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This study examined the relationships between protective factors and involvement in risk behaviour of Italian adolescents with friends involved in risk. Protective factors were drawn from models of peers and from individual skills (perceived regulatory self-efficacy, intolerant attitudes about deviance) and orientation (to health, school, religion). The data are from two waves, 1 year apart, of a questionnaire survey of adolescents in northwestern Italy. Participants were 908 adolescents (42% boys) ages 14–16 years. Results of a hierarchical regression revealed that religiosity is a protective factor and that friends' models for conventional behaviours and positive attitude about health can mitigate the influence of deviant friends on adolescent risk behaviour 1 year later, even after controlling for prior levels of risk behaviour. Possible implications of this study suggest the importance of implementing preventive interventions by involving the peer group, especially at about 16 years, and working with heterogeneous (deviant and nondeviant) groups.

Involvement in various types of risk behaviours increases during adolescence. Research has shown that adolescent risk behaviours vary widely and include, among others, deviant behaviour, violence, sexual behaviour, drug use, cigarette smoking, alcohol abuse, and risky driving. These behaviours are often examined individually. Nevertheless, although they differ in how they are carried out and in their consequences, they are strongly related and are linked to common problems that are characteristic of adolescence. In fact, it has been shown that different behaviours may perform similar functions, such as acceptance by the peer group, feeling like an adult, and asserting their own identity (Moffitt, 1993; Silbereisen, Eyferth, & Rudinger, 1986). Researchers who have investigated specific risk behaviours and those who have examined cumulative risk indices have sought to identify possible risk and protective factors in different contexts. One of the most important risk factors is the influence of deviant peers.

During adolescence, peer influence increases markedly and becomes a significant alternative to parental expectations. Friends perform important functions in the growth process and can be a source of support and well-being. Conversely, they can become models of deviance and sources of stress and discomfort (Hartup & Stevens, 1997; Rubin, Bukowsky, & Parker, 2006).

Developmental theories suggest that affiliation with deviant peers and susceptibility to peer influence are notable contributors to adolescent involvement in risk behaviour (Dodge, Dishion, & Lansford, 2006; Monahan, Steinberg, & Cauffman, 2009; Wanner, Vitaro, Carbonneau, & Tremblay, 2009). Many studies have established that adolescents' association with deviant peers is a major factor in the growth of deviancy (Dodge, Coie, & Lynam, 2006) and in other problem behaviours (Dishion, Ha, & Véronneau, 2012; Keijsers et al., 2012).

Much has been discussed about the similarities between adolescents and their friends with respect to two main processes operating in sequential and complementary ways: selection and socialization (Dodge, Coie, et al., 2006, Dodge, Dishion, et al., 2006; Urberg, Luo, Pilgrim, & Degirmencioglu, 2003). Some studies have shown that imitative and socialization mechanisms and processes contribute to adolescents' tendency to assume the behavioural patterns of their friends, yet other studies have revealed that, in the choice of friends, selection processes are at work during which the adolescent tends to build and attend to relationships with peers who have characteristics similar to theirs (e.g., Engels, Knibbe, Drop, & de Haan, 1997; Ennett & Bauman, 1994; Kandel, 1978). In middle adolescence both selection and socialization influence youths' similarity with respect to antisocial behaviour (Monahan et al., 2009).

The link between affiliation with deviant peers and adolescent problem behaviour is well established, especially the link between peer contagion and delinquent behaviour (e.g., Dishion, Dodge, & Lansford, 2008; Fergusson, Vitaro, Wanner, & Brendgen, 2007; Mathys, Vitaro, & Born, 2014) and between peer influence and the use of tobacco, marijuana, and alcohol (e.g., Larsen, Engels, Souren, Granic, & Overbeek, 2009; de Leeuw, Engels, Vermulst, & Scholte, 2009). In particular, deviant peer influences appear to be stronger for early and middle adolescents, for boys, and for those youths who are exposed to peers who are slightly more deviant than they are, as well as in unstructured, unsupervised settings (Dishion et al., 2008). There remains a need for in-depth examination of specific protective factors, especially in the context of countries other than the United States.

Protective factors

Interest in protective factors emerged initially from studies of developmental psychopathology (Rutter, 1987). Protective factors are considered to be independent variables that can have their own direct effects on behaviour but, in addition, can moderate the relation between risk factors and behaviour (Fergusson et al., 2007; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). Jessor expanded on problem behaviour theory to describe the relationship between psychosocial protective factors and risk factors and involvement in problem behaviour. The theoretical model consists of three types of protection (models, controls, and support) and three types of risk (models, opportunity, and vulnerability). Regarding protection, *models* includes measures of models, such as friends' involvement in community groups and volunteer work; *controls* includes individual-level measures of control, such as attitudinal intolerance of deviance; and *support* includes measures of contextual supports, such as family closeness. With regard to risk, *models* includes measures of models, such as peers' alcohol use; *opportunity* includes opportunity measures, such as availability of alcohol in the home; and *vulnerability* includes measures of personal vulnerability, such as perceived stress and low self-esteem (Jessor et al., 2003). Similar protective and risk factors have been examined in several other investigations of adolescent risk behaviour (e.g., Felix-Ortiz & Newcomb, 1992; Fergusson et al., 2007).

