



**HAL**  
open science

# What forms of socialization lead women to stop cycling during adolescence?

David Sayagh, Clément Dusong

► **To cite this version:**

David Sayagh, Clément Dusong. What forms of socialization lead women to stop cycling during adolescence?. *International Review for the Sociology of Sport*, 2021, 21p. 10.1177/10126902211029622 . hal-03346867

**HAL Id: hal-03346867**

**<https://hal.science/hal-03346867>**

Submitted on 27 Sep 2021

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# What forms of socialization lead women to stop cycling during adolescence?

International Review for the  
Sociology of Sport  
1–21

© The Author(s) 2021

Article reuse guidelines:

[sagepub.com/journals-permissions](https://sagepub.com/journals-permissions)

DOI: 10.1177/10126902211029622

[journals.sagepub.com/home/irs](https://journals.sagepub.com/home/irs)



David Sayagh 

Université de Strasbourg, France

Clément Dusong

Université Gustave Eiffel, France

## Abstract

Cycling in public spaces is both a mobility and a physical activity underpinned by considerable issues, but women practice significantly less, particularly during adolescence. A few studies have sought to study this phenomenon but mainly on the basis of social psychology theories. Based on 84 semi-structured biographical interviews conducted in France, this article aims to discuss their findings using gender, mobility and socialization sociology. We first show how a ‘feminine’ socialization to risk taking, body aesthetics, sport, street and mechanics is an obstacle to cycling during adolescence, especially in the working-class environment and all the more so in spatial contexts with strong norms of male appropriation of public space. We then show how the fact of having cyclists in one’s social environment and a sporting inclination plays an important role in limiting the risk of abandonment. By highlighting processes of reinforcement of gendered bodily and spatial inclinations, our results shed light on the links between the socio-construction of inequalities in accessing public space and of inequalities in accessing physical activities. Furthermore, they encourage the study of bicycle socialisation in an intersectional way and suggest the interest of studying the links between urban, ecological, health, sport and mobility socialisations.

## Keywords

bicycle, adolescence, socialisation, gender, women, mobility

## Introduction

Regardless of its form (utilitarian, recreational and/or sporting), cycling in public spaces is both a mobility and a physical activity underpinned by considerable environmental,

---

### Corresponding author:

David Sayagh, ENTPE: École de l’aménagement durable des territoires (School of Civil, Environmental and Urban Engineering), Équipe Sport et sciences sociales, Université de Strasbourg, Strasbourg, France.

Email: [david.sayagh@entpe.fr](mailto:david.sayagh@entpe.fr)

health and economic issues (Papon et al., 2017). With the clear improvement in cycling networks and the rising cost of car use in French cities in recent years, the bicycle is becoming an essential resource in urban areas, an increasingly practical and fast transport alternative. However, not all individuals are equal in terms of access to cycling. Despite a wave of both political and commercial promotion of cycling among women in developed countries, in most countries around the world, women cycle significantly less than men, especially for sport, but also for utility purposes. Although the gap has narrowed slightly in recent decades, in France, it has widened in recent years (in 2009, the modal share of cycling was 3.5% for men and 2% for women, whereas in 2019 it was 4% for men and 1.5% for women; SDES, 2020). This gap is particularly wide during adolescence, a pivotal period in the construction of gendered identities (Mardon, 2009) during which 'everything happens as if boys take over public spaces when they can no longer find answers in supervised practices, while girls disappear from these spaces and withdraw into the private sphere' (Maruéjols, 2011: 1). Indeed, whether studied as mobilities (Sayagh, 2016) or as sports activities (Naves and Octobre, 2014), cycling practices do not escape the observation that physical activity falls during adolescence, particularly among girls (Dumith et al., 2011; Gleizes and Pénicaud, 2017). Even in the Netherlands – the cycling kingdom, where women cycle as much or more than men – adolescent girls (12–17 years of age) are almost 28% less likely to cycle to school than adolescent boys (Soemers, 2016). In France, two main observations are made. On the one hand, the gender gap in cycling is widening especially between the 11–13 and 14–16 years age groups, between which the probability of reporting having cycled regularly or occasionally decreases much more markedly among girls. On the other hand, it is systematically in City Policy Priority Neighborhoods (QPV)<sup>1</sup> that this gap is most pronounced (Sayagh, 2016). The norms of male appropriation of public space are generally more prevalent there than elsewhere (Oppenchain, 2011); teenage girls' mobility is more closely monitored and restricted (Oppenchain, 2011; Sayagh, 2018), and their rate of physical/sports activity is particularly low there (Guérandel, 2016).

