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The role of identity and psychosomatic symptoms as mediating the relationship between discrimination and risk behaviors among first and second generation immigrant adolescents

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ABSTRACT

The study examines psychosomatic symptoms, and host and heritage identities as mediators of the relationship between discrimination and aggressive behavior and substance use. Israeli data from the 2013–14 Health Behaviors of School-aged Children study included a representative sample of 1503 first- and second-generation immigrant adolescents aged 11–17 years (45.2% male) from the Former Soviet Union and Ethiopia in Israel. Structural equation modeling, controlling for age, gender, family affluence and immigrant generation, showed different pathways for the two groups. For FSU-heritage adolescents, the relationship between discrimination and aggressive behavior and substance use was partially mediated by psychosomatic symptoms. Lower host and heritage identities also predicted psychosomatic symptoms. For Ethiopian-heritage adolescents, the relationship between discrimination and outcomes was fully mediated by psychosomatic symptoms and a weaker host identity. Results support an externalizing model, whereby discrimination leads to a weaker host identity and increased psychosomatic symptoms, associated with substance use and aggressive behavior.

1. Introduction

The current study examines predictors of substance use (alcohol and cigarette) and aggressive behavior (physical fighting and bullying), two of the leading areas of public health concern for adolescents. Adolescent involvement in aggressive behavior has been flagged as a global public health concern by the World Health Organization,¹ as the fourth leading cause of mortality for young people aged 10–29. Exposure to, and involvement in, violence in childhood and adolescence can have a serious, often lifelong impact on a young person's physical, psychological and social functioning (Krug, Mercy, Dahlberg, & Zwi, 2002). Alcohol use in adolescence is considered a matter of public health concern due to its interrelation to additional risk behaviors, the tendency for alcohol use to persist into adulthood and the impact it can have on the adolescent brain and health in general (Marshall, 2014). Alcohol use is the leading cause for cause-specific disability-adjusted life years (DALYs) for young people aged 10–24 years (Gore et al., 2011). Lastly, while levels of cigarette smoking have been steadily declining in some countries (Johnston, O'Malley, Bachman, Schulenberg, &

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¹ <http://www.who.int/mediacentre/factsheets/fs356/en/>.

Miech, 2016), the short and long term health effects for young people are widely recognized.²

Recent internationally comparative research across Europe (Stevens et al., 2015) shows adolescent immigrants, both first generation (those born abroad) and second generation (born in the country of residence to immigrant parents) to report lower levels of psychological well-being and higher levels of involvement in risk behaviors such as physical fighting and bullying (Walsh et al., 2015) and substance use (Chedebois et al., 2009; Vazsonyi, Trejos-Castillo, & Huang, 2006) than their non-immigrant peers. While some research, especially in the U.S., reveals an “immigrant paradox” (Garcia-Coll & Marks, 2011) where first generation immigrant adolescents display positive adaptation (Bacio, Mays, & Lau, 2013), research in Europe continues to reveal adolescent immigrants at elevated risk for emotional and behavioral difficulties. Recent studies in Israel show immigrant adolescents to report higher levels of drunkenness and binge drinking than their non-immigrant counterparts (Walsh, Djalovski, Boniel-Nissim, & Harel-Fisch, 2014).

Among predictors of risk among immigrant adolescents, levels of perceived discrimination have received wide spread empirical support. Yet despite the growing body of research, little research has explored the mechanisms underlying the discrimination-risk relationship, i.e. what is it about discrimination which leads to greater risk for immigrant adolescents? Based on an “externalizing” or “acting out” model (Overbeek, Vollebergh, Engels, & Meeus, 2005) and Developmental Ethnic Identity theory (Phinney, 1990), we explore a model in which psychosomatic symptoms and host/heritage identities act as potential mediators of the relationship between perceived discrimination and aggressive behavior (physical fighting/bullying) and substance (alcohol/cigarette) use among a representative sample of Former Soviet Union-heritage (FSU-heritage) and Ethiopian-heritage adolescents in Israel.

1.1. Perceived discrimination and immigrant adolescent well-being and risk behaviors

Perceived discrimination has been consistently shown to predict lower levels of adaptation and well-being among immigrant and minority adolescents (Berry & Sabatier, 2010; Motti-Stefanidi, Berry, Chrysochoou, Sam, & Phinney, 2012; Noh & Kaspar, 2003; Sabatier & Berry, 2008). Perceived discrimination has been found to be related to lower psychological well-being (Davis et al., 2016; Jasinskaja-Lahti, Liebkind, & Perhoniemi, 2006) and school performance (English, Lambert, & Jalongo, 2016; Helms, 2003) and higher levels of violent behavior (Williams, Ayer, Durkee, & Tolan, 2014). Perceived discrimination has also been shown to be a significant predictor of the severity of alcohol use (Cano et al., 2015) and increased drunkenness over time (Schwartz et al., 2015). In addition, a recent study on trajectories of discrimination and their relationship to substance use, found that the group with high and stable experiences of discrimination showed the highest levels of both last month alcohol and cigarette use (Unger, Soto, & Baezconde-Garbanati, 2016). However, despite recent research, the impact of discrimination on adolescent well-being is still understudied (Davis et al., 2016).

1.2. Explaining the mechanism behind perceived discrimination: an externalization model

The relationship between discrimination and negative health outcomes has been explained by a Minority Stress Model (Meyer, 2003; Pascoe & Smart Richman, 2009) in which high levels of stress caused by factors including low socio-economic status, poor social support, prejudice and discrimination lead to stress responses that accrue over time and eventually lead to poor mental and physical health. Discriminatory behaviors may be internalized and convey to the immigrant young person that the host society does not accept them and that their opportunities for success and achievement are limited (Motti-Stefanidi et al., 2012). This can increase feelings of rejection, helplessness and despair and impact negatively on well-being (Jasinskaja-Lahti et al., 2006). A negative cycle can ensue, whereby feelings of rejection cause, in turn, hostility toward the host society, a move toward the heritage identity (Branscombe, Schmitt, & Harvey, 1999) and increased feelings of separation (Liebkind, Jasinskaja-Lahti, & Mahonen, 2012).