Most work with respect to adolescent behaviour and development has been confined to Western, especially North American, populations. Less numerous are studies carried out in European countries, and rarer yet are those concerning the Italian context. As far as risk behaviour is concerned, in Italy, as in other European countries, adolescence is a crucial period for experimentation with behaviours that put people's health and well-being at risk. National statistics (ISTAT, 2013) reveal that alcohol consumption and cigarette smoking are widespread, with boys and girls showing no major statistical differences in usage, and these behaviours usually occur in social settings with friends. Cannabis is the most commonly used drug, with initiation most often occurring between ages 15 and 17 years. The rate of juvenile delinquency is somewhat low, and boys are more often implicated than are girls. Theft is the crime most frequently committed by young people, particularly in a group situation, although the phenomenon of criminal gangs is limited. Although the number of automobile-related deaths is progressively decreasing, road accidents remain the main cause of death among adolescents and young people between ages 14 and 24 years. For those ages 14 to 17, motorcycle accidents are most common. The causes are most often associated with lack of respect for the traffic code, and lack of attention to safety increases the seriousness of the effects. Nonuse of safety systems and risky driving increase when adolescents are in the company of their peers (Bonino, & Cattelino, 2012; ISTAT, 2013).

Progressing from Jessor's problem behaviour theory and its reformulation and extension with regard to the protective-risk model (Jessor et al., 2003), Bonino, Cattelino, and Ciairano (2005) studied the function of risk behaviours and risk and protective factors in the Italian context; that is, seven risk behaviours (cigarette smoking, alcohol consumption, marijuana and other drug use, risky driving, antisocial behaviour, risky sexual behaviour, disturbed eating) and their relation to the personality system (values, attitudes, expectations, self-perception), as well as three main social contexts in which adolescents are embedded (family, peers, school). With respect to this explanatory, theory-based, psychosocial model used in various cultural contexts, such as the United States and the People's Republic of China (Costa et al., 2005; Jessor et al., 2003), the main risk and protective factors for Italian adolescents' risk behaviours were found in a cross-sectional design. Individual risk behaviours (cigarette smoking, alcohol consumption, marijuana and other drug use, risky driving, antisocial behaviour, sexual behaviour, and disturbed eating) were analysed separately, and some risk and protective factors were found to exert a

transversal effect; in particular, it was found that for Italian adolescents a link exists between various adolescent problem behaviours and association with deviant peers in middle adolescence (Bonino et al., 2005; Cattelino, 2010). Moreover, many variables, drawn from Jessor's model (pertaining to both individual level and social context) and integrated by measures of self-efficacy (Bandura, 1997), were found to play a protective role against risk behaviours.

Our study focused on six protective factors selected on the basis of the theoretical model and on the basis of the results of previous cross-sectional studies (Cattelino, Calandri, Bina, & Graziano, 2011): friends' models of conventional behaviour (i.e., involvement in various conventional organizations and prosocial pastimes, good grades at school, regular church attendance), positive orientation to health, positive orientation to school, religiosity, intolerant attitudes about deviance, and regulatory self-efficacy. Friends' models of conventional behaviour constitute protection because they represent interpersonal control in the face of deviance and they can moderate the impact of deviant peers.

Having a positive orientation toward health constitutes protection against involvement in risk behaviours that can be damaging to health, such as substance use or risky driving practices, because it indicates the personal importance of health. It also reflects a commitment to behaviours that promote healthful outcomes and that discourage health-compromising behaviours (Bonino et al., 2005; Jessor, Turbin, & Costa, 1998; Turbin et al., 2006).

A positive orientation toward school constitutes protection because it represents positive engagement with a conventional social institution and commitment. Adolescents with a positive orientation to school can more successfully create a strong personal identity through dedication and commitment to the academic institution and do not feel the need to seek out alternative or superficial ways of affirming adulthood or feeling successful.

Religiosity constitutes protection because it emphasizes the values of universalism, benevolence, tradition, and conformity (Caprara, Scabini, Steca, & Schwartz, 2011; Schwartz, 1992). Moreover, religiosity reflects a commitment to conventional values and disapproval of norm-violative activities and serves as a personal control against involvement in nonnormative behaviours (Jessor et al., 1998).

Intolerance of deviance constitutes protection because it reflects a commitment to conventional values and disapproval of antisocial behaviour and norm-violative activities. Adolescents with high levels of deviance disapproval strongly identify with the values shared by society (Pauwels, Vettenburg, Gavray, & Brondeel, 2011).

Individuals' perceptions of their self-regulatory abilities (Bandura, 1997), commonly called *self-efficacy beliefs,* serve as a regulatory function in all major transitions of life, and they are especially important during adolescence. In particular, regulatory self-efficacy constitutes protection because it increases the likelihood that adolescents will be able to resist peer pressure.