The health issues of cycling during adolescence are such that some researchers interpret the gender gap as a lack of gender equity in health (Frater and Kingham, 2018). In fact, on the one hand, physical inactivity has major deleterious effects on the physical, mental, psychosocial and emotional health of adolescents (Saunders et al., 2016); on the other hand, physical activities during childhood and adolescence promote a 'harmonious development (including anatomical, physiological, psychological, emotional and social development)' (Grélot, 2016: 58). Even in the case of home-to-study trips (that generate relatively short physical activity times), there is evidence that cycling can account for a considerable proportion of total physical activity and play a significant role in the prevention of overweight and obesity risks (Faulkner et al., 2009), as well as major cardiovascular risks (Andersen et al., 2011). In addition, cycling during adolescence would greatly favour a sustainable positive image of cycling, high cycling skills (Thigpen, 2019) and more frequent practice in adulthood (Abasahl et al., 2018; Bonham and Wilson, 2012).

More or less explicitly, a few studies have sought to study why women are particularly inclined to stop cycling during adolescence (Bonham and Wilson, 2012; Dill, 2017; Frater and Kingham, 2018; Goddard and Dill, 2014; Underwood et al., 2014). These studies show that girls are particularly affected by the norms conveyed by friends and

parents, and are sensitive to negative images associated with bicycling (Dill, 2017; Frater and Kingham, 2018; Underwood et al., 2014). Moreover, they are particularly affected by a lack of ‘cycling confidence’ (including in bike maintenance), by personal security concerns (notably feeling not comfortable biking alone on the street) (Dill, 2017; Frater and Kingham, 2018), by the fear of traffic (Dill, 2017) and the fear of being injured (Goddard and Dill, 2014). These studies conducted in Australia, the USA and New Zealand are mainly in the field of urban studies and planning, and are based in particular on social psychology theories. The modal share of cycling in these countries is fairly comparable to that of the French context ( $\sim 2\%$ ), as is the lower proportion of women among cyclists ( $<40\%$ ) (Garrard et al., 2012). While the studies in question make it possible to identify, at a given moment, certain behaviours and gendered attitudes that explain why women bicycle less during adolescence, they do not shed light on the social construction processes that underlie these observations. Based on a qualitative research conducted in France, this article aims to remedy this by discussing their findings using gender, mobility and socialization sociology.

## Theoretical framework

In this perspective, dimensions other than age, gender and geographical context will have to be considered. In particular, the fact that in most developed countries, including France, the children of executives are significantly more likely to see their mothers cycling than the children of the working class (SDES, 2020). Conversely, women from disadvantaged backgrounds, especially immigrant women from developing countries, are more likely to never learn how to cycle, or to stop doing so after reaching puberty (Segert and Brunmayr, 2018), including in the Netherlands (Harms, 2007). As suggested by Steinbach et al. (2011), the meanings of cycling may differ across urban, gendered, ethnic and class identities. While cycling tends to be devalued (equated with childhood or poverty) in underprivileged environments, it tends to be valued in environments that are favored in terms of cultural capital, where its health and ecological advantages are highlighted.

While previous studies have only looked at the utilitarian cycling during adolescence, we will take into account the fact that a significant proportion of cycling practices take a ‘playful’ form (Devaux, 2013), calling for an investigation that goes beyond the simple ‘origin–destination’ adequacy of trips.

In this article, we will be interested in all forms of cycling in the public space, with the exception of those carried out in an institutional framework (club, association, etc.). Based on a classification developed by Sayagh (2020), we will refer to ‘utilitarian’ practices to designate practices where the bicycle is used to meet a need for travel. ‘Adventurous’ practices are practices where the bicycle is used on unknown routes. We will refer to ‘playful’ practices as practices in which the bicycle is used for play. We will refer to ‘sporting’ practices to designate practices where the bicycle is deliberately used with the idea of making a physical effort. Finally, we will use the formula ‘space occupation’ practices to refer to cycling practices characterized by an occupation of space, either ‘circular’: resulting in the fact of turning close to the neighbourhood/village of residence for entertainment or ‘parking’: mobility during which the aim is to occupy a specific place, which can be

an 'informal sports installation' (Bach, 1993; such as a square) or a formal installation (as a skatepark).

Insofar as all cycling practices are characterized by both physical activity and mobility, one of the main challenges in studying gendered bicycle socializations will be to analyse how sport socializations and public space mobility socializations are articulated.

Socialization can be defined as the progressive and constantly renewed processes through which an individual is shaped by the global and local society: processes during which individuals acquire, 'internalize' and 'incorporate' ways of doing things, of thinking and of being, enabling them to situate themselves and interact in the different social worlds in which they live (Darmon, 2010).

