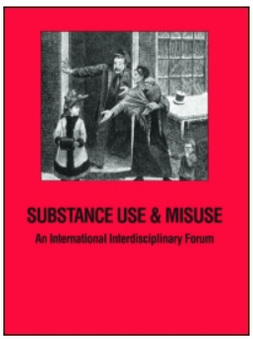

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ORIGINAL ARTICLE

Individualism-Collectivism, Social Self-Control and Adolescent Substance Use and Risky Sexual Behavior

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ABSTRACT

Individualism and collectivism are cultural syndromes that have been associated with adolescent problem behavior in studies conducted in the U.S. and Southeast Asia. However, research investigating the mechanisms of how cultural orientation impacts health risk behaviors has been limited. This study tested a new model explaining the relationship between cultural orientation (i.e., individualism, collectivism) and adolescent problem behavior (i.e., substance use and risky sex) in terms of interpersonal self-regulation (i.e., social self-control). As such, the study is rooted in theories of the role of culture in developing self-regulation. Participants were high school students ($N = 716$) from the Bashkirtostan Republic of the Russian Federation. Adolescents from the Russian Federation tend to show high prevalence of cigarette smoking and binge drinking. People of the Russian Federation in general are traditionally collectivist in orientation, although increased globalization and post-Soviet capitalism may indicate high individualist values in younger generation Russians. Using path analysis we found that in addition to having direct effects, higher individualism indirectly affected substance use and risky sexual behavior through social self-control and negative life events. Higher collectivism was found to have a direct protective effect on risky sexual behavior and a direct effect on social self-control. However, collectivism was not found to have indirect effects on substance use or risky sexual behavior. Higher individualism appears to function as a risk factor for adolescent problem behavior and this relationship may be mediated by lower social self-control. Culturally-tailored prevention programs utilizing the individualism-collectivism framework may benefit from addressing social self-control.

KEYWORDS

Social self-control; individualism; collectivism; substance use; risky sex

Introduction

Cultural orientation and adolescent problem behavior

Culture has been defined in terms of societal values (Cooper & Denner, 1998) and the collectivism-individualism framework (Triandis, 1995) has been one of the more fruitful means of understanding and operationalizing people's societal values (Johnson, 2007). Collectivism or collectivist orientation encourages self-construal as a member of a group that shares one's own norms, beliefs, and goals. Collectivism encourages group-oriented values such as sharing of resources among one's kin, sacrificing individual goals for the benefit of the group, and general interdependence. Individualism or individualist orientation does not encourage similarly strong affiliation with in-group norms, beliefs, and goals. Rather, individualism promotes attitudes that place self-interest over group-interest. In addition, individualism is associated with values of self-reliance and independence. Cultures that are described as collectivist place importance on strengthening bonds within groups such as families, castes, clans, or ethnic units whereas cultures that are termed individualist place higher importance on individual achievement and competitiveness (Hui, 1988; Triandis, 1995). Social-ecological models recognize culture as an important determinant of human development and behavior, including health-risk behaviors (Sallis, Owen, & Fisher, 2008).

In recent years, a number of studies have examined the associations between individual differences in collectivism-individualism and health risk behaviors (Du, Li, Lin, & Tam, 2014; Eskin, 2013; Le & Kato, 2006; Le & Stockdale, 2005; Foster, yeung, & Quist, 2014; Le,

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Goebert, & Wallen, 2009; Li, Wang, Wang, & Shi, 2010; Liu, Li, Lu, Liu, & Zhang, 2010; Schwartz et al., 2011). In a national sample of college students from immigrant families in the U.S., comprising mainly Hispanic, East Asian and South Asian students, Schwartz et al. (2011) found that higher collectivist orientation was generally protective against drug use and unsafe sexual behavior. Other U.S.-based studies on Asian-American adolescents also indicate that higher individualism is associated with higher substance use (Le et al., 2009), delinquency (Le & Stockdale, 2005), and risky sexual behavior (Le & Kato, 2006). Consistent with these findings, research based on youth and young adult samples from mainland China has found higher collectivist or lower individualist orientation to be associated with lower substance use (i.e., tobacco, alcohol, and other drug use; Du et al., 2014), lower levels of substance use risk factors (Liu et al., 2010), and lower levels of physical and relational aggression (Li et al., 2010). Hence, there appears to be some consensus in the current literature that higher individualist and lower collectivist tendencies expose youth to higher risk for substance use and other risky behaviors.