This study

Many previous studies in this area of research have been conducted, especially in the United States. This article provides information about protective factors against problem behaviours that is specific to populations attending Italian secondary schools. The primary aim of this longitudinal study was to examine specific protective factors that might moderate the link between deviant peers and adolescent risk behaviours in the Italian setting that have not received much focus in prior research. Protective factors were identified in the framework of Jessor's problem behaviour theory extended by Bonino et al. (2005). A cumulative risk index, including cigarette smoking, illicit drug use, problem drinking, deviant behaviour, and risky driving practices, was used as dependent variable.

Three key questions were addressed in this study:

1. Do friends' models of conventional behaviour, positive orientation to health, positive orientation to school, religiosity, intolerant attitudes toward deviance, and regulatory self-efficacy constitute factors that protect Italian adolescents against multiple risk behaviours?
2. Do these same variables serve as protective factors that buffer adolescents from negative influences of peer deviance in a longitudinal model?
3. Do protective factors modify the influence of peer deviance in the same way among boys and girls and among younger and older adolescents?

We tested the hypothesis that all these variables maintain a protective effect against adolescent risk behaviour over time and that they also have a moderating effect by buffering adolescents from negative influences of deviant peers. Finally, we tested the hypothesis that the same moderating effects account for risk behaviour involvement across gender and age.

Method

Study design and procedure

The data reported in this article are from a longitudinal questionnaire of lifestyle and health-related behaviour administered to adolescents in northwestern Italy. The questionnaire *Io, la scuola e il mio stile di vita* (*School, my life-style and me*; Cattelino, Begotti, & Bonino, 1999), which includes various measures of perceived self-efficacy (Bandura, 1997; adapted by

Caprara, 2001), involvement in various risk behaviours, and internalizing problems (Jessor, 1992; adapted by Bonino et al., 2005), along with questions and scales related to personal variables and characteristics of the main life contexts of adolescents, was used to collect the data. All aspects investigated by the questionnaire were based on self-report measures, and all the variables related to matters perceived by adolescents. The questionnaire was administered twice, 1 year apart.

Participants completed an anonymous self-report questionnaire administered by trained researchers in the schools during classroom time when teachers were not present. Completed questionnaires were turned in immediately to researchers. Active parental and personal consent were required before the questionnaire was administered, in accordance with Italian law and the ethical code of the Professional Psychologists Association.

Participants

The sample was drawn from five high schools chosen in collaboration with the school district administration of Piedmont and Aosta Valley, two regions in northwestern Italy, to best represent variation in the socioeconomic backgrounds of the students. In each of the five schools selected, 15 classes were randomly sampled to participate in the study. The initial sample consisted of 908 adolescents, 42% of whom were boys, ages 14–16 ($M = 14.9$ years; $SD = .79$) attending Grades 9, 10, and 11 of different types of secondary schools (lyceum, technical, and professional schools). The second administration of the questionnaire involved 845 adolescents; attrition was 6.9%. The longitudinal sample was distributed similarly by gender, age, and type of school attended to that of the initial sample; no significant differences between those who participated only in the first survey and the remaining sample were found with respect to level of involvement in individual risk, the risk implication of friends, and all moderators considered. In other words, the longitudinal sample did not differ from the initial sample.

Variables and analytic procedure

Friends' models of conventional behaviour (7 items; $\alpha = .65$) were measured by using Jessor's scale (Bonino et al., 2005; Jessor, 1992) concerning the perceived proportion of friends who were in school clubs or organizations, attended church regularly, participated in community youth groups, earned good grades, volunteered at school or in the community, participated in organized sports, and spent time with their families. Possible answers were based on a 4-point Likert scale in which 1 = *none of them,* 2 = *some of them,* 3 = *most of them,* and 4 = *all of them.*

Protective factors referring to individual-level protection were measured by four variables: positive orientation to health, positive orientation to school, religiosity, and attitudinal intolerance of deviance. Positive orientation to health (nine items; $\alpha = .70$) was measured by using Jessor's scale (Bonino et al., 2005; Jessor, 1992) concerning how important various health outcomes are to the respondent, such as "*to feel in good shape,*" "*to keep yourself healthy even if it takes extra effort,*" "*to have good health habits about eating,*" "*to practice physical exercise regularly.*" Possible answers were based on a 4-point Likert scale in which 1 = *not important at all,* 2 = *not too important,* 3 = *somewhat important,* and 4 = *very important.*

Positive orientation to school (four items; $\alpha = .72$) was measured by using Jessor's scale (Bonino et al., 2005; Jessor, 1992) concerning how important it is for the adolescent to get good grades this year, to be considered a bright student by his/her teachers, to be one of the best students in his/her class, and to achieve a specialization or an M.A. after high school. Possible answers were based on a 4-point Likert scale in which 1 = *not important at all,* 2 = *not too important,* 3 = *somewhat important,* and 4 = *very important.*

Religiosity (four items; $\alpha = .84$) was measured by using Jessor's scale (Bonino et al., 2005; Jessor, 1992) concerning how important it is for the adolescent to be able to rely on religious teaching when he/she has a problem, to believe in God, to rely on religious belief as a guide for day-to-day living, and to be able to turn to prayer when he/she is facing personal problems. Possible answers were based on a 4-point Likert scale in which 1 = *not important at all,* 2 = *not too important,* 3 = *somewhat important,* and 4 = *very important.*