Gender refers to the processes of social construction of differentiations and hierarchizations of gendered categories, divided in a binary and arbitrary way according to masculine/feminine opposition. This definition breaks with essentialist theories (Delphy, 2001; Scott, 1986) and highlights 'power relations' (Scott, 1986) which are hierarchical between men and women, at the intersection of other power relations (age, class, ethnicity, etc.) (Pfefferkorn, 2007). Thus, gendered socialization can be defined as the incorporation of sexed ways of doing, thinking and being that fuel and are fuelled by gender, at the intersection of other power relations (Clair, 2012). Gendered socialization processes are based on many instances of socialization – including the family, school, media, peers, sports, leisure and cultural activities, and the street – but also on many peripheral agents of socialization such as objects, clothes, accessories, and so on (Bereni et al., 2020). Adolescence is a pivotal period in the construction of gendered identities during which most girls reinforce their inclinations to groom their appearance through make-up and feminine clothing depending on how they learn that boys will react to this appearance (Mardon, 2009). We will refer to 'feminine socialization' to designate a form of socialisation through which individuals incorporate ways of being, thinking and acting that are socially perceived as feminine (Clair, 2012).

Public space mobility socialization is defined here as the set of processes that shape the ways of practicing and thinking mobility in public space. During adolescence, the socializing effects of mobility mainly occur during free time, freed from institutional and family constraints, moments during which adolescents are freer to act and interact with others (Oppenchain, 2011; Rivière, 2014). Mobility is thus an opportunity to break free from certain rules used in the familiar world and to confront their habits with other ways of doing, thinking and being (Oppenchain, 2011). Gendered public space mobility socialization is reflected in particular in the fact that girls' mobility is more supervised by their parents, in particular by their mothers, who play an essential role in transmitting a gendered perception of public spaces (Rivière, 2014). At the same age, girls are less likely to travel alone and play unsupervised in public spaces (Frater and Kingham, 2018; Karsten, 2003). With regard specifically to cycling, girls are generally less likely to own a bicycle, less likely to know how to repair a bicycle, and more likely to never learn to ride one. In France, they are on average taught later (39.8% learn before the age of 6 years compared to 47.2% for boys) (Observatoire des mobilités actives, 2013) and are less encouraged to bicycle by their parents (Sayagh, 2018). While adolescence generally results in a reinforcement of these gendered educational practices (Rivière, 2014), it is also often the period in which girls experience their first street harassment,

which generally tends to reinforce their sense of vulnerability and illegitimacy in public space (Lieber, 2008).

Sport socialisation is defined as the set of processes that shape the ways of practising and thinking physical and sports activities. Because sport is historically a stronghold of masculine identity and an area of male domination where nonmixture reigns, in general, physical and sports activities contribute to the essentialization of the idea of physically weak women (Terret and Zancarini-Fournel, 2006). Research on gendered primary sports socializations shows, on the one hand, that children, and especially adolescents, are generally encouraged (mainly by family, peers and the media) to adopt practices according to their biological sex, and on the other hand that these practices contribute in particular to the construction of inclinations and tastes for mechanics, new technologies, adventure, risk taking, competition and aggressiveness in boys, whereas they favor more the taste for indoor activities and the incorporation of inclinations to aestheticization of the body, grace, suppleness and agility in girls (Mennesson, 2005; Naves and Octobre, 2014). While they can also lead to the questioning of gender norms, physical and sports activities are particularly effective in reproducing the gender hierarchy because they act directly on the body through practice, the material culture made up of equipment and clothing, as well as through different modes of interaction and occupation of space. Because gender stereotypes still present the home as a safe haven and the outdoors as a risky place for women (Lieber, 2008; Raibaud, 2015), outdoor physical activities and sports (including in urban contexts) are particularly associated with risk taking and masculinity, and are especially low in popularity among young European women (Dellas and Elling, 2018). In France, this observation seems to be favoured by the fact that subsidised leisure and sports facilities for young people are, on average, targeted twice as much at boys (skate/BMX park, street soccer pitch, etc.), who are also more encouraged to use and explore public space by their parents (Raibaud, 2015). Thus, gendered sports socialisation processes intersect with gendered public space mobility socialization processes: teenage girls are less encouraged to engage in physical activities because they are less encouraged to invest in public space, and vice versa.

