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Risk behaviours among native and immigrant youths in Switzerland: a cross-sectional study

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Summary

QUESTION UNDER STUDY: Switzerland has been receiving migrants of various origins for more than 50 years. The adoption of risk-taking behaviours among migrant youths is unclear. Moreover, when studied, migrant youths are rarely analysed according to whether they are first or second generation, or just young people with mixed origins. The aim of this study was to assess whether there are any differences between first-and second-generation immigrants, youths of mixed origins and their native peers in Switzerland concerning their engagement in risk behaviours.

METHODS: A total of 5834 youths from eleven post-mandatory schools in the canton of Fribourg (Switzerland) participated in the baseline survey of the GenerationFRee study, a longitudinal study to assess their lifestyle. Participants were divided by gender and by origin into: (a) natives: Swiss-born youths with Swiss-born parents, (b) first-generation migrants: foreign-born youths with foreign-born parents, (c) second-generation migrants: Swiss-born youths with foreign-born parents, (d) mixed-origin youths: Swiss-born youths with one Swiss-born parent and one foreign-born parent. Participants reported personal, family and school information, and attitudes towards eight risk behaviours. All significant variables at the bivariate level were included in a binary logistic regression.

RESULTS: The logistic regression showed that, compared with natives, first-and second-generation migrant boys were less likely to misuse alcohol. Boys of mixed origins were similar to migrants, although at the bivariate level they were more exposed to risk behaviours than were migrants. First-and second-generation migrant girls were less likely to misuse alcohol but three times more likely to be excessive Internet users. Girls of mixed origin were more likely to have their parents not living together and reported antisocial behaviours almost twice more often.

CONCLUSIONS: Our findings expose a lower engagement in risk behaviours among migrants. The migrant status in these two groups is clearly buffered if other control variables are considered. Thus, we can affirm that in the present study, migrants are not a high-risk population or not more at risk than the native group. Mixed origin youths showed higher risk behaviours than natives and migrants. Special attention should be given to this specific group, as they may be more vulnerable during adolescence.

Key words: *adolescents, youths, migrant generation, migrant status, risk behaviour, Switzerland*

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Introduction

Switzerland is known as a nation with a significant immigrant history. Data from Swiss Statistics [1] show that one third of the total Swiss population report an immigrant background (28.5% first and 6.9% second generation), predominantly coming from the European Union. Concerning young people [2], 12.2% of the migrant population is composed of youths aged 15–24 years.

It is widely recognised that adolescence is a crucial period for social and physical development. It implies, for example, the transition into adulthood, the gain of independence and the development of an own identity. Social context is crucial and a factor such as migration may influence this evolving process.

Several studies comparing risk behaviours between migrants and native adolescents in Europe have shown that first-generation migrants are less likely to use both legal and illegal substances [3–5]. Major factors influencing these consumptions are the cultural background [3, 4], substance use in the country of origin [3] or the acculturation process [4, 5]. The length of stay, the concurrence between the native and the host cultures, such as the use of the native/host language or social interactions, and the whole process of sociocultural adaptation may explain the differences found between generations of migrants and natives or even between different migrant groups [4].

In Switzerland, a study conducted in 2005 [6] showed that Swiss youths and second-generation migrants were similar in terms of their substance use, whereas first-generation migrant youths engaged less in risk behaviours. Therefore, the differences found between migrants and natives concerning physical and mental health were more associated with socioeconomic status (SES) than with the migrant or cultural background. Moreover, a previous Swiss study