Intolerant attitudes about deviance (13 items; $\alpha = .91$) were measured with the relative scale of Jessor (Bonino et al., 2005; Jessor, 1992) concerning to what degree the adolescent considers a series of antisocial behaviours to be wrong, including physical aggression, shoplifting, vandalism, lying, stealing, and truancy (e.g., "*How wrong do you think it is to damage or mark up public or private property on purpose*?"). Possible answers were based on a 4-point Likert scale in which 1 = *not wrong,* 2 = *a little wrong,* 3 = *rather wrong,* and 4 = *very wrong.*

Regulatory self-efficacy, that is, perceived capability to resist peer pressure to engage in high-risk activities (12 items; $\alpha = .80$), was measured by using a Bandura self-efficacy scale (Bandura, 1997; Caprara, 2001). Adolescents were asked to state their sense of efficacy in response to items such as "*How are you able to resist if someone asks you to do something forbidden?*" Possible answers were based on a 4-point Likert scale in which 1 = *not at all,* 2 = *a little,* 3 = enough, and 4 = *much.*

Extensive psychometric work was conducted on the scales of the questionnaire, and it is reported in Bonino et al. (2005) and Caprara (2001). These analyses indicated that all the scales in the questionnaire were valid and had adequate reliability.

Establishing the individual risk index and the friends' risk index

As has been done in previous studies (Cattelino et al., 2011), two risk indices were established to analyse the involvement of adolescents and their friends in multiple risk behaviours. These indices integrate some behaviours that in adolescence are

Table 1
Mean and standard deviation by gender and age group (one-way ANOVA).

Groups	M (SD)									Sample *N*
	Individual risk index T1	Individual risk index T2	Friends' risk index	Friends' models of conventional behaviour	Positive orientation toward health	Positive orientation to school	Religiosity	Regulatory self-efficacy	Intolerance of deviance	
Gender										
Boys	49.14 (9.33)[a]	49.79 (10.89)[a]	49.77 (10.17)[a]	7.50 (2.81)[a]	29.57 (3.70)[a]	13.57 (2.11)[a]	9.58 (3.27)[a]	26.49 (4.74)[a]	41.84 (8.40)[a]	485
Girls	47.66 (7.91)[b]	47.83 (7.76)[b]	49.85 (9.87)[a]	7.06 (2.59)[b]	29.98 (3.27)[a]	13.80 (1.94)[a]	10.28 (3.07)[b]	26.91 (4.44)[a]	45.23 (5.30)[b]	360
	$F(1, 697) = 6.73$ $p = .010$ $\eta^2 = .010$	$F(1, 736) = 9.18$ $p = .003$ $\eta^2 = .012$	$F(1, 739) = 0.13$ $p = .909$ $\eta^2 = .001$	$F(1, 789) = 6.76$ $p = .009$ $\eta^2 = .009$	$F(1, 833) = 2.13$ $p = .145$ $\eta^2 = .003$	$F(1, 834) = 2.49$ $p = .115$ $\eta^2 = .003$	$F(1, 806) = 11.29$ $p = .001$ $\eta^2 = .014$	$F(1, 751) = 1.61$ $p = .205$ $\eta^2 = .002$	$F(1, 812) = 50.91$ $p < .001$ $\eta^2 = .059$	
Age										
14	46.01 (6.33)[a]	47.04 (9.20)[a]	46.78 (9.55)[a]	7.28 (2.53)[a]	30.29 (3.34)[a]	13.97 (2.0)[a]	10.46 (2.98)[a]	27.45 (4.03)[a]	45.00 (6.71)[a]	300
15	48.32 (8.63)[b]	48.54 (8.76)[a]	50.38 (9.75)[b]	7.40 (2.76)[a]	29.41 (3.55)[b]	13.60 (2.06)[ab]	10.01 (3.18)[a]	26.39 (4.92)[b]	42.95 (7.45)[b]	332
16	51.39 (10.08)[c]	51.16 (9.80)[b]	53.02 (9.81)[c]	6.96 (2.80)[a]	29.74 (3.42)[ab]	13.48 (1.94)[b]	9.27 (3.32)[b]	26.31 (4.60)[b]	43.50 (6.32)[b]	213
	$F(2, 697) = 22.55$ $p < .001$ $\eta^2 = .061$	$F(2, 736) = 11.54$ $p < .001$ $\eta^2 = .031$	$F(2, 739) = 23.51$ $p < .001$ $\eta^2 = .060$	$F(2, 789) = 1.05$ $p = .349$ $\eta^2 = .003$	$F(2, 833) = 4.09$ $p = .017$ $\eta^2 = .010$	$F(2, 834) = 4.70$ $p = .009$ $\eta^2 = .011$	$F(2, 834) = 9.61$ $p < .001$ $\eta^2 = .023$	$F(2, 751) = 4.59$ $p = .010$ $\eta^2 = .012$	$F(2, 812) = 6.24$ $p = .002$ $\eta^2 = .015$	

Tukey post-hoc test between age groups: same letter for not statistically different means.

strongly related: cigarette smoking, alcohol abuse, marijuana use, drug use, nonuse of seatbelts in the car. Although these behaviours are very diverse phenotypically, all are related to the transgression of legal or social norms or to the failure to fulfil normal social role expectations.