## Methodology

In most studies, the lack of long-term temporal perspective precludes the understanding of cyclists' practices as an outcome of past experiences (Jones et al., 2014). Thus, we have adopted a biographical approach. The aim of the research was not so much to investigate how women's bicycle socializations are significantly different from men's, but rather to ask to what extent some women's bicycle socializations were particularly conducive to stopping cycling during adolescence and to what extent other women's bicycle socializations produced the opposite effect. It was therefore decided to focus on the socializations of women. Our analysis is based on three corpora of formal semi-structured biographical interviews conducted between 2014 and 2020 with 84 women aged between 17 and 80 years in various geographical and social settings of the metropolises of Montpellier, Strasbourg and Paris (Table 1). Strasbourg was chosen because it provides the most developed cycling network in France, and Montpellier because it is a metropolis of a comparable size (around 500,000 inhabitants) but with a bicycle modal share more

**Table 1.** Characteristics of the women interviewed.

	Age	Activity	Metropolis	Place of residence
Aïssata	17	Vocational high school	Strasbourg	Priority neighbourhoods QPV
Alexia	17	General high school	Montpellier	Outer suburbs
Alice	18	General high school	Montpellier	Inner
Amal (Pauline's mother)	50	Caregiver	Montpellier	Outer suburbs
Amandine	17	General high school	Montpellier	Inner
Amélie	18	General high school	Strasbourg	Inner
Amina	17	General high school	Montpellier	Priority neighbourhoods QPV
Anaïs	18	General high school	Paris	Inner suburbs
Anne-Claire	60	Private sector pensioner	Paris	Inner suburbs
Assia	17	Vocational high school	Strasbourg	Outer suburbs
Astrid (Emma's mother)	42	Student	Montpellier	Inner
Awa	18	Vocational high school	Strasbourg	Priority neighbourhoods QPV
Bénédicte (Laura's mother)	52	Project assistant	Paris	Inner suburbs
Camille	17	University	Montpellier	Inner
Carine	17	Vocational high school	Strasbourg	Outer suburbs
Carla	34	Microentrepreneur	Paris	Inner suburbs
Carol	70	Trade union pensioner	Paris	Inner suburbs
Cécile	31	Consultant	Paris	Inner suburbs
Cécile (Camille's mother)	42	Early childhood educator	Montpellier	Inner
Célia	17	General high school	Strasbourg	Outer suburbs
Céline	42	Consultant	Paris	Inner suburbs
Claire	17	General high school	Strasbourg	Inner suburbs
Clémence	18	Vocational high school	Strasbourg	Inner
Delphine	40	Engineer	Paris	Inner suburbs
Eliane	79	Post Office pensioner	Paris	Inner suburbs
Emma	17	General high school	Montpellier	Inner
Eva	17	Technological high school	Strasbourg	Inner suburbs
Fabienne	51	Accountant	Paris	Inner suburbs
Fabienne (Célia's mother)	49	Factory worker	Strasbourg	Outer suburbs
Fanjatiana	50	Accountant	Montpellier	Outer suburbs

*(Continued)*

**Table 1.** (Continued)

	Age	Activity	Metropolis	Place of residence
Fanny	42	Chief human resources officer	Montpellier	Outer suburbs
Fanta	39	Medical secretary	Paris	Inner suburbs
Florence (Anaïs' mother)	50	Assistant manager	Paris	Inner suburbs
Françoise	70	Telecom operator pensioner	Paris	Inner suburbs
Gabriela	44	Human resources manager	Paris	Inner suburbs
Geneviève (Mathilde's mother)	57	Annuitant	Montpellier	Inner
Gwenaëlle	17	General high school	Montpellier	Inner suburbs
Hélène	48	Housewife	Paris	Inner suburbs
Jacqueline	67	English teacher pensioner	Paris	Inner suburbs
Jeanne (Marie's mother)	57	Schoolteacher	Montpellier	Inner
Johanna	17	General high school	Strasbourg	Outer suburbs
Judith	56	Musician	Paris	Inner suburbs
Julie	36	Primary teacher	Paris	Inner suburbs
Juliette (Madeleine's mother)	50	Schoolteacher	Strasbourg	Outer suburbs
Laëtitia	32	Artist	Paris	Inner suburbs
Laïla	18	Technological high school	Strasbourg	Priority neighbourhoods QPV
Laura	18	General high school	Paris	Inner suburbs
Laure	17	Technological high school	Strasbourg	Outer suburbs
Laurence (Margot's mother)	43	schoolteacher	Montpellier	Outer suburbs
Laurie	17	Technological high school	Strasbourg	Inner suburbs
Linda	49	Unemployed	Paris	Inner suburbs
Louise	18	University	Montpellier	Inner
Lucie	50	Proofreader for a publishing house	Paris	Inner suburbs
Ludivine	17	General high school	Strasbourg	Inner
Madeleine	17	Vocational high school	Strasbourg	Outer suburbs
Margot	17	General high school	Montpellier	Outer suburbs
Marie	18	University	Montpellier	Inner

(Continued)



