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The role of family factors and self-regulation: Problem behavior in Georgian adolescents

El papel de los factores familiares y la autorregulación: problemas de comportamiento en adolescentes de Georgia

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Abstract
The aim of this study is to assess the psychosocial factors of adolescents' problem behavior. Within this research, the relationships among family structure, parental modeling, parental monitoring, and adolescents' self-regulation were assessed. Data were collected by self-report questionnaires. The sample consisted of 150 participants aged 14 to 17. Sixty adolescents were in conflict with the law, and the other 90 adolescents who did not have such a contact with the legal system. Results show that more adolescents in conflict with the law live in single-parent families than their peers who do not have a similar experience. At the same time, adolescents living with single parents have a higher mean score of problem behavior and a lower mean score of parental monitoring. Correlational and regression analyses revealed that parents' problem behavior models and parental monitoring are statistically significant predictors of adolescents' problem behavior. In the present study, self-regulation was revealed to be a significant correlate of adolescents' problem behavior, and that family factors mediate the relationship between self-regulation and problem behavior. Results also confirm the importance of an approach for the prevention of deviant behavior focused primarily on family supporting measures.

Keywords: adolescence, problem behavior, juvenile delinquency, self-regulation, parental modeling

Resumen
El objetivo de este estudio es evaluar los factores psicosociales del comportamiento problemático de los adolescentes. Dentro de esta investigación, se evaluaron las relaciones entre la estructura familiar, el modelado

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parental, el monitoreo parental y la autorregulación de los adolescentes. Los datos se recopilaron mediante cuestionarios de autoinforme. La muestra consistió en 150 participantes de 14 a 17 años. Sesenta adolescentes estaban en conflicto con la ley, y los otros 90 adolescentes que no tenían ese contacto con el sistema legal. Los resultados muestran que más adolescentes en conflicto con la ley viven más a menudo en familias monoparentales que sus pares que no tienen una experiencia similar. Al mismo tiempo, los adolescentes que viven con padres solteros de promedio puntúan más alto de conducta problemática y más bajo de monitoreo parental. Los análisis de correlación y regresión revelaron que los modelos de comportamiento problemático de los padres y el monitoreo parental son predictores estadísticamente significativos del comportamiento problemático de los adolescentes. En el presente estudio, se reveló que la autorregulación es un correlato significativo del comportamiento problemático de los adolescentes, y que los factores familiares median en la relación entre autorregulación y el comportamiento problemático. Los resultados también confirman la importancia de un enfoque para la prevención del comportamiento desviado centrado principalmente en las medidas de apoyo familiar.

Palabras clave: adolescencia, conductas problema, delincuencia juvenil, autorregulación, modelado paterno

Adolescence is one of the most sensitive phases of human development in terms of behavioral problems. Dramatic changes in all areas of development increase the risk for problem behavior, including delinquency, drug abuse, and early sexual intercourse (Jessor, Turbin & Costa, 2010; Moffit, 2018). Problem behavior involves a wide range of adolescents' externalized behaviors and refers to deviation from formal and informal social norms (Jessor, 2016, p.6). One of the forms of problem behavior is delinquency, which implies an illegal act committed by a person who has not yet reached the age of adulthood according to the legislation of a particular country (Bartol & Bartol, 2014. p.140. According to Agnew (2003), adolescents are at risk for problem behavior and delinquency. Adolescents' increased vulnerability to problem behavior constitutes an important challenge for researchers and policy makers in terms of elaborating effective prevention and intervention programs. In order to handle this challenge, it is important to study the multi-system and culturally relevant factors of adolescent problem behavior, which are the main foci of the present study.

