European Journal for Sport and Society

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/ress20

The effects of neighbours on sport club membership

Nynke Burgers, Dick F. Ettema, Pieter Hooimeijer & Maria T. Barendse

To cite this article: Nynke Burgers, Dick F. Ettema, Pieter Hooimeijer & Maria T. Barendse (2021) The effects of neighbours on sport club membership, European Journal for Sport and Society, 18:4, 310-325, DOI: 10.1080/16138171.2020.1840710

To link to this article: https://doi.org/10.1080/16138171.2020.1840710

Published online: 09 Nov 2020.

EUROPEAN JOURNAL FOR SPORT AND SOCIETY
2021, VOL. 18, NO. 4, 310–325
https://doi.org/10.1080/16138171.2020.1840710

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

OPEN ACCESS Check for updates

The effects of neighbours on sport club membership

Nynke Burgers[a], Dick F. Ettema[a], Pieter Hooimeijer[a] and Maria T. Barendse[b]

[a]Department of Human Geography and Spatial Planning, University Utrecht, Utrecht, The Netherlands; [b]Department of Data Analysis, Ghent University, Ghent, Belgium

ABSTRACT

Neighbours have been found to influence each other's behaviour (contagion effect). However, little is known about the influence on sport club membership. This while increasing interest has risen for the social role of sport clubs. Sport clubs could bring people from different backgrounds together. A mixed composition is a key element in this social role. Individual characteristics are strong predictors of sport club membership. Western high educated men are more likely to be members. In contrast to people with a non-Western migration background. The neighbourhood is a more fixed meeting place, which provides unique opportunities for people from different backgrounds to interact. This study aims to gain more insight into the influence of neighbours on sport club membership. This research looks especially at the composition of neighbour's migration background, since they tend to be more or less likely to be members and therefore could encourage of inhibit each other. A population database including the only registry data of all Dutch inhabitants was merged with data of 11 sport unions. The results show a cross-level effect of neighbours on sport club membership. We find a contagion effect of neighbours' migration background; having a larger proportion of neighbours with a migration background from a non-Western country reduces the odds, as expected. However, this contagion effect was not found for people with a Moroccan or Turkish background.

Abbreviations: CBS: Central Bureau of Statistics of the Netherlands; SFM: Sport Facility Monitor; SES: socio-economic status; PC6 level: 6-digit zip code areas in the Netherlands

KEYWORDS

Neighbours; social role; sport club membership

Introduction

Sport clubs play an important role in society, as they may have various societal benefits. First, they facilitate participation in sports and the associated physical activity, which has important health benefits. Physical activity has been positively associated with physical and mental health. Examples of the health benefits associated with physical activity include reduced cardiovascular disease, all-cause mortality, all-cancer

CONTACT Nynke Burgers n.burgers@uu.nl Department of Human Geography and Spatial Planning, University Utrecht, Princetonlaan 8a, Utrecht, 3584 CB, The Netherlands

mortality, type 2 diabetes, hypertension, breast cancer, colon cancer, gestational diabetes, gallstone disease, ischaemic heart disease, and ischaemic stroke (Macera et al., 2003; Macera & Powell, 2001; Miles, 2007; Warburton & Bredin, 2017; World Health Organization, 2010). Additionally, physical activity has been shown to reduce mental health problems such as depression and anxiety (Rebar et al., 2015).

In addition to the health benefits of physical activity, sport clubs also foster social interactions, with potential outcomes at the individual and societal level (Coalter, 2007; Elling, de Knop, & Knoppers, 2001; Putnam, 2000; Sport Verenigt Nederland, 2019; van Bottenburg, 2012). A first outcome capitalises on the similarities between sport club members (Putnam, 2000; Putnam & Goss, 2002). When members of sport clubs are more alike in terms of socio-economic characteristics and life orientation, this fosters more, closer and deeper interactions (Putnam, 2000). This in turn facilitates the exchange of knowledge about practical issues such as job opportunities, as well as access to advice, help, services and equipment (Coalter, 2007; Coleman, 1988; Putnam, 2000).

A second outcome of social interaction in sport clubs capitalises on differences between members in terms of socio-economic and cultural background (Putnam, 2000). Such differences lead to weaker and more superficial social interactions, but also to the transfer of social values and norms, leading to higher levels of trust between people of different backgrounds, which could lead to more mutual cohesion and integration between people with different backgrounds (Coalter, 2007; Putnam, 2000; van Bottenburg & Schuyt, 1996). The effects of diversity in sport clubs are well documented. Sport club membership has been found to lead to a more diverse social network and increased mutual trust and is associated with a higher degree of participation in society (Verweel et al., 2005; Vogels, 2014). Vogels (2014), found that sport club members with a non-Western migration background had more Dutch friends and acquaintances and spent more time with Dutch individuals in their free time than those who were not members of a sport club. Verweel et al. (2005) found that 26% of the respondents noticed that their opinions about other groups with a migration background had changed positively.

Given that interaction in sport clubs could facilitate and increase mutual cohesion and integration and the fact that they depend on the membership composition, it is important to understand what factors make individuals more likely to become sport club members. Previous research has suggested that characteristics such as educational attainment, a higher income and having younger children (household situation) are associated with higher levels of sport club membership, particularly for men (Breedveld, 2006; 2014; Kamphuis & van den Dool, 2008; Scheerder et al., 2006; Tiessen-Raaphorst, 2014; van Bottenburg et al., 2005; van der Werff, Hoekman, & van Kalmthou, 2015; Wicker et al., 2009). Various studies have shown gender differences in sport participation. Men have a higher chance of participating in sports and being a member of a sport club than women. This difference is even stronger for men and women with non-Western backgrounds (Vogels, 2014). Migration background has also been found to be associated with sport club membership. In the Dutch context, having a Dutch or Western migration background increases the probability of being a sport club member when compared to Dutch residents with a non-Western migration

background. In particular, residents with a Turkish or Moroccan migration background are less likely to be sport club members, and this effect is even stronger for women (Vogels, 2014; Elling, de Knop, & Knoppers, 2001). This difference is due to both cultural and socioeconomic factors. Many Turkish and Moroccan women are inhibited by cultural norms that prohibit the wearing of sport clothes. Additionally, the lower socio-economic status among Dutch residents with a Non-Western migration background hinders sport participation (Vogels, 2014; Elling, de Knop, & Knoppers, 2001). Sport clubs with a diverse membership composition could contribute to more mutual trust, cohesion of people from different backgrounds. While the relationship between personal characteristics and the contribution to the composition of sport club memberships is well established, less evidence exists regarding the association between an individual's residential environment and sport club membership (Nicholson & Hoye, 2008).