**Table 1.** (Continued)

	Age	Activity	Metropolis	Place of residence
Marina	18	University	Montpellier	Outer suburbs
Maryam	38	Educator	Paris	Inner suburbs
Mathilde	17	General high school	Montpellier	Inner
Méline (Gwenaëlle's mother)	49	Notary	Montpellier	Inner suburbs
Michelle	66	Psychologist	Paris	Inner suburbs
Monica	17	Vocational high school	Strasbourg	Inner
Morgane	17	General high school	Montpellier	Outer suburbs
Nacéra	17	Technological high school	Strasbourg	Priority neighbourhoods QPV
Nadine	52	Medical doctor	Paris	Inner suburbs
Nathalie	52	Library assistant	Paris	Inner suburbs
Nathalie (Alice's mother)	40	Nurse	Montpellier	Inner
Noémie	17	Technological high school	Montpellier	Outer suburbs
Pauline	17	General high school	Montpellier	Outer suburbs
Ranja	56	Unemployed	Paris	Inner suburbs
Rebecca	18	General high school	Strasbourg	Priority neighbourhoods QPV
Roxane	18	Vocational high school	Strasbourg	Inner
Safia	17	Vocational high school	Strasbourg	Priority neighbourhoods QPV
Sara	17	Student	Strasbourg	Inner
Solene	17	Technological high school	Strasbourg	Inner
Stéphanie	30	Primary teacher	Paris	Inner suburbs
Sylvie	68	Deputy Mayor	Paris	Inner suburbs
Valérie (Marina and Louise's mother)	49	School life auxiliary	Montpellier	Outer suburbs
Vanessa	49	Childcare educator	Paris	Inner suburbs
Virginie (Morgane's mother)	47	Account manager	Montpellier	Outer suburbs
Yasmine	18	Schooled	Strasbourg	Priority neighbourhoods QPV
Zerah	17	Technological high school	Strasbourg	Inner

*(Continued)*

**Table 1.** (Continued)

Age	Activity	Metropolis	Place of residence
Average age = 33.6		Strasbourg = 26	Inner = 20
		Montpellier = 28	Inner suburbs = 35
		Paris = 30	Outer suburbs = 20 Priority neighbourhoods QPV = 9

similar to the national average (2% compared to 8% in Strasbourg). The inner suburbs of Paris are interesting because the proportion of women cyclists – although low – has increased strongly in recent years (Omnil, 2010; SDES, 2020). In general, the centre of the metropolises is overrepresented by executives; the first ring is overrepresented by the intermediate classes and the second ring has a larger share of the working class.

With a view to obtaining a diversified sample, we avoided building our corpus based solely on the ‘tree structure’ principle, so as not to confine the survey to one or more specific subgroups of the largest population (Olivier de Sardan, 1995). We therefore proceeded in parallel with a ‘reasoned’ recruitment of respondents (Gaudric et al., 2016). The goal was not to develop a representative sample in the statistical sense but rather to diversify the cases encountered. In addition, the choice of three separate sites was not so much in the light of a comparative study but to control that what is observed in a territory is not specific to it. We made sure not to exclude from the survey the women living in priority policy neighborhoods (QPV), which are socially disadvantaged areas. Social class was determined on the basis of the interviewees’ occupation, or that of their parents (for 17- and 18-year-old girls).

Because the objective was to bring out recent memories of both their childhood and adolescent practices, the choice of recruiting as many adolescent girls as possible in their late teens (17–18 years) seemed relevant to us ( $n=41$ ). The mothers of 14 of them were also interviewed both to study their bicycle socialization and the role they played in their daughter’s bicycle socialization. This was a way of comparing the information disclosed by their daughter and of studying with more precision the influence of educational practices. In the end, about a quarter of the interviewees were recruited in high schools, a little less than a quarter in socio-cultural centers, about a quarter on the street, and a little more than a quarter by word of mouth.

The interview method put in place was intended to allow participants to explore the topic in their own way (Bonham and Wilson, 2012; Crotty, 1998). All the interviews were first aimed to reconstruct ex-post, the life trajectories of women with respect to their bicycle practices and perceptions. Although priority was given to questions based on what interviewees said, a semi-structured topic guide covered several themes: salient memories about cycling, obstacles encountered (and how they overcame them),

change phases, mobility habit evolution, mobility intentions for the future, parents' mobility habits, social relations influences, cycling and other transport mode experiences and perceptions, physical activity experiences and perceptions and spatial perceptions.

Interviews lasted an average of 75 min and were recorded with the interviewees' consent and entirely transcribed *verbatim*. To improve interrater reliability, we communicated regularly, comparing our notes and analyses throughout the data collection and analysis processes. We independently coded the transcripts, using an inductive grounded theory approach, beginning with open coding of the text, then came together to talk about individual similarities and differences in the codes and themes. Using an iterative process, following our discussion, we returned to the transcripts and our notes for further analysis; we continued this process of analysis and constant comparison until we reached an agreement on the major themes (Olson et al., 2016; Sparkes and Smith, 2014). For the purpose of this paper, we translated relevant quotes from French to English.

