also conducted to examine the hypothetical effect of perceived family support and Group on all of the YSR and TAS-20 subscales.

All analyses were performed with SPSS software (Version 21.0).

6. Findings

6.1. Adolescents’ psychological profiles

A MANOVA conducted on the three group’s scores on all of the YSR subscales to verify the adolescents’ emotional–behavioural functioning showed a Group effect ($\lambda = 0.005$; $F = 44.800$; $p < 0.001$). Mean scores, standard deviations, F and p values are reported in Table 1. The adolescents’ scores on all YSR scales, except on ‘Attention Problems and Delinquent Behaviour’, were significantly higher in Group 1, compared to Group 2 and Group 3 (Scheffè’s post hoc test; $p < 0.001$).

Table 1. Means (SDs), *F* and *P* Values of Adolescents' Scores on the YSR Subscales

	Group A	Group B	Group C	<i>F</i>	<i>p</i> values
Withdrawn	9.74 (1.990)	4.88 (1.269)	3.24 (1.768)	115.224*	< 0.001
Somatic complaints	9.56 (1.709)	7.82 (1.380)	4.42 (2.500)	38.126*	< 0.001
Anxious/depressed	20.53 (5.534)	7.52 (3.598)	4.48 (2.464)	109.307*	< 0.001
Social problems	7.79 (1.388)	4.76 (1.969)	4.00 (1.785)	28.687*	< 0.001
Thought problems	4.82 (1.566)	4.52 (1.278)	3.67 (1.080)	10.971*	< 0.001
Attention problems	3.26 (1.711)	3.39 (.827)	3.64 (.859)	1.835	0.167
Delinquent behaviour	2.65 (.981)	3.67 (1.080)	4.06 (.788)	16.522*	< 0.001
Aggressive behaviour	22.59 (4.215)	15.52 (5.805)	6.70 (2.084)	81.855*	< 0.001
Self-destruct. identity	14.74 (2.122)	14.64 (2.133)	6.94 (2.645)	66.085*	< 0.001
Other problems	16.18 (4.101)	11.09 (3.677)	6.82 (2.468)	40.099*	< 0.001
Int. dimension	33.79 (4.347)	13.33 (4.728)	9.24 (1.768)	279.792*	< 0.001
Ext. dimension	34.88 (5.008)	12.91 (2.006)	7.85 (1.770)	451.338*	< 0.001
Tot problems scale	82.74 (10.460)	29.55 (4.487)	12.64 (2.903)	733.601*	< 0.001

* $p < 0.001$

6.2. Adolescents' ability to describe and identify their emotions

A MANOVA conducted on the three group's scores on all of the TAS-20 subscales to verify the adolescents' difficulties in identifying and describing their own emotions showed a Group effect ($\lambda = .111$; $F = 79.431$; $p < 0.001$). Mean scores, standard deviations, *F* and *p* values are reported in Table 2. The adolescents' total scores and adolescents' scores on Factors 1 and 3 were significantly higher in Group1, compared to Group 2 and Group 3 (Scheffè's post hoc test; $p < 0.001$).

Table 2. Means (SDs), *F*, and *P* Values of Adolescents' Scores on the TAS-20 Subscales

	Group A	Group B	Group C	<i>F</i>	<i>p</i> values
Factor 1	26.82 (3.433)	13.79 (2.315)	9.94 (1.968)	267.812*	< 0.001
Factor 2	8.32 (2.409)	11.58 (2.883)	10.82 (2.709)	8.906*	< 0.001
Factor 3	29.94 (3.455)	24.42 (3.354)	12.42 (3.649)	146.639*	< 0.001
TAS-20 total score	65.09 (5.987)	49.79 (4.998)	33.18 (4.818)	200.962	< 0.001

* $p < 0.001$

6.3. Contribution of family support and group belonging to all the YSR and TAS-20 subscales

We conducted three linear regressions to investigate the hypothetical contribution of low family support to adolescents' more maladaptive emotional-behavioural functioning and to their difficulties in identifying and describing their own emotions. To verify associations between adolescents' group belonging, PFSE, YSR and TAS-20 scores, group belonging and perceived family support were used as predictors, whereas self-report scores were used as regressors. Group belonging showed no significant effect on any of the questionnaire scores.

Higher scores in the PFSE predict lower scores for all YSR subscales, while higher scores in the PFSE predict lower scores for Factors 1, 2 and 3. Tables 3–4 report R^2 , β , t and p values for the YSR and TAS-20 questionnaires.