However, there is a lack of understanding currently as to the how collectivism-individualism affects health risk behaviors. Evidence suggests that culture is a distal determinant of behavior (Sallis et al., 2008). Knowledge of the intermediate, more proximal variables that relay the effects of cultural orientation on risky behaviors may help provide better specificity to potential interventions. It is difficult to change an individual's cultural orientation. However, identifying variables that are modifiable and that link the pathway between cultural orientation and risky behaviors will help prevention interventions target such variables. The two existing studies that examined potential mediators of the effects of individualism-collectivism on adolescent substance use (Du et al., 2014; Le et al., 2009) focused on peer substance use and sense of hopelessness as mediators. At present there is a need to develop new, theoretically-guided and integrative models of cultural orientation and adolescent problem that would take into account the role of culture in shaping intraindividual or dispositional predictors of adolescent problem behavior.

Cultural orientation, social self-control and adolescent problem behavior

Recent theoretical discussions in cross-cultural and educational psychology have linked cultural orientation with development of self-regulation among children and adolescents (Trommsdorff, 2009). Self-regulation may be defined as the ability to regulate one's thoughts, feelings, and behavior (Vohs & Baumiester, 2004). Self-regulation involves individuals' use of executive cognitive functioning abilities such as attention, working memory, inhibition control, planning, and time-perspective in order to achieve short- or long-term goals. Among youth, poor self-regulation in general is considered one of the strongest predictors of problem behavior (Pokhrel et al., 2013; Pokhrel, Herzog, Sun, Rohrbach, & Sussman, 2013).

There are several behavioral, cognitive, and emotional variables that represent the facets of self-regulation. Confirmatory analysis conducted on an array of variables related to self-regulation tends to indicate two higher order factors: good and poor self-regulation (also referred to as self-control) (Wills, Pokhrel, Morehouse, & Fenster, 2011). Variables such as impulsivity, distractibility, present orientation, affect lability and sadness and anger rumination tend to load on the poor self-regulation factor; whereas variables such as impulse control, planfulness, problem solving, future orientation, and sadness and anger control tend to load on the good self-regulation factor (Wills et al., 2011).

Good and poor self-regulation characteristics are shaped primarily during childhood through an inter-play between children's temperament and their socialization experience (Wills & Dishion, 2004). Childhood socialization fosters self-regulatory abilities such as impulse control and response inhibition (Eisenberg, Smith, & Spinard, 2004). As children interact with adults, they internalize the rules—based on instructions they have received or through observation and modeling—regarding acceptable behavior. Thus, children's social environment plays a key role in the development of their self-regulatory abilities.

Culture is an integral part of children's social environment and is likely to influence the children's development of self-regulation; especially interpersonal self-regulation, which refers to regulation of one's behavior while interacting with others. For example, parents' cultural orientation is likely to shape their parenting behavior which in turn shapes children's self-construal and their socialization experience (Kim & Choi, 2014). As they socialize, children develop a sense of their own self, their relations to others in their social environment, and learn to value both independence and interdependence, autonomy and relatedness (Trommsdorff, 2009). They internalize the rules about how to follow self-interest and to what extent; how and when to sacrifice self-interest, and how to conduct themselves with others. Socialization processes may be influenced in varying degrees by individualist and collectivist orientation prevalent in the social environment (Trommsdorff, 2009). The effect of cultural orientation on the development of interpersonal self-regulation is likely to be particularly robust because interpersonal self-regulation is important to achieve social goals

which become increasingly important as children grow older.

In past adolescent problem behavior research, interpersonal self-regulation has been operationalized as social self-control (Sussman, McCuller, & Dent, 2003). Social self-control may be defined as self-control in interpersonal interactions or social situations (Pokhrel, Sussman, & Stacy, 2014; Sussman et al., 2003). Examples of lack of social self-control include the tendency to be argumentative or disagreeable and inability to appropriately match behavior to social contexts. The poor social self-control variable is expected to load on the higher-order poor self-regulation factor in Wills et al.'s (2011) confirmatory model. Previous cross-sectional as well as prospective studies across diverse samples have consistently indicated lower social self-control to be a strong and unique predictor of adolescent substance use (Pokhrel et al., 2013; Pokhrel et al., 2014; Pokhrel, Sussman, Rohrbach, & Sun, 2007; Pokhrel, Sussman, Sun, Kniazer, & Masagutov, 2010; Sussman, Chou, & Pang, 2016). Adolescents who lack social self-control are likely to experience conflicts with peers and adults, including authority figures. Hence, like adolescents lower in generalized self-control are prone to experience higher negative life-events, such as getting suspended or expelled from school and getting into fights or arguments with friends, romantic partners, or family members (Wills, Sandy, & Yaeger, 2000). These negative life events are stressors and promote maladaptive coping through risky health behaviors such as substance use (Wills, Sandy, & Yaeger, 2002) and risky sexual behavior (Cooper, Agocha, & Sheldon, 2000).