The impact of the residential neighbourhood on individual behaviours and outcomes in general (such as educational attainment, employment and income in later life) has been addressed in theoretical and empirical studies of so-called neighbourhood effects like social contagion (e.g. Atkinson & Kintrea, 2002; Ellen & Turner, 2003; Friedrichs et al., 2003; Galster, 2010; Sampson, Morenoff, & Gannon-Rowley 2002). This literature suggests that social contagion is an important mechanism that influences behaviour of neighbours. This mechanism could also influence sport club membership. Social contagion occurs through social interactions (Huckfeldt, 1983; Reis et al., 2000) within the social contexts in which we operate in our daily life (Fischer et al., 1977; Mollenhorst, 2009). In this respect, an individual's neighbourhood has a specific position. While choices regarding where to work, go to church, etc. are relatively free to make and relatively easy to change, the neighbourhood as a social context has meeting opportunities that are more fixed and encounters that are hard to avoid. Hence, people of different backgrounds will form local friendships or acquaintanceships based on the composition of their neighbourhood (Huckfeldt, 1983). The composition of the neighbourhood the behaviours and norms of its inhabitants will influence the behaviour of individuals in the neighbourhood via established social ties (Green & Singleton, 2009; Walker, 1995),Social contagion has been linked with individual behavioural outcomes such as voting behaviour, gaining weight and physical activity (Christakis & Fowler, 2013; Galster, 2010; Thiel et al., 2016), and the strength of the effect has been found to depend on neighbourhood composition. For example, middle-class people are more likely to vote for left-wing parties if they live among people with a working-class background (Segal et al., 1974). South and Crowder (1999) found that the composition of one's neighbours' matters for outcomes such as getting married and having children. Other studies have demonstrated that contagion effects exist with respect to child developmental outcomes such as psychological well-being and school achievements (Brooks-Gunn et al., 1993; 1997; Duncan et al., 1997).

Given the evidence, that accessibilities of sport facilities have been found to be associated with sport participation (Humpel et al., 2002; Karusisi, Thomas, Méline, Chaix, 2013), we have included accessibility to sport facilities as a control variable in this study.The effect of social contagion based on neighbourhood composition with respect to a variety of behaviours and outcomes, this sets out to investigate to what

extent neighbourhood composition is associated with the particular behaviour of being a member of sport club in the Netherlands. Given that migration background and socio-economic status are key determinants of sport club membership, we investigate in particular to what extent the composition of the neighbourhood in terms of these factors, influences individual sport club membership. Since sport club membership is markedly lower among individuals from lower socio-economic status and individuals with a Non-Western migration background, the social contagion mechanism suggests that a higher share of inhabitants with low socio-economic status of migration background lowers the probability of sport membership at the individual level. Likewise, a higher share of inhabitants of higher socio-economic status or Dutch background would increase the probability of sport club membership at the individual level. However, we expect that these effects may differ between groups, in particular between different migration backgrounds. First, migrants from groups that display lower sport participation rates may be less affected by other migrants displaying low sport club membership rates; however, their odds of membership may increase if the share of neighbours with a Dutch background, with higher sport club membership rates in their neighbourhood increases. In addition, different migrant groups may be affected differently, depending on their cultural norms and level of integration in society.

Additionally, neighbours with a Dutch background, on average, high membership rates may be specifically affected by being surrounded by Non-Western migrant groups with lower membership rates rather than being extra motivated by likeminded neighbours. Thus, we expect that the general contagion effect on sport club membership, which is based on the migration background and income composition of the neighbourhood, plays out differently for individuals depending on their own migration background.

This paper tests the above hypotheses about the social contagion effect based on migration background and income and how this effect plays out differently for specific groups with different migration backgrounds by using a unique combination of data sets. In particular, we use the register data of all Dutch inhabitants, combined with the data from members of the 11 major sport unions in the Netherlands, thus creating a complete database of sport membership at the population level. From this data set, we draw a 10 percent sample of the neighbourhoods from the Central Bureau of Statistics of the Netherlands (Centraal Bureau voor de Statistiek, 2013) to estimate the aforementioned contagion effects via multilevel analyses, controlling for selection effects and unobserved neighbourhood level correlations. By using cross-level correlation effects, we disentangle how migration background and income composition of neighbours may have different associations on sport club membership for individuals of different migration backgrounds.