Since family is the first source of an individual's socialization (Bandura, 1991a), it holds a special importance in relation to problem behavior. Family variables associated with problem behavior primarily focus on parental modeling and child rearing practices. Parents' conventional behavioral models are one of the most important protective factors against adolescents' problem behavior (Turbin et al., 2006), In contrast, antisocial behavioral models in the family are related to an increased probability of adolescents' problem behavior (Turbin et al., 2006; Farrington, 2010). A particularly important factor is parental monitoring, which includes awareness of the child's activities, interest in them, and the degree of attention (Farrington, 2010). Parental monitoring is one of the most statistically significant predictors of problem behavior, compared with other methodological constructs of child rearing practices (Smith & Stren, 1997; Farington & Loeber, 1999). Family structure—nuclear (parents and children), extended (parents, children, and other family members), or single parent—is also associated with adolescents' problem behavior (Garfield, 2009). It is considered that parents' resources for monitoring adolescents' behavior is limited in extended and single parent families and this factor affects adolescents' problem behavior (Farrington, 2010). Parents' education and qualifications are also related to adolescents' problem behavior. In their research, Trudeau, Mason, Randall, Spoth and Ralston, (2012) indicated that the probability of problem behavior in children who are involved in an antisocial peer group increases when the educational degree and job qualification level of their parents are low.

Parental modeling and monitoring are related to adolescents' problem behavior, but it should be noted that environmental factors do not affect everyone equally, which is why it is important to study individual-level

variables. Environmental influences could be mediated by the social perspective of an individual (Espinosa, & Clemente, 2013). According to social cognitive learning theory (Bandura, 1989), a self-directed, self-reflective, and self-reactive individual, with the help of cognitive processes, not only reacts to environmental influences, but also acts anticipatorily, modifies external factors, sets goals, and chooses and manages a course of behavior. To operationalize the meaning of self-directedness, Bandura refers to self-regulation. In social learning theory, self-regulation is a mediating variable that forms the basis of deliberate behavior. Ability to form a perspective of the future, which involves predicting outcome expectancy, planning, monitoring, and directing the course of behavior, has core meaning for self-regulation (Bandura, 1991b; Caprara, et al. 1998).

Self-regulation is the ability to inhibit an emerging tendency toward antisocial behavior and delay gratification. In contrast, inability to consider negative behavioral outcomes and tendency to achieve short-term gratification are major risk factors for problem behavior in Self-Control Theory (Gottfredson & Hirschi, 1990). According to self-control theory, adolescents with low self-control are characterized by impulsiveness, risk-taking behavior and a low level of achievement motivation (Grasmick, Tittle, Bursik & Arnekley 1993). The authors of this theory claim that parents play a central role in the development of children's self-control. Parents help children develop self-control by forming healthy emotional attachments and consistent discipline (Gottfredson & Hirschi, 1990).

The quality of self-control changes with human development (Moilanen, Fitzpatrick & Shaw, 2009; Steinberg, 2009). According to the model of maturity of judgment by Cauffman & Steinberg (2001), adolescents have a deficiency of behavioral inhibition, future perspective consideration, and awareness of personal responsibility, but this deficiency is eliminated with age. Developmental features of self-regulation are related to the prevalence of problem behavior. From adolescence to emerging adulthood, the frequency of problem behavior decreases (Moilanen et al., 2009; Piquero, Farrington, & Blumstein, 2007; Steinberg, 2009).

The main goal of this research is to study the psychosocial factors of adolescents' problem behavior. Research tasks focus on identifying the relationship between parental modeling and adolescents' problem behavior. As people behave differently in the same environment, it is important to evaluate the individual-level factors of behavior. In relation to adolescents' problem behavior, self-regulation is considered a mediating variable between environmental factors and behavior. The research hypotheses are the following:

1. Parents' problem behavioral models are positively related to problem behavior.
2. Parental monitoring is negatively related to problem behavior.
3. Adolescents' self-regulation is negatively related to problem behavior.
4. Self-regulation effect on behavior is mediated by environmental factors (parental modeling and monitoring).

The present research has a correlational design. Self-reported questionnaires were used for data collection. The research is divided into two parts. At the first step, pilot research was conducted to adapt the research instruments into the Georgian language. After the psychometric characteristics of the measurements were assessed, major fieldwork was conducted in order to examine the research hypothesis.