conducted in 1992–1993 [7] showed that migrant adolescents reported poorer mental health and engaged more often in risk behaviours such as tobacco or cocaine/heroin use. On the other hand, they showed a lower risk for alcohol consumption and there was no significant statistical difference in minor delinquency and cannabis use.
In a Dutch study [8], Turkish youths scored lower on delinquent behaviour than their native peers. Nevertheless, at the multivariate level, no ethnic differences were found. The latter finding was also reported by another Dutch study [9] comparing Dutch, Moroccan, Turkish and Surinamese youths.
On the subject of externalising behaviours (including antisocial and violent behaviours), Gonneke et al. [10] conducted a review of the literature and found mixed results: problem behaviour varied from one migrant group to another and it was difficult to draw conclusions on this diversity of findings because of the different study designs and group definitions. The same mixed findings were reported in another review of the literature [11]; indeed, other variables such as a low SES or a non-European origin may have an influence on externalizing behaviours. Among adolescents in Switzerland, studies appear to be contradictory: in two studies using different evaluation tools, Hüsler et al. [12] showed that migrants scored lower concerning delinquent behaviour whereas Steinhausen et al. [13] showed that migrant youths scored higher on externalising problems.
In Europe, few studies of adolescents of mixed origins and their engagement in risk behaviours are available [3, 14]. These studies reported a higher risk of alcohol misuse, and tobacco and cannabis use among those of mixed origins compared with natives or monocultural groups. One proposed explanation was that these youths experience more acculturative stress, which could lead to personal problems, such as relationship difficulties with their parents or in school. As a result, they had greater chances of engaging in risk behaviours [14].
Thus, more research is needed on adolescent migrants in Switzerland as available data are contradictory, scarce and do not explore other risk behaviours such as problematic gambling or excessive Internet use. The aim of this study was to assess whether there are any differences between first- and second-generation immigrants, youths of mixed origins and their native peers in Switzerland concerning their engagement in risk behaviours.

Methods

GenerationFRee is a longitudinal study conducted in the canton of Fribourg, Switzerland, to assess the lifestyles of adolescents and young adults (AYAs) [15]. This research is based on the baseline data collected during the 2014–2015 school year, using a representative sample of AYAs in post-mandatory education.
Students of all post-mandatory schools (five high-schools and six professional schools) completed an anonymous online self-administrated questionnaire. In Switzerland, mandatory school goes up to the age of 15, after which about one third of adolescents follow high-school education and two thirds vocational education. The latter are enrolled by companies to train for their future profession and attend class at vocational schools only 1 to 2 days a week.
The total sample consisted of 5834 AYAs, of whom 5634 agreed to complete the questionnaire. Among these, 211 were not in the defined age range (15–24 years) and 244 did not complete the questionnaire reliably. The final sample consisted of 5179 youths (47% girls).

Dependent variable

Four categories were created according to the participants' origin:

1. Natives: Swiss-born youths with Swiss-born parents (n = 3030; 48% girls);
2. First-generation migrants: foreign-born youths with foreign-born parents (n = 496; 45% girls);
3. Second-generation migrants: Swiss-born youths with foreign-born parents (n = 739; 47% girls);
4. Youths of mixed origins: Swiss-born youths with one Swiss-born and one foreign-born parent (n = 793; 47% girls).

Swiss adolescents born abroad to Swiss parents or to at least one Swiss parent who completed the questionnaire (n = 48 and n = 65, respectively) were excluded as being a confounding factor for the classification. In fact, their origin could not be confirmed and their birth context was unknown (they could have been adopted, for example). The final weighted sample comprised 5058 participants.

Independent variables

Personal variables included age, gender, emotional well-being, and residence (rural/urban). Family variables comprised family structure (parents living together/other), SES, mother-adolescent and father-adolescent relationship. To measure emotional well-being we used the WHO-Five Well-Being Index (WHO-5). Its validity in adolescents has been proven [16]. The WHO-5 index includes five items and each one is rated on a 6-point Likert scale ranging from 0 (at no time) to 5 (all of the time) [17]. Scores are added and a result below 13/25 indicates poor well-being. Cronbach's alpha in the present study was 0.81.
Self-assessment of SES was determined with the question in the ESPAD project [18]: "Compared to the financial situation of other families in Switzerland, would you say that your family is…" with seven possible answers ranging from 'very much below average' to very much above average' and trichotomised into "above average", "average" and "below average". Father and mother relationships with the AYA were rated on a scale from 1 (very poor) to 10 (excellent).
School variables included academic track (student/apprentice) and self-reported school performance (above average, average or below average student).
We analysed eight risk behaviours including current tobacco smoking (smoking or not), cannabis use (at least once during the past month), use of illegal substances other than cannabis (at least once during the past month) and alcohol misuse (at least one episode of drunkenness during the past month). Violent behaviour (physical harm towards an adult, carrying a weapon, using a weapon during a fight) and antisocial behaviour (vandalism, theft, dealing drugs, setting fire to something) during the past year were evaluated and the three possible answers ("never", "1–2 times", "3 or more times") were dichotomised into "never" and "at least once".

The short version of the Internet Addiction Test (s-IAT) was used to evaluate the level of excessive Internet use [19]. The s-IAT includes twelve items and each one is rated on a 6-point scale ranging from 0 (never) to 5 (very often) [19]. Scores are added with a result above 29 over 60 suggesting excessive Internet use.

Gambling behaviour was evaluated with the South Oaks Gambling Screen Revised for Adolescents (SOGS-RA) [20], a 12-item instrument which explores general behaviour related to gambling on a scale from 0 to 12 points. The three possible outcomes and scores – ("no problem gambler" (<2points), "at risk gambler" (≥2 – <4points) and "problematic gambler" (≥4points) – were dichotomised into "no problem gambler" (<2points and including nongamblers) and "at risk gambler" (≥2points).

The study protocol was approved by the Cantonal Ethics Committee of Vaud.

Statistical analysis

Statistical analyses were performed with STATA 13.0 (StataCorp, College Station, Texas). In a first step, we compared separately each group with native youths using Chi-square for categorical variables and Student's t-test for continuous variables. Results are given as point prevalence and means. In a second step, all statistically significant variables ($p<0.05$) at the bivariate level were included in a binary logistic regression analysis, using natives as the reference group. Results are given as adjusted odds ratios with 95% confidence intervals . All analyses were done separately by gender as differences were found in terms of risk behaviors [21].

Results

Boys: first generation vs natives (table 1)

Compared with Swiss natives, first-generation migrants were significantly older, reported a lower SES and a poorer relationship with their father, and were more likely to live in an urban setting. They were more likely to use illegal substances other than cannabis, to use the Internet excessively, or to be at risk gamblers, but they reported lower rates of alcohol misuse.

The logistic regression showed that first-generation migrant boys were more likely to be older and live in a city. They also were less likely to report an above-average SES, and twice more likely to report a below-average SES. Only one risk behaviour remained significant: they were less likely to misuse alcohol.

Boys: second generation vs natives (table 2)

Second-generation migrants showed the same differences from natives as the first-generation ones, except for the relationship with their father, which was not significant. They additionally reported poorer emotional wellbeing, and a higher likelihood to live in an intact family and to be a student. They also reported significantly lower prevalence rates of antisocial behaviour, cannabis use and alcohol misuse, but higher rates of excessive Internet use.

The regression analysis showed that they were older, less likely to report an above average SES, and more likely to live in an urban setting. Regarding risk behaviours, they were significantly less likely to adopt antisocial behaviours or to misuse alcohol.

Table 1: Boys: comparison of first-generation migrants vs natives in the age group 15–24 years in post-mandatory schools.

Variable	Natives (n = 1573)	First-generation migrants (n = 275)	Adjusted odds ratio (95% CI)
Mean age (years ± SE)	**18.17 ± 0.06**	**18.82 ± 0.15*****	**1.17 (1.05–1.30)****
Socioeconomic status			
Above	**47%**	**27%*****	**0.46 (0.31–0.70)*****
Average	**46%**	**53%**	Reference
Below	**7%**	**20%**	**2.18 (1.23–3.87)****
Wellbeing (poor)	12%	15.50%	0.85 (0.49–1.48)
Relationship with father (mean ± SE)	**8.27 ± 0.07**	**7.83 ± 0.20***	0.93 (0.80–1.09)
Relationship with mother (mean ± SE)	8.73 ± 0.05	8.97 ± 0.13	1.26 (1.01–1.56)
Family structure (parents not living together)	30%	30%	1.62 (0.75–35.00)
Residence (urban)	**23%**	**57%*****	**4.53 (3.10–6.62)*****
Perception of school performance			
Above average	30%	27%	0.72 (0.47–1.10)
Average	64%	64%	Reference
Less good	6%	9%	1.01 (0.54–1.90)
School track (student)	29%	24%	0.78 (0.46–1.33)
Violent behaviour during the past year (at least once)	16%	17%	1.38 (0.82–2.32)
Antisocial behaviour during the past year (at least once)	27%	22%	0.64 (0.39–1.05)
Current smoking	41%	39%	0.83 (0.55–1.26)
Cannabis use (at least once during the past month)	23%	23%	1.24 (0.74–2.10)
Drug use (at least once during the past month)	4%	**7%***	2.27 (0.79–6.48)
Alcohol misuse (at least one episode of drunkenness during the past month)	**58%**	**37%*****	**0.38 (0.26–0.56)*****
Excessive Internet use (IAT >29)	**9%**	**15%***	1.55 (0.87–2.77)
Gambling (SOGS-RA ≥2)	**6.7%**	**12.5%***	1.60 (0.83–3.08)
Family structure × Relationship with father			0.97 (0.81–1.16)
Family structure × Relationship with mother			0.92 (0.67–1.27)
Family structure × Socioeconomic status			0.94 (0.54–1.63)

CI = confidence interval; IAT = Internet Addiction Test; SE = standard error; SOGS-RA= South Oaks Gambling Screen Revised for Adolescents *p<0.05; **p<0.01; ***p<0.001 compared with native group

Boys: youths of mixed origins vs natives (table 3)

Boys of mixed origins reported a significantly lower SES, poorer emotional wellbeing, a worse relationship with their father, and a lower likelihood to live with both parents, whereas they were more likely to live in an urban setting and to be students. They also reported a significantly higher prevalence of cannabis use and a lower prevalence of alcohol misuse.

The binary logistic regression showed that youths of mixed origins were less likely to report an above average SES, but more likely to live in an urban area and to be students. Concerning risk behaviours, the only one that remained significant was alcohol misuse.

Girls: first generation vs natives (table 4)

Compared with Swiss natives, first-generation migrants were significantly older, reported a lower SES and poorer emotional well-being, had a worse relationship with both parents, and were more likely to live in an urban setting and less likely to be students. They were less likely to misuse alcohol (but not other substances), but were more likely to report excessive Internet use and at-risk gambling.

The logistic regression showed that first-generation migrant girls were more likely to report a below average SES, to live in an urban area and to show poorer emotional well-being. In contrast, they had lower odds of being students and reporting an above average academic performance. Two risk behaviours remained significant: they were less likely to misuse alcohol and three times more likely to be excessive Internet users.

Girls: second generation vs natives (table 5)

Second-generation migrants differed from natives in SES, emotional well-being, family structure, residence and perceived school performance. They were also significantly less likely to report alcohol misuse, but more likely to use Internet excessively.

The regression analysis showed that second-generation migrant girls were more likely to be in the below average SES group, to report a poorer well-being, and to live in an urban area. They were less likely to have a non-intact family, to be students, and to perceive their school performance as above average. Concerning risk behaviours, they showed the same tendencies as the first-generation migrants.

Girls: youths of mixed origins vs natives (table 6)

Girls of mixed origins reported a lower SES, poorer emotional well-being and relationship with their father, lower prevalence of living in an intact family and a higher rate of urban residence than their native counterparts. With the exceptions of violent behaviour, alcohol misuse and at-risk gambling, they reported higher prevalence rates in all risk behaviours.

The logistic regression showed that girls of mixed origins were more likely to report poorer emotional wellbeing and to live in an urban area. They were almost twice more likely to adopt an antisocial behaviour.

Discussion

The main purpose of this study was to examine the engagement in risk behaviours in a sample of post-mandatory education AYAs and observe the differences between na-

Table 2: Boys: comparison of second-generation migrants vs natives in the age group 15–24 years in post-mandatory schools.

Variable	Natives (n = 1573)	Second-generation migrants (n = 390)	Adjusted odds ratio (95% CI)
Mean age (years ± SE)	**18.17 ± 0.06**	**18.54 ± 0.11****	**1.14 (1.03–1.25)****
Socioeconomic status			
Above	**47%**	**36%*****	**0.58 (0.41–0.81)****
Average	**46%**	**53%**	Reference
Below	**7%**	**10%**	1.24 (0.75–2.05)
Wellbeing (poor)	**12%**	**18%****	1.37 (0.88–2.12)
Relationship with father (mean ± SE)	8.27 ± 0.07	8.22 ± 0.14	0.96 (0.85–1.08)
Relationship with mother (mean ± SE)	8.73 ± 0.05	8.81 ± 0.12	1.03 (0.89–1.19)
Family structure (parents not living together)	**30%**	**19%*****	0.13 (0.01–1.58)
Residence (urban)	**23%**	**62%*****	**5.66 (4.15–7.71)*****
Perception of school performance			
Above average	30%	30%	0.97 (0.70–1.34)
Average	64%	63%	Reference
Less good	6%	7%	0.85 (0.44–1.63)
School track (student)	**29%**	**36%***	1.19 (0.85–1.67)
Violent behaviour during the past year (at least once)	16%	17%	1.49 (0.97–2.29)
Antisocial behaviour during the past year (at least once)	**27%**	**20%***	**0.63 (0.41–0.96)***
Current smoking	41%	35%	0.97 (0.67–1.40)
Cannabis use (at least once during the past month)	**23%**	**17%***	1.04 (0.66–1.64)
Drug use (at least once during the past month)	4%	3%	0.78 (0.30–2.03)
Alcohol misuse (at least one episode of drunkenness during the past month)	**58%**	**31%*****	**0.34 (0.24–0.48)*****
Excessive Internet use (IAT >29)	**9%**	**13%***	1.58 (0.96–2.62)
Gambling (SOGS-RA ≥2)	6.7%	9.2%	1.21 (0.66–2.22)
Family structure × relationship with father			1.04 (0.87–1.25)
Family structure × relationship with mother			1.09 (0.83–1.41)
Family structure × socioeconomic status			0.93 (0.54–1.60)

CI = confidence interval; IAT = Internet Addiction Test; SE = standard error; SOGS-RA= South Oaks Gambling Screen Revised for Adolescents *p<0.05; **p<0.01; ***p<0.001 compared with native group

Table 3: Boys: comparison of youths of mixed origins vs natives in the age group 15–24 years in post-mandatory schools.

Variable	Natives (n = 1573)	Youths of mixed origins (n = 424)	Adjusted odds ratio (95% CI)
Mean age (years ± SE)	18.17 ± 0.06	18.11 ± 0.12	0.96 (0.89–1.04)
Socioeconomic status			
Above	**47%**	**37%*** **	**0.69 (0.51–0.93)***
Average	**46%**	**50%**	Reference
Below	**7%**	**13%**	1.44 (0.85–2.44)
Wellbeing (poor)	**12%**	**19%****	1.35 (0.94–1.95)
Relationship with father (mean ± SE)	**8.27 ± 0.07**	**7.7 ± 0.16*****	0.99 (0.87–1.12)
Relationship with mother (mean ± SE)	8.73 ± 0.05	8.62 ± 0.10	1.02 (0.88–1.17)
Family structure (parents not living together)	**30%**	**41%*****	2.11 (0.37–11.96)
Residence (urban)	**23%**	**40%*****	**2.03 (1.54–2.69)*****
Perception of school performance			
Above average	30%	27%	0.99 (0.73–1.34)
Average	64%	66%	Reference
Less good	6%	7%	0.79 (0.46–1.35)
School track (student)	**29%**	**36%***	**1.34 (1.01–1.77)***
Violent behaviour during the past year (at least once)	16%	16%	0.92 (0.62–1.36)
Antisocial behaviour during the past year (at least once)	27%	29%	1.06 (0.77–1.47)
Current smoking	41%	43%	1.06 (0.79–1.41)
Cannabis use (at least once during the past month)	**23%**	**29%***	1.35 (0.96–1.89)
Drug use (at least once during the past month)	4%	5%	1.19 (0.57–2.48)
Alcohol misuse (at least one episode of drunkenness during the past month)	**58%**	**49%****	**0.71 (0.54–0.94)***
Excessive Internet use (IAT >29)	9%	9%	0.91 (0.56–1.47)
Gambling (SOGS-RA ≥2)	6.7%	6.7%	0.81 (0.47–1.40)
Family structure × relationship with father			0.94 (0.82–1.09)
Family structure × relationship with mother			1.02 (0.85–1.22)
Family structure × socioeconomic status			0.90 (0.58–1.38)

CI = confidence interval; IAT = Internet Addiction Test; SE = standard error; SOGS-RA= South Oaks Gambling Screen Revised for Adolescents *p<0.05; **p<0.01; ***p<0.001 compared with native group

Table 4: Girls: comparison of first-generation migrants vs natives in the age group 15–24 years in post-mandatory schools.

Variable	Natives (n = 1457)	First-generation migrants (n = 221)	Adjusted odds ratio (95% CI)
Mean age (years ± SE)	**18.19 ± 0.05**	**18.62 ± 0.12*****	1.05 (0.96–1.15)
Socioeconomic status			
Above	**34%**	**19%*****	**0.51 (0.34–0.76)****
Average	**59%**	**62%**	Reference
Below	**8%**	**19%**	**2.34 (1.36–4.03)****
Wellbeing (poor)	**23%**	**35%*****	**1.46 (1.03–2.08)***
Relationship with father (mean ± SE)	**7.77 ± 0.6**	**7.17 ± 0.18*****	1.01 (0.92–1.12)
Relationship with mother (mean ± SE)	**8.6 ± 0.04**	**8.2 ± 0.13****	0.89 (0.79–1.00)
Family structure (parents not living together)	30%	29%	1.39 (0.15–13.14)
Residence (urban)	**23%**	**57%*****	**4.46 (3.27–6.10)*****
Perception of school performance			
Above average	29%	24%	**0.61 (0.43–0.87)****
Average	65%	72%	Reference
Less good	5%	4%	0.56 (0.26–1.22)
School track (student)	**55%**	**39%*****	**0.46 (0.33–0.64)*****
Violent behaviour during the past year (at least once)	4%	5%	1.12 (0.52–2.42)
Antisocial behaviour during the past year (at least once)	9%	8%	0.76 (0.44–1.32)
Current smoking	34%	34%	0.87 (0.61–1.24)
Cannabis use (at least once during the past month)	14%	11%	0.92 (0.55–1.56)
Drug use (at least once during the past month)	1%	2%	1.72 (0.67–4.36)
Alcohol misuse (at least one episode of drunkenness during the past month)	**35%**	**22%*****	**0.53 (0.36–0.76)*****
Excessive Internet use (IAT >29)	**5%**	**17%*****	**3.34 (2.10–5.29)*****
Gambling (SOGS-RA ≥2)	**2%**	**4%****	1.82 (0.67–4.92)
Family structure × relationship with father			0.90 (0.79–1.03)
Family structure × relationship with mother			1.11 (0.92–1.34)
Family structure × socioeconomic status			0.61 (0.34–1.09)

CI = confidence interval; IAT = Internet Addiction Test; SE = standard error; SOGS-RA= South Oaks Gambling Screen Revised for Adolescents *p<0.05; **p<0.01; ***p<0.001 compared with native group

Table 5: Girls: comparison of second-generation migrants vs natives in the age group 15–24 years in post-mandatory schools.

Variable	Natives (n = 1457)	Second-generation migrants (n = 349)	Adjusted odds ratio (95% CI)
Mean age (years ± SE)	18.19 ± 0.05	18.34 ± 0.10	0.98 (0.90–1.07)
Socioeconomic status			
Above	**34%**	**29%****	0.86 (0.64–1.15)
Average	**59%**	**58%**	Reference
Below	**8%**	**13%**	**1.73 (1.04–2.87)***
Wellbeing (poor)	**23%**	**35%*****	**1.67 (1.25–2.24)****
Relationship with father (mean ± SE)	7.77 ± 0.6	7.69 ± 0.14	0.97 (0.88–1.06)
Relationship with mother (mean ± SE)	8.6 ± 0.04	8.5 ± 0.11	1.00 (0.90–1.11)
Family structure (parents not living together)	**30%**	**21%*****	**0.08 (0.01–0.62)***
Residence (urban)	**23%**	**63%*****	**6.12 (4.65–8.06)*****
Perception of school performance			
Above average	**29%**	**22%***	**0.68 (0.50–0.93)***
Average	**65%**	**72%**	Reference
Less good	**5%**	**6%**	1.02 (0.59–1.75)
School track (student)	55%	50%	**0.57 (0.42–0.76***)**
Violent behaviour during the past year (at least once)	4%	6%	1.13 (0.66–1.92)
Antisocial behaviour during the past year (at least once)	9%	11%	1.05 (0.66–1.66)
Current smoking	34%	30%	0.86 (0.64–1.16)
Cannabis use (at least once during the past month)	14%	11%	0.95 (0.61–1.48)
Drug use (at least once during the past month)	1%	2%	1.69 (0.49–5.81)
Alcohol misuse (at least one episode of drunkenness during the past month)	**35%**	**20%*****	**0.48 (0.35–0.64)*****
Excessive Internet use (IAT >29)	**5%**	**17%*****	**3.26 (2.18–4.87)*****
Gambling (SOGS-RA ≥2)	2%	2%	0.90 (0.39–2.08)
Family structure × relationship with father			1.10 (0.96–1.25)
Family structure × relationship with mother			1.14 (0.95–1.37)
Family structure × socioeconomic status			1.01 (0.60–1.70)

CI = confidence interval; IAT = Internet Addiction Test; SE = standard error; SOGS-RA= South Oaks Gambling Screen Revised for Adolescents *p<0.05; **p<0.01; ***p<0.001 compared with native group

Table 6: Girls: comparison of youths of mixed origins vs natives in the age group 15–24 years in post-mandatory schools.

Variable	Natives (n = 1457)	Youths of mixed origins (n = 369)	Adjusted odds ratio (95% CI)
Mean age (years ± SE)	18.19 ± 0.05	18.33 ± 0.10	1.01 (0.94–1.09)
Socioeconomic status			
Above	**34%**	**34%*****	1.13 (0.85–1.50)
Average	**59%**	**52%**	Reference
Below	**8%**	**14%**	**1.77 (1.09–2.90)***
Wellbeing (poor)	**23%**	**30%****	1.19 (0.91–1.57)
Relationship with father (mean ± SE)	**7.77 ± 0.6**	**7.1 ±0.15*****	0.94 (0.87–1.02)
Relationship with mother (mean ± SE)	8.6 ±0.04	8.5 ± 0.09	1.02 (0.91–1.13)
Family structure (parents not living together)	**30%**	**42%*****	1.17 (0.26–5.27)
Residence (urban)	**23%**	**45%*****	**2.56 (2.00–3.27)*****
Perception of school performance			
Above average	29%	24%	0.82 (0.62–1.07)
Average	65%	70%	Reference
Less good	5%	6%	0.81 (0.49–1.34)
School track (student)	55%	56%	0.96 (0.74–1.24)
Violent behaviour during the past year (at least once)	**4%**	**7%***	1.18 (0.72–1.95)
Antisocial behaviour during the past year (at least once)	**9%**	**18%*****	**1.75 (1.19–2.58)****
Current smoking	**34%**	**40%***	1.02 (0.78–1.33)
Cannabis use (at least once during the past month)	**14%**	**21%*****	1.22 (0.87–1.71)
Drug use (at least once during the past month)	**1%**	**4%*****	2.02 (0.96–4.4.29)
Alcohol misuse (at least one episode of drunkenness during the past month)	35%	37%	0.93 (0.72–1.20)
Excessive Internet use (IAT >29)	**5%**	**8%***	1.38 (0.88–2.16)
Gambling (SOGS-RA ≥2)	2%	1%	0.50 (0.17–1.47)
Family structure × relationship with father			1.01 (0.91–1.12)
Family structure × relationship with mother			1.04 (0.90–1.19)
Family structure × socioeconomic status			0.84 (0.56–1.27)

CI = confidence interval; IAT = Internet Addiction Test; SE = standard error; SOGS-RA= South Oaks Gambling Screen Revised for Adolescents *p<0.05; **p<0.01; ***p<0.001 compared with native group

tives, two generations of immigrants and a group of youths of mixed origins. Findings showed that first- and second-generation migrants report lower odds of engaging in most risk behaviours compared with natives. Moreover, migrant status is not associated to some risk behaviours, such as smoking and violence for both boys and girls and antisocial behaviour and drug use for boys. With the exception of excessive Internet use, only youths of mixed origins, especially girls, showed more risk behaviours compared to Swiss natives. Hypotheses for these results are proposed and discussed.

In line with other studies conducted in Europe [5, 22], first- and second-generation migrants showed a lower risk of alcohol misuse as compared with natives. We can suppose that alcohol consumption greatly depends on cultural background; a consistent part of the migrant population in Switzerland comes mostly from Mediterranean countries, which implies different social norms regarding alcohol use. These results underline the process of adaptation to the host society, which greatly depends on the cultural background and the possibilities of integration in the host country. As discussed by Sarasa-Renedo et al. [3], there is evidence that the influence of country-of-origin cultural factors protects immigrants against substance use.

Another finding is the higher risk of excessive Internet use of first- and second-generation migrant girls. This finding may be explained by the higher percentage of personal computers and Internet access in adolescents' bedrooms among the non-Swiss adolescent population [23]. Furthermore, it can be hypothesised that migrants may use the Internet more in order to stay in touch with their family or friends still living in their country of origin. Concerning gender, the results are consistent with Swiss research [24], showing a higher prevalence of excessive internet use for females. In fact, the previous gap with male users has rapidly diminished, as girls use more the Internet for obtaining information, communicating online (chat or e-mail), for educational purposes [25, 26] and use social networks more than boys [27].

In the present study, violence and antisocial behaviours are generally not significant for first- and second-generation migrants. Moreover, the two migrant generations show a lower or almost equal rate when compared with natives. This is in contrast to some research at the European level [28] showing that young migrants are more involved in crime than natives.

Concerning youths of mixed origins, only girls report a significant difference in antisocial behaviour. Two possible reasons can be given. Results on family structure show that, for girls and boys, the highest rate of disrupted families is in the group of youths of mixed origins, whereas first- and second-generation migrants have a lower risk of their parents not living together. Results did not change for the mixed group when we analysed separately Swiss mother-foreign father and vice versa (data not shown). Thus, this first interpretation may be supported by the higher rate of parents not living together.

A second interpretation can explain our findings regarding youths of mixed origins. Research conducted in the United States [29, 30] reported that multiracial students showed a higher frequency of substance use and higher rates of violent/antisocial behaviour [29] or higher behavioural risks [30] compared with adolescents with only one origin. Therefore, youths of mixed origins can undergo stress associated with identity conflict [30], and the integration of two identities and cultural backgrounds may be challenging, as shown in the literature review by Phillips [31]. Although bicultural identity could be seen as an advantage through childhood, it can become a burden at adolescence, in a context where "normality" and peer identification are the strongest factors. As Herman [32] suggested, youths of mixed origins may adapt to the bicultural status or choose one of them; in the case of the latter, their choice is greatly influenced by others' perception of their appearance. It can thus be supposed that this necessity to choose may imply some instability and a major engagement in risk behaviours. This hypothesis is also discussed by Shish and Sanchez [33], who reviewed the literature on multiracial identity but found no clear differences between mono or multiracial individuals.

The main strengths of this study are that it is based on a large representative sample of AYAs and includes youths of mixed origins as one independent group. Moreover, this is the first study to our knowledge that explores gambling and excessive Internet use in migrant adolescents.

However, some limitations need to be stressed. First, because of its cross-sectional design, no conclusions on causal relationship can be drawn. Second, as the survey results come from a self-reported questionnaire, response bias cannot be excluded. Third, only youths enrolled in post-mandatory education are included in our study. Other youth groups such as asylum-seekers or illegal migrants, who, depending on their legal context, cannot follow their studies after compulsory education, are not included in the sample. Fourth, the present study does not differentiate migrants according to their country of origin, nor to the reason for migration and legal status in Switzerland, which can have an important influence on integration and attitudes towards the host country. First- and second-generation migrants and youths of mixed origins come mostly from the European Union and eastern Europe (77%) (n = 1292), especially from Portugal (27%), France (14%), Kosovo (11%), Italy (7%), Germany (3%) and Spain (3%). The remaining 23% was represented by Asian, African and South-American migrants. Because of the higher rate of migrants coming from central and western Europe, other nationalities were less represented and the size of each category was not large enough to reach statistical significance. However, bivariate analyses comparing natives with the various groups were done and no major differences were found (data not shown). Finally, the questionnaire did not include questions evaluating peer and family influences on risk behaviours, or the length of stay in Switzerland, the latter concerning mostly first-generation migrants.

The findings of the present study expose a lower engagement in most risk behaviours for first- and second-generation migrants. Indeed, migrant status in these two groups is clearly buffered when potentially confounding variables are considered. Thus, we can affirm that, in the present study, migrants are not a high-risk population or not more at-risk than natives. These results are important in showing that, in a sensitive period of migration in Europe, we should not stigmatise or diabolise migrant status by associating it automatically with a propensity to violence or any other risky behaviour. Research has shown that the social

and the physical environment in which the migrants are placed and the opportunity that it offers, more than the migrant status itself, that tends to enhance certain behaviours [28, 34].

In addition, it may be suggested that being enrolled in post-mandatory school education may play a fundamental role in preventing risk behaviours compared with asylum-seekers who do not have access to non-compulsory education in Switzerland and are disproportionately involved in crime [28].

This study, focusing also on youths of mixed origins, suggested that the female population showed higher engagement in antisocial behaviour compared with natives. Special attention should be given to this specific group, as difficulties may double when the challenges often experienced when going through adolescence are added to those of being of mixed origin, at an age when peer perceptions of normality are the strongest. In fact, youths of mixed origins appear to show a major peer influence concerning risk behaviours and a poorer relationship with their families [35–38].

Our study warrants further specific research regarding young migrants that should include, among other factors, reason for migration, length of stay in the country, adaptation strategies and religiosity. Moreover, migrant youths who are not in the education system or who reside illegally in Switzerland (and who are probably more vulnerable) need to be assessed for their needs. Finally, longitudinal studies to assess the mid and long term trajectories of young migrants are needed.

In conclusion, adolescence being a period of self-construction and transition into adulthood, the more the youths are vulnerable the more this process can be challenging. Among migrant youths, those of mixed origins seem to be the most vulnerable.

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Competing interests

The authors declare no conflict of interest.

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