The present study

This study sought to test a new model explaining the relationship between cultural orientation (i.e., individualism, collectivism) and adolescent problem behavior (i.e., substance use and risky sex) in terms of a process mediated by social self-control and negative life-events. The model was tested in a sample of adolescents from the Bashkortostan Republic of the Russian Federation.

Russian adolescents are at high risk for tobacco (WHO, 2015) and alcohol use, especially binge drinking (Stickley, Koyanagi, Koposov, Razvodovsky, & Ruchkin, 2013). In addition, although there is little work on risky sexual behavior, this is an area of ongoing public health concern among Russian youths (Radzinsky, Khamoshina, Askhipova, & Lichak, 2014). Individuals can be defined as "Russian" in terms of nationality and/or in terms of ethnicity. Russian nationals are citizens of the Russian Federation, regardless of ethnicity. However, ethnic Russians are an East Slavic ethnic group native to Eastern Europe. The Russian Federation is ethnically diverse, even though the Ethnic Russians (81%) (Russian Census, 2010) are the largest ethnic group in the federation. Other major groups include Tatar (3.9%), Ukranian (1.4%), Bashkir (1.1%), Chuvash (1%), Chechen (1%) and Armenian (0.9%). The Federation consists of 85 federal units. Of the federal units, 22 are "Republics." Most of these republics represent regions with ethnic non-Russians as the majority. The main ethnic groups in the Bashkortostan Repubic include ethnic Russian (36%), Bashkir (30%), and Tatar (25%) (Russian Census, 2010). Traditionally, all three of these ethnic groups have been culturally collectivist in orientation. Moreover, as subjects of the former Soviet Union, the three ethnic groups have historically experienced the same type of collectivism propagated by the Communist ideology.

Ethnic Russians' cultural collectivism can be understood in terms of Slavic cultural heritage and the Greek orthodox religion, the combination of which encourages strong family bonds (Realo & Allik, 1999), friendship (Tower, Kelly, & Richards, 1997), and spiritual rather than materialistic gains (Woldu & Guo, 1999). Bashkirs and Tatars have Turkic roots ethno-culturally. Religiously, the majority of Tatars and Bashkirs are Muslims, although some Tatars follow Orthodox Christianity. Because of their Asian cultural background and religious affiliation that encourage in-group cohesiveness, Tatars and Bashkirs tend to be collectivist in cultural orientation (Korostelina, 2007).

In the post-Soviet era, however, with Russia's entry into the free market economy and the concomitant rise of capitalism and neo-liberalism, individualism may be gaining ground across Russia, especially among younger people (Mamontov, Kozevnikova, & Radyukova, 2014; Nesvetailova, 2005). Thus the Russian context provides a unique opportunity to study the impact of individualism and collectivism. In summary, this study adds new information to the current literature on collectivism-individualism and adolescent problem behavior, specifically substance use and risky sexual behavior. The study elucidates the mechanisms by which cultural orientation influences adolescent problem behavior via social self-control and negative life-events. By doing so the study seeks to inform future health promotion interventions targeting Russian adolescents who show high prevalence of substance use or sexual behavior.

Methods

Participants

A total of $N = 716$ adolescents participated in this study. The mean age of the participants was 16.3 (SD = 1.02). Boys (48.5%) and girls (51.5%) were almost equally

represented. The sample was ethnically diverse: 42.0% self-identified as part or full ethnic Russians, 18.0% as Tatar, 16.5% as Bashkir, 16.1% as Tatar/Bashkir mixed, and 7.5% as Other. Approximately 40% of the participants came from households where at least one parent had had university level education.

Procedures

An anonymous survey was administered in 2015 among a convenience sample of 9 high schools in two cities and one village of the Bashkortostan Republic: Ufa, Sterlitamak, and Karagaevo. The 9 schools were selected as by city officials and researchers as being representative of their cities: six schools in Sterlitamak, two schools in Ufa, and one school in Karagaevo. The classes that participated in the survey were randomly selected. Response rate was 92.1%. The questionnaire was developed in English, translated into Russian and back-translated into English by two bilingual speakers. A similar method has been used in a prior school survey conducted in the Russian Federation (Pokhrel et al., 2010). All study procedures were approved by the Bashkir State Medical University Institutional Review Board.