Method

Participants

The total sample consists of 150 adolescents from 14 to 17 years old (M = 15.5; SD = 1.14). The research sample contains two groups of adolescents. The first group includes 60 adolescents from the Probation Agency and Center of Crime Prevention who were in conflict with the law, and the second group includes 90 adolescents from Tbilisi public schools who did not have experience of being in conflict with the law. The main criteria for defining the lower age limit of the sample is the minimum age of criminal responsibility determined by the Juvenile Justice Code of Georgia. 63.3% of participants are male and 36.7%—female. The problem remaining homogeneity of groups by sex is related to the statistics on children in conflict with the law. According to the National Center of

Crime Prevention (2018), 87.4% of children who are in conflict with the law are male so our sample is more evenly divided by sex than the corresponding population.

Instruments

Parental modeling and monitoring and adolescents' problem behavior was measured using the Adolescents' Health and Development Questionnaire (AHDQ, Jessor, Costa & Turbin, 2002). The inventory is based on Problem Behavior Theory and includes major components of problem behavior and adolescents' perceptions of parental modeling and monitoring. Parental variables are measured on a 4-point scale (from 1=absolutely agree to 4=absolutely disagree) and include parents' conventional behavioral models (Does either of your parents go to church or religious services regularly?"); problem behavioral models ("Do your parents smoke cigarettes?"); parental monitoring ("Do your parents make sure they know who you're spending your time with?"). Jessor et al. (2003) provided Cronbach alphas for these subscales in Chinese and USA samples: For parents' conventional behavioral models alphas were .57 (Chinese) and .58 (USA); for problem behavioral models alphas were .77 (Chinese) and .76 (USA) and for parental monitoring alphas were .73 (Chinese) and .78 (USA). Adolescents' problem behavior was measured on a 5-point scale according to frequency and include two subscales: Delinquency, including theft, vandalism, physical aggression and Substance abuse, including cigarettes and marijuana. A sample item is: "During the past six month how often gave you stayed out all night without permission?" and Cronbach's alphas in Jessor et al. (2003) study range from .64 in China to .69 in the USA.

Adolescents' Self-Regulation Inventory (ASRI, Moilanen, 2007) was used to evaluate the quality of self-regulation among adolescents. This inventory assesses five components (monitoring, maintenance, activation, adaptation and restraint) of short-term ("I forget about whatever else I need to do when I'm doing something really fun") and long-term self-regulation (I can find a way to stick with my plans and goals, even when it's tough") in four areas of functioning (emotions, behavior, attention, and cognition). The short version of the inventory includes 27 items, which are measured on a 5-point scale (1=absolutely incorrect for me; 5=absolutely correct for me). Cronbach's alphas for these scales are .70 (short-term) and .82 (long-term).

Procedure

Prior to the main fieldwork, the research instruments were adapted into the Georgian language, for which translation and back translation procedure and pilot study was conducted to determine the psychometric properties of the instruments. Forty adolescents from the Probation Agency and Tbilisi public schools participated in the pilot study.

Formal consent for conducting fieldwork was obtained from the authorities of the public schools, the Probation Agency, and the Center for Crime Prevention. Written and oral consent for participation in the research was obtained from the minors' guardians, as well as from the adolescents themselves. The questionnaire was administered in small groups of 8-10 adolescents. Prior to working on the questionnaire, adolescents were provided with standardized instructions about their rights regarding participation and the working process of the questionnaire.

Data analysis

Before the main data analysis, Cronbach's alpha was calculated for all the questionnaires. The data analysis strategy consisted of two steps. In the first step, groups of adolescents were divided by experience of deviant behavior (adolescents who are in conflict with the law and adolescents who do not have a similar experience); family structure and parents' job qualifications were compared according to the main variables of the research. Chi-square test of independence, t-test and ANOVA were used for this purpose. At the second step, the relationships among problem behavior, perceived social environment variables (parental modeling and

monitoring), and self-regulation were evaluated with the help of correlational, regression and mediation analysis. SPSS 21 and AMOS 24 were used for data analysis.

Results

Reliability analysis

For most instruments, Cronbach's alpha coefficient is greater than .70, which is considered to be a high reliability index for self-reported questionnaires. Only for Scale of parents' problem behavior modeling, reliability index is .51, though this can be explained given the number of items (the scale consists of 6 items), Means, standard deviations and reliability coefficients (Cronbach's alpha) for the scales are reported in Table 1.