Despite the growing body of research on the relationship between discrimination, wellbeing and substance use, the actual mechanism or process of effect has not really been untangled. In line with theories of discrimination above (Jasinskaja-Lahti et al., 2006; Motti-Stefanidi et al., 2012), we suggest that experiences of discrimination are internalized into negative emotions. In line with an “acting out” or externalizing model (Overbeek et al., 2005), we would like to suggest that externalizing behaviors, such as physical fighting, bullying and substance use are means for the young person to externalize these negative feelings. An “acting out” model has received empirical support in research in which emotional disturbance mediated the relationship between negative life events and delinquency among adolescents in the Netherlands (Overbeek et al., 2005), yet has not been examined in the context of substance use and aggressive behavior as a response to perceived discrimination. An externalizing model is in line with internationally comparative research among representative samples of adolescents that has shown the relationship between psychological well-being and involvement in physical fighting (Walsh et al., 2013) and bullying (Due et al., 2005).

It is also important to note that among the wide number of biological, sociological and psychological factors which may explain cigarette (Jarvis, 2004; Simantov, Schoen, & Klein, 2000) and alcohol (mis)use [for a comprehensive review see (Sher, Martinez, & Littlefield, 2014)], the role of alcohol use as a means to regulate emotions has been suggested by a Motivational Model of alcohol use (Cooper, Frone, Russell, & Mudar, 1995). In this model, the desire to regulate one's affective experience is an important motive underlying alcohol use. In the current study, we hypothesize that it is not the discrimination per se but rather the negative emotions experienced as a result of the discrimination which are then externalized through adolescent involvement in aggressive behavior and substance (alcohol/cigarette) use.

² http://www.who.int/tobacco/research/youth/health_effects/en/.

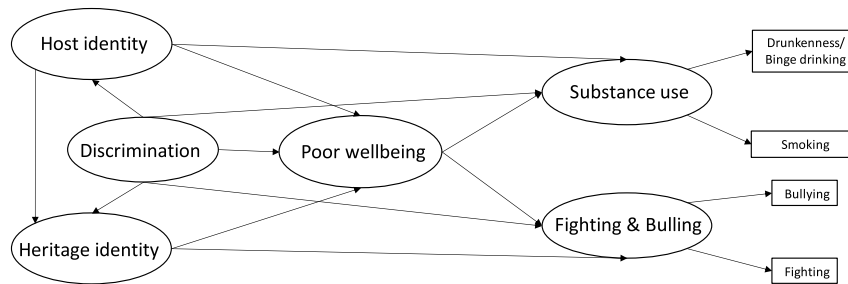


Fig. 1. The conceptual model.

1.3. Host and heritage identities: a second interrelated mediating mechanism

Research and theory on acculturative strategies (Berry, 1997, 1998) has suggested that the ability to form a multi-faceted identity which incorporates a connection to both host and heritage identities (“integration”- Berry, 1997) is linked to higher levels of mental and physical health (Berry & Kim, 1988; Phinney & Devich-Navarro, 1997; Virta, Sam, & Westin, 2004) and to both psychological and socio-cultural adjustment [for a meta-analysis of 82 studies see (Nguyen & Benet-Martinez, 2012)]. Developmental Ethnic Identity Theory (Phinney, 1990), focusing on heritage identity, suggests that what is crucial for adjustment of immigrant adolescents is not just a strong sense of ethnic belonging, but rather ethnic identity exploration and achievement, i.e. having a *positive attitude* and “attaining a clear understanding of the meaning of one’s group membership for oneself (p54)” (Phinney & Ong, 2007).

Positive host and heritage identities have been found to contribute to successful adaptation, well-being and self-esteem among immigrant and minority adolescents (Dimitrova, Chasiotis, Bender, & van de Vijver, 2014; Phinney, Horenczyk, Liebkind, & Vedder, 2001; Sabatier & Berry, 2008; Umama-Taylor & Updegraff, 2007). A meta-analysis of 184 studies examining the relationship between heritage identity and well-being among people of color in North America (Smith & Silva, 2011) highlights the strong relationship between heritage identity and self-esteem and positive well-being. However, research on the relationship between host and heritage identities and risk behaviors is more limited (Stevens, Veen, & Vollebergh, 2014). A stronger *host* identity has been found to be a protective factor for immigrant adolescents against alcohol and cannabis use in the US (Schwartz et al., 2014). A stronger Hispanic (heritage) identity (Unger, Schwartz, Huh, Soto, & Baezconde-Garbanati, 2014) and a stronger Africentric identity (Brook & Pahl, 2005; Nasim, Belgrave, Jagers, Wilson, & Owens, 2007) were found to be related to lower tobacco, alcohol and marijuana use. Yet, higher levels of heritage identity have also been found to be related to higher levels of alcohol use although this may be related to cases in which use of alcohol is higher in the culture of origin than in the receiving culture (Walsh et al., 2014). In the very scarce literature that has examined the relationship between host and heritage identity and involvement in fighting and bullying, heritage identity was found to be negatively related to both bullying victimization and perpetration (Vera et al., 2015). In a longitudinal study among adolescent immigrants in Israel, ethnic identity was negatively related to peer nominated aggression at two time points and predicted a relative decrease in future aggression (Benish-Weisman, 2016).

As suggested, perceived discrimination can lead to feelings of negativity toward the host society (Jasinskaja-Lahti et al., 2006) leading to a weaker host identity. It may also lead to higher levels of identification with the heritage culture as a counter-reaction (Branscombe et al., 1999). In the current study we suggest that a second mechanism of influence between discrimination and involvement in aggressive behaviors and substance use is through identity. Perceived discrimination may lead to lower levels of host identity and higher levels of heritage identity. It is these levels of identity which will be related to levels of psychological well-being, aggressive behavior and substance use (i.e. mediate). As such we are suggesting two inter-related mediation paths between discrimination and substance use and aggressive behavior. In the first path, discrimination leads to lower levels of psychological well-being (operationalized here as psychosomatic symptoms) which are externalized in substance use and aggressive behavior. In the second mediation path, host and heritage identities mediate the relationship between discrimination and all three outcomes (psychosomatic symptoms, substance use and aggressive behavior, see conceptual model in Fig. 1).