Data and method

In this study, we used the only non-public register microdata from Statistics Netherlands (Centraal Bureau voor de Statistiek, 2013). The bureau electronically collects basic information of all registered persons in the Netherlands through several

registers, including population registers of municipalities, company registers from the Dutch Chamber of Commerce and tax registers. The data contain all Dutch registered adults older than 18 years on the key date, i.e. 31 December 2013. This means that 13,244,892 Dutch adults were included in this study. The data from these registers were merged to create a data set that contains relevant individual characteristics, including residential location, which allows us to calculate the composition of neighbours with a migration background. Other relevant variables include gender, age, migration background, household composition, and income. To make statements about the associations of social contagion between neighbours on sport club membership and the distance to sport facilities, the data of 11 Dutch sport unions (athletics, badminton, basketball, golf, field hockey, soccer, korfball, tennis, tour cycling, walking, squash, swimming) and information about the accessibility of sports facilities in 2013 by residential location provided by the Mulier institute in, 2013 were merged with the data of the CBS. This merge was conducted by the CBS due to privacy regulations. The 11 sport unions provided us with information on all members over the age of 18 years who were registered members on the key date of 31 December 2013. Of the total adult population, 130,392 (10.1%) are sport club members, with 69% being male and 31% being female athletes. The data about the accessibility of facilities were taken from the Sport Facility Monitor (SFM) of the Mulier Institute. This data set includes geographical information of almost all the sport facilities located in the Netherlands ($N = 56{,}441$). The analyses were performed on a random 10% sample of the total data set of 13,244,892 individuals of the population aged 18 and over of the Netherlands. Given that we draw the 10% sample from a set of about 420,000 neighbourhoods, containing 1,285,419 adults, this sample will have similar characteristics as the population.

Measures

Sport membership

The outcome variable in this study is sport club membership. Sport membership is defined as being included in the membership records of the abovementioned 11 sports unions on 31 December 2013.

Personal characteristics

Previous research has shown the association of personal characteristics with sport club membership. Therefore, when investigating neighbourhood effects, we control for the influence of personal characteristics. The personal characteristics we take into account are gender, age, migration background, household composition, and household income. Age is defined based on the date of birth and categorised into four groups (18–34 years, 35–49 years, 50–64 years, 65 years and older) based on previous studies (Breedveld, 2006; Tiessen-Raaphorst, 2014). The categorisation of migration background is based on CBS standards. This categorisation is applied on all Dutch registered residents. This means that everyone in the study is a Dutch registered individual and migration background is based on the land of birth of one or both of the respondent's parents. The mother determines the migration background of the child.

So if the mother is Moroccan and the father Turkish, the group of origin becomes Moroccan. Persons with a migration background were further divided into Dutch, Turkish, Moroccan, Surinam, Antillean/Aruban. For all the other countries of birth, persons were divided into Western (predominantly Europe and North America) and non-Western. The categorisation of household composition is based on previous studies of the effect of household composition on sport participation (Vogels, 2014), leading to the following categories. Household income is defined as standardised spendable yearly income. This consists of the overall earned income minus grants/contributions from the government and taxes. Income classes are based on the CBS standard categorisation (Centraal Bureau voor de Statistiek, 2016). Finally, given the clear evidence of gender differences in sport participation and club membership and the fact that this divide is stronger among minorities with a migration background, we also control for the interaction effect between gender and migration background on sport club membership.

Characteristics of neighbours

The composition of neighbours is measured as the composition of residents in the same 6-digit zip code area. There are 429,756 6-digit zip codes with an average of 30 households (minimum 1, maximum 696). In this study, we examine whether the migration background and income composition of neighbours is associated with being a member of a sport club. Because research has revealed individual migration background and income as strong indicators of being a member of sport clubs (Breedveld, 2006; 2014; Scheerder et al., 2006; Tiessen-Raaphorst, 2014; van der Werff, Hoekman, & van Kalmthou, 2015; Wicker et al., 2009), we focus on these two composition effects. In particular, to test for the contagion effect, the share of the different groups of migrant backgrounds and household income classes is calculated for each 6-digit zip code. For the individual income effect, we distinguish four income classes [irregular (<9,250), low (9,250–17,500), middle (17,500–35,000), and high (>35,000)]. The first class is rather exceptional, as it refers to households below the minimum welfare benefit income, including negative incomes, which could be an artefact of taxation in a particular year. The average share per zip code is less than 0.5% for irregular incomes, 23% for low incomes, 56% for middle incomes and 15% for higher incomes.

Calculating the composition of residents with a migration background within the 6-digit zip-code is done with two classes of migration backgrounds: the percentage of neighbours having a Western migration background or being Dutch and the percentage of residents with a non-Western migration background. Further splitting the latter category into individual origin countries at the zip code level would create highly skewed distributions of the share of residents with these backgrounds. Even with these two categories, 40% of all the zip code areas did not have any residents with a non-Western background.

Accessibility of sport facilities

This variable is included to control for potential differences between neighbourhoods in terms of accessibility of sport facilities that might be correlated with their

Table 1. Descriptive individual characteristics.

	%	% sport members
Gender		
Men	49	68
Women	51	32
Age		
18–34	26	30.6
35–49	26.6	30
50–64	28.8	25.1
65>	21.6	14.3
Migration background		
Dutch background	81.7	91.8
Turkish background	2.1	0.7
Moroccan background	1.8	0.5
Surinam background	1.9	0.7
Antillean/Aruban background	0.70	0.3
Western migrants	8.0	5.1
Non-Western migrants	3.7	0.9
Household composition		
Couple without kids	32.7	31.2
Single	20.6	13.3
One parent with kids younger than 7	0.50	0.1
One parent with kids older than 7	3.5	1.8
Couple with kids younger than 7	7.6	8.6
Couple with kids older than 7	30.5	41.8
Other	4.5	3.1
Income		
Below zero to minimum 9250	5.4	3.7
Low 9520–17,500	22.9	9
Modal 17,500–35,000	56.2	56.8
High 35,000 >	15.4	30.4

composition. To investigate the influence of accessibility to sport facilities on the odds of being a member of a sport club and to obtain unbiased estimates of the contagion effects, we calculate accessibility measures based on the location of sports facilities from the national database of the Mullier institute. This database includes all geo-coded facilities for the 11 sports included. A proximity count is calculated for every 6-digit zip code, based on the centre of the area, including all facilities that can be reached within a 10-minute drive by car. Travel times are derived from the National Road Database based on the travel speeds on different types of roads. In total, there are 56,441 sport facilities in the Netherlands, and the average number of sport facilities within a 10-minute reach is 88.5.