Table 1

Means, standard deviations and reliability coefficients (Cronbach's α) of the measures (N = 40)

	Item	α	*M*	*SD*
Parents' Conventional behavior models	11	.79	29.7	4.2
Parents' problem behavior models	6	.51	10.3	3.0
Parental control	13	.81	35.9	5.4
Self-regulation	27	.82	91.4	14.1
Problem behavior index	26	.89	43.7	14.1
Delinquency	10	.83	19.2	6.8
Substance abuse	16	.86	24.5	9.2

Descriptive and correlational analysis

At the first step of data analysis, the two groups of adolescents divided by experience with deviant behavior were compared by the mean scores of demographics, perceived social environment variables, self-regulation, and problem behavior. The analysis revealed a statistically significant difference between the groups according to experience of problems in school ($\chi^2(4, n = 150) = 27.55$ $p < .001$, *Cramer'sV* = .43).

Children in conflict with the law, reported higher levels of violation of school rules and expulsion (57%), than children without experience being in conflict with the law (16%). These two groups are also different from one another according to the mean score of academic achievement ($t(148) = -2.7$ $p < .01$ *two-tailed*). Academic achievement of adolescents in conflict with the law ($M = 7.4$, $SD = 1.12$) is lower than in the second group of adolescents ($M = 8.08$, $SD = 1.63$). There was also a statistically significant difference between the groups according to the frequency distribution of family structures ($\chi^2(3, n = 150) = 11.9$ $p < .01$ *Cramer'sV* = .282), namely, the number of single parent families was higher in the group of adolescents in conflict with the law (45%), than in the group of adolescents with no similar experience (27.8%). The first group of adolescents are not statistically significantly different from the second group in terms of parent's job qualifications, perceived social environment variables, self-regulation, or problem behavior.

In order to evaluate dynamics of changes with age, correlations for age and academic achievement, problem behavior, self-regulation, problem behavior modeling and parental monitoring were calculated. Results showed that age was not significantly correlated with grades or self-regulation, but it showed a significant positive correlation with problem behavior ($r = .25$, $p < .01$) and problem behavior modeling ($r = .32$, $p < .01$) and a significant negative correlation with parental control ($r = -.28$, $p < .01$)

The role of family structure was also evaluated in relation to the above variables. Four family structures were considered: single parent, nuclear family, extended family and foster family. We only found differences regarding family structure for adolescents' problem behavior ($F(3,146) = 4.27$ $p < .01$). Post-hoc comparisons using Bonferroni's confidence levels revealed significant differences ($p < .05$) between single-parent families ($M = 47.34$, $SD = 16.17$) and nuclear families ($M = 40.06$, $SD = 10.87$).

Parents' job qualifications are another variable linked to academic achievement, parental modeling, and monitoring. Job qualifications were divided into four ascending categories. The analysis revealed that fathers' job qualifications are not statistically significantly related to the above-mentioned variables, however, mothers' job

qualifications are related to adolescents' academic achievement ($F(3,94) = 3.02$ $p < .05$) and parental monitoring ($F(3,94) = 3.70p < .05$). Post-hoc comparisons at the Bonferroni's confidence level revealed that the mean score of academic achievement of adolescents whose mothers have the highest job qualifications ($M = 8.35$, $SD = 1.09$) is significantly higher ($p < .05$) than the academic achievements of adolescents whose mothers have lower job qualifications ($M = 7.39$, $SD = 1.59$), although the average rate of parental monitoring is higher in adolescents whose mothers have lower job qualifications ($M = 38.00$, $SD = 3.04$ *vs.* $M = 34.41$, $SD = 5.58$; $p < .05$).

We also explored the relationships between social environmental, cognitive and behavioral variables in the study. Social environmental variables include parents' conventional and problem behavioral modeling and parental monitoring. Table 2 shows the zero-order correlations the variables evaluated.