Measures

Demographics

Age, gender, parental education, and ethnicity were assessed with single items. The ethnicity item asked, "What is your ethnic background?" For analysis purposes, ethnicity was coded as Russian and non-Russian.

Individualism-collectivism

Individualism-collectivism was measured with 20-items recommended by Wagner (1995), which originated from various previous studies (Erez & Earley, 1987; Hui, 1988; Triandis et al., 1988; Wagner & Moch, 1986). The 20-items tap attitudes in terms of social- or self-oriented values (Triandis, 1996). In Wagner's (1995) college student sample, a factor analysis of the 20 items resulted in a 5-factor solution. The same factor structure was replicated in the current sample. After reverse-coding relevant items, the Wagner (1995) study created 5 "collectivism" variables corresponding to the 5 factors, by averaging the items that loaded on the respective factors. In the current study, we have taken a different approach in creating individualism-collectivism constructs. Instead of a unidimensional individualism or collectivism variable, we created separate individualism and collectivism variables. The two-dimensional model of individualism-collectivism was expected to help find out how collectivism and individualism affected health risk behaviors through separate pathways.

Of the existing five factors, it appeared that 3 factors represented individualism and 2 factors represented collectivism. To test this empirically, we conducted a confirmatory factor analysis in which 3 indices represented by the 3 individualism factors (each index included an average score across the items within the factor) and 2 indices represented by the 2 collectivism factors were specified to load on latent individualism and collectivism factors, respectively. When estimated, this model showed a good fit to the data [$\chi^2 = 4.69$; DF = 3; p = .20; CFI = .98; RMSEA = .028, 90% CI = .01–.03)]. Thus, we went ahead and created an individualism variable by taking an average across the 13 items that loaded on the individualism factors (Cronbach's $\alpha = .84$; e.g., "Only those who depend on themselves get ahead in life"; "Winning is everything"; "A group is more productive when its members do what they want to do rather than what the group wants them to do."). The collectivism variable was created similarly by taking an average across the 7 items that loaded on the collectivism factors (Cronbach's $\alpha = .82$; e.g., "People should be made aware that if they are going to be part of a group then they are sometimes going to have to do things they don't want to"; "People in a group should realize that they sometimes are going to have to make sacrifices for the sake of the group's well-being."; "Working with a group is better than working alone").

Social self-control

The Social Self-control scale (Sussman et al., 2003) was used (8-items; Cronbach's $\alpha = .92$). The scale has been validated across variable adolescent samples in cross-sectional as well as longitudinal designs (Pokhrel et al., 2007; Pokhrel et al., 2010; Pokhrel et al., 2013; Pokhrel et al., 2014; Sussman et al., 2016). Example items include "I enjoy arguing with people," "I do things just to get attention," and "If I think something someone says is stupid, I tell them so." Each item was assessed on a 4-point scale ranging from "1: Always" to "4: Never." The 8 items were averaged to create an index of social self-control. Higher score indicated higher social self-control.

Negative life events

Negative life events were assessed in terms of past-2-year occurrence ("Yes" or "No") of potentially stressful events that may happen in an adolescent's life. A checklist of eight events was provided, which included events that may have happened directly to the adolescent (e.g., "I got disciplined or suspended from school or work,"; "I was a victim of a violent or abusive crime") or may have occurred at the family-level (e.g., "There were a lot of arguments that happened at home"; "A new person

joined the household (baby or young child, grandparent, stepbrother or sister, stepparent, other)". The check-list was a short version of the Adolescent Life Event Checklist (Newcomb & Harlow, 1986), which has been used in the past several studies (e.g., Wills et al., 2000; Wills et al., 2002) to assess adolescents' exposure to stressors. Events that were reported to have occurred were summed across the 8 items to create an index of negative life events. Because the negative life event checklist represents largely independent, discretely occurring events, internal consistency statistic (i.e., Cronbach's alpha) is not relevant for the measure [see Dohrenwend (2006) for a detailed discussion on this issue].