Statistical analyses

The analyses are executed on a random sample of 10% of all the 6-digit zip codes. This results in 41,752 areas with a total of 1,285,419 individuals. Several analyses are conducted. Table 1 shows the descriptive analyses of the personal characteristics and neighbours' composition variables of migration background and household income. More detailed descriptions of the composition residents with a migration background within the zip codes are presented in Table 2. To test the association of the composition of neighbours on sport membership, we apply a multilevel logistic regression model with cross-level effects. Logistic regression is performed in stepwise manner. In the first step, an empty model is estimated to calculate the intra-class correlation.

Table 2. Cumulative percentage by decile of the share of residents with Western and non-Western backgrounds within the pc6 zip code.

Decile	Western residents in 6-digit zip code	Non-Western residents in 6-digit zip code
0	0.1	40.4
10	0.4	71.7
20	1.2	83.8
30	2.0	89.6
40	3.3	93.0
50	5.0	95.3
60	7.3	96.8
70	10.8	98.0
80	17.0	98.9
90	30.2	99.7
95	43.9	99.7
100	100	100
Mean	90	10

Although the correlation coefficient for a dichotomous variable is difficult to interpret, its significance level will give an indication of whether multilevel analysis is needed. Next, a model with only individual characteristics and interactions between gender and Dutch residents' migration background as predictors of sport club membership is estimated. Finally, a model is estimated including variables at the PC6 level, in particular the composition of neighbours in terms of their migration background and household income. This model also includes cross-level interactions between the proportion of Dutch residents with a Western and non-Western migration background among neighbours and their individual migration background to test the hypothesis that composition of migration background plays out differently for Dutch residents with different migration backgrounds. Pre-analyses of the data are performed to test for (spatial) correlations in the error terms, necessitating multilevel analyses. The necessity of a multilevel structure is indicated by a significant intra-class correlation of 0.18, indicating that 18% of the chances of being a sport club member is explained by between-neighbourhood differences. Because there is a skewed distribution in the proportion of neighbours with a migration background (2.49) within the zip codes we wanted to make sure this did not bias the result. Approximately 40% of the pc6 in the Netherlands do not have any neighbours with a non-Western immigrant background (Table 2). Therefore, a new set is composed from the 10% sample, excluding all pc6 with zero residents having a non-Western background. Comparing the analyses on both sets shows that the parameters are very stable. Therefore, the decision is made to use the original data set. The analyses are conducted using Stata version 14.

Results

Logistic regression

Model 1: individual characteristics as predictors

Table 3 shows the regression odds-ratios, standard errors and significance levels for the two models predicting the association with sport club membership. The first model shows the individual characteristics assumed to predict sport club membership. According to this model, the odds of being a member of a sport club are significantly

Table 3. Logistic regression of sport club membership.

	Model 1				Model 2			
	Individual predictors				Multilevel			
Sport club membership	Odds	Sign.	95%	CI	Odds	Sign.	95%	CI
Constant	0.11	0.000*	0.101	0.108	0.05	0.000*	0.047	0.053
Gender (women vs. men)	0.42	0.000*	0.412	0.423	0.41	0.000*	0.458	0.422
Migration background (Migr. Back.)								
Western migrants vs. Dutch	0.63	0.000*	0.604	0.646	0.71	0.000*	0.679	0.733
Turkish vs. Dutch	0.47	0.000*	0.437	0.507	0.52	0.000*	0.458	0.592
Moroccan vs. Dutch	0.41	0.000*	0.378	0.450	0.40	0.000*	0.337	0.465
Surinam vs. Dutch	0.49	0.000*	0.454	0.532	0.60	0.000*	0.535	0.680
Antilles/Aruban vs. Dutch	0.55	0.000*	0.482	0.621	0.75	0.002*	0.624	0.899
Other non-Western migrants vs. Dutch	0.29	0.000*	0.267	0.307	0.33	0.000*	0.302	0.369
Age groups (years)								
35–49 vs. 18–34	0.75	0.000*	0.738	0.763	0.73	0.000*	0.721	0.746
50–64 vs. 18–34	0.58	0.000*	0.569	0.589	0.56	0.000*	0.546	0.566
65> vs. 18–34	0.49	0.000*	0.480	0.502	0.46	0.000*	0.449	0.469
Type of household								
Single vs. couple without kids	0.87	0.000*	0.849	0.885	0.91	0.000*	0.895	0.934
1 parent with kid/s < 7 year vs. couple without kids	0.62	0.000*	0.530	0.714	0.66	0.000*	0.572	0.771
1 parent with kid/s > 7 year vs. couple without kids	1.00	0.907	0.958	1.049	1.03	0.195	0.985	1.018
Couple with kid/s < 7 years vs. couple without kids	1.03	0.012	1.007	1.061	0.99	0.511	0.966	1.017
Couple with kid/s > 7 years vs. couple without kids	1.28	0.000*	1.255	1.297	1.21	0.000*	1.185	1.225
Other options vs. couple without kids	0.83	0.000*	0.801	0.863	0.86	0.000*	0.829	0.894
Household year income								
Less than 9250 vs. 9250–17,500	1.59	0.000*	1.529	1.649	1.38	0.000*	1.327	1.436
17,500–35,000 vs. 9250–17,500	2.00	0.000*	1.961	2.047	1.75	0.000*	1.712	1.789
More than 35,000 vs. 9250–17,500	3.71	0.000*	3.634	3.804	2.76	0.000*	2.687	2.826
Sport facilities within 10 min driving	0.999	0.001*	0.999	0.999	1.00	0.009*	1.00	1.00
Interaction gender * migr. Back.								
Gender * Turkish migr. Back.	0.14	0.000*	0.107	0.189	0.14	0.000*	0.107	0.189
Gender * Moroccan migr. Back	0.13	0.000*	0.087	0.179	0.13	0.000*	0.087	0.179
Gender * Surinam migr. Back	0.42	0.000*	0.352	0.499	0.42	0.000*	0.349	0.496
Gender * Antillean/Aruban migr. Back	0.65	0.001*	0.504	0.839	0.64	0.001*	0.492	0.821
Gender * Western migr. Back	1.00	0.150	0.908	1.015	0.94	0.045	0.893	0.999
Gender * Non-Western migr. Back ground	0.71	0.05	0.621	0.813	0.69	0.000*	0.599	0.785
Level 2								
Composition migr. Back of neighbours								
Proportion of residents with non-Western background					0.30	0.000*	0.275	0.335
Composition income of neighbours								
Prop. of residents with < 9250 household income					2.63	0.000*	2.331	2.973
Prop. of residents with 17,500–35,000 household income					2.62	0.000*	2.445	2.801
Proportion of residents with > 35,000 household income					9.03	0.000*	8.453	9.656
Cross-level migr. Back * prop migr. Back of neighbours								
Turkish*prop of non-Western neighbours					2.12	0.000*	1.565	2.865
Moroccan*prop of non-Western neighbours					3.32	0.000*	2.362	4.659
Surinam* prop of non-Western neighbours					1.11	0.511	0.810	1.528
Antillean/Aruban*prop of non-Western neighbours					0.73	0.263	0.425	1.263
Western migrants*prop of non-Western neighbours					0.29	0.000*	0.221	0.374
Other non-Western migrants* prop of non-Western neighbours					1.16	0.344	0.854	1.575
pc 6 variance	0.46	0.000			0.53	0.000		