1.4. Immigrant adolescents in Israel

The current study takes place in Israel and examines two groups of immigrant adolescents, Ethiopian-heritage and FSU-heritage, in Israel. Statistics report 60,000 immigrant adolescents aged 12–17 from the Former Soviet Union (FSU) (35% first generation) and 17,900 Ethiopian-heritage adolescents (45% first generation) (Kahan-Strawczynski, Amiel, Levi, & Konstantinov, 2012), the two largest immigrant groups to Israel in recent years, approximately 19% of all 12–17 year olds in Israel.³ The wave of immigrants from the FSU following 1990 took place after the breakup of the FSU, in the socio-economic crisis and instability that ensued (Remennick, 1999). FSU-heritage adolescents came with high levels of education and human capital and studies have documented impressive levels of employment and integration (Amit, 2012; Remennick, 2012). Yet they have been subject to discrimination on the basis of their perceived symbolic and realistic threat (Tartakovsky & Walsh, 2016) and questioned Jewish status (Remennick, 2012). Today,

³ Figures from the Israeli Central Bureau of Statistics, http://www.cbs.gov.il/shnaton63/st02_22x.pdf.

Table 1
Gender, age group by immigrant generation and national origin.

Immigrant Generation		FSU immigrants			Ethiopian immigrants		
		First	Second	Total	First	Second	Total
Gender	Boys	45.5%	47.2%	46.9%	47.3%	37.9%	42.3%
	Girls	54.5%	52.8%	53.1%	52.7%	62.1%	57.7%
Age group	6 th grade, 8th grade	26.2%	49.4%	45.9%	53.1%	75.2%	64.8%
	10 th grade-12th grade	73.8%	50.6%	54.1%	46.9%	24.8%	35.2%
N		145	810	955	258	290	548

immigrants from the FSU make up 11% of the Jewish population (9% of the population as a whole) making them a significant minority.

For Ethiopian-heritage adolescents, who make up around 2% of the Jewish population in Israel, difficulties in integration have resulted from deep cultural differences (Kaniel, 1990; Tannenbaum, 2008), such as the transition from poor rural living to an urban society, significant illiteracy and a more patriarchal culture with religious and community leaders acting as high authority (Kurman & Ronen-Eilon, 2004), as well as racism and discrimination on the basis of skin color (Offer, 2007). Two major waves of immigration took place in 1984 and 1991, with continued immigration into the 21st century. Research shows the overall disadvantaged socio-economic status of the Ethiopian community, as well as substantial gaps in educational and occupational attainment (Offer, 2004, 2007). In 2015, waves of protest among the Israeli born (“second generation”) Ethiopian-heritage young people, following the videotaped attack on a young Ethiopian man by police, highlighted the still existing feelings of racism, disadvantage and unequal opportunities that Ethiopian-heritage young people in Israel experience today, despite their full participation in the army and the work force.

1.5. The current study

In contrast with previous studies, which have focused on relatively small samples of immigrant or minority youth, the current study examines a large representative school-based sample of FSU-heritage and Ethiopian-heritage (first and second generation) adolescents and explores a number of unanswered research questions: 1) To what extent is discrimination associated with psychosomatic symptoms, substance use and aggressive behavior among first- and second-generation immigrant adolescents? 2) To what extent do psychosomatic symptoms and identity (both host and heritage) mediate the relationship between discrimination and substance use and aggressive behavior? In light of previous findings and theoretical understandings, we hypothesized that 1) Discrimination would be positively related to psychosomatic symptoms, substance use, aggressive behavior and heritage identity and negatively related to host identity; 2) Host and heritage identities would be negatively related to psychosomatic symptoms, substance use and aggressive behavior; 3) Psychosomatic symptoms would mediate the relationship between discrimination and substance use and aggressive behavior; 4) Host and heritage identities would mediate the relationship between discrimination and psychosomatic symptoms, substance use and aggressive behavior. Due to the different characteristics of the two populations (e.g. skin color, educational level, cultural gap), differences between the two populations on study variables were examined. Yet, despite these differences, there was no theoretical reason to assume that the conceptual model would differ for the two populations.

2. Methods

This study uses Israeli data from the 2013-14 HBSC-WHO cross-national survey conducted among children aged 11–17. The HBSC is a school-based survey of adolescent health behaviors and psychosocial determinants carried out among representative samples of school aged children every 4 years, using an international standardized methodological protocol (Currie et al., 2014; Roberts et al., 2009), involving standardized procedures for sampling and translation of items (see Currie et al., 2014) for full protocol details). Although pupils at both Hebrew and Arabic speaking schools participated in the 2013–14 Israeli study, questions around immigration were only asked in the Hebrew speaking schools. The total sample size for adolescents from the Hebrew speaking schools was 11,371. The current study included the 1503 first and second generation immigrant adolescents (45.2% male) from the FSU and Ethiopia: 145 first and 810 s generation FSU-heritage adolescents, 258 first and 290 s generation Ethiopian-heritage adolescents (see Table 1 for group percentages).⁴ In order to ensure a representative sample, according to the international HBSC protocol (Currie et al., 2014) the Ministry of Education's list of schools was used. Classrooms were randomly sampled (90% class-room response) and for each sampled school an additional class was also randomly sampled. All students in sampled classrooms present were included (> 95% pupil response). The research protocol received approval from ethics committees of the Israeli Ministry of Education and Bar Ilan University.

⁴ The study focused only on these two immigrant groups as they are largest groups of immigrant adolescents in recent years to Israel. The sample included other small groups of heterogeneous immigrant groups (e.g. from the USA, South America, Morocco and Romania). Since each group was too small for SEM analysis and it did not make conceptual sense to combine them due to the large cultural differences, we focused on the two major groups.