Table 2

Correlation among social environmental variables, self-regulation and adolescents' problem behavior

	Parents' problem behavior models	Parental control	Self-regulation	Problem behavior index	Delinquency	Substance abuse
Parents' conventional behavior models	-.42**	.24**	.35**	-.26**	-.19*	-.25**
Parents' problem behavior models		-.40**	-.28**	.48**	.29**	.53**
Parental control			.19**	-.45**	-.35**	-.42**
Self-regulation				-.22**	-.14	-.23**
Problem behavior index					.83**	.91**
Delinquency						.52**

*$p < .05$; **$p < .01$

Mediation analysis

A mediation analysis was conducted to examine the role of Family variables in the relationship between Self-Regulation and problem behavior. For this purpose we carried out a SEM analysis with 1000 bootstrap samples at the 95% confidence interval. We created a latent variable for self-regulation based on the long and short-term regulation indexes. Self -regulation was set as a predictor of Problem behavior and parents' problem behavioral modeling and parental control were used as mediators.

Results in Figure 1 show a significant model and a full mediation effect for self-regulation, as self-regulation shows a significant total effect for problem behavior ($\beta = -.28$, $p < .01$), but a non-significant direct effect ($\beta = -.11$), indicating that mediators fully explain the effect of self-regulation on problem behavior. Short-term self-regulation had a bigger load on latent self-regulation than long term self-regulation, indicating its higher relevance overall in our summary of self-regulation. Both Parents' problem behavior modeling and parental control are significant mediators in this model, as they are significantly correlated with self-regulation and problem behavior. Family influences greatly shape this effect, and it is through them that self-regulation is a significant predictor of problem behavior.

Discussion

The aim of this study was to assess the direct and indirect relationships between adolescents' problem behavior, self-regulation, and parental modeling and control. According to their experience of deviant behavior, participants were divided into two groups: adolescents who are in conflict with the law and those who do not have a similar experience. The inclusion of adolescents with registered experience of formal deviation in the study aimed to overcome the problem of reliability caused by self-reported questionnaires. The use of self-reported questionnaires

in juvenile delinquency studies is associated with some limitations. Adolescents who are identified as being in conflict with the law are prone to reduce the seriousness and frequency of their experiences of problem behavior, while adolescents who are not in conflict with the law tend to exaggerate their experience even in cases of minor delinquent acts. This tendency makes it difficult to assess the differences between groups objectively (Siegel & Welsh, 2017). This methodological limitation was also confirmed in the present study. Specifically, the analysis revealed that adolescents in conflict with the law and those who do not have similar experience are statistically significantly different according to relatively objectively measurable characteristics (registered cases of violation of school internal regulations, academic achievement, and family structure), but differences between groups do not reach a statistically significant level when data from self-reported scales (perceived social environment variables, self-regulation level, and frequency of problem behavior) are used in analysis.