Significant *$p < .01$. Log likelihood model 1 = 14,781.83; Log likelihood model 2 = 9306.54.

lower for women than for men, as indicated by the odds ratio of 0.42. Being a Dutch resident and having a non-Western migration background decreases the odds of being a member of a sport club, but the effect is less strong for those respondents with a Western background compared with residents with a Moroccan background or another non-Western background. The odds of being a member of a sport club also

decline with age. People between 18 and 34 are more likely to be members of a sport club compared to people who are older. The type of household is also associated with being a member of a sport club; however, not all household types have a significant effect on sport club membership compared to the base category (a couple without kids). A single parent is less likely to be a sport club member compared to a couple without kids. This outcome is even stronger for a single parent with children younger than seven. Couples who have children older than seven are, however, more likely to be members of sport clubs compared to couples without kids. The generalised spendable income of a household also has a positive association with sport club membership. A higher income increases the odds of being a member of a sport club compared to households with a lower income. Finally, the negative association of being female on sport club membership is even stronger for women with a non-Western migration background. This is particularly the case for Moroccan and Turkish women. The very small odds ratios (0.13 and 0.14) indicate that the combination of gender and migration background, respectively, outweighs any other factor in explaining sport club membership.

Model 2: multilevel with composition of neighbours as predictors

Model 2 adds neighbour composition and the cross-level interaction effects between neighbour composition and their migration background to Model 1. Although not all cross-level interactions are significant, a test of the complete multilevel model with the composition effects of neighbours and the cross-level interactions between the migration background of residents and the proportion of non-Western neighbours in the pc6 against the model with only the individual predictors results in a significantly better fit (likelihood ratio χ^2 (10) $= 374{,}939.47 - 3562.02 = 3562.02$, $p < 0.0001$.

Table 2 also shows the detailed results for Model 2. The parameters of the individual level are stable and are slightly smaller than those in Model 1. This model shows that the variables related to neighbour composition have a significant association with sport club membership. A higher share of neighbours with a better income increases the odds of being a sport club member. However, a higher share of neighbours with a non-Western migration background decreases the odds of being a member of a sport club. These findings indicate the existence of social contagion effects, as previously discussed. However, the question is whether the effect is the same for Dutch residents with diverse migration backgrounds. The cross-level interactions show that residents with a Surinamese, Antillean, Aruban, and other non-Western migration backgrounds are not significantly differently affected by the composition of neighbours with a migration background than are those with a Dutch or Western migration background. In addition to the main effect, people with a Western migration background, however, are less likely to be a member of a sport club when more of their neighbours have a non-Western migration background. Furthermore, the results show a positive cross-level association (3.32) for people with a Moroccan background. This effect even offsets the main negative effect (0.30) of the proportion of neighbours with a non-Western migration background on sport club membership. Thus, people with a Moroccan migration background seem to be not influenced by their share of non-Western neighbours regarding their likelihood of being members of a sport club.

Table 4. Probability of being a member of a sport club by the proportion of non-Western neighbours in pc6.

Proportion non-Western neighbours in pc6	0.10	0.25	0.35
reference Dutch man, 18–34 old with 9250–17,500 income	0.15	0.13	0.12
Dutch man, 35–49 old with 17,500–35,000 income, couple + kids > 7	0.22	0.19	0.17
Dutch man, 35–49 old with > 35,000 income, couple + kids > 7	0.30	0.27	0.24
Moroccan man, 35–49 old with 9250–17,500 income, couple + kids > 7	0.07	0.07	0.07
Turkish man, 35–49 old with 9250–17,500 income, couple + kids > 7	0.08	0.08	0.07

Additionally, a positive cross-level effect (2.12) is found for those with a Turkish background, indicating that Dutch residents with a Turkish migration background are less affected by their share of non-Western neighbours compared with residents with a Dutch background. However, this positive association is not as strong as that for people with a Moroccan background, leading to a net negative effect of the share of non-Western neighbours. To illustrate the effects of neighbour composition and own migration background, based on Model 3, we calculate the probability of being a member of sport club as influenced by the proportion of neighbours with a non-Western migration background. Membership probability is calculated with proportions of non-Western neighbours of 10, 25 and 35% for people with different migration backgrounds and other characteristics (Table 4).