2.1. Measures

2.1.1. Immigrant status

Adolescents were asked three separate questions as to where they and each of their parents were born: “In which country were you/your mother/your father born?” (1- Israel; 2- FSU; 3-Ethiopia; 4- An English speaking country; 5- a European country; 6- South America; 7- Other). Former research indicates that children as young as 11 years old provide valid responses to these questions (Nordahl, Krølner, Páll, Currie & Andersen, 2011). Adolescents were considered first generation immigrants, if they were born abroad and second generation immigrants if at least one of their parents was born abroad, but they themselves were born in Israel.

2.1.2. Discrimination

Discrimination was measured by 3 items developed by Phinney and colleagues (Phinney, Madden, & Santos, 1998): “How often do the following people relate to you in a way which is negative or unfair because of your background”: teachers, pupils at school, children outside of school (1- never, 2- rarely, 3-sometimes, 4- often, 5- almost always). An overall discrimination index combining all three items was created (Cronbach alpha (FSU/Ethiopian) = 0.74/.77).

2.1.3. Host and heritage identity

Host and heritage identity was measured by six items from the Abbreviated Multidimensional Acculturation Scale (Zea, Asner-Self, Birman & Buki, 2003), three parallel items each for Israeli and ethnic identity: “I see myself as Israeli/a member of my group of origin”, “I feel part of Israeli culture/culture of my group of origin”, I am proud to be Israeli/from my group of origin”. Ethnic identity measurement was preceded by the sentence, “the next questions ask about your background, your ethnic group or your country of origin (i.e. the country you or your parents come from). All identity questions were answered on a 4-point scale: 1- strongly disagree, 2- disagree, 3- agree, 4- strongly agree). Cronbach alpha for Israeli identity (FSU/Ethiopian) = 0.89/0.87 and for ethnic identity (FSU/Ethiopian) = 0.83/.90.

2.1.4. Psychosomatic symptoms

Psychosomatic symptoms were assessed by the eight item HBSC psychosomatic symptom check list (Haugland & Wold, 2001; Reading, 2002). In the check list, participants are asked how often they had experienced the following symptoms in the past six months: headache, stomach-ache, backache, feeling low, irritability or bad temper, feeling nervous, difficulties in getting to sleep and feeling dizzy. Answering categories were: ‘Rarely or never’ (1), ‘about every month’ (2), ‘about every week’ (3), ‘more than once a week’ (4) ‘About every day’ (5). The HBSC psychosomatic symptoms list has been widely used as a proxy for adolescent psychological well-being among both non-immigrant (Elgar, Gariepy, Torsheim, & Currie, 2017; Kelly, Molcho, Doyle, & Gabhainn, 2010) and immigrant (Stevens et al., 2015) populations, due to a tendency of adolescents to somaticize their emotional experience. An overall psychosomatic symptoms index combining all items was created (Cronbach alpha (FSU/Ethiopia) = 0.88/.87).

2.1.5. Substance use

1) *Drunkness*: “Have you ever had so much alcohol that you were really drunk?” (1-Never; 2-once; 3- 2–3 times; 4- 4–10 times; 5- more than 10 times); 2) *Binge drinking*: “In the past 30 days how many times have you drunk five drinks of alcohol or more within a period of a few hours?” (1- never; 2- not in the past month; 3- once; 4- twice; 5- 3 times; 6- four times or more). HBSC items on drunkness and binge drinking have been well used and found to have good predictive and criterion validity (Kuntsche et al., 2011). As in previous papers using HBSC data (Sznitman et al., 2013), for each substance use question a dichotomous variable was created in order to identify adolescents involved in problematic alcohol use (0- No/never or not in the past month 1- once or more) and due to the skewed nature of the distribution. In addition, a variable of problem-drinking was calculated (0-never either drunk or binge drinking; 1-once or more of either drunkness or binge drinking). Cronbach alpha (FSU/Ethiopian) = 0.72/.75). 3) Cigarette use was measured through: “How often do you smoke tobacco at present?” Participants answered on a 4-point scale from 1-never to 4-every day. A dichotomous variable of smoking was created by recoding (0- never and less than every day, 1- everyday). Self-report smoking measures have been found to have good reliability and validity (Rosenbaum, 2009).

2.1.6. Physical fighting and bullying

To measure physical fighting adolescents were asked: “During the past 12 months, how many times were you involved in a physical fight?” (‘never’ (1), ‘once’ (2), ‘2 times’ (3), ‘3 times’ (4), ‘4 times or more’ (5)). Frequency of fighting is a validated construct with extensive use in youth risk -behavior surveys (Walsh et al., 2013; Waxweiler, Harel, & O’Carroll, 1993). Reports of 3 or more fights during the past 12 months has been classified as frequent physical fighting (Currie, Nic Gabhainn et al., 2008) and a dichotomous variable was constructed in line with this. To measure bullying, adolescents were asked “How often have you taken part in bullying another student(s) at school in the past couple of months?” (‘I have not bullied another pupil in the past couple of months’ (1), ‘once or twice’ (2), ‘2 or 3 times a month’ (3), ‘about once a week’ (4), ‘several times a week’ (5)). These questions were preceded by a definition of bullying (Olweus, 1996) which has been well-used and validated in empirical studies in multiple countries (Due et al., 2005; Elgar, Craig, Boyce, Morgan, & Vella-Zarb, 2009). Reports of two/three or more experiences of bullying (perpetrator or victim) a month have been considered chronic bullying (Dube et al., 2009; Harel-Fisch et al., 2011).

2.1.7. Socio-demographic variables

Gender was built as a dummy variable with “girls” as the reference category. The immigrant generation (first and second) was

Table 2
Percentages of risk behaviors by country of origin.