Individual risk index

The individual risk index assesses overall level of involvement in five types of adolescent-reported risk behaviour: (a) cigarette smoking, based on self-reports of frequency and amount of smoking in the past month; (b) alcohol abuse, based on respondents' reports of frequency of drunkenness and frequency of high-volume drinking (four or more drinks per occasion); (c) marijuana use; (d) drug use; and (e) nonuse of seatbelts in the car. With reference to Jessor et al. (1995) and Costa et al. (2005), measures of the five components of the index were transformed into t scores ($M = 50$, $SD = 10$) and summed. Cronbach's alpha of the individual risk index is .71.

Friends' risk index

To measure the pattern of risky behaviour of friends, we calculated the t-score sum of five questions (4-point Likert scale) relative to the perceived proportion of friends involved in the same behaviours considered in order to construct the individual risk index ("*How many of your friends smoke cigarettes on a regular basis?*" "*drink alcohol regularly?*" "*use marijuana?*" "*use other drugs?*" "*pay attention to using seatbelts in the car?*"). Possible answers were based on a 4-point Likert scale in which 1 = *none*, 2 = *some*, 3 = *most*, and 4 = *all*. Measures of the components of the index were transformed into t scores ($M = 50$, $SD = 10$) and summed. Cronbach's alpha of the friends' risk index is .71.

Multiple regression

The association between the individual risk index, friends' risk index, and protective factors was analysed using a hierarchical multiple regression model in which the individual risk index at Time 2 was the dependent variable, controlled by the previous level of individual risk index at Time 1.

Gender (0 = girl, 1 = boy) and age were introduced in the regression at Step 1 to evaluate the contribution of protective factors to adolescent risk behaviour once sociodemographic variables were controlled. In the second step, the friends' risk index was entered to evaluate the impact of this risk factor on the adolescents' risk behaviours. The theoretical predictors—friends' models of conventional behaviour and the individual variables selected—were entered at Steps 3 and 4, respectively, to examine their association with the individual risk index. At Step 5, cross-products of the friends' risk index and gender and age on one hand and all protective factors on the other hand were entered to assess whether the influence of friends' risk behaviours was the same across gender and age, and to examine whether protective factors moderated the contribution of the friends' risk index. In the last step, the three-way interactions involving friends' risk index, protective factors and age and those involving friends' risk index, protective factors and gender were entered to evaluate whether the moderating effect of protective factors was the same across age and gender.

According to Holmbeck's terminology (1997, 2002), a moderator specifies the conditions under which a given effect occurs and the conditions under which the direction or strength of an effect varies. A moderator effect is an interaction effect. The preferred strategy is to use the variables in their continuous form and to use multiple regression techniques. Predictors were centred and interactions terms were computed from these centred variables (Holmbeck, 1997). Significant interactions were plotted for high and low levels of the moderators (1 SD below and above the mean) and the simple slope test was performed, according to the recommendations of Aiken and West (1991).

The statistical software IBM SPSS Statistics, version 21, was used in this study.

Results

A general description reported in Table 1 shows that mean scores of the individual risk index were significantly higher for older adolescents than for younger ones both in Time 1 and Time 2; boys had significantly higher individual risk index scores than did girls in both periods. As far as the friends' risk index is concerned, the mean scores were significantly higher for older adolescents than for younger ones; there were no gender differences.

Considering the protective factors, girls reported having higher values of religiosity and intolerance of deviance, and boys reported a greater proportion of friends involved in conventional behaviours. Younger adolescents had higher levels of positive orientation toward health and school and greater regulatory self-efficacy, intolerance of deviance, and religiosity.

All protective factors considered were negatively correlated with the individual risk index at Time 1 and maintained the negative association at Time 2 (see Table 2). The same negative relationship was also present among protective factors and the friends' risk index, and it was stronger for regulatory self-efficacy and intolerance of deviance.

The correlations confirm the similarity between the behaviours of adolescents and those of their friends: Teens with friends involved in risk behaviours also showed greater involvement in multiple risky behaviours at Time 1 and at Time 2 (see Table 2).

To evaluate the role of protective factors in their main effects and their possible effects of moderation, a model of hierarchical multiple regression was tested that had the individual risk index measured at Time 2 (controlling for Time 1) as the dependent variable and all the variables described previously as predictors (see Table 3). The tested regression model was significant. The explained variance was 38%. As shown in Table 3, the succession of steps and then the insertion of the new groups of variables increased step by step the explained variance, although with very low values, except when the friends' models of conventional behaviour was entered into the model. As expected, the greater proportion of variance is explained by the level of involvement in risk at initial recognition.

The beta values show that the friends' risk index plays a significant main effect only in the initial model, while in the final model it shows no significant effect. Only religiosity played a protective role against involvement in problem behaviours 1 year later.