When the proportion of neighbours with a non-Western migration background increases, the probability of being a member of a sport club declines for a Dutch man between 35 and 49 years of age living together with kids older than 7 years, differentially dependent on income. For low-income men, the probability decreases from 0.15 with a proportion of 10% of neighbours with non-Western migration backgrounds to 0.12 with a proportion of 35% of neighbours with non-Western migration backgrounds. The probability of being a member of a sport club for Dutch men with an average to high income decreases from 0.22 to 0.17. For the highest income, membership probability drops from 0.30 to 0.24. Thus, with increasing income, Dutch men are more heavily affected in their membership probability, as they start from an initial situation of higher membership levels. As Table 4 displays, Moroccan men are not influenced by the composition of neighbours in their chance of being a member of a sport club, as expected from the results of the full Model 3. Turkish men are less influenced by the composition of neighbours than are Dutch men. However, they are slightly influenced by the composition of their neighbours. There is a decrease from 0.08 membership probability for those living with 10 percent of their neighbours having a non-Western migration background, to 0.07 with 35 percent of their neighbours having a non-Western migration background. Therefore, the strongest effect was found for the group that normally has the highest likelihood of being members of sport clubs (Dutch men with average to high incomes).

Conclusion and discussion

This study examines whether the migration background of Dutch residents and income-based composition of neighbours is associated with individual sport club membership, in addition to the individual characteristics that are associated with sport club membership. Our findings regarding these individual characteristics are in line

with those of previous research we mentioned in the introduction. In particular, we find that men, younger individuals, couples, higher income households and native Dutch are more likely to be member of a sport club. We also find the expected strong interaction effect between migration background and gender of Dutch residents. Turkish and Moroccan women are far less likely to be members of sport clubs than are other individuals.

The main findings of this study are that composition of neighbours influences the behaviour, in being more or less likely to be members of sport clubs. Thus there is an existence of social contagion among neighbours with respect to being a member of a sport club. As expected, living amongst neighbours with characteristics that are known to be associated with higher sport club membership levels is positively associated with the probability of being member oneself (controlling for individual characteristics). This outcome is in line with what we expected based on social contagion theory between neighbours. The neighbourhood/street apparently functions as a relevant meeting opportunity in which neighbours influence each other, in this case to be members of sport clubs. First, the results show that living among neighbours with a higher spendable household income increases the probability of sport club membership. Second, the results show a negative effect of the share of Dutch neighbours with a non-Western migration background on sport club membership. Living among neighbours who are less likely to participate in sports, in this case those with a non-Western migration background, is found to reduce the probability of being a member of a sport club, even if your personal characteristics make you more inclined to be a member.

These outcomes indicate that contagion effects exist in the context of sport club membership in a similar vein as previous studies have found for individual behavioural outcomes such as voting behaviour, gaining weight, getting married, having children and physical activity (Christakis & Fowler, 2013; Galster, 2010; Segal et al., 1974; South & Crowder, 1999; Thiel et al., 2016).

Thus, living among neighbours from other migration groups who have a decreased tendency to be members of sport clubs could indeed inhibit one's likelihood of sport club membership through social interactions. If an individual's number of meeting opportunities with active members of clubs decreases, then the odds for that individual to become a member through an acquaintance will decrease (Mollenhorst, 2009).

Importantly, cross-level interactions indicate that this contagion mechanism does not function in the same manner for all Dutch residents with a migration background. The influence of the composition of neighbours with a migration background has a different effect on sport club membership for people with Dutch, Western, Turkish and Moroccan backgrounds. Dutch and people with a Western migration background have a higher probability of being sport club members, but this probability declines relatively strongly when they live among more neighbours with a non-Western migration background. Dutch people with a Moroccan migration background are less likely to be members of sport clubs, but their odds do not increase when they live among neighbours that participate more in such clubs. Additionally, Turkish people seem to be hardly affected by the composition of migration background of their neighbours regarding their chance of being sport club members. This effect could be because people with a Turkish or Moroccan background tend to have less contact with Dutch

residents and more contact with those in their own migration groups (Sociaal Cultureel Planbureau, 2016; Vogels, 2014). Due to fewer social interactions with others from different migration groups and more within-group contact, these individuals seem less influenced by meeting opportunities with others in their neighbourhood.

A common limitation in neighbourhood studies is the inability to fully control for self-selection into the neighbourhood. As mentioned in the introduction, we recognise that individual choices are often driven by the search for being with similar others (McPherson et al., 2001). Therefore, this search also affects the composition of neighbours and is a mechanism in socio-economic and segregation of people from different migration backgrounds. However, it is unlikely that residential choice would be driven by the preference to live among sport club members rather factors such as than housing quality and affordability.

Another limitation is that it is not possible to take into account the effect of education on sport club membership in the current study. The education registry of Statistics Netherlands is still incomplete. We acknowledge that educational attainment is an important determinant for sport club membership. However, we feel that the standardised spendable year income for each household serves as an acceptable indicator of socio-economic status (SES).

It was also not possible within this study due to analytical processes to further investigate the association of composition of neighbours on income and migration background and the odds of being a member of a sport club for Dutch residents with a migration background and whether they were born (second, third generation migrants) in the Netherlands or where born in another country. So we were not able to test the assimilation theory, that identification with the majority group and culture strengthen over time and generations (Verhaeghe et al., 2020). We were able to say something about the contagion effect on the behavioural association between composition of neighbours' migration background and income and sport club membership of Dutch residents with a non-Western background. It would be interesting to test the assimilation theory and investigate if Dutch residents with a first, second, or third generation non-Western migration background also have a higher odd of being a member of sport clubs. And if the contagion theory also had a different effect on them. This study uses population data from Statistics Netherlands, allowing for a geographically detailed and exact measurement of the effects of neighbour composition on individual behaviour. However, this approach also comes with the loss of being able to actually measure the social interaction among neighbours, which ultimately accounts for the contagion effect. For instance, one issue to address in the future would be whether the contagion effect entails copying the behaviour of others individually or whether the effect implies that people actually sport together with others from the same neighbourhood.