	FSU immigrants	Ethiopian immigrants	χ^2
Alcohol use	22.2%	13.0%	19.46**
Cigarette use	13.2%	10.8%	1.90
Fighting 3 +	9.4%	13.2%	2.92
Bullying 3 +	4.7%	8.0%	6.78**

* $p < .05$, ** $p < .01$.

created as combination of respondent's country of origin with the parents' place of birth. A dummy variable was built, with "second generation" as the reference category. The Family Affluence Scale (FAS) (Currie, Molcho, Boyce, Holstein, & Torsheim, 2008) is an indicator of young people's socio-economic status, comprised of six items on material assets in the family: 'Does your family own a car, van or truck?' ('No' (0), 'Yes, one' (1) and 'Yes, two or more' (2)), 'Do you have your own bedroom?' ('No' (0) and 'Yes' (1)), 'During the past 12 months, how many times did you travel away on holiday with your family?' ('Not at all' (0), 'Once' (1), 'Twice' (2), and 'More than twice' (3)), and 'How many computers does your family own?' ('None' (0), 'One' (1), 'Two' (2), and 'More than two' (3)) How many baths/showers are there in your house (None (1), one (2), two (3) and 'more than two' (4)), "Does your family have a dishwasher at home (no (1), yes (2)). Reliabilities were $\alpha = 0.72$ for the FSU – heritage and $\alpha = 0.71$ for the Ethiopian-heritage group. Scale scores were calculated by summing up the scores of all six items.

3. Analysis

In stage one, differences between the groups (FSU- and Ethiopian-heritage adolescents, including immigrant generation) for risk behaviors (bullying, physical fighting, problem drinking and smoking) were examined through Chi-Square analysis. To examine psychosomatic symptoms, discrimination and ethnic/Israeli identity in these groups, we performed multi-group confirmatory factor analysis (CFA), using SEM (Structural Equation Modeling AMOS, Version 23, Arbuckle, 2014). Measurement invariance was not found. So, despite the similarity of variables composition between the two groups (see Cronbach alpha values, as mentioned earlier), the factor loadings of the same items had significant differences in each population. Thus, the comparison of mean differences between FSU-heritage and Ethiopian-heritage adolescents in psychosomatic symptoms, discrimination and ethnic/Israeli identity was not statistically possible.

In stage two, we examined the conceptual model (Fig. 1), also using SEM (Structural Equation Modeling AMOS, Version 23, Arbuckle, 2014). The model included latent variables for substance use and aggressive behaviors which were built from the drinking/smoking and the bullying/fighting variables respectively. Socio-demographic variables of age, sex, FAS and immigrant generation were controlled for (for every variable) but individual links were not shown for the sake of clarity. Initially, one general model was built for two immigrant populations, as statistical groups. In the preliminary multi-group SEM analysis of the model, the chi square value of the unconstrained model was 916.57 with $df = 460$ and $p < .01$. For the fully-constrained model (measurement weights + structural weights + structural residuals + measurement residuals) we found $\Delta\chi^2 = 763.57$ with $\Delta df = 71$, $p < .01$ (the nested constrains were also examined, and a significant increment of chi square was found for all steps). As such, there were substantial differences between the mechanisms of influence of the explanatory factors on the outcomes among FSU- and Ethiopian-heritage adolescents. For deeper understanding of these processes, two separate (FSU-/Ethiopian-heritage) models were examined.

4. Results

The descriptive statistics of the research variables are presented in Table 2 and Table 3. Significant differences ($\chi^2 = 19.46$, $p < .01$) were found in problem alcohol use between FSU-heritage adolescents (22.2%) and Ethiopian-heritage adolescents (13.0%) [see Table 2]. Also, bullying among Ethiopian-heritage adolescents was significantly ($\chi^2 = 6.78$, $p < .01$) higher (8.0%) than among FSU-heritage adolescents (4.7%).

The relationships between all research variables for each population group are presented in Tables 3 and 4. In line with the hypotheses, there were significant relationships between discrimination, identity, psychosomatic symptoms, substance use and aggressive behavior. In line with hypothesis 1, higher levels of perceived discrimination among FSU-heritage adolescents were related to increased substance use (smoking: $r = 0.13$, $p < .01$; alcohol use: $r = 0.12$, $p < .01$), aggressive behavior (bullying $r = 0.11$, $p < .01$; fighting: $r = 0.15$, $p < .01$) and poor wellbeing ($r = 0.09$, $p < .01$). Among Ethiopian-heritage youth there was a significant positive relationship between discrimination with smoking ($r = 0.09$, $p < .05$), alcohol use ($r = 0.18$, $p < .01$) and psychosomatic symptoms ($r = 0.17$, $p < .01$).

In line with hypothesis 2, host identity was negatively related to substance use and psychosomatic symptoms in both immigrant populations. However, aggressive behaviours (bullying and fighting) were significantly connected to host identity among Ethiopian-heritage adolescents only ($r = -0.18$, $p < .01$ for bullying and $r = -0.12$, $p < .01$ for fighting). Also partially in line with hypothesis 2, heritage identity was found to be related to some of the risk behaviours and psychosomatic symptoms. However, here, greater differences were observed between the two groups. The only indicator that was related significantly to heritage identity among the FSU-heritage adolescents (see Table 3) was psychosomatic symptoms ($r = -0.14$, $p < .01$). But in contrast, almost all

Table 3
Pearson correlations between research variables for FSU immigrants.

	Gender (Boys = 1)	Age	FAS	Generation (First = 1)	Host identity	Heritage identity	Discrimination	Alcohol use	Cigarette use	Fighting 3 +	Bullying 3 +
Gender (Boys = 1)	1										
Age	-.05	1									
FAS	.06*	-.01	1								
Generation (First = 1)	-.01	.18**	-.19**	1							
Host identity	-.12**	-.09**	.10**	-.18**	1						
Heritage identity	.04	.00	-.03	.03	.04	1					
Discrimination	.08*	-.07*	-.009**	.07*	-.18**	-.12**	1				
Alcohol use	.11**	.35**	.00	.10**	-.16**	.12**	.45**	1			
Cigarette use	.11**	.24**	.00	.09**	-.18**	.13**	.12**	.12**	1		
Fighting 3 +	.23**	-.05	-.01	-.02	-.06	.15**	.12**	.12**	.39**	1	
Bullying 3 +	.17**	.02	-.02	.03	-.02	.11**	.08**	.12**	.12**	.08*	1
Psychosomatic symptoms	-.18**	.10**	-.06*	.02	-.14**	-.13**	.09**	.16**	.18**	.08*	.08*

*p < .05, **p < .01.

Table 4
Pearson correlations between research variables for Ethiopian immigrants.