## Results and discussion

Nearly two-thirds of the women in the sample stopped bicycling during several or all of their teenage years; it was at this time that they generally learned to avoid physical exertion, taking physical risks, moving alone, occupying public space and venturing out. Most of the time, this goes hand in hand with a change in self-image associated with the likening of cycling to childhood or to a boys' sport. As we shall see, certain events – sometimes concomitant – are proving to be particularly influential in encouraging this observation and precipitating the interruption of cycling during adolescence.

### *'Feminine' socialisation to risk taking*

One of the most salient results from the interviews is that while bicycle falls are relatively trivialized in childhood, as we approach adolescence, they take on a whole new meaning. It seems as if a strong tendency to 'be careful' not to damage one's body becomes stronger with age. It seems as if adolescence makes it essential for women to adhere to the stereotype that engaging in physically risky behaviour is not feminine. This stereotype is so strong that most women who continued to cycle in a 'sporty' or 'playful' way during adolescence justified this by saying that they were 'a bit of a tomboy'. These observations echo a study indicating that while the average cycling speed of young boys aged 8–12 years continues to increase with increasing age, the average speed of the girls surveyed begins to follow the same trend, but drops from the age of 10 years onwards (Briem et al., 2004). Particularly socialized to avoid physical risks, girls are – as early as preadolescence (9–12 years) – less inclined than boys to engage in risky cycling behavior (Granić, 2013). Our results are totally in line with those that show that girls are very affected by the fear of traffic (Dill, 2017) and the fear of being injured (Goddard and Dill, 2014) and it seems that this tendency is reinforced during adolescence. In the same way, the majority of the adolescent girls in the sample (17–18 years old) who engaged in 'playful' practices during childhood tend to devalue these practices later, which is reinforced by the fact that all bicycles designed for 'sporting' practices

(mountain bikes, racing bikes) and ‘space occupation’ practices (BMX) tend to be perceived as ‘boy’s’ bicycles.

Célia: [Slaloming on a tinkered course with wooden planks in the courtyard of her house] I wouldn’t do it today. I was a kid, and I don’t know, after a while, you’re too old to have your knees skinned! [Laughs] [...] Sometimes I used to take my neighbour’s BMX, but it’s a bit ridiculous. Either you’re standing up or bent over, it’s a bit ridiculous actually! I mean it’s not for me. I really prefer a city bike, you see with a basket in front, I really don’t feel comfortable on a boy’s bike.

We: Boy’s bike? What do you mean?

Célia: No boys but ... You see, it’s more boys who... well BMXs are very boyish! It’s mostly for ... but even mountain bikes, I mean, especially with the shock absorbers everywhere [laughter] there are some that look like motorbikes! And even for race bikes (Célia, 17, high school student, intermediate middle class regarding economic capital, outer suburbs of Strasbourg metropolis).

Gendered injunctions seem to be conveyed both by the bikes themselves and by the sports media. Indeed, several interviewees mentioned the fact that they had never seen women’s cycling events on television, whereas the Tour de France had sometimes been a source of motivation for their father and/or brother to take up or resume cycling in a ‘sporting’ way. The new result here is that the Tour de France seems to play a role in both ‘sporting’ and ‘utilitarian’ gendered bicycle socializations.

I never understood this passion for the Tour de France [...] I remember that during the Tour, my father and my brother were motivated to do a lot of cycling, they used to ride all day long in the middle of a heat wave, on very dangerous mountain roads... and also, sometimes it motivated my father to cycle to work, even though his job was so far away! (Fabienne, 49, factory worker, outer suburbs of Strasbourg metropolis).

Moreover, almost a fifth of women ( $n = 16$ ) stopped cycling for several years of their adolescence – or even much longer – due to a fall without serious injury. In our sample, this observation is much more pronounced in working-class areas, and all the more so in North African immigrant families living in QPVs where the concern to preserve the reputation of girls is particularly important. The gendered norms of space use and transport modes in some QPVs are such that three girls in the sample claim to have stopped cycling in France (two of them due to a fall), while continuing to do so during the summer holidays in their parents’ home countries (Morocco and Algeria) in less dense urban contexts perceived as safer, more tolerant of the practice of girls, and safer.

Here, if a girl hangs around on a bike with boys, especially if she does ... acrobatics like them, it’s a bit frowned upon, well it’s not ... it’s not that she can’t, but people will, people will talk, they’ll say anything, that it’s a tomboy ... an easy girl or whatever (Nacéra, 17, high school student, working class, QPV of Strasbourg).