Substance use

Self-reported substance use was assessed in terms of past-30-day tobacco product use (i.e., cigarettes, electronic cigarettes, hookah use), past-30-day binge drinking, and lifetime marijuana and other illicit drug use. For past-30-day tobacco product use, participants were asked: "How many times have you used each of these drugs in the last month (last 30 days)?" Tobacco products were listed. Participants reported usage on a 11-point scale (0 times, 1–10 times, 11–20 times, …, Over 100 times). Binge drinking was measured based on the question: "How many days have you had 5 or more alcoholic drinks within a 5-hour period over the last 30 days?" Space was provided to fill in. Lifetime marijuana and illicit drug use were also assessed in a similar manner except that the lead-in question was tailored to lifetime usage rather than past 30 days. Because past-30-day prevalence was very low for marijuana and other illicit drug use, lifetime use was considered rather than past-30-day use. These measures of substance use have been used extensively in past research (Pokhrel et al., 2007; Pokhrel, Masagutov, Kniazev, & Sussman, 2012). For analysis purposes, a cumulative substance use index was created by adding affirmative response to any use of tobacco products in the past 30 days, any past-30-day binge drinking, any lifetime marijuana use and any lifetime other illicit drugs use (Cronbach's $\alpha = .72$). Thus, the substance use variable ranged from 0 to 4.

Risky sexual behavior

Risky sexual behavior was assessed with a standardized measure of youth risky sexual behavior (Center for Disease Control and Prevention, 2017) that includes 4 items (Cronbach's $\alpha = .84$) on number of past-year and past-month sexual partners (e.g., "During the past 12 months, with how many people have you had sexual intercourse?"), frequency of past-30-day sexual intercourse, and the use of condom during the most recent sexual intercourse. This measure is commonly used in national surveys such as the Youth Risk Behavior Survey (CDC, 2017) and has been previously validated among ethnically diverse adolescents (e.g., Black, Sun, Rohrbach, & Sussman, 2011).

Data analysis

Descriptive statistics were computed in SAS (Version 9.3). Path analyses were conducted in M*plus*, with multilevel specifications to account for the nesting of participants within schools. As hypothesized, individualism and collectivism were specified as exogenous variables together with demographic covariates: age, gender, ethnicity, and parent education. Demographic variables were included as co-variates because previous research on adolescent drug use etiology (Scheier, 2010) and problem behavior (Jessor & Jessor, 1977) shows that age, gender, ethnicity and parental education (a proxy for socio-economic status) commonly associated with both psychosocial predictor variables (e.g., social self-control, life events) as well as drug use. Social self-control and negative life events were specified as intermediate variables, as hypothesized, with social self-control preceding negative life-events in the model. Substance use and risky sexual behaviors were specified as criterion variables.

The model was tested in two steps. First, paths were specified from 1) all exogenous variables to the intermediate and criterion variables; 2) from social self-control to negative life-events and both criterion variables; and 3) from negative life events to both criterion variables. Covariances were specified between all exogenous variables and between the two criterion variables. This model was estimated, fitness of the model to the data and the path coefficients were examined. Next, the final model was estimated with only the statistically significant paths included. The fitness of the model was estimated in terms of absolute (e.g., χ^2) and relative [e.g., Comparative Fitness Index (CFI), Root Mean Square Error of Approximation (RMSEA)].

Results

Substance use and risk sexual behavior

Table 1 shows the frequencies of substance use and risky sexual behavior in the current sample. Approximately 5% of the participants reported having sexual intercourse with 2 or more partners in the past 30 days and approximately 7% reported not using a condom in the most recent sexual intercourse. Table 2 shows the zero-order correlations of substance use and risky sexual behavior with other variables examined in the study.

Table 1. Participants' substance use and risky sexual behavior characteristics ($N = 716$).

Behavior	Frequency (%)
Lifetime cigarette use	38.7%
Lifetime hookah use	34.9%
Lifetime e-cigarette use	28.6%
Past year binge drinking	12.2%
Lifetime marijuana use	4.6%
Lifetime other illicit drug use	4.8%
Past-30-day cigarette use	8.0%
Past-30-day hookah use	9.4%
Past-30-day e-cigarette use	2.2%
Past-30-day binge drinking	6.4%
Past-30-day marijuana use	0.3%
Past-30-day other illicit drug use	0.7%
Past-12-month sexual partners	
0	78.4%
1	13.6%
2 or more	8.0%
Past-30-day sexual partners	
0	82.8%
1	12.6%
2 or more	4.6%
Last sexual intercourse condom use	
Haven't had sex	77.4%
Yes	15.8%
No	6.8%