	Gender (Boys = 1)	Age	FAS	Generation (First = 1)	Host identity	Heritage identity	Discrimination	Alcohol use	Cigarette use	Fighting 3+	Bullying 3+
Gender (Boys = 1)	1										
Age	.03	1									
FAS	.11**	-.11**	1								
Generation (First = 1)	.10*	.17**	-.25**	1							
Host identity	-.04	-.20**	-.02	-.15**	1						
Heritage identity	-.06	-.10*	-.14**	-.03	.50**	1					
Discrimination	.04	.10*	-.05	.12**	-.12**	.18**	1				
Alcohol use	.20**	.27**	.01	.12**	-.16**	-.14**	.55**	1			
Cigarette use	.18**	.18**	.06	.04	-.15**	.09*	.20**	.32**	1		
Fighting 3+	.13**	-.03	.09*	.02	-.12**	.04	.31**	.42**	.38**	1	
Bullying 3+	.16**	.10*	.10*	.03	-.18**	-.19**	.17**	.28**	.13**	.21**	1
Psychosomatic symptoms	-.08	.08	.07	.03	-.16**	-.15**	.23**	.28**	.13**	.21**	.21**

*p < .05, **p < .01.

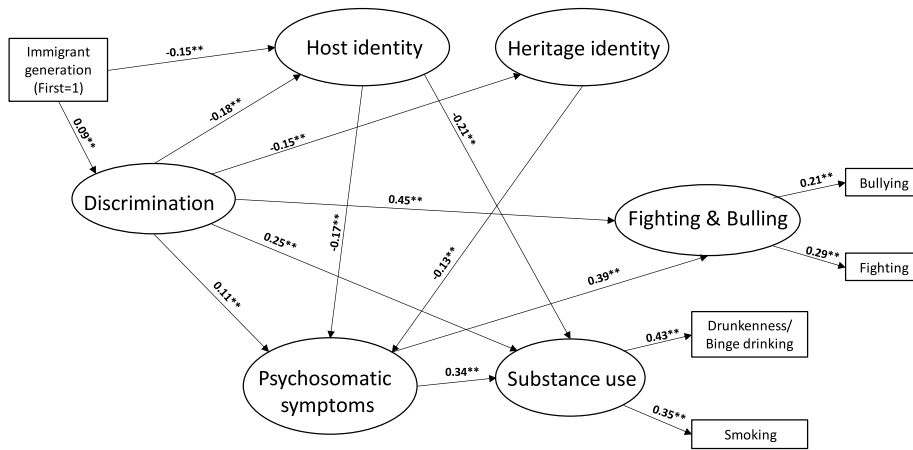


Fig. 2. The model for FSU immigrants, controlling for gender, age and family affluence (standardized significant connections only).

outcomes (with the exception of fighting) were found to be significantly negatively related to heritage identity among Ethiopian-heritage adolescents (see Table 4).

In the next stage, the conceptual model (see Fig. 1) was examined using Structural Equation Modeling. The resulting fit of the unconstrained multi-group model was $\chi^2 = 916.57, p < .01, NFI = 0.94, CFI = 0.97, CMIN/DF = 1.99, RMSEA = 0.03$. As we mentioned earlier, because of significant differences between groups in the mechanism of relationships between explanatory factors and outcomes, the separate models are presented (see Fig. 2 and Fig. 3) for each immigrant population.

For FSU-heritage adolescents, in line with hypothesis 1, perceived discrimination was positively related to substance use ($\beta = 0.25, p < .01$), aggressive behavior ($\beta = 0.45, p < .01$) and psychosomatic symptoms ($\beta = 0.11, p < .01$). Hypothesis 2 (negative relationship between host/heritage identities and outcomes) was only partially confirmed among the FSU adolescents. Host (Israeli) identity was found to be significantly negative related to substance use ($\beta = -0.21, p < .01$) and psychosomatic symptoms ($\beta = -0.17, p < .01$). Heritage identity was significantly related only to psychosomatic symptoms ($\beta = -0.13, p < .01$).

In line with hypotheses 3 and 4, among FSU-heritage adolescents, psychosomatic symptoms and host and heritage identities were found as mediators between discrimination and risk behaviours (see Fig. 2). The significant total effect of discrimination on substance use ($\beta = 0.35, p < .01$) consists of direct ($\beta = 0.25, p < .01$) and indirect ($\beta = 0.10, p < .01$) relationships. The same pattern of influence was found in the case of aggressive behaviours. The total association of discrimination ($\beta = 0.49, p < .01$) involved both a direct - $\beta = 0.45, p < .01$ and an indirect effect - $\beta = 0.04, p < .01$. We found a significant direct association between psychosomatic symptoms ($\beta = 0.35, p < .01$) with substance use and aggressive behaviors ($\beta = 0.39, p < .01$). Additionally, the relationship between host identity and substance use was significantly negative ($\beta = -0.21, p < .01$). Heritage identity, however, was not directly significantly associated with any of risk behaviors. In sum, discrimination was related to risk behaviors among FSU-heritage adolescents through several paths (see Fig. 2): 1) a path from discrimination through psychosomatic symptoms to substance use and aggressive behavior; 2) a path from discrimination through host identity to substance use; 3) a path from discrimination through host identity to psychosomatic symptoms to substance use and aggressive behavior; and 4) a path from discrimination through heritage identity to psychosomatic symptoms, to substance use and aggressive behavior. Additionally, it is interesting to note, that the first

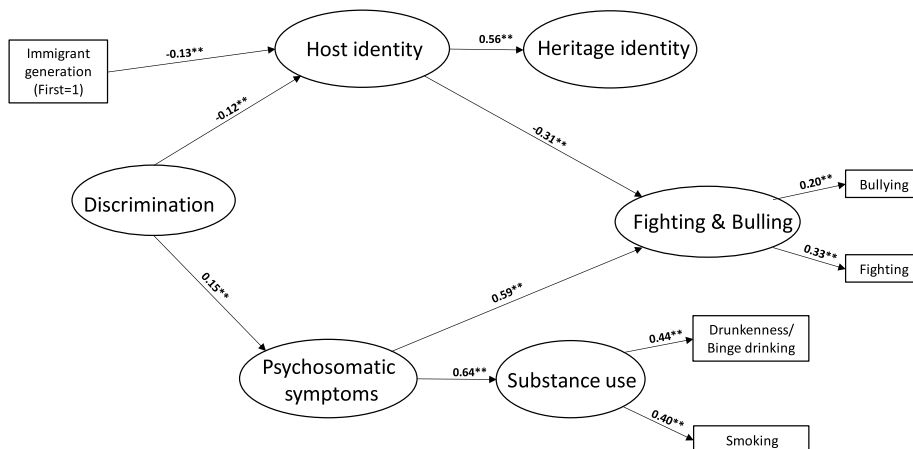


Fig. 3. The model for Ethiopian immigrants, controlling for gender, age and family affluence (standardized significant connections only).