Three significant two-way interaction effects were found between the friends' risk index and age, between the friends' risk index and the friends' models of conventional behaviour, and between the friends' risk index and the positive orientation to health, whereas all the three-way interaction effects were not significant. For the simple slope analysis the model has been re-estimated excluding the block of variables entered in step 6, since they were all not significant. The three significant two-way interactions are shown in Fig. 1, where the relation between friends' risk index and individual risk index at Time 2 (simple slope) is plotted for high and low levels (1 SD above and below the mean) of the three moderators. The relation was positive and statistically significant within older adolescents [$b = .53$; $t(435) = 2.35$, $p = .019$], within adolescents with less friends involved in conventional behaviours and activities [$b = .57$; $t(435) = 2.75$, $p = .006$], and within those with low positive orientation to health [$b = .54$; $t(435) = 2.29$, $p = .022$] and it was weakly negative and not statistically significant within younger adolescents [$b = -.05$; $t(435) = -.22$, $p = .82$], adolescents with more friends involved in conventional behaviours [$b = -.09$; $t(435) = -.39$,$p = .70$], and within those with high positive orientation to health [$b = -.06$; $t(435) = -.27$,$p = .78$]. Thus, the relationship between friends' risk index and individual risk index was strong and positive in older adolescents and in those without the protective role of friends' conventional behaviours and of positive orientation toward health. Alternatively, this relationship is much weaker and no significant in younger adolescents and in presence of high friends' models of conventional behaviour and high positive orientation toward health.

Table 2
Correlations among individual risk index at T1 and T2, individual risk index and protective factors at T1.

	1	2	3	4	5	6	7	8	9
1. Individual risk index T1	1								
2. Individual risk index T2	.52*	1							
3. Friends' risk index	.54*	.42*	1						
4. Friends' models of conventional behaviour	−.25*	−.15*	−.19*	1					
5. Positive orientation toward health	−.20*	−.16*	−.16*	.21*	1				
6. Positive orientation to school	−.27*	−.18*	−.24*	.20*	.32*	1			
7. Religiosity	−.25*	−.23*	−.16*	.16*	.21*	.26*	1		
8. Regulatory self-efficacy	−.52*	−.36*	−.42*	.18*	.24*	.33*	.22*	1	
9. Intolerance of deviance	−.52*	−.37*	−.47*	.21*	.22*	.35*	.23*	.56*	1

*$p \leq 001$.

Table 3
Hierarchical regression model: Dependent variable individual risk index at time 2.

Step	Predictors (time 1)	B	SeB	Initial β	Final β	ΔR2
0	Individual risk index (IRI) T1	.538	.041	.527**	.310**	.28**
1	Gender	1.19	.702	.068	.071	.01*
	Age	1.038	.447	.095*	.099*	
2	Friends'risk index (FRI)	.417	.151	.130*	.085	.01*
3	Friends'models of conventional behaviour	−.013	.138	−.004	−.006	.00
4	Positive orientation toward health	−.131	.112	−.050	−.054	.02*
	Positive orientation to school	.189	.198	.042	.048	
	Religiosity	−.301	.114	−.113*	−.134*	
	Perceived regulatory self-efficacy	−.079	.098	−.043	−.066	
	Intolerance of deviance	−.073	.074	−.053	−.044	
5	FRI × Gender	.304	.269	.060	.072	.04**
	FRI × Age	.365	.159	.091*	.102*	
	FRI × Friends' Models of Conventional Behaviour	−.129	.040	−.134*	−.150*	
	FRI × Positive Orientation Toward Health	−.093	.042	−.093*	−.140*	
	FRI × Positive Orientation to School	−.012	.069	−.007	.015	
	FRI × Religiosity	−.051	.041	−.051	−.038	
	FRI × Perceived Regulatory Self-Efficacy	−.049	.033	−.076	−.046	
	FRI × Intolerance of Deviance	.033	.025	.069	.067	
6	FRI × Friends' M. of Conv. Behaviour × Gender	−.039	.095		−.031	.02
	FRI × Positive Orientation Toward Health × Gender	.087	.088		.061	
	FRI × Positive Orientation to School × Gender	−.148	.155		−.065	
	FRI × Religiosity × Gender	−.022	.087		−.014	
	FRI × Perceived Regulatory Self-Efficacy × Gender	−.048	.071		−.051	
	FRI × Intolerance of Deviance × Gender	.041	.054		.064	
	FRI × Friends' M. of Conv. Behaviour × Age	.084	.062		.076	
	FRI × Positive Orientation Toward Health × Age	.040	.055		.033	
	FRI × Positive Orientation to School × Age	−.095	.091		−.051	
	FRI × Religiosity × Age	.094	.055		.075	
	FRI × Perceived Regulatory Self-Efficacy × Age	.059	.043		.077	
	FRI × Intolerance of Deviance × Age	−.058	.034		−.097	

$R^2 = .38$; Adj $R^2 = .34$.
$^*p < .05$, $^{**}p \leq .001$.