On the outskirts of large suburbs, particularly in low-density areas, where the occupation of public space is also highly gendered (Devaux, 2013), the context also plays an important role insofar as the perceived road risk is particularly associated with the threat of abduction, which is itself inseparable from the threat of rape. More generally, as a result of this particularly gendered fear, we observe that adolescence is often marked by a reinforcement of gendered educational practices, resulting in the supervision and limitation of girls' mobility, especially in the case of low perceived security in the neighbourhood and when puberty begins: this is in line with the literature (Carver et al., 2012; McDonald, 2012; Rivière, 2014).

### *'Feminine' socialization to body aesthetics*

The change in how parents look at their daughters and in how daughters look at themselves during this period of body transformation often plays a major role in the interruption of cycling. In fact, the speeches made by several mothers interviewed about their teenage daughter lead to establishing a link between (a) the onset of their daughter's first menstrual period, (b) the change in the way their daughters look at themselves, (c) the start of their daily use of make-up, and (d) their abandonment of cycling and of formal sport. In general, the teenage girls concerned are particularly prone to equate cycling with childhood and do not have any cycling female friend in their close circle. They often suggest that the acquisition of 'feminine' clothing may have been a factor in their decision to stop cycling.

I think she stopped [to cycle] completely in the eighth grade [at 13]. In the eighth grade, that's when she felt more ... well, she became a woman, a young woman, well, she had her first period. In fact, her friends and her sister [twin] had had them before, so when Marina had them, she was happy as hell! And she felt as if she had grown up! She started wearing makeup, etcetera (Cécile, Marina's mother, 42, early childhood educator, outer suburbs of Montpellier metropolis).

The bike is not practical with my clothes, my coat, my shoes, I don't have suitable shoes, and then with my handbag, it's not practical (Anaïs, 18, high school student, intermediate middle class regarding economic capital, inner suburbs of Paris).

As Mardon (2009) has shown, the first menstruation is a true moment of identity transition; it marks the end of childhood and often involves changes in actions. And in general, young women tend not to include physical activity in their descriptions of what it meant to 'become a woman' (Rees et al., 2006: 818). Thus, the findings we have just described are often concomitant with dropping out of sport in general. We observe on the one hand that women who continued to practice sports during adolescence are less likely to perceive women's clothing as a barrier to cycling, and on the other hand that women from working-class backgrounds seem more likely to stop cycling and sport almost simultaneously. Especially in these popular circles, women who report falls during adolescence tend to express regret, even guilt, and essentially insist on the unsightly details of the marks left by the incident, often to the point of suggesting that it would not have mattered if it had not left a scar. As reported by Moulin (2005), the press aimed at adolescent girls is

an ardent participant in this ‘socialization to bodily perfection’, urging girls to put make-up on, to veil imperfections, to ‘hide the marks’ (p. 78). As Fanjatiana’s comments show below, adherence to the stereotype that a woman must take care of her appearance more than a man plays a key role in limiting women’s access to cycling, mainly for those with a ‘feminine’ gendered identity (Steinbach et al., 2011). This stereotype should be linked to gendered sporting norms that are often integrated or reinforced during adolescence. Our results corroborate studies showing that, from adolescence, the image of the ‘sweaty sportswoman’ does not fit the image of femininity that most girls want to give themselves (Davis et al., 2000: 28).

In high school, I didn’t want to do sport because we couldn’t take a shower, even though we had class right afterwards! It’s exactly the same for cycling, I couldn’t, I couldn’t come to class all sweaty. Nowadays, at work when I have clients, it’s the same [...] when we arrive at a client meeting and have just experienced the heat while riding a bike, it is very difficult to keep going because we are soaked... so for a woman it’s a bit annoying (Fanjatiana, aged 50 years, accountant, resident of the inner suburbs of Montpellier).

### *‘Feminine’ socialization to the street*

In addition, when their bodies change, adolescent girls often experience their first street sexual harassment. These experiences, combined with the increased parental supervision, generally reinforce the idea that ‘a young girl should not be getting around alone’ (De Singly, 2002: 29). This way of thinking is very restrictive with regard to mobility opportunities. For example, several women in the sample report that they stopped cycling (mostly ‘utilitarian’ but also ‘sporting’) during adolescence after being harassed on the road ( $n = 11$ ). In most cases, they were subsequently driven in cars by their parents, which did not encourage their autonomy and independence. This was the case of Sara, who was brought to school by her mother’s car from the eighth grade (age: 12–13 years), while she had been cycling to school since the fourth grade (age: 8–9 years):

I remember that as I had grown up, I was already more ... woman, and ... when I was biking I was often whistled at, accosted or looked at insistently, in addition as it was on a mountain bike the position was, leaning, not ... very ... comfortable ... so it bothered me a little compared to that when there were cars behind and everything, I didn’t like it very much (Sara, 17, high school student, intermediate middle class regarding economic capital, inner Strasbourg metropolis).