immigrant generation as compared to the second generation among the FSU-heritage adolescents reported higher levels of discrimination ($\beta = 0.09, p < .01$) and lower levels of host identity ($\beta = -0.15, p < .01$).

The results of the model for Ethiopian-heritage adolescents can be seen in Fig. 3. Contrary to hypothesis 1, in the Ethiopian-heritage adolescents group in the full SEM model there was no direct relationship between discrimination and risk behaviours. However, discrimination was positively related to psychosomatic symptoms ($\beta = 0.15, p < .01$). Also hypothesis 2 was only partially confirmed. Host identity was negatively related to aggressive behaviours ($\beta = -0.31, p < .05$) only. Heritage (Ethiopian) identity had no significant relationships with outcome variables. However, unlike in the FSU group, in the Ethiopian-heritage adolescents group, we found a strong positive connection between host and heritage identity ($\beta = 0.56, p < .05$). It may be that a strong connection between the two identities reduces the significance of the individual relationships between the identities and the outcomes that can be seen in Table 4.

Hypothesis 3 was confirmed for the Ethiopian-heritage adolescents. Discrimination was significantly associated with psychosomatic symptoms ($\beta = 0.15, p < .01$) which, in turn was positively related to risk behaviours (substance use: $\beta = 0.59, p < .01$; aggressive behavior: $\beta = 0.64, p < .01$). However, the mediation role of identity in the relationship between discrimination and risk behaviours (hypothesis 4), was only partially confirmed for Ethiopian-heritage adolescents. We found that host identity was a mediator between discrimination and aggressive behavior (see Fig. 3: a significant relationship between discrimination and host identity - $\beta = -0.12, p < .01$, and from host identity to aggressive behavior - $\beta = -0.31, p < .01$), but not significant for substance use. Heritage identity was not found significantly connected to any risk behavior. The total significant effect of discrimination on substance use ($\beta = 0.24, p < .05$) included a significant indirect impact ($\beta = 0.13, p < .01$) but an insignificant direct effect. The impact of discrimination on aggressive behaviours was also only indirect ($\beta = 0.16, p < .01$). Additionally, as among FSU-heritage adolescents, for Ethiopian-heritage adolescents, the first generation as compared to the second generation reported lower host identity ($\beta = -0.13, p < .01$).

5. Discussion

The current study examines the mediating role of psychosomatic symptoms and host and heritage identities on the relationship between discrimination and substance use and aggressive behaviors among representative samples of FSU- and Ethiopian-heritage adolescents in Israel. The uniqueness of the study comes from its large representative sample and the examination of the psychological mechanisms behind the discrimination-risk behaviors relationship. As hypothesized and in line with previous research, perceived discrimination was positively related to psychosomatic symptoms and increased substance use for both immigrant groups and to increased aggressive behavior among FSU-heritage adolescents. Results confirm previous studies showing the relationship between perceived discrimination and psychological well-being (Davis et al., 2016), alcohol and cigarette use (Cano et al., 2015; Schwartz et al., 2015; Unger et al., 2016) and aggressive behaviors (Williams et al., 2014) and stress the deleterious impact of perceived discrimination (Dion, 2003) on young people.

However, over and above examining the relationship between discrimination and psychosomatic symptoms and involvement in substance use and aggressive behaviors, the study set out to explore the mechanisms operating within the relationships. It examined two potential mechanisms: 1) the role of psychosomatic symptoms as mediating the relationship between discrimination and substance use and aggressive behaviors in what we have termed an “externalizing model” (Overbeek et al., 2005); and 2) the role of host and heritage identities as mediating the relationship between discrimination and psychosomatic symptoms, substance use and aggressive behavior, in line with Developmental Ethnic Identity Theory (Phinney, 1990).

In line with an externalization or “acting out” perspective (Overbeek et al., 2005) and a Minority Stress Model (Meyer, 2003; Pascoe & Smart Richman, 2009) findings showed that the negative correlates of discrimination can be partially explained by the association with psychosomatic symptoms. In the case of FSU adolescents, psychosomatic symptoms partially mediated the relationship between discrimination and both substance use and aggressive behavior. In the case of Ethiopian-heritage adolescents, the mediation was full and there was no direct relationship between discrimination and substance use and aggressive behavior. Perceived discrimination has been considered to be an interpersonal stressor causing distress and negativity toward the host society (Clark, Anderson, Clark, & Williams, 1999). Discriminatory behaviors may be internalized and give a message to the young person that the society does not accept them, that their opportunities for success and achieving are limited (Motti-Stefanidi et al., 2012) and may therefore awaken feelings of rejection, helplessness and despair which can impact negatively on their well-being (Jasinskaja-Lahti et al., 2006). We suggest a mechanism or process in which discrimination is internalized into a negative emotional experience which is then externalized through involvement in risk behaviors. Understanding the psychological mechanism not only extends a theoretical understanding but also can enable intervention to help young people process, frame and make sense of discrimination they experience.