Discussion

The primary aim of this longitudinal study was to examine if friends' models of conventional behaviour, positive orientation to health, positive orientation to school, religiosity, intolerant attitudes toward deviance, and regulatory self-efficacy might moderate the link between deviant peers and adolescent risk behaviours in a sample of Italian adolescents. We tested the hypothesis that these variables maintain a protective effect in a longitudinal model and that the same explanatory model accounts for risk behaviour involvement across gender and age.

Results revealed that religiosity is a protective factor and that age, friends' models for conventional behaviours, and positive attitude about health can mitigate the influence of deviant friends on adolescent risk behaviour 1 year later, even after controlling for prior levels of risk behaviour.

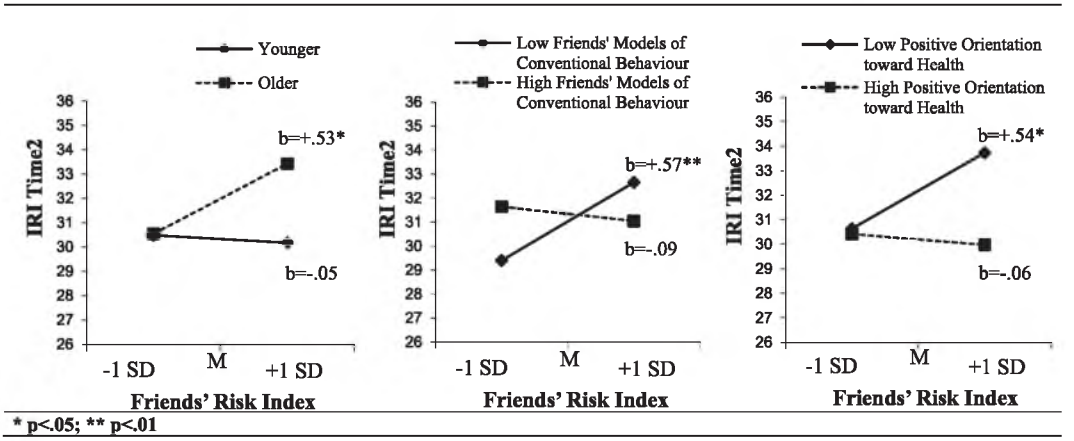

Fig. 1. Regression lines for relations between friends' risk index and individual risk index (IRI Time 2) as moderated by age, friends' models of conventional behavior and positive orientation toward health (2-way interactions). The continuouslines with a diamond symbol represent low values (Mean − 1 DS) and the dashedlines with a square symbol represent high values (Mean + 1 DS).

More in depth, as shown in the final model of the regression analysis, controlling for the previous level of implication and for other protective factors, the model of deviant peers tends to disappear, but, as shown by the post-hoc probing of the interaction effect (test of simple slopes), not for older adolescents who may become more deviant when they associate with deviant peers. These findings require further investigation, because the results found in other studies often contradict each other. For example, Patterson, Reid, and Dishion (1992) documented a long-term impact exerted by the presence of deviant peers and numerous protective factors; on the other hand, Tremblay, Masse, Vitaro, and Dobkin (1995) did not find a longitudinal effect exerted by the presence of deviant peers. The results of our study seem to indicate that, only after ages 15–16 years, having deviant friends in the past predicts the behaviour of boys and girls 1 year later. This finding is consistent with findings from earlier studies, which have revealed the importance of peers' models for adolescent behaviour. At the same time, however, it is a caution against emphasizing the effect of the peers' deviant model over time (Arnett, 2007) and suggests that we consider differences also among those who are younger (from 14 to 16 years) with respect to the role played by the friends' model.

With respect to protective factors, the individual factors that were considered, despite having a protective effect when examined individually, lost strength in the tested model, and religiosity had the only significant effect. The hypothesis that all the factors were significant was not confirmed. On a cautionary note, other studies have found that although individual attributes of the adolescent play a significant role in the development of internalising problems, they appear to be less effective for curtailing the development of externalizing problems (Dekovic, 1999). With regard to religiosity, it has been shown that an orientation toward religion can serve multiple and diverse functions for an individual, from providing meaning to one's life, to yielding a sense of personal fulfilment, to securing access to social contacts and interpersonal relationships, to offering a set of standards against which to judge and guide one's actions. Our results show that during middle adolescence religiosity has an impact on daily, secular life, and it exerts protection against transgression. Perceiving religion as important, being active in religious worship and activities, and referring to religious values to guide one's choices all constitute a deterrent with respect to risk. This finding is consistent with findings from other studies (Sinha, Cnaan, & Gelles, 2007) in which religiosity was found to be consistently associated with reduced risk behaviours. In Italy, however, the majority of youths adhere to Roman Catholic values, which leaves the question of effects of other religions open.

Contrary to what is commonly assumed, positive orientation to school and regulatory self-efficacy did not appear to be protective factors. This finding is not consistent with findings from previous studies that have indicated that young people with a strong sense of regulatory self-efficacy are better equipped to cope with the transitional stressors of adolescence and to resist peer pressure to engage in risky or antisocial conduct (Bandura, 1997; Caprara, Barbaranelli, Pastorelli, & Cervone, 2004). It is likely that when one considers several intercorrelated predictors, as was done in our study, the odds that significant effects are found for any of those predictors decrease due to the covariance they share with each other and with the dependent variable.