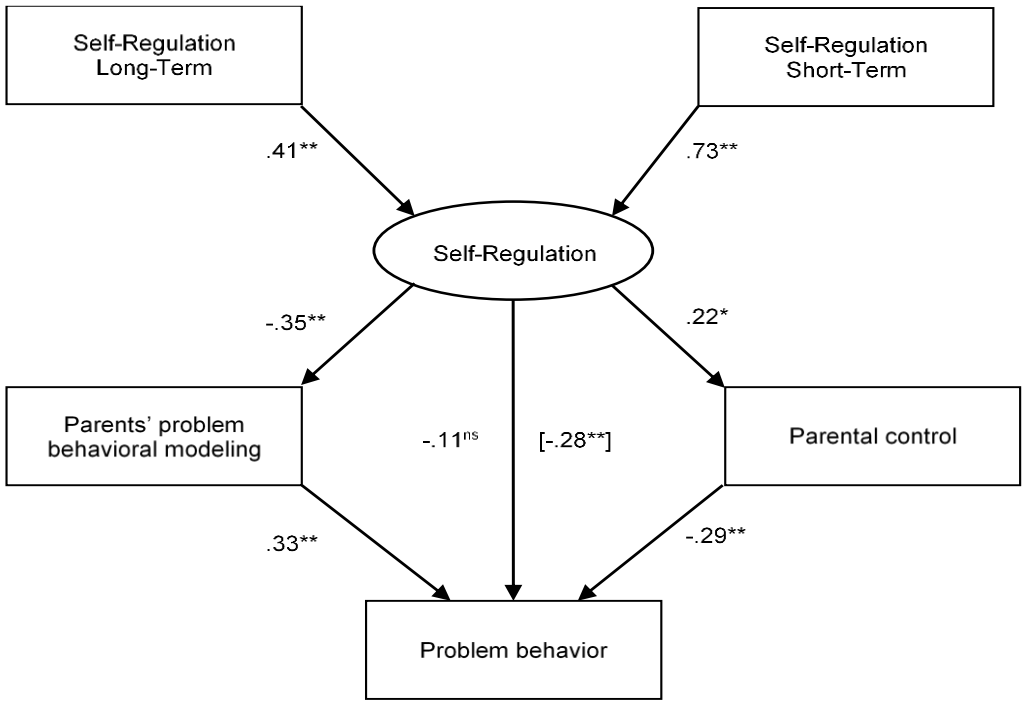

Figure 1. Mediation model for self-regulation and problem behavior

Note: $\chi^2(2, N = 150) = .24$, $p = .89$; RMSEA = .001; SRMR = .007; NFI = .998; CFI = .999; βs for standardized direct effects shown. β for total effect in brackets.
*$p < .05$; **$p < .01$

One of the most important findings of the study is associated with family-related characteristics in relation to adolescents' problem behavior. Adolescents living in single parent families have a higher mean score of problem behavior. Farrington (2010) argued that this relationship between family structure and problem behavior is explained by the lack of parental monitoring, which was also confirmed in the present study, as parental monitoring is a statistically significant predictor of problem behavior.

The data analysis also revealed that parents' level of job qualifications is positively related to adolescent academic achievement, which in turn is negatively correlated with adolescents' problem behavior. A similar link between academic achievement and problem behavior has been identified in other studies (Kremer, Flower, Huang & Vaugh, 2016). It should be noted that the relationship between parental qualifications and academic achievement

is statistically significant only as regards maternal qualifications, which may be explained by culturally defined gender roles. In Georgian society, mothers are primarily responsible for the process of raising children (Public Perception on Gender Equality in Politics and Business: Enhancing Gender Equality in Georgia, 2013).

The study provided support for our research hypotheses. Adolescents' problem behavior is positively related to parents' problem behavioral modeling, in accordance with our first hypothesis. On the other hand, conventional behavioral modeling and parental monitoring were negatively correlated to adolescents' problem behavior. Also, parental monitoring and self-regulation were significant negative predictors for adolescents' problem behavior, supporting our second and third hypothesis. Finally, family variables fully mediated the relationship between self-regulation and behavior, as we expected in our fourth hypothesis.

As for self-regulation, results provide insight on the importance of family to explain the effect of self-regulation on behavior. Self-regulation appears to be shaped by family influences over time and results suggests that self-regulation is nurtured and developed greatly in proper family contexts. According to social-cognitive learning theory, self-regulation is a kind of mechanism that provides inhibition and initiation of behavior by using internal resources, however, self-regulation does not in and of itself determine the direction of behavior—whether deviating or normative. Mental constructs (e.g. attitudes) integrated in a person during the socialization process that might be supportive or opposite for deviation, are responsible for the direction of behavior. Thus, when examining individual-level mediator variables between environment and behavior, it should be considered not only a regulation mechanism, but also the nature of mental constructs, based on which this mechanism conducts behavior.

The results of the research show that one of the major risk factors for adolescents' problem behaviors is the lack of parental monitoring that could be related to family structure where parental resources to supervise a child's behavior are limited. The results of the study confirm the importance of an approach focused primarily on family strengthening measures.

The theoretical value of the research is related to the joint assessment of the environmental and individual-level variables in explaining adolescents' problem behavior. Although self-regulation is partially related to problem behavior, it is important to evaluate adolescents' attitudes toward normative and deviant behavior in order to explain individual differences among adolescents by the rate of problem behavior. For future studies, it also important to assess environmental variables, not only on the basis of self-reported questionnaires but also through direct involvement of socialization agents in research.

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