Very often, this kind of experience leads to a transformation in the way of apprehending the public space, resulting in particular learning and the more or less conscious elaboration of protective strategies. Women who decide to continue cycling usually learn not to occupy public space (Zaffran, 2016) and/or not to engage in ‘adventurous practices’ and/or not to stand too leaned forward on their bikes and/or to dress ‘like a man’ and/or to modify their itinerary by sometimes taking detours and/or to avoid getting around alone. Most of the strategies learned are thus avoidance strategies, but a few women – particularly those who told us they were ‘a bit of a tomboy as a child’ and/or those who grew up in a dense urban environment – sometimes deploy the opposite

strategy, which is to adopt a more ‘masculine’ behaviour by becoming more ‘aggressive’ in traffic: a strategy also observed by Heim LaFrombois (2019). These findings are a reminder that transportation and personal safety issues are key to understanding inequalities in access to physical activities (Woodward et al., 1989). More specifically, they corroborate studies, which show that ‘young women in large cities’ are particularly affected by men’s urban violence against them (Lebugle and l’équipe de l’enquête Virage, 2017), functioning as ‘reminders of gender order’ (Lieber, 2008) and forcing them to learn how to implement risk anticipation and avoidance strategies, which can go as far as giving up going out (Gardner, 1990; Lieber, 2008). It is striking that none of the women in the sample engaged in ‘parking’ practices during their teenage years.

Laura’s discourse illustrates how the incorporation of the idea that she does not belong in the public space leads her to reinforce her general mental vigilance (Gardner, 1990) and contributes to her lack of cycling ability confidence (Frater and Kingham, 2018).

Actually, I’m under pressure. If I’m on my bike, I’m under pressure. I’m afraid I might upset people, maybe get in the way ... For example, if I’m at a red light and I get at the front of the line of cars, I’m afraid of not accelerating enough, or not starting fast enough (Laura, high school student, intermediate middle class regarding cultural capital, inner suburbs of Paris).

### *‘Feminine’ socialization to mechanics*

Finally, like Frater and Kingham (2018), we observe a considerable lack of bicycle maintenance skills. It seems important to point out that these skills are essentially transmitted from father to son, so much so that several respondents said that their younger brother regularly repaired their bicycle ( $n = 7$ ). Our results here are new in showing that the mastery of these skills is not without effect on the ways and possibilities of cycling. It is often – especially for boys equipped with a repair kit – an opportunity to move away from home more serenely. Moreover, girls’ lack of skills sometimes serves as a pretext for parents to forbid them to go far away, to demand to know their itinerary, or to demand that they do not travel alone.

Aïssata (17, lower class, QPV of Strasbourg): My father didn’t want me to go by bike [to a friend’s house] because it was a bit far away and the bike, it’s true, I don’t know what was wrong with it, it kept getting punctured, but it was well inflated this time, but since I don’t know how to put the, what’s it called, the things you have to stick on the wheel? Well not on the wheel ..., I don’t know what it’s called...

Us: The patches?

Aïssata: Yes, the patches! As I don’t know how to do it, my father said to me: ‘No, don’t go, if you get a flat tire, how are you going to do it?!’. So I wanted him to teach me but my brother came back and brought me.

Women over 45 years of age seem to be less affected by this lack of bicycle maintenance skills. Five of them report that their use of a moped during adolescence has prompted them to develop mechanical skills. Four of them grew up in sparsely populated

areas and stopped cycling as soon as they had access to a moped, most often at the age of 14 or 15 years. The finding that no woman under 45 years of age is concerned probably has a historical explanation. As reported by Héran (2014), mopeds experienced an exceptional boom in France between the 1950s and 1970s, and remained very popular in the countryside in the 1980s and 1990s, but declined sharply thereafter.

We have just seen how a ‘feminine’ socialisation to risk-taking, body aesthetics, sport, street and mechanics is an obstacle to cycling during adolescence, especially in the working-class environment and all the more so in spatial contexts with strong norms of male appropriation of public space. We will now consider whether certain socializing resources can help to limit the risk of women abandoning cycling during adolescence.

### *Having cyclists in one’s social environment and a ‘sporting’ inclination: two resources that seem to limit the risk of abandonment*

The vast majority of the women in the sample who frequently cycled during their teenage years live in a wide variety of spatial environments, but they have in common the experience of having cyclists in their social environment and a ‘sporting’ inclination. In addition, especially for girls with little experience and who are not inclined to cycle alone – the presence