Of greater interest, theoretically, are the findings about interaction effects and post-hoc probing of these interaction effects that heighten the ability to establish moderator effects on risk and to promote changes in risk behaviours. Two factors were found to play an important role: positive orientation toward health and friends' models of conventional behaviours. A positive orientation toward health moderates the impact of deviant peers because it represents a commitment to behaviours that promote healthful outcomes and that should serve to discourage health-compromising behaviours. These two-way interactions hold for both males and females and both among younger and older adolescents: none of the three-way interactions with gender and age was significant.

A social network composed of friends who adopt conventional behaviour appears to be particularly important for moderating the impact of peers who have adopted risk behaviours. This finding is consistent with findings from other recent studies (Lösel, & Farrington, 2012; Mathys, Hyde, Shaw, & Born, 2013) and highlights the importance of a social network that comprises various individuals with a variety of behaviours and actions. A variety of alternative behavioural patterns on the one hand seems to favour more extensive testing of conventional and risk behaviours and on the other hand seems to promote the ability to critique and choose. The importance of a mixed social network, referring to risk behaviours and conventional behaviours, has been recently pointed out by Mathys et al. (2013, 2014), who experimentally tested the effects of group composition on deviant talk interaction processes among homogeneous and heterogeneous groups (mixed group condition). Results showed less antisocial talk within the mixed group. With regard to nondelinquent adolescents from the purely normative condition, it was surprising to observe no significant differences between these adolescents and those from the purely delinquent condition, with the exception of reinforcement of normative talk during the last collective session. This finding suggests that mixed networks are not only better than a deviant peer network, but are better than any other type of network, including a network with only well-adapted peers. Results from our study seem to confirm these previous results in a more ecological context and are consistent with other findings that pointed out that new friendships and changes in friendship networks might provide opportunities and stimuli for behavioural change (Poulin, Kiesner, Pedersen, & Dishion, 2011), and these changes are more likely to occur during school transitions.

In conclusion, the main results of this study, in continuity with Jessor's works (Jessor et al., 2003; Jessor, & Turbin, 2014), indicate that (a) the impact of the model of deviant peers is stronger for 15- to 16-year-old adolescents than for younger adolescents, (b) religiosity is an important protective factor against risk behaviours in middle adolescence, and (c) health and healthy living and having friends involved in conventional behaviours promote opposition to risky behaviours in the presence of deviant peers, even after controlling for prior levels of risk behaviour. A substantial account of the variation in individual risk behaviours was provided by these protective factors.

Limitations, strengths, and implications

Shortcomings in our study limit the inferences that can be drawn and may constrain applicability of the findings. First, it is relevant to acknowledge that other factors, both individual (e.g., beliefs and norms, susceptibility to externalizing behaviours) and contextual (e.g., parental control and supervision, peer culture, leisure time spent with deviant peers, involvement in school) could have played a main protective role or a moderating role. Second, the fact that only self-report measures were used is a strength because evaluation of subjective "perception" is preferable to other, apparently more objective measures, such as direct observation or assessment by parents, peers, and teachers, because perceived environment has a greater influence on the behaviour of adolescents (Aunola, Stattin, & Nurmi, 2000). On the other hand, objective measures are needed to guide future interventions designed to target external factors that influence adolescents' risk behaviours. In particular, the independent variables related to friends' risk and conventional behaviours represent the perceived deviant and conventional behaviour of adolescents' friends. This approach does not negate the concern that peers are known to report that their friends' behaviour is more similar to their own than it is in reality, thereby resulting in an inflated estimate of the relationship between deviant peers and adolescent behaviours (Otten, Engels, & Prinstein, 2009).

Despite its limitations, the study also has several strengths. First, it was conducted in the understudied Italian context. It was also based on a solid theory, and it had a longitudinal design. In addition, although the extant literature suggests that association with deviant peers contributes to the persistence and exacerbation of adolescents' problem behaviours, few studies, especially in the Italian context, have investigated processes through which this relation develops and changes.

With respect to possible implications of this study, in Italy the increasing precociousness of various risk behaviours, especially substance use, suggests the importance of early prevention. However, results from our study suggest that middle adolescence is a period during which preventive interventions based on individual and on social factors should continue to be available. In addition, recognizing that adolescence is a time when individuals become more autonomous, more open to reflection about the future and about their values, and at the same time more oriented to the peer group and its influences, these findings might point to new components to enhance existing interventions. Study findings have potential implications for prevention and treatment interventions that can enhance individual factors, such as religiosity and positive orientation toward health, and that promote social interactions among mixed groups. In fact, growing evidence suggests these factors may moderate the links between deviant peer affiliations and one's own problem behaviours. Transitions in friendships, which in Italy are often tied to school transitions, could be viewed as salient opportunities to change individual behaviours. These changes could be encouraged and promoted, for example, by offering a variety of structured activities (such as expressive ones or playing games and sports) and contexts equipped and freely usable during which the adolescent may spend time in a constructive manner, expand the circle of companions and friends, and interact with others who exhibit various patterns of behaviour.

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