Path analyses

Figure 1 shows the final path analysis model established. The model demonstrated a good fit to the data [$\chi^2 = 12.3$, df = 11, p = .34; CFI = 0.99; TLI = .98; RMSEA = 0.033, 95% CI = 0.013–0.042)]. Statistically significant paths are presented in Figure 1 in terms of standardized path (regression) coefficients. Higher individualism was associated with a greater number of negative life events and lower social self-control and had direct paths to higher substance use and higher risky sexual behavior. Higher social self-control was associated with a fewer number of negative life events and had a direct path to lower risky sexual behavior. Negative life events were associated with both higher substance use and higher risky sexual behavior. The indirect effect of higher individualism on substance use and risky sexual behavior through social self-control and negative life events was statistically significant [Indirect effect = .003 (SE = .001), $p < .05$ for substance use; Indirect effect = .003 (SE = .001), $p < .05$ for risky sex].

Higher collectivism was found to have a direct protective effect on risky sexual behavior and a direct effect on higher social self-control but was not associated with negative life events or substance use. Female gender was protective against both substance use and risky sexual behavior. Compared with non-Russians, part or full Russians were more likely to engage in substance use and risky sexual behavior. Ethnicity and gender did not have paths to social self-control and negative life events. Russian ethnicity was associated with higher substance use and risky sexual behavior. Higher parental education was protective against both substance use and risky sexual behavior. Collectivism was not found to have a statistically significant indirect, effect on substance use or risky sex (p = .06).

Discussion

This study examined the relationships between individualism-collectivism and adolescent substance use and risky sexual behavior in a sample of adolescents from the Bashkortostan Republic in the Russian Federation. Specifically, the current study tested a theoretical model purporting to explain the mechanism of the effects of individualism-collectivism on adolescent problem behavior in terms of social self-control and negative life events.

Table 2. Zero-order correlations between key study variables ($N = 716$).

	Age	Female	Russian ethnicity	Parental education	Individualist Orientation	Collectivist Orientation	Social self-control	Negative life events	Substance use	Risky sexual behavior
Age	1									
Female	.02	1								
Russian Ethnicity	−.06	−.002	1							
Parental education	.23***	−.16***	−.04	1						
Individualist orientation	.06	−.003	−.03	.02	1					
Collectivist orientation	−.06	.05	−.05	−.13***	.12**	1				
Social self-control	−.24***	−.02	.03	−.20***	−.22***	.06	1			
Negative life events	.07	.05	.03	.06	.12**	−.03	−.12**	1		
Substance use	−.03	−.16***	.10**	−.18***	.11**	−.07	−.03	.13***	1	
Risky sexual behavior	.07	−.19***	.08*	−.01	.12**	−.06	−.11**	.16***	.18***	1