Future research should take this issue into consideration. It is recommended to investigate this mechanism more in depth by performing more quantitative and qualitative research on the contagion mechanism between neighbours with respect to sport club membership. This approach might also shed more light on the moderating mechanism we find for people with a Moroccan or Turkish background.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the NWO (Dutch organisation for scientifically research) [number: 328-98-002].

ORCID

Nynke Burgers http://orcid.org/0000-0001-8970-6496
Dick F. Ettema http://orcid.org/0000-0001-8404-5510
Pieter Hooimeijer http://orcid.org/0000-0001-5072-6481
Maria T. Barendse http://orcid.org/0000-0002-1632-0303

References

Atkinson, R., & Kintrea, K. (2002). Area effects: What do they mean for British Housing and Regeneration Policy? *European Journal of Housing Policy*, *2*(2), 147–166. https://doi.org/10.1080/14616710210140349

Breedveld, K. (2006). Verschillen in sportdeelnamen. In K. Breedveld, & A. Tiessen-Raaphorst (red.). *Rapportage sport* (pp. 299–321). Sociaal en Cultureel Planbureau.

Breedveld, K. (2014). *Sportparticipatie: Uitdagingen voor wetenschap en beleid*. Radboud Universiteit Nijmegen, Nijmegen.

Brooks-Gunn, J., Duncan, G. J., Klebanov, P. K., & Sealand, N. (1993). Do neighborhoods affect child and adolescent development? *American Journal of Sociology*, *99*(2), 353–395. https://doi.org/10.1086/230268

Brooks-Gunn, J., Duncan, G., & Aber, J.L. (Eds.). (1997). *Neighborhoods poverty: Context and consequences for development*. Russell Sage Foundation.

Centraal Bureau voor de Statistiek. (2016). Inkomensverdeling. https://www.cbs.nl/nl-nl/visualisatie/2016/11/inkomensverdeling

Christakis, N. A., & Fowler, J. H. (2013). Social contagion theory: Examining dynamic social networks and human behavior. *Statistics in Medicine*, *32*(4), 556–577. https://doi.org/10.1002/sim.5408

Coalter, F. (2007). Sports clubs, social capita land social regeneration: Ill-defined interventions with hard to follow outcomes? *Sport in Society: Cultures, Commerce, Media, Politics*, *10*(4), 537–559.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, *94*, S95–S120. https://doi.org/10.1086/228943

Duncan, G. J., Connell, J. P., & Klebanov, P. K. (1997). Conceptual and methodological issues in estimating causal effects of neighbourhoods and family conditions on individual development. In J. Brooks-Gunn, G. Duncan, & J.L. Aber (Eds.), *Neighborhood poverty: Context and consequences for development* (pp. 219–250). Russell Sage Foundation.

Ellen, I., G., & Turner, M., A. (2003). Do neighborhoods matter and why? in Courrier, K., Gorham, W., Hadley, J., Harrel, A. V., Reischauer, R. D., Rogers, J., Peterson, G. E., & Nightingale, D. S. (Eds). Choosing a better life? Evaluating the moving to opportunity soical experiment. (pp 313-338). The urban institue press.

Elling, A., de Knop, P., & Knoppers, A. (2001). The social integrative meaning of sport. A critical and comparative analysis of policy and practice in the Netherlands. *Sociology of Sport Journal*, *18*(4), 414–434. https://doi.org/10.1123/ssj.18.4.414

Fischer, C. S., Jackson, R. M., Stueve, C. A., Gerson, K., McCallister, J. L., & Baldassare, M. (1977). *Networks and places. Social relations in the urban setting*. Free press.

Friedrichs, J., Galster, G., & Musterd, S. (2003). Neighbourhood effects on social opportunities: The European and American Research and Policy Context. *Housing Studies*, *18*(6), 797–806. https://doi.org/10.1080/0267303032000156291

Galster, G. C., (2010). *The mechanism(s) of neighbourhood effects. Theory, evidence, and policy implications* [Paper presentation]. ESRC seminar.

Green, E., & Singleton, C. (2009). Mobile connections: An exploration of the place of mobile phones in friendship relations. *The Sociological Review*, *57*(1), 125–144. https://doi.org/10.1111/j.1467-954X.2008.01807.x

Huckfeldt, R. R. (1983). Social contexts, social networks, and urban neighborhoods: Environmental constraints on friendship choice. *American Journal of Sociology*, *89*(3), 651–669. https://doi.org/10.1086/227908

Humpel, N., Owen, N., & Leslie, E. (2002). Environmental factors associated with adults' participation in physical activity: A review. *American Journal of Preventive Medicine*, *22*(3), 188–199. https://doi.org/10.1016/S0749-3797(01)00426-3

Kamphuis, C., & van den Dool, R. (2008). Sportdeelname. In K. Breedveld, C. Kamphuis, & Tiessen-Raaphorst (red.), *Rapportage sport* (pp. 102–126). Sociaal en Cultureel Planbureau/ Mulier Instituut.

Karusisi, N., Thomas, F., Méline, J., & Chaix, B. (2013). Spatial accessibility to specific sport facilities and corresponding sport practice: the RECORD Study. *International Journal of Behavioral Nutrition and Physical Activity*, *10*(1), 48–10. https://doi.org/10.1186/1479-5868-10-48

Macera, C. A., Hootman, J. M., & Sniezek, J. E. (2003). Major public health benefits of physical activity. *Arthritis and Rheumatism*, *49*(1), 122–128. https://doi.org/10.1002/art.10907

Macera, C. A., & Powell, K. E. (2001). Population attributable risk: Implications of physical activity dose. *Medicine and Science in Sports*, *33*, 635–639. https://doi.org/10.1097/00005768-200106001-00032

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*(1), 415–444. https://doi.org/10.1146/annurev.soc.27.1.415

Miles, L. (2007). Physical activity and health. *Nutrition Bulletin*, *32*(4), 314–363. https://doi.org/10.1111/j.1467-3010.2007.00668.x

Mollenhorst, G. (2009). *Networks in context: How meeting opportunities affect personal relationships*. Enschede.