The second mechanism (the mediating role of host and heritage identities) was only partially confirmed. In the case of FSU-heritage adolescents, host identity did partially mediate the relationship between discrimination and psychological well-being, substance use and aggressive behavior. However while heritage identity did partially mediate the relationship between discrimination and psychosomatic symptoms, it was not directly related to substance use and aggressive behavior. For Ethiopian-heritage adolescents, host identity only mediated the relationship between discrimination and aggressive behavior (but not psychosomatic symptoms or substance use). In all cases, the relationship was in the expected direction of a higher host identity related to lower psychosomatic symptoms, and less involvement in substance use and aggressive behavior. Findings emphasize the association between a positive host identity and lower involvement in risk behaviors and suggest a role of the host identity in mediating the relationship between discrimination and negative outcomes (in part through its’ relationship with well-being). While acculturation

theories suggest the importance of both host and heritage identities for well-being (Berry & Kim, 1988; Berry, 1998), the current study suggests that, for these young people, it is a stronger Israeli (host) identity that is the pivotal identity predictor of involvement in risk. This may be due to the assimilationist ideology in Israel (Horenczyk & Ben-Shalom, 2006), encouraging immigrants to adopt a primarily Israeli identity, or due to the developmental stage of adolescence. However, findings suggest that perceived discrimination may make it harder for young people to feel a connection to the host identity. The findings add to previous yet limited literature (Chedebois et al., 2009; Unger et al., 2014) highlighting the relationship between a positive host identity and lowered involvement in risk-behaviors among adolescents. A stronger host identity could signify greater adaptation and integration, while those who do not identify strongly with host identities may feel alienated and disconnected from peers at a developmental stage when the social environment is critical.

Interestingly, for neither groups was a heritage identity directly related to substance use and aggressive behavior once additional variables were added into the model. This may be explained by the strong relationship between host and heritage identity in the case of the Ethiopian-heritage adolescents which may have suppressed the direct relationship between heritage identity and risk behaviors, which was seen in the correlations. In the case of the FSU-heritage adolescents the lack of a relationship between heritage identity and substance use and aggressive behavior is indeed notable. It seems that for FSU adolescents it is their connection to the Israeli (host) identity which is pivotal. Interestingly, and importantly, discrimination was negatively related to both host and heritage identities, and not as hypothesized positively related to heritage identity (Thomas, Caldwell, Faison, & Jackson, 2009). Findings could be explained by a mechanism in which discrimination leads a young person to feel alienated from the host society in which s/he lives and also negative about him/herself and their heritage. However, due to the cross sectional nature of the data, it is always possible that the causal relationship may be reversed such that those young people who feel disconnected from the society and less connected to their own heritage perceive greater discrimination.

The best fit models for the two populations differed slightly. In particular, for FSU-heritage adolescents, there was still a direct association between discrimination and substance use and aggressive behavior, whereas in the model for Ethiopian-heritage adolescents, the direct relationship between discrimination and substance use no longer existed. In addition, for Ethiopian-heritage adolescents there was no significant association between discrimination and fighting. While the current study cannot explain these differences, we can suggest that for the Ethiopian-heritage adolescents, who experience higher levels of discrimination, in part, no doubt due to racism on the basis of skin color (Offer, 2007), the emotional impact of discrimination (Walsh & Tuval-Mashiach, 2012) and the way in which it is internalized into psychosomatic symptoms and negative emotions may be much more pivotal in the epidemiology of risk behaviors. We can hypothesize that the higher the levels of discrimination and racism, maybe also among other immigrant and/or minority groups, the poorer the psychosomatic symptoms and the more significant this process is in explaining risk behavior. For FSU-heritage adolescents, it seems that the relationship between discrimination and risk is not only mediated through well-being and identity, but also through additional mechanisms. However, the additional explaining variables require further research.

5.1. Limitations

The current study involves a representative sample of two groups of immigrant adolescents in Israel. Yet, there are several notable limitations to the study. One major limitation is the cross-sectional, self-report nature of HBSC data. Longitudinal research designs would be needed to see the causal relationship between discrimination, psychosomatic symptoms, identity and adolescent risk behaviors. It may be that young people with behavioral difficulties encounter negative responses (Baker, Grant, & Morlock, 2008), which they interpret as discrimination. Or that a young person with low levels of host or heritage identities may be more likely to perceive behaviors as discriminatory. However, the proposed model is theoretically driven and the model has a good fit.⁵ As is common place, we are studying perceived discrimination (Dion, 2003) by the young person. However, the personal experience of discrimination is a (partial) manifestation of social or individual characteristics (Walsh & Tuval-Mashiach, 2012). Finally, due to the scope of the current paper, we did not analyze results for boys and girls separately. Given strong evidence for gender variation in physical fighting (Pickett et al., 2013) and psychosomatic symptoms (Kelly et al., 2010), further research should examine whether the proposed model is similar for both boys and girls.

Israel is a particular immigration context and has been considered to encourage cultural assimilation amongst its immigrants (Ben-Eliezer, 2004; Bourhis and Dayan, 2004; Jasinskaja-Lahti et al., 2006). In addition, the HBSC study, while covering a large number of adolescent health behaviors, does not include variables which may be important for an understanding of immigrant adolescent risk, such as time in Israel, levels of acculturation (Santisteban, Coatsworth, Briones, Kurtines, & Szapocznik, 2012; Schwartz et al., 2012), neighborhood context (Molina, Alegria, & Chen, 2012) and measures of peer involvement in risk behaviors (Kuntsche and Jordan, 2006).

5.2. Implications and conclusions

On a theoretical level, the current study extends theoretical understandings of the mechanisms behind the discrimination-risk behaviors relationship for immigrant adolescents. In particular it supports an “externalizing” or “acting out” perspective in which aggressive behavior and substance use are the externalized behavioral manifestations of a negative emotional experience, resulting

⁵ We ran alternative models including a model where discrimination mediated the relationship between identity and outcomes but there was not a good model fit.

from perceived discrimination. Feelings of rejection from a host society and fears for the future, opportunities and abilities to achieve aspired goals may lead to psychosomatic symptoms, which in turn are acted out. Findings also stress the importance of a strong host identity for immigrant adolescents. In the current political and social reality, in which large numbers of immigrant and refugee children are starting a process of integration and adaptation into a new society (Stevens & Walsh, 2016), the current study emphasizes a need to invest resources in helping young people to process and cope with experiences of discrimination. A resilience approach in which young people are encouraged to understand discrimination in a way which can strengthen them and their aspirations may be fruitful and beneficial in lowering involvement in risk.

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