Notes. $^{*}p < .05$, $^{**}p \leq .01$, $^{***}p < .001$

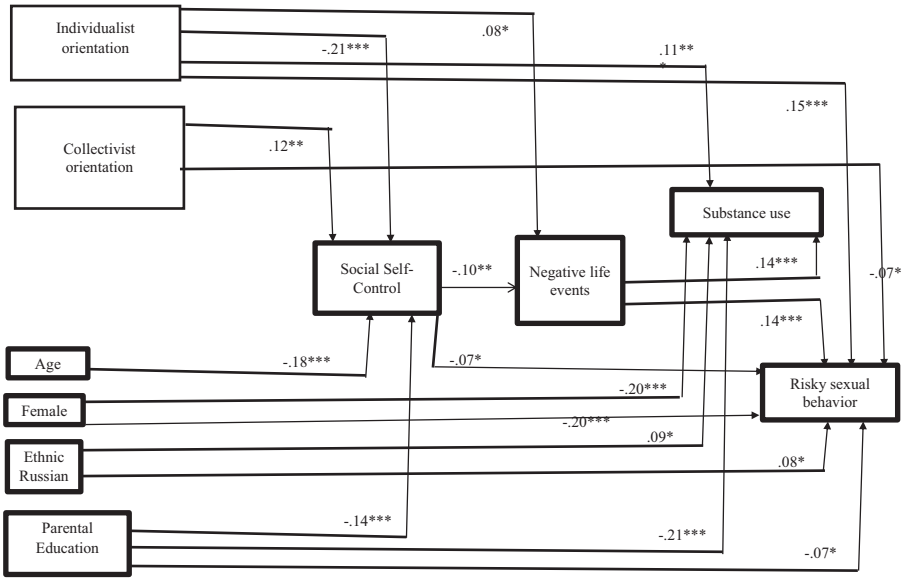

Figure 1. Path model showing the associations among demographic characteristics, individualist/collectivist orientation, social self-control, negative life events and problem behavior (i.e., substance use and risky sexual behavior) in a sample of Russian adolescents (N = 716). Single-headed arrows represent regression paths. The path coefficients presented are standardized regression coefficients. For clarity of presentation, only statistically significant ($p < 0.05$; 2-tailed) paths are shown. Co-variances were specified between all exogenous variables and between the two criterion variables but co-variance estimates are not presented for clarity. Correlation coefficients between the variables included in the model are presented in Table 3. $^{*}p < 0.05$, $^{**}p \leq 0.01$, $^{***}p \leq 0.001$.

Consistent with previous studies (Du et al., 2014, Johnson, 2007; Le et al., 2009; Schwartz et al., 2011), we found that higher individualism orientation was associated with lower substance use. Our finding that higher individualism and lower collectivism are associated with higher levels of risky sexual behavior supplements the limited evidence that exists in the area currently (e.g., Le & Kato, 2006). We did not find a direct protective effect of collectivism on substance use. The current data provided mixed support for the hypotheses concerning the mechanisms of the effects of individualism and collectivism. As hypothesized, in addition to having a direct effect, individualism had significant indirect effects on higher substance use and risky sexual behavior through lower social self-control and higher negative life-events. However, the collectivism construct did not have significant indirect effects on substance use or risky sex through social self-control and negative life events, although collectivism had a significant direct effect on social self-control. Clearly, future studies involving Russian adolescents need to replicate the present findings before anything conclusive may be said about the lack of direct or indirect effects of collectivism on substance use. Extending the argument put forth by Le and Kato (2006), one may argue that collectivism may not exert strong enough social control against adolescent substance use. Higher individualism may be a stronger risk factor of substance use than collectivism is a protective factor.

Higher individualism was strongly associated with lower social self-control, and higher collectivism was associated with higher social self-control, supporting our hypothesis that greater tendency to value one's own thoughts and feelings over the thoughts and feelings of others is likely to be associated with poorer ability to exercise interpersonal self-regulation. We also found a direct association between higher individualism and greater likelihood of experiencing negative life events. This is consistent with previous studies which have shown that higher individualism is associated with suicidal behavior (Eskin, 2013), delinquency (Le & Stockdale, 2005), and conflict-prone behavior (Forbes, Zhao, Kohlman, & LeClaire, 2011; Li et al., 2010). Higher individualism indicates values such as self-reliance, self-centrism, and competitiveness (Triandis, 1995). Excessive self-reliance may discourage help-seeking, which may in turn exacerbate a stressful life situation (Forbes, Collinsworth, Zhao, Kohlman, & LeClaire, 2011). In addition, self-centrism and competitiveness are likely to promote conflicts in interpersonal relationships leading to physical and/or relational aggression (Le & Stockdale, 2005; Li et al., 2010).

An advantage of studying mediators is that health promotion or disease prevention interventions may target such mediators where exogenous variables may not be easily modifiable. In the present case, cultural orientation may be difficult to modulate. However, a variable

such as social self-control may be altered through training. The high rates of cigarette smoking and binge drinking among adolescents in the Russian Federation are undoubtedly of concern and warrant intensive adolescent health promotion intervention research in the country. School-based substance use prevention programs have had a relatively long and successful history in the U.S. (Sussman & Ames, 2008). These programs have mostly followed curricular format to provide students with necessary motivation and skills to help them prevent, directly or indirectly, from using drugs (Sussman & Ames, 2008). International translation of health behavior interventions developed in the U.S. is a topic of ongoing discussion and research (Sussman, Baezconde-Garbanati, Unger, Wipfli, & Palinkas, 2017). The present findings have two important implications for development, including translation, of a health promotion intervention program aimed at reducing health risk behaviors among Russian adolescents. First, such an intervention may not need a heavy cultural adaptation to address the traditional collectivist orientation. Culturally tailoring programs by adapting the language and references to people, customs, lifestyle, and national symbols to the national context are fundamental to international translation (Sussman et al., 2017). However, sometimes the core content or medium of programs may be changed to culturally adapt an intervention. For example, to address collectivism parents or family members may be extensively involved. Our results suggest that such a heavy cultural adaptation may not be needed in the Russian context.