Nicholson, M., & Hoye, R. (2008). Sport and social capital. In M. Nicholson & R. Hoye (Eds.), *Sport and social capital: an introduction* (pp. 2–37). Elsevier.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster.

Putnam, R. D., & Goss, K. A. (2002). *Democracies in flux: The evolution of social capital in contemporary society* (pp. 3–20). Oxford University Press.

Rebar, A. L., Stanton, R., Geard, D., Short, C., Duncan, M. J., & Vandelanotte, C. (2015). A meta-meta-analysis of the effect of physical activity on depression and anxiety in non-clinical adult populations. *Health Psychology Review*, *9*(3), 366–378. https://doi.org/10.1080/17437199.2015.1022901

Reis, H. T., Collins, W. A., & Berscheid, E. (2000). The relationship context of human behaviour and development. *Psychological Bulletin*, *6*, 844–872.

Sampson, R. J., Morenoff, J. D., & Gannon-Rowley, T. (2002). Assessing "neighborhood effects": Social processes and new directions in research. *Annual Review of Sociology*, *28*(1), 443–478. https://doi.org/10.1146/annurev.soc.28.110601.141114

Scheerder, J., Thomis, M., Vanreusel, B., Lefevre, J., Renson, R., Vanden Eynde, B., & Beunen, G. P. (2006). Sports participation among females from adolescence to adulthood. A longitudinal study. *International Review for the Sociology of Sport*, *41*(3–4), 413–430. https://doi.org/10.1177/1012690207077702

Segal, D. R., & Meyer, M., (1974). *The social context of political partisanship*. In M. Dogan & S. Rokkan (eds.), *Social Ecology* (pp. 217–232). MIT Press.

Sociaal Cultureel Planbureau. (2016). Integratie in zicht. De integratie van migranten in Nederland op acht terreinen nader bekeken. SCP, Den Haag.

South, S. J., & Crowder, K. D. (1999). Neighborhood effects on family formation: Concentrated poverty and beyond. *American Sociological Review*, *64*(1), 113–132. https://doi.org/10.2307/2657281

Sport Verenigt Nederland. (2019). Nationaal Sportakkoord. https://www.sportenbewegenincijfers.nl/documenten/nationaal-sportakkoord-2019-publieksversie

Thiel, A., Thedinga, H. K., Thomas, S. L., Barkhoff, H., Giel, K. E., Schweizer, O., Thiel, S., & Zipfel, S. (2016). Have adults lost their sense of play? An observational study of the social dynamics of physical (in)activity in German and Hawaiian leisure settings. *Bio Medical Central Public Health*, *16*, 3–14.

Tiessen-Raaphorst, A. (2014). Verschillen in sportdeelname tussen mannen en vrouwen in de drukke levensfase. In: Tiessen-Raaphors, A. (red.) *Uitstappers en doorzetters. De persoonlijke en sociale context van sportdeelname en tijdsbesteding aan sport*. (pp. 48–55). Sociaal en Cultureel planbureau.

van Bottenburg, M., Rijnen, B., & van Sterkenburg, J. (2005). *Sports participation in the European Union: Trends and differences*. Arko Sports Media.

van Bottenburg, M. (2012). Om de sport verenigd: instituties in de sportwereld. In J. W. Duyvendak, K. Gerxhani, O. Velthuis, & C. Bouw (red.), *Sociale kaart van Nederland. Over maatschappelijke instituties*. Boom Lemma.

van Bottenburg, M., & Schuyt, K. (1996). *De maatschappelijke betekenis van sport [The social meaning of sport]*. NOC*NSF.

van der Werff, H., Hoekman, R., & van Kalmthou, J. (2015). Sport clubs in the Netherlands. In C. Breuer, R. Hoekman, S. Nagel, & H. van der Werff. *Sport clubs in Europe. A cross-National comparative perspective* (pp. 271–290). Springer International.

Verhaeghe, F., Bradt, L., Houtte van, M., & Derluyn, I. (2020). Identification assimilation patterns in young firs, second, 2.5 and third generation migrants. *Young*, *28*(5), 502–521. https://doi.org/10.1177/1103308819900727

Verweel, P., Janssens, J., & Roques, C. (2005). Kleurrijke zuilen. Over de ontwikkeling van sociaal kapitaal door allochtonen in eigen en gemengde sportverenigingen'. [Colourful pillars. On the development of social capital by non-autochthonous people in separate and mixed sport clubs]. *Vrijetijdstudies*, *23*(4), 7–21.

Vogels, R. (2014). Sportdeelname van niet-westerse migranten. In: Tiessen-Raaphorst, A. (red.), *Uitstappers en doorzetters. De persoonlijke en sociale context van sportdeelname en tijdsbesteding aan sport*. (pp. 67–88). Sociaal en Cultureel planbureau.

Walker, K. (1995). Always there for me": Friendship patterns and expectations among middle- and working-class men and women. *Sociological Forum*, *10*(2), 273–296. https://doi.org/10.1007/BF02095961

Warburton, D. E. R., & Bredin, S. S. D. (2017). Health benefits of physical activity: A systematic review of current systematic reviews. *Current Opinion in Cardiology*, *32*(5), 541–556. https://doi.org/10.1097/HCO.0000000000000437

Wicker, P., Breuer, C., & Pawlowski, T. (2009). Promoting sport for all to age-specific target groups: The impact of sport infrastructure. *European Sport Management Quarterly*, *9*(2), 103–118. https://doi.org/10.1080/16184740802571377

World Health Organization. (2010). *Global recommendations on physical activity for health*. WHO Press.