Table 3. Contribution of Perceived Family Support to all YSR Subscales: R^2 , β , t and p Values

YSR	PFSE			
	R^2	β	t	p
Withdrawn	.629	-.793	-12.889	< 0.001
Somatic complaints	.528	-.727	-10.469	< 0.001
Anxious/depressed	.651	-.807	-13.517	< 0.001
Social problems	.368	-.607	-7.552	< 0.001
Thought problems	.075	-.274	-2.816	< 0.001
Attention problems	.032	.178	1.795	.076
Delinquent behaviour	.233	.473	5.308	< 0.001
Aggressive behaviour	.637	-.798	-13.113	< 0.001
Self-destruct identity	.503	-.709	-9.964	< 0.001
Other problems	.513	-.716	-10.162	< 0.001
Int. dimension	.781	-.885	-18.821	< 0.001
Ext. dimension	.796	-.892	-19.537	< 0.001
Tot problems scale	.840	-.916	-22.651	< 0.001

Table 4. Contribution of Perceived Family Support to TAS-20 Factors: R^2 , β , t and p Values

TAS-20	PFSE			
	R^2	β	t	p
Factor 1	.778	-.882	-18.536	< 0.001
Factor 2	.102	.320	3.343	< 0.001
Factor 3	.706	-.841	-15.359	< 0.001
TAS total score	.809	-.899	-20.341	< 0.001

7. Conclusions

This study intended to examine the psychological profiles and perceived family support in adolescents involved in road collisions, with particular attention being placed on emotional and behavioural features and difficulties in handling their emotions. Our results show that adolescents involved in more motorbike collisions also presented with more maladaptive emotional-behavioural functioning and more difficulties in describing and identifying their emotions. Additionally, lower perceived family support predicted more maladaptive emotional-behavioural functioning (internalizing and externalizing difficulties) and difficulties in describing and identifying their emotions.

In reference to our first objective, we confirm that adolescents involved in motorbike collisions exhibit many difficulties in their emotional and behavioural functioning. The data also confirms our

second hypothesis, referring to possible alexithymic traits in adolescents who are involved in higher rates of MVCs: adolescents who experience more MVCs are more likely to show difficulties in identifying and defining their emotions. Finally, we verify the hypothesis that low family support can be associated with more maladaptive emotional-behavioural functioning in adolescents and with difficulties in recognizing and describing their emotions: in line with the international literature, we found that low family support, as perceived by adolescents, contributes to their maladaptive psychological functioning.

The association between problematic psychological functioning, difficulties in identifying and describing their emotions and higher rates of MVCs in adolescents lead us to place increasing importance on the period of adolescence, with its cognitive and neurobiological peculiarities, psychosocial challenges and continuing development of emotional regulation mechanisms to manage stressors posed by novel situations (McLaughlin, Hatzenbuehler, Mennin, & Nolen-Hoeksema, 2011). Emotional regulation strategies generally increase in functionality during adolescence (Gullone, Hughes, King, & Tonge, 2010) and numerous studies have demonstrated that emotional regulation skills in children and adolescents negatively predict the subsequent externalizing and internalizing of problems. We do know that difficulties in emotional regulation from early childhood are possible precursors of maladaptive emotional functioning in adulthood (Cerniglia, Cimino, & Ballarotto, 2014a; Cerniglia, Cimino, Ballarotto, & Monniello, 2014b; Cimino, Cerniglia, & Paciello, 2015; Cimino, Cerniglia, Paciello, & Sinesi, 2013). Thus, emotional-behavioural functioning is often associated with risky behaviours in adolescents and researchers have suggested that this time of life represents a crucial moment in the development of psychopathology (Cerniglia et al., 2015).

In addition, the family can constitute a form of protection against adolescent involvement in risky behaviours (Beck, Shattuck, & Raleigh, 2001) because, as we have already seen, the perceived support and sensitivity of the parents themselves reduces or increases the adolescents' propensity to take risks and their maladaptive psychological functioning in general.

In conclusion, perceived family support could be an important environmental variable when considering the fact that adolescents probably become involved in risky behaviours just because of their need to feel free and autonomous or better than their peers, as Allen and Brown (2008) stated. Thus, MVC recidivism among adolescents may be an intentional cry for help, even if they are unaware of that, in a context in which the degree of family support, as perceived by adolescents, becomes a protective factor or a risk factor for the development of adolescent disorders.

The present study has some limitations. We did not assess parents' psychological functioning and/or psychopathological risk, thus excluding important information about the emotional and behavioural profiles of the other members of the family. Moreover, we did not consider the quality of adolescents' relationships with their peers, which could be another important factor for a more global discussion on the environmental variables in adolescents' lives. The present paper has several strengths as well: to our knowledge, no other study has aimed to evaluate the previous psychological functioning and family support levels perceived by adolescents who have experienced MVCs based on a discussion of road collisions in terms of acting out due to maladaptive psychological functioning.

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