Secondly, our results suggest that self-control and social skills training or character building interventions may offset the impact of higher individualism on adolescents' substance use behavior. For example, Towards No Drug Abuse (TND), a drug abuse prevention that involves social self-control training has been found to be effective in reducing substance use among regular and alternative high school students in the U.S. (Sussman et al., 2017). Basic adaptation of a school-based prevention program such as TND to the Russian context may be relatively easily accomplished. The TND curriculum is based on the theories of motivation, skills, and decision-making (Sussman et al., 2017) and provides instructions and training to adolescents in an entertaining way. The social self-control training component of TND teaches adolescents to exercise self-control in social situations by matching behavior appropriately to the social context and by being prosocial in general.

Limitations

There are at least six limitations to this study. First, in the path analysis model examined, variables were ordered sequentially to suggest temporal relationships. However, the order of precedence was determined purely on theoretical grounds. Second, because the data were cross-sectional, some theoretically plausible bidirectional relationships, such as between substance use and negative life events, were not tested. Third, the measure of collectivism we used almost exclusively referred to group work in order to assess collectivist attitudes and did not tap the collectivism reflected in valuing family, friends, and community. Given this, it may be argued that our measure of collectivism has limitations and as a result, our findings related to collectivism may be limited. Fourth, substance use and risky sexual behavior in the current study were assessed using self-report measures, which may raise concerns about the validity of the data pertaining to those variables. Studies with U.S. adolescents have shown that self-report measures are generally a valid means of assessing substance use (Wills & Cleary, 1997) and risky sexual behavior (Orr, Fortenberry, & Blythe, 1997; Shew et al., 1997). However, similar validation study has not been conducted among adolescents from the Russian Federation. Thus, there is a possibility that participants under-reported their participation in these behaviors for reasons of social desirability, and as a result, impacted the overall results. Fifth, the model we tested did not include potential cognitive mediators of the relationship between individualism-collectivism and adolescent problem behavior. For example, outcome expectancies—beliefs that certain outcomes will be achieved by engaging in a behavior—would have been a pertinent cognitive variable for inclusion (Stacy, Newcomb, & Bentler, 1991; Stacy, Widaman, & Marlatt, 1990). Lastly, the current sample was a convenience sample, recruited from a single state of the Russian Federation: Bashkortostan. Hence, the current results may not generalize to the entire Federation.

Future directions

Additional research is needed regarding the operationalization of the individualism and collectivism constructs. Individualism and collectivism constructs in the present study, like in other studies that assessed the two dimensions separately (Li et al., 2010), showed low but statistically significant positive correlation. Given the nature of the constructs, individualism and collectivism latent factors would be expected to correlate negatively. Thus, more formative as well as psychometric studies are needed to refine the operationalization of these constructs. This study made progress in the two-dimensional study of individualism and collectivism. Treating individualism and collectivism as two ends of the same continuum may not be effective in disentangling the mechanisms of the effects of individualism-collectivism on attitudes

and behavior. Individualism and collectivism may not be treated as mutually exclusive. As suggested by the evolutionary research on altruism and selfishness (e.g., Sibly & Curnow, 2011), co-existence of the two orientations seem theoretically plausible.

Conclusion

This study made several new and significant contributions to the literature. First, we showed in a sample of adolescents from the Bashkortostan Republic of the Russian Federation that individualism-collectivism constructs are relevant predictors of adolescent problem behavior in this previously unstudied cultural context. Most studies on individualism-collectivism and adolescent problem behavior have been conducted in the U.S. and the Southeast Asia. Individualism-collectivism is a widely-used, guiding paradigm in cross-cultural research. Our findings suggest that individualism-collectivism constructs are generalizable to Russian context. In addition, the potential adaptation of adolescent health promotion programs developed in the U.S. to the Russian context may not need to stress the traditional collectivist orientation of the cultures represented in the Russia.

This study is also one of the first to study the mechanisms of the effects of individualism and collectivism on adolescent substance use and risky sexual behavior in some detail. Our findings indicate that higher individualism affects higher substance use and risky behavior sexual behavior directly and indirectly through poorer social self-control and higher exposure to negative life events. These findings point to the need of targeting alterable variables such as social self-control in adolescent health promotion programs. Finally, this research has important methodological implications. Continuing refinement of the individualism and collectivism constructs by additional research in similar populations will help. In addition, our research suggests that conceptualizing and operationalizing individualism and collectivism as two separate constructs can help elucidate the intricacies of the mechanisms of the effects of individualism-collectivism on adolescent problem behavior.

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