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## Youth centers, structured leisure activities, and friends of native and foreign origin: A two-wave longitudinal study

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### ABSTRACT

The social integration of adolescents of foreign origin is of much importance to contemporary Swedish politics, and knowledge is needed about the associations between different forms of leisure and social integration. The present study tests the associations between visits to youth centers and participation in structured leisure activities, on the one hand, and having friends regardless of origin, of native origin, and of foreign origin, on the other. Two-wave longitudinal data from 203 adolescents of foreign origin were collected, including friendship nominations from 1,185 peers. Cross-lagged panel models were constructed, controlling for relevant confounders. Visits to youth centers positively predicted the number of friends of foreign origin, while participation in structured leisure activities positively predicted the number of friends regardless of origin. In conclusion, structured leisure activities appear better than youth centers for promoting the social integration of adolescents of foreign origin into networks of friends of different origins.

### KEYWORDS

Leisure activity; youth center; friendship; social integration; foreign origin

The social integration of adolescents of foreign origin—who were born abroad or have two parents born abroad—has become one of the most important political concerns for Swedish citizens (Novus, 2019). The segregation of adolescents of foreign origin from native society has been associated with criminality and poor school results in Swedish research (Forkby & Liljeholm Hansson, 2011; Swedish National Agency for Education, 2018). Visits to youth centers and participation in structured leisure activities have been identified as two common forms of social leisure for Swedish adolescents of native and foreign origin (Nordstrand, 2017; Swedish Agency for Youth and Civil Society, 2006), which may allow for friendship formation and social integration (Brown, 2013; Mahoney & Stattin, 2000; Schaefer et al., 2018). Still, policymakers need knowledge about how to prioritize and develop the forms of leisure offered to adolescents of foreign origin, to facilitate their friendship formation and social integration with native peers. The present study seeks to contribute with such knowledge through a two-wave longitudinal analysis of native and foreign adolescents in four Swedish municipalities.

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## ***Leisure in Sweden***

In the Swedish cultural and political contexts, leisure is considered an opportunity for personal development as well as a potential solution to social problems and tension between social groups (Ekholm, 2016; Ministry of Culture, 2018). The official strategies of social integration, formulated by the Swedish government, have identified youth centers and structured leisure activities as resources contributing to the wellbeing and social integration of adolescents of foreign origin (Ministry of Culture, 2018). Likewise, Swedish research has suggested that both youth centers and structured leisure activities contribute significantly to the wellbeing and sense of belonging experienced by Swedish adolescents of foreign origin (Geidne et al., 2015; Hertting & Karlefors, 2013).

Many, if not most, Swedish adolescents spend some leisure time with friends in youth centers or structured leisure activities (Nordstrand, 2017; Swedish Agency for Youth and Civil Society, 2006). Swedish youth centers can offer some structured activities, so the distinction between the two forms of leisure is not clear-cut. Still, we argue that there are apparent differences in the general degree of structure between youth centers and thoroughly structured leisure activities, such as sports or art schools. Compared to structured leisure activities organized by adult leaders, Swedish youth centers tend to be less demanding and more open to the influence of the adolescents themselves, who participate in the planning and organization of activities (Geidne et al., 2016). Swedish researchers have stressed the contrast between structured leisure activities, supervised by adult leaders and involving the development of skills, and the relatively informal and unstructured social milieu of youth centers (Mahoney & Stattin, 2000). Structured leisure activities typically involve a clear leadership by adults and cooperation on an equal basis among adolescents, which may facilitate friendship formation across group boundaries through the identification of common aims and experiences of “jointness” (Allport, 1979; Lawler, 2001). Youth centers, on the other hand, may promote friendship formation by providing a secure and relaxed social environment in which personal information can be exchanged (Wong, 2010).

Substantial research has implied that friends motivate adolescents to both visit youth centers and participate in structured leisure activities (e.g. Fredricks & Simpkins, 2013; Simpkins et al., 2012). Adolescents of foreign origin that have a personal experience of migration often have more limited economic resources and experience cultural obstacles, such as linguistic difficulties, that prevent participation in leisure activities with natives (Stodolska & Floyd, 2015). In many societies and cultures, females are not expected to participate in physical activities and sports, and their leisure activities are more frequently linked to the home environment (Allan, 1989; Scraton et al., 2005). Arguably, the cited studies exemplify that research on youth centers and structured leisure activities need control for attributes such as age, sex, dominant language proficiency, and economic resources.

## ***Social integration in Sweden***

Sweden is one of the countries in the Western world that has the largest number of adolescents of foreign origin per capita. In 2018, about 36% of Swedish adolescents were born in another country or had two parents that were born in another country

(Statistics Sweden, 2020). The current segregation of neighborhoods, schools, and leisure activities among adolescents has been identified as a source of social problems such as criminality and poor school results among adolescents of foreign origin (Forkby & Liljeholm Hansson, 2011; Swedish National Agency for Education, 2018). Migration and social integration are two of the most important political issues for Swedish citizens, in combination with the problem of “law and order,” which is often considered a related issue in the media (Lochow & Söderpalm, 2019; Novus, 2019). Thus, the social integration of adolescents of foreign origin is a central issue in contemporary Swedish politics, with implications for the entire political landscape.

Social integration may be difficult to accomplish due to the fact that individuals tend to prefer relationships with peers that are similar to themselves on various dimensions—a widely attested phenomenon referred to as *homophily* (McPherson et al., 2001). Still, friendships with peers of different origins can afford complementary benefits. Friendships with peers from the same origin generally provide a sense of belonging and solidarity (Reynolds, 2007), while friendships with peers from other origins convey contacts and information as well as freedom from restrictive norms and conformity (Portes, 1998). Research from a large number of Western countries, including Sweden, has indicated that successful integration with both natives and peers from the same foreign origin is conducive to improved mental health, cultural competence, and a broad experience of belonging for adolescents of foreign origin (Berry et al., 2006). However, there has been some conflicting evidence put forward by recent studies on the “immigrant paradox” in the United States, indicating that friendships with natives and acculturation are associated with delinquency, substance use, and less positive attitudes toward school (Dipietro & McGloin, 2012; Greenman, 2013; Prado et al., 2009). This research does not offset the substantial empirical evidence on the benefits of integration with both natives and peers from the same foreign origin, but it motivates research on social integration in the Swedish context to account for variables such as immigrant generation, substance use, delinquency, and school absence.

## **Aim**

Most research on the social integration of adolescents of foreign origin has been performed outside of Sweden, and the reciprocal associations between participation in leisure and friendship formation have rarely been addressed. The present study seeks to contribute with knowledge of relevance to Swedish policymakers promoting the social integration of adolescents of foreign origin, and it intends to offer statistically robust findings for researchers investigating the reciprocal associations between leisure and friendship. The study aims to assess the reciprocal associations between visits to youth centers and participation in structured leisure activities, on the one hand, and the number of friends regardless of origin, of native origin, and of foreign origin, on the other.

## **Method**

### **Participants**

The subsample at focus in the present study comprised 203 adolescents of foreign origin identified in the research program Longitudinal Research on Development In

Adolescence (LoRDIA). The research program collected data from two complete age cohorts in four Swedish municipalities. All adolescents in the cohorts were targeted by the research program; there were no exclusion criteria. In total, 2,150 adolescents were invited, of whom 1,884 (87.6%) chose to remain. The first cohort included 943 students, of whom 153 had foreign origin, and the second cohort included 941 students, of whom 146 had foreign origin. The first cohort provided four waves of data, starting from grade seven, and the second cohort provided five waves of data, starting from grade six. The municipalities were selected to complement each other geographically, and they included small and middle-sized towns and a suburb of a larger city. Taken together, the municipalities were reasonably representative of Swedish society: the unemployment rate in the municipalities was somewhat lower than the Swedish average (7.37% compared to 9.66%), the annual income was slightly higher (330,000 SEK compared to 313,000 SEK), the proportion of adults with a university degree was slightly lower (22.24% compared to 25.83%), and the proportion of inhabitants of foreign origin was somewhat lower (27.28% compared to 33.09%) (Statistics Sweden, 2020; Swedish Public Employment Agency, 2020).

Waves two and three of the research program, collected in the fall of 2014 and fall of 2015, were used in the present article because they included relevant measures related to youth centers and structured leisure activities. Also, only three participants changed school classes and only one participant changed schools between waves two and three, and the opportunities for forming friendships in the school classes were therefore quite constant across the waves. Wave two of the research program constituted time one (T1) in this study, and wave three constituted time two (T2). The respondents were in grades seven and eight at T1, and they were in grades eight and nine at T2. Of the study population, 1,185 (62.8%) participated at both T1 and T2. These 1,185 respondents provided the data for the study.

Participants were identified as individuals of foreign origin if they reported that they either were born in a foreign country, had two parents born in foreign countries, or studied Swedish as a second language. All others were identified as natives. In total, 299 adolescents of foreign origin were identified in the research program. Of these, 203 individuals participated at both T1 and T2 (67.9%). These 203 adolescents of foreign origin constituted the subsample included in the longitudinal models.

### ***Procedure and ethical considerations***

All parents had been informed through postal letters about the aims, procedures, and confidentiality of the study as well as their right to decline participation. The letters had been translated into the parents' first languages, including 32 languages other than Swedish. Parents were given the opportunity to decline participation on behalf of their children, and if parents did not decline, the children had the full right to independently decline participation. Adolescents that declined participation, or had parents that declined participation on their behalf, were similar to the study population in terms of grade points, school absence, and enrollment in courses of Swedish as a second language (which implied foreign origin). However, the adolescents in the study population that did not attend the data collection at T1 or T2 had lower grade points at T1

(Cohen's  $d = 0.37$ ;  $t = 6.83$ ;  $p < 0.001$ ) and at T2 (Cohen's  $d = 0.42$ ;  $t = 7.71$ ;  $p < 0.001$ ). Also, the adolescents that did not attend had more school absence at T1 (Cohen's  $d = 0.25$ ;  $t = 4.50$ ;  $p < 0.001$ ) and at T2 (Cohen's  $d = 0.32$ ;  $t = 5.72$ ;  $p < 0.001$ ).

Pen-and-pencil questionnaires were distributed to the adolescents in school by researchers and research assistants, who could answer any questions that appeared. Teachers received questionnaires by e-mail. The questionnaires included 354 items in wave two and 405 items in wave three. Most students finished the questionnaires in less than one hour. On each occasion, participants were reminded that they were free to terminate their participation without any repercussions. Four-digit numbers on the adolescents' questionnaires replaced participants' names, and the data were stored safely at the institution and managed confidentially. The research program was granted ethical permission by the Regional Research Vetting Board in Gothenburg, under reference number 362-13. Furthermore, ethical permissions were granted for questionnaire items added in waves two and three, under reference numbers T446-14 and T553-15.

## **Measures**

### **Age**

The age of each participant was retrieved from the questionnaires distributed in wave two. Missing values were replaced with the ages reported in wave one plus 1 year.

### **Sex**

Each participant's juridical sex was received from register data and his/her social security number (the ninth digit in a Swedish social security number indicates juridical sex). For each adolescent of foreign origin, the juridical sex agreed with the gender identity reported by the adolescent at T1.

### **Immigrant generation**

Participants of foreign origin who reported in any wave that they were born in another country than Sweden were categorized as first-generation immigrants, while participants of foreign origin who reported that they were born in Sweden were identified as second-generation immigrants. The item assessing participants' birth countries read, "Were you born in Sweden?"

### **Dominant language proficiency**

Adolescents' proficiency in the dominant language (Swedish) was assessed through an item in the questionnaire distributed to teachers at T1. The item read, "How proficient is the student at communicating in Swedish?" The response options were "not at all" (coded as 1), "slightly" (coded as 2), "quite" (coded as 3), and "very" (coded as 4).

### **Economic resources**

Participants' economic resources were gauged through an item included at T1. The item read, "What is your family's economic situation like, compared to other families where

you live?” The response options were, “we have less money than other families” (coded as 1), “we have an equal amount of money compared to other families” (coded as 2), and “we have more money than other families” (coded as 3).

### ***School absence***

School absence indicated the percentage of absent time from school classes during the school year up until the data collection at T1. The data were retrieved from school registers.

### ***Delinquency***

Delinquency was assessed through an index based on the mean scores of nine items, presented in Appendix 1. The items were developed and validated by The Swedish National Council for Crime Prevention (Ring, 2013). Mean scores were computed through available item analyses if respondents answered seven or more items (Parent, 2013); if less items were answered, a missing value was reported for the scale. To facilitate interpretation, the index was standardized to a range between 0 (no delinquency) and 1 (maximum delinquency). The index had a Cronbach's alpha of 0.796, which was considered acceptable.

### ***Substance use***

An index of substance use was based on the mean scores of six items, presented in Appendix 1. The items were developed and validated by The Swedish Council for Information on Alcohol and Other Drugs (Gripe, 2013). Through available item analyses, mean scores were computed if at least five items were answered (Parent, 2013). Otherwise, the mean scores were coded as missing values. To facilitate interpretation, the index was standardized by transforming all mean scores into values in the range between 0 (no substance use) and 1 (maximum substance use). The Cronbach's alpha for the index was 0.780, which was deemed acceptable.

### ***Proportion of classmates of foreign origin***

The proportion of students of foreign origin in each school class was derived from the data collected from the 1,185 adolescents that participated at both T1 and T2.

### ***Frequency of visiting a youth center***

The frequency of visits to youth centers was measured with an item that read, “During an ordinary week, on how many days do you usually visit a youth center or something similar?” The expression, “something similar,” was added because there are several synonyms for youth center in Sweden. The response options were, “never” (coded as 1), “less than one day a week” (coded as 2), “one day a week” (coded as 3), and “several days a week” (coded as 4).

### ***Frequency of participating in a structured leisure activity***

The frequency of participation in structured leisure activities was gauged through an item that read, “During an ordinary week, how many days do you usually participate in a leader-led activity in which you develop your abilities? (e.g. sports, culture, nature, politics, or something else?)” The response options were, “never” (coded as 1), “less than one day a week” (coded as 2), “one day a week” (coded as 3), and “more frequently” (coded as 4).

### ***Number of friends regardless of origin, of native origin, and of foreign origin***

The number of friends regardless of origin was derived from an item that read, “Who participate in your friendship group—those whom you consider to be your friends?” Participants could report the names, schools, and school classes of up to eight friends. The nominations of all 1,185 adolescents in the research program that participated at both T1 and T2 were compiled, and each participant’s number of friends was computed based on the number of times he or she was nominated as a friend by other participants. Thereafter, the incoming nominations made by adolescents of native and foreign origin were counted separately. Previous research has suggested that the estimation of the number of friendships based on incoming nominations is less biased and more reliable than the estimation of the number of friendships based on individuals’ own reports of their networks (Feld & Carter, 2002).

### ***Analytical procedure***

The missing values in the final subsample of adolescents of foreign origin constituted 11.3% of teachers’ assessments of dominant language proficiency and less than 7.5% of the responses on all other variables. The R package *finalfit* (Harrison, 2020) was used to analyze associations between missing data on each variable (selected one at the time) and the responses to all other variables. In several instances, there were significant associations, and we concluded that the data were not missing completely at random (MCAR). It is difficult to determine if the data were missing at random (MAR) without information from a complementary data collection. Still, we assumed that the data were MAR because no participants reported, on open questions in the questionnaires, that they abstained from answering the items used in the present study because they found the items sensitive.

It was therefore necessary to use a method that could handle MAR data, such as multiple imputation. Multiple imputation of missing data with the default methods for each scale type was performed with the Multivariate Imputation by Chained Equations (MICE) package in R (Buuren & Groothuis-Oudshoorn, 2011). To optimize the reliability of the imputed analyses, 100 complete data sets were imputed through 20 iterations based on all variables in the cross-lagged panel models as well as additional related variables in other waves. In accordance with the instruction in the manual (Buuren & Groothuis-Oudshoorn, 2011), 20 iterations were assumed to be sufficient, and convergence was checked with trace plots.

The Latent Variable Analysis (LAVAAN) package in R was employed to estimate the cross-lagged panel models (Rosseel, 2012). Weighted least squares mean and variance



adjusted estimation (WLSMV) was used because it provides accurate results with non-normal and ordinal variables in structural equation models (Beauducel & Herzberg, 2006). The endogenous variables at T2 were regressed on the exogenous variables at T1, including relevant control variables (see below). The autoregressive paths between the variables measuring the same construct at each time point ensured that the models controlled for initial values and correlations.

It was not possible to perform multi-group analyses because this approach had yielded less than 200 participants in each group, which is considered a minimum requirement of structural equation models (Kline, 2011). Instead, the number of friends at T2 was regressed on a control variable for the percentage of classmates of foreign origin in all models with friends of native and foreign origin. Also, a large number of models, with different control variables, were tested through structured model selection procedures. The control variables included age, sex, immigrant generation, economic resources, school absence, delinquency, and substance use. Regression paths between the control variables and the endogenous variables were included in separate models, and each model was compared against a baseline model in which all control variables were included and correlated with the exogenous variables. Models with added control variables were dismissed if the regression paths between the control variables and the endogenous variables did not yield significant improvements in model fit ( $p < 0.05$ ) according to the corrected chi-square test provided by the WLSMV estimation (Asparouhov & Muthén, 2010).

Model fit for each final cross-lagged panel model was determined through the corrected chi-square test of absolute fit ( $p > 0.05$ ), the Comparative Fit Index (CFI;  $p > 0.95$ ), and the Root Mean Square Error of Approximation (RMSEA;  $p < 0.07$ ) (Hooper et al., 2008). The coefficient of determination was considered small for values above 0.01, moderate above 0.09, and substantial above 0.25 (Cohen, 1988). Because the subsample of adolescents of foreign origin was relatively small, it was reasonable to augment statistical power by recognizing results that only approached the conventional significance level of  $p < 0.05$  (Schumm et al., 2013). In this study, results were referred to as marginally significant when the  $p$ -values were above 0.05 but under 0.10. Based on the significance level 0.10, the subsample size of 203 adolescents of foreign origin, and the presumed correlation of 0.20, the statistical power was 0.89. This suggested that correlations of size 0.20 (or larger) had (at least) an 89 percent probability of being correctly detected.

## Results

### *Descriptive results*

Tables 1 and 2 present descriptive statistics for the adolescents of foreign and native origin that participated and nominated friends at both T1 and T2. Roughly two-thirds of the adolescents of foreign origin were second-generation immigrants, born in Sweden with parents born abroad. Data that were not presented in Table 1 revealed that 78% of the subsample of adolescents of foreign origin spoke another language beside, or instead of, Swedish at home. Thirty-four languages from all continents were reported by the adolescents, but not even the most common languages (Bosnian and Vietnamese) were

**Table 1.** Descriptive statistics for categorical variables included in the cross-lagged panel models, separated for adolescents of foreign and native origin participating at both T1 and T2.

Variables	T1		T2	
	Foreign origin ( <i>n</i> = 203) Freq. (%)	Native origin ( <i>n</i> = 982) Freq. (%)	Foreign origin ( <i>n</i> = 203) Freq. (%)	Native origin ( <i>n</i> = 982) Freq. (%)
Sex				
Female	95 (47)	523 (.53)	—	—
Male	108 (53)	459 (47)	—	—
Immigrant generation				
First-generation	71 (35)	—	—	—
Second-generation	132 (65)	—	—	—
Economic resources				
Less than other families	15 (8)	62 (7)	—	—
Equal to other families	174 (88)	755 (79)	—	—
More than other families	8 (4)	138 (15)	—	—
Dominant language proficiency				
Not at all	0 (0)	0 (0)	—	—
Slightly	5 (3)	11 (1)	—	—
Quite well	83 (46)	87 (11)	—	—
Very well	92 (51)	716 (88)	—	—
Freq. of visiting a youth center				
Never	121 (61)	670 (70)	124 (66)	662 (70)
Less than once a week	23 (12)	126 (13)	25 (13)	123 (13)
Once a week	34 (17)	123 (13)	21 (11)	130 (14)
More frequently	20 (10)	38 (4)	18 (10)	33 (4)
Freq. of participation in a structured leisure activity				
Never	55 (28)	178 (19)	75 (39)	241 (26)
Less than once a week	16 (8)	78 (8)	11 (6)	56 (6)
Once a week	43 (22)	160 (17)	28 (15)	134 (14)
More frequently	82 (42)	540 (57)	78 (41)	515 (54)

The table presents the original data set, before the imputation of missing values.

reported by more than 14% of the respondents each. Slightly more than one-third of the adolescents visited youth centers at both T1 and T2, while approximately two-thirds participated in structured leisure activities.

According to Mann–Whitney *U* tests, adolescents of foreign origin were significantly more likely than natives to visit youth centers at T1 (mean rank native = 567, mean rank foreign origin = 631;  $p = 0.003$ ), and they were significantly less likely than natives to participate in structured leisure activities at both T1 (mean rank native = 592, mean rank foreign origin = 502;  $p < 0.001$ ) and T2 (mean rank native = 585, mean rank foreign origin = 492;  $p < 0.001$ ). Furthermore, adolescents of native origin had significantly more friends of native origin at both T1 (Cohen’s  $d = 0.60$ ;  $t = 8.04$ ;  $p < 0.001$ ) and T2 (Cohen’s  $d = 0.61$ ;  $t = 8.34$ ;  $p < 0.001$ ). Adolescents of foreign origin had more friends of foreign origin at T1 (Cohen’s  $d = 0.78$ ;  $t = 8.73$ ;  $p < 0.001$ ) and T2 (Cohen’s  $d = 0.80$ ;  $t = 9.01$ ;  $p < 0.001$ ). These results suggest that there was a strong tendency toward homophily among the adolescents in relation to origin. Finally, adolescents of foreign origin had significantly less school absence (Cohen’s  $d = 0.17$ ;  $t = 2.26$ ;  $p < 0.025$ ) but reported similar amounts of delinquency and substance use compared to native adolescents. Table 3 presents Spearman’s correlation coefficients for all bivariate correlations between the variables included in the cross-lagged panel models, based on the subsample of adolescents of foreign origin.

**Table 2.** Descriptive statistics for numerical variables included in the cross-lagged panel models, separated for adolescents of foreign and native origin participating at both T1 and T2.

Variables	T1						T2					
	Foreign origin ( <i>n</i> = 203)			Native origin ( <i>n</i> = 982)			Foreign origin ( <i>n</i> = 203)			Native origin ( <i>n</i> = 982)		
	<i>M</i>	<i>SD</i>	Skew.	<i>M</i>	<i>SD</i>	Skew.	<i>M</i>	<i>SD</i>	Skew.	<i>M</i>	<i>SD</i>	Skew.
Age	12.91	0.42	-0.58	12.85	0.36	-1.88	13.89	0.58	1.23	13.85	0.37	-1.71
Cohort 1	13.84	0.47	-0.51	13.85	0.39	-1.30	14.84	0.52	-0.71	14.83	0.41	-1.45
Cohort 2	6.12	5.45	1.65	7.14	6.40	2.84	—	—	—	—	—	—
School absence percentage	0.01	0.04	8.30	0.01	0.04	9.91	—	—	—	—	—	—
Delinquency	0.01	0.05	6.38	0.02	0.06	5.09	—	—	—	—	—	—
Substance use	0.21	0.14	0.68	0.10	0.11	1.45	—	—	—	—	—	—
Proportion of classmates of foreign origin	2.93	2.07	.67	3.21	2.15	0.65	2.70	1.92	0.51	2.94	1.97	0.69
Friends regardless of origin	1.69	1.78	1.24	2.81	1.93	0.66	1.54	1.56	0.939	2.57	1.79	0.67
Friends of native origin	1.24	1.33	1.11	0.40	0.73	2.12	1.16	1.21	1.01	0.37	0.68	2.21

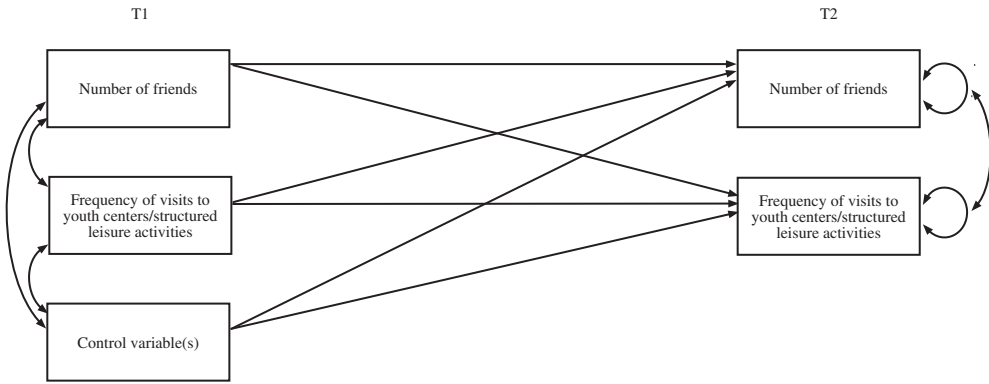
The table presents the original data set, before the imputation of missing values.

**Table 3.** Spearman correlation matrix for the variables included in the cross-lagged panel models (N = 203).

	Age	Sex (female)	Immigrant generation (first)	Economic resources	Dominant language proficiency	School absence percentage	Delinquency	Substance use	Proportion of classmates of foreign origin	Freq. of visiting a youth center T1	Freq. of visiting a youth center T2	Freq. of participation in a structured leisure activity T1	Freq. of participation in a structured leisure activity T2	Num. of friends independent of origin T1	Num. of friends independent of origin T2	Num. of friends of native origin T1	Num. of friends of native origin T2	Num. of friends of foreign origin T1	Num. of friends of foreign origin T2
Age	1.00																		
Sex (female)	-0.04	1.00																	
Immigrant generation (first)	0.12ms	0.14*	1.00																
Economic resources	0.14ms	-0.01	-0.09	1.00															
Dominant language proficiency	-0.19**	0.24***	-0.23**	0.13ms	1.00														
School absence percentage	0.26**	-0.00	0.16*	-0.07	-0.11	1.00													
Delinquency	0.06	-0.19**	0.01	-0.06	-0.03	0.06	1.00												
Substance use	0.15*	0.02	0.04	-0.13ms	0.02	0.08	0.34***	1.00											
Proportion of classmates of foreign origin	0.08	-0.21**	-0.07	0.07	-0.17*	0.09	0.00	-0.09	1.00										
Freq. of visiting a youth center T1	0.15*	-0.12ms	0.02	0.07	-0.05	0.07	-0.01	0.13ms	-0.06	1.00									
Freq. of visiting a youth center T2	0.16*	-0.10	0.07	-0.03	-0.02	0.16*	0.13ms	0.22**	0.04	0.46***	1.00								
Freq. of participation in a structured leisure activity T1	0.06	-0.16*	0.00	0.11	0.06	0.01	0.12	0.08	-0.11	0.25***	0.12ms	1.00							
Freq. of participation in a structured leisure activity T2	0.04	-0.17*	-0.04	0.02	0.06	0.11	-0.02	0.03	-0.08	0.14ms	0.07	0.40***	1.00						
Num. of friends regardless of origin T1	-0.08	-0.06	-0.04	0.04	0.21**	0.02	0.04	-0.01	-0.07	-0.04	0.04	0.19**	0.16*	1.00					
Num. of friends of native origin T1	-0.11	0.13ms	0.04	-0.02	0.23**	0.03	-0.01	-0.04	-0.31***	-0.17*	-0.08	0.12ms	0.14*	0.74***	1.00				
Num. of friends of foreign origin T1	0.01	-0.25***	-0.16*	0.11	-0.04	-0.03	0.07	-0.01	0.30***	0.14ms	0.12ms	0.11	0.07	0.52***	-0.12ms	1.00			
Num. of friends regardless of origin T2	-0.06	-0.07	-0.08	0.10	0.14ms	-0.01	0.06	0.08	-0.13ms	0.01	0.01	0.24***	0.18*	0.60***	0.44***	0.35***	1.00		
Num. of friends of native origin T2	-0.04	0.17*	0.08	-0.03	0.20**	0.04	0.05	0.10	-0.41***	-0.13ms	-0.08	0.18*	0.11	0.45***	0.63***	-0.13ms	0.76***	1.00	
Num. of friends of foreign origin T2	-0.04	-0.30***	-0.22**	0.17*	-0.03	-0.03	0.09	0.01	0.29***	0.16*	0.11	0.13ms	0.14*	0.41***	-0.06	0.76***	0.59***	-0.03	1.00

The Spearman correlation coefficients are pooled estimates based on the imputed data sets.

ms =  $p < 0.10$  (marginally significant), \* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ .



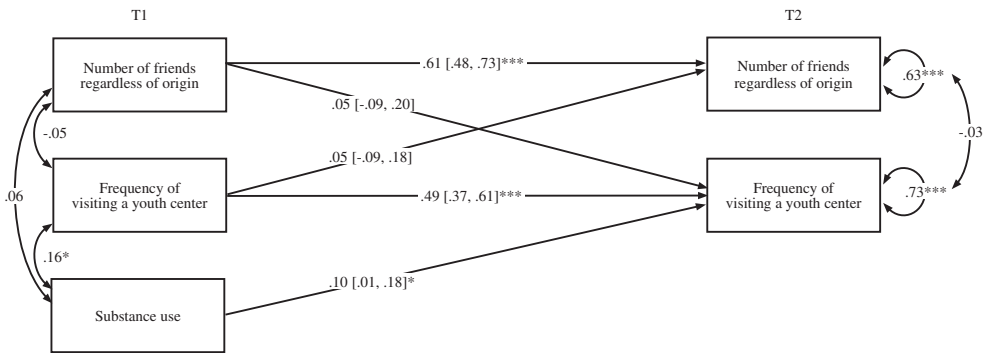
**Figure 1.** Generic cross-lagged panel model. The double-headed semi-circles pointing to only one variable indicate standardized residual variances ( $1-R^2$ ), and the double-headed lines connecting two variables or two residual variances indicate correlations.

Visits to youth centers at T1 were negatively correlated with the number of friends of native origin at T1 ( $r = -0.17$ ;  $p = 0.018$ ) but positively correlated with the number of friends of foreign origin at T2 ( $r = 0.16$ ;  $p = 0.022$ ). By contrast, participation in structured leisure activities at T1 was positively correlated with the number of friends regardless of origin at T1 ( $r = 0.19$ ;  $p = 0.006$ ) and T2 ( $r = 0.24$ ;  $p < 0.001$ ), and participation in structured leisure activities at T2 was positively correlated with the number of friends regardless of origin at T1 ( $r = 0.16$ ;  $p = 0.024$ ) and T2 ( $r = 0.18$ ;  $p = 0.013$ ). Also, participation in structured leisure activities at T1 was correlated with more native friends at T1 ( $r = 0.18$ ;  $p = 0.013$ ), and participation in structured leisure activities at T2 was correlated with more native friends at T1 ( $r = 0.14$ ;  $p = 0.043$ ) and with more friends of foreign origin at T2 ( $r = 0.14$ ;  $p = 0.046$ ). Visits to youth centers at T2 were positively correlated with school absence ( $r = 0.16$ ;  $p = 0.029$ ), delinquency ( $r = 0.13$ ;  $p = 0.072$ ), and substance use ( $r = 0.22$ ;  $p = 0.002$ ) at T1. Girls participated less often in structured leisure activities at both T1 ( $r = -0.16$ ;  $p = 0.023$ ) and T2 ( $r = -0.17$ ;  $p = 0.016$ ). Finally, girls had fewer friends of foreign origin at T1 ( $r = -0.25$ ;  $p < 0.001$ ) and T2 ( $r = -0.30$ ;  $p < 0.001$ ), but they had more friends of native origin at T2 ( $r = 0.17$ ;  $p = 0.015$ ).

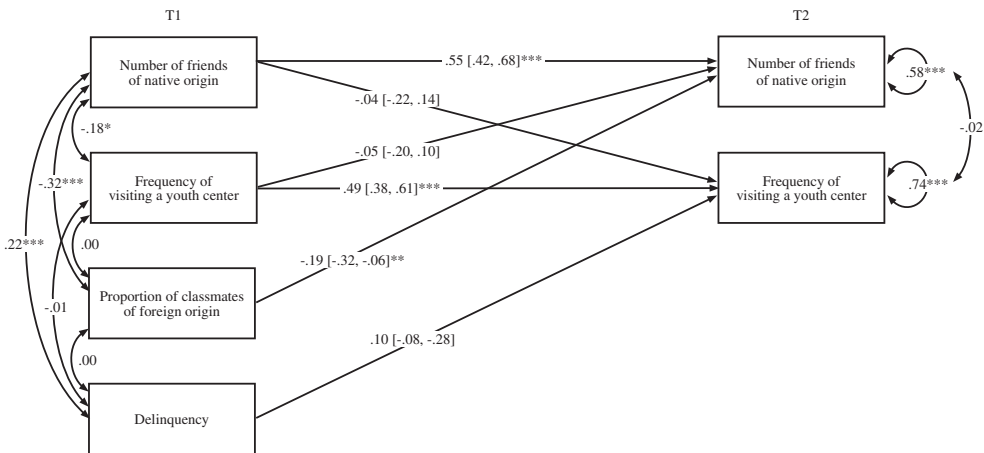
### Cross-lagged panel models

Six cross-lagged panel models were constructed in response to each combination of youth centers and structured leisure activities, on the one hand, and the number of friends regardless of origin, of native origin, and of foreign origin, on the other. The regression coefficients have been standardized and provided with 95% confidence intervals within brackets. The double-headed semi-circles pointing to only one variable indicate standardized residual variances ( $1-R^2$ ), and the double-headed lines connecting two variables, or two residual variances, indicate correlations. Figure 1 presents a generic outline of the cross-lagged panel models.

Figure 2 indicated no significant associations between visits to youth centers and the number of friends regardless of origin. Still, the control variable for substance use at T1 positively predicted visits to youth centers at T2 ( $\beta = 0.10$ ,  $p = 0.021$ , 95% CI [0.01,



**Figure 2.** Cross-lagged panel model for the number of friends regardless of origin and the frequency of visiting youth centers ( $N = 203$ ). \* $p < 0.05$ , \*\*\* $p < 0.001$ .

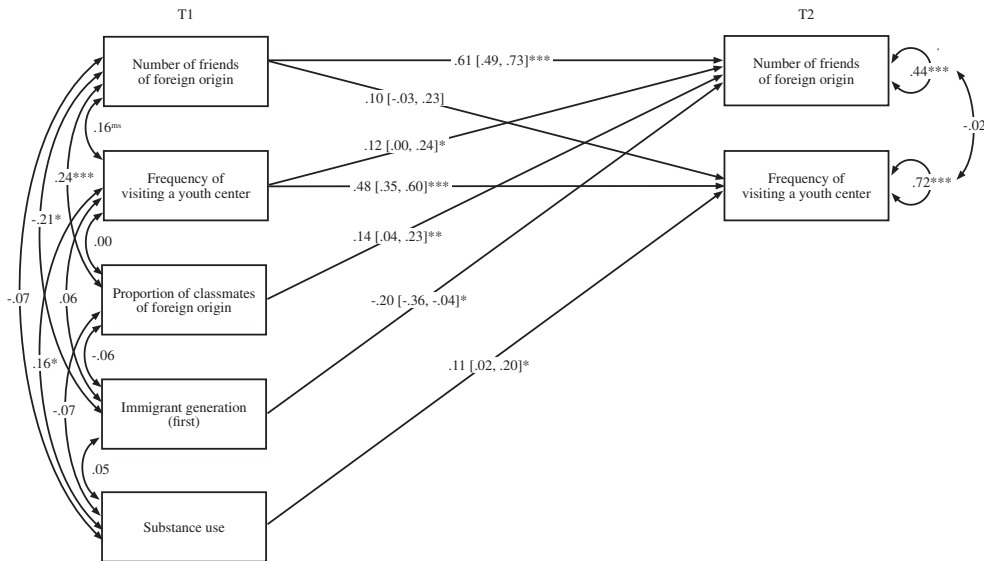


**Figure 3.** Cross-lagged panel model with the number of friends of native origin and the frequency of visiting youth centers ( $N = 203$ ). \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

0.18]). The model in Figure 2 had excellent fit ( $\chi^2=0.080$ ,  $df=1$ ,  $p=0.777$ ; CFI = 1.000; RMSEA < 0.001 [90% CI = 0.000, 0.123]), and it explained a substantial amount of the variance for both visits to youth centers ( $R^2=0.27$ ) and numbers of friends regardless of origin ( $R^2=0.37$ ) at T2.

According to the model in Figure 3, the number of friends of native origin at T2 was negatively predicted by the control variable for the proportion of classmates of foreign origin ( $\beta = -0.19$ ,  $p = 0.003$ , 95% CI [-0.32, -0.06]). Furthermore, the control variable for delinquency was insignificantly related to visits to youth centers yet contributed to significantly improved model fit. The model had excellent fit according to all indices ( $\chi^2=1.041$ ,  $df=2$ ,  $p=0.594$ ; CFI = 1.000; RMSEA < 0.001 [90% CI = 0.000, 0.115]), and it explained a substantial amount of the variance for both visits to youth centers ( $R^2=0.26$ ) and the number of friends of native origin ( $R^2=0.42$ ) at T2.

According to the model in Figure 4, visits to youth centers predicted a larger number of friends of foreign origin ( $\beta = 0.12$ ,  $p = 0.046$ , 95% CI [0.00, 0.24]), but the number of

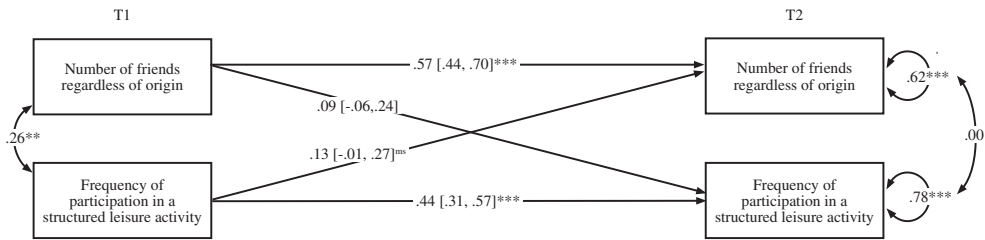


**Figure 4.** Cross-lagged panel model with the number of friends of foreign origin and the frequency of visiting youth centers ( $N = 203$ ). <sup>ms</sup> $p < 0.10$  (marginally significant),  $*p < 0.05$ ,  $**p < 0.01$ ,  $***p < 0.001$ .

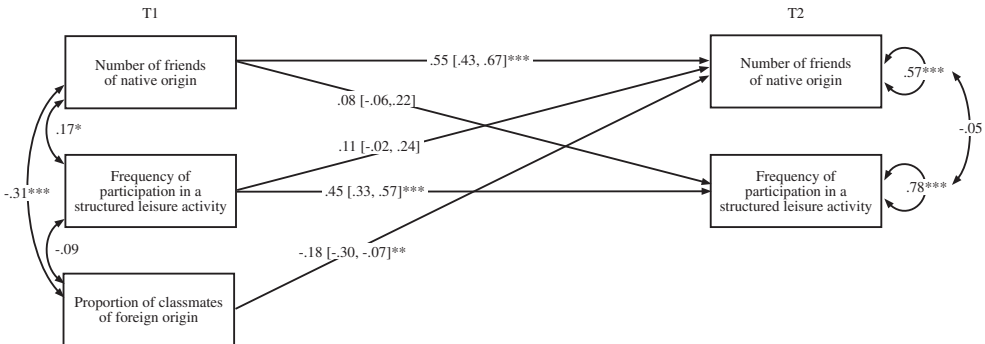
friends of foreign origin did not predict the frequency of visits to youth centers ( $\beta = 0.10$ ,  $p = 0.138$ , 95% CI  $[-0.03, 0.23]$ ). Thus, the association was directed rather than reciprocal. As for the control variables, adolescents with a larger proportion of classmates of foreign origin had more friends of foreign origin at T2 ( $\beta = 0.14$ ,  $p = 0.004$ , 95% CI  $[0.04, 0.23]$ ), but first-generation immigrants had fewer friends at T2 ( $\beta = -0.20$ ,  $p = 0.016$ , 95% CI  $[-0.36, -0.04]$ ). Also, substance use at T1 predicted more frequent visits to youth centers at T2 ( $\beta = 0.11$ ,  $p = 0.016$ , 95% CI  $[0.02, 0.20]$ ). The model had excellent fit according to all indices ( $\chi^2 = 1.986$ ,  $df = 3$ ,  $p = 0.575$ ; CFI = 1.000; RMSEA < 0.001 [90% CI = 0.000, 0.101]), and it predicted a substantial amount of the variance in youth center visits ( $R^2 = 0.28$ ) and the number of friends of foreign origin ( $R^2 = 0.56$ ) at T2.

The model in Figure 5 suggested that participation in structured leisure activities predicted a larger number of friends regardless of origin, even if the finding was only approaching significance ( $\beta = 0.13$ ,  $p = 0.069$ , 95% CI  $[-0.01, 0.27]$ ). The number of friends did not predict participation in structured leisure activities ( $\beta = 0.09$ ,  $p = 0.220$ , 95% CI  $[-0.06, 0.24]$ ). Thus, the association was likely to be directed rather than reciprocal. According to all indices, the model had excellent fit ( $\chi^2 = 0.027$ ,  $df = 1$ ,  $p = 0.871$ ; CFI = 1.000; RMSEA < 0.001 [90% CI = 0.000, 0.097]). A moderate amount of variance in participation in structured leisure activities ( $R^2 = 0.22$ ) was explained, while a substantial amount of variance was explained for the number of friends regardless of origin ( $R^2 = 0.38$ ).

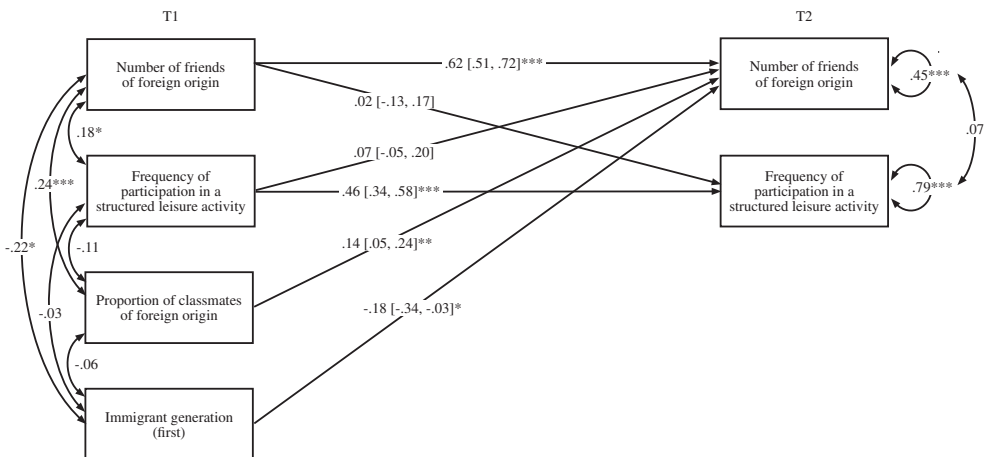
The model in Figure 6 suggested no significant associations between participation in structured leisure activities and the number of friends of native origin. However, the control variable suggested that adolescents with a larger proportion of classmates of foreign origin at T1 had fewer friendships with native peers at T2 ( $\beta = -0.18$ ,  $p = 0.002$ , 95% CI  $[-0.30, -0.07]$ ). The model had excellent fit according to all indices ( $\chi^2 = 0.047$ ,



**Figure 5.** Cross-lagged panel model with the number of friends regardless of origin and the frequency of participation in a structured leisure activity ( $N = 203$ ). <sup>ms</sup> $p < 0.10$  (marginally significant), \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .



**Figure 6.** Cross-lagged panel model with the number of friends of native origin and the frequency of participation in structured leisure activities ( $N = 203$ ). \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .



**Figure 7.** Cross-lagged panel model with the number of friends of foreign origin and the frequency of participation in structured leisure activities ( $N = 203$ ). \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

$df = 1$ ,  $p = 0.828$ ; CFI = 1.000; RMSEA < 0.001 [90% CI = 0.000, 0.111]). It explained a moderate amount of the variance in participation in structured leisure activities ( $R^2 = 0.22$ ) and a substantial amount of the variance in the number of friends of native origin ( $R^2 = 0.43$ ).



According to the model in [Figure 7](#), there were no significant associations between participation in structured leisure activities and the number of friends of foreign origin. The control variables indicated that adolescents with larger proportions of classmates of foreign origin at T1 had more friends of foreign origin at T2 ( $\beta = 0.14$ ,  $p = 0.002$ , 95% CI [0.05, 0.24]), while first-generation immigrants had fewer friends of foreign origin ( $\beta = -0.18$ ,  $p = 0.018$ , 95% CI [-0.34, -0.03]). The model had excellent fit ( $\chi^2 = 0.432$ ,  $df = 2$ ,  $p = 0.806$ ; CFI = 1.000; RMSEA < 0.001 [90% CI = 0.000, 0.086]), and it explained a moderate amount of the variance in participation in structured leisure activities ( $R^2 = 0.21$ ) and a substantial amount of the variance in the number of friends of foreign origin ( $R^2 = 0.55$ ).

## Discussion

The social integration of adolescents of foreign origin is a central concern to Swedish politicians and citizens (Ministry of Culture, 2018; Novus, 2019). The present study intends to inform policymakers promoting the social integration of adolescents of foreign origin and researchers investigating the reciprocal associations between adolescents' leisure and friendships. To this end, the study has assessed the reciprocal predictive associations between visits to youth centers, participation in structured leisure activities, and friends regardless of origin, of native origin, and of foreign origin. The study complements and extends previous research from the United States by focusing on a recently collected sample from Sweden, where more than a third of all adolescents have foreign origin (Statistics Sweden, 2020).

The findings suggest that visits to youth centers facilitate the formation of friendships with peers of foreign origin but not friendships with natives, while structured leisure activities promote friendships with peers regardless of origin. Therefore, structured leisure activities seem better at promoting the social integration of adolescents of foreign origin. Also, visits to youth centers and participation in structured leisure activities do not appear to be affected by the number of friends, which suggests that the associations were directed rather than reciprocal.

### *Characteristics of youth centers and structured leisure activities*

Swedish youth centers generally offer a less demanding and more informal social milieu, amenable to the adolescents' own influence and planning, than structured leisure activities that are organized by adult leaders, such as sports and art schools (Geidne et al., 2016; Mahoney & Stattin, 2000). The present study suggests that structured leisure activities allow for friendships between adolescents regardless of origin, and thus can contribute more than youth centers to the social integration of adolescents of foreign origin. These results were found despite apparent homophily in relation to adolescents' native or foreign origin in the sample.

Youth centers may facilitate friendships between peers of the same origin, who are already acquainted, by establishing a congenial and "safe" social atmosphere (Wong, 2010). Structured leisure activities, on the other hand, can provide an external social framework in which unacquainted adolescents are brought together by adult leaders' instructions and by cooperation, on an equal basis, toward common aims (Fredricks &

Simpkins, 2013; Schaefer et al., 2011). Through adult leaders' initiatives, the experiences of equality among adolescents, and the shared sense of cooperation and "jointness," adolescents of different origins can develop friendships across group boundaries (Allport, 1979; Lawler, 2001).

Friends may motivate each other to visit youth centers and participate in structured leisure activities, for example by recruiting each other or motivating continued participation through rewarding social exchanges (Fredricks & Simpkins, 2013; Simpkins et al., 2012). However, except for the cross-sectional results presented by Simpkins et al. (2012), most studies do not indicate that adolescents with a larger number of friends are more inclined to participate in leisure activities. Rather, it appears that the choice and selection of friends is what matters, and friends may just as easily motivate reduced participation when they are not themselves involved in the activities (see e.g. Fredricks & Simpkins, 2013).

One previous study based on Swedish data has suggested that structured leisure activities provide opportunities for friendship formation between norm-abiding peers, while youth centers contribute to friendships between deviant adolescents (Mahoney & Stattin, 2000). The current study partly confirmed these results by indicating that visits to youth centers were predicted by substance use in the cross-lagged panel models and were associated with school absence, delinquency, and substance use in the correlational analysis. Still, the number of friends of foreign origin was neither predicted by, nor correlated with, school absence, delinquency, or substance use. Furthermore, the descriptive statistics for adolescents of native and foreign origin indicated no significant differences between the groups in regard to substance use or delinquency, and adolescents of foreign origin actually had less school absence than their native peers.

### ***Opportunities and structural restraints***

In agreement with Swedish statistics (Nordstrand, 2017; Swedish Agency for Youth and Civil Society, 2006), the descriptive analysis suggested that adolescents of foreign origin were significantly more likely than natives to visit youth centers but significantly less likely to participate in structured leisure activities. Thus, it is reasonable to assume that adolescents of foreign origin formed friendships with peers of foreign origin in youth centers in part because they found and interacted with a larger proportion of peers of foreign origin in these locations. On the other hand, adolescents of foreign origin were more likely to form and maintain friendships with peers of native origin in structured leisure activities, because this is where they would mainly find native peers.

The correlational results indicated that girls participated significantly less often in structured leisure activities than boys did, and girls had significantly fewer friends of foreign origin but significantly more friends of native origin. Because girls did not participate as frequently in structured leisure activities but still had a relatively large number of friends of native origin, the results suggest that they might not depend on structured leisure activities to achieve social integration. To accurately account for girls' opportunities to form friendships and become socially integrated, it may be reasonable for future studies to consider forms of leisure that promote personal communication rather than common practical activities, and to investigate friendship quality rather than friendship quantity (Aukett et al., 1988; David-Barrett et al., 2015).

### **Strengths and limitations**

Most adolescents of foreign origin that participated in the study were born in Sweden and had relatively low school absence. For these reasons, it may be argued that additional research is needed on the experiences of first-generation immigrants and adolescents with more school absence. We consider it a strength that the present study controlled for both immigrant generation and school absence in all cases where such controls improved model fit, and this procedure implied that the retrieved generalizations were robust across different generations of foreign adolescents and for adolescents with different degrees of school absence.

One considerable strength of the cross-lagged panel models was the model selection procedures, which tested control variables identified in previous research. Unfortunately, there were not enough adolescents of foreign origin in the subsample to perform multigroup analyses. Due to the diversity of the subsample of adolescents of foreign origin (as reflected in the different languages spoken), it was neither possible to investigate issues of inter-ethnic or intra-ethnic friendships among adolescents of foreign origin.

A potential limitation of the present study is the fact that there was no detailed information about the characteristics of the youth centers and structured leisure activities under investigation. Also, a clear limitation of the study was the relatively small subsample of 203 adolescents of foreign origin. A larger subsample size had allowed for stronger generalizations—especially in regard to the non-significant results, which could not be interpreted, in the present study, as evidence that no associations existed in the population.

### **Conclusion and implications**

This study has indicated that youth centers allow adolescents of foreign origin to form friendships with peers of foreign origin, while structured leisure activities allow adolescents of foreign origin to form friendships with peers regardless of origin. The associations appear to be directed, since the number of friends does not predict visits to youth centers or participation in structured leisure activities. The understanding that structured leisure activities can promote the social integration of adolescents of foreign origin more effectively than youth centers may be of great use to policymakers, who can prioritize the funding of structured leisure activities and increase accessibility to these activities for adolescents of foreign origin. At the same time, the policies of Swedish youth centers may require scrutiny and revision to facilitate the social integration of adolescents of foreign origin, who visit the youth centers more frequently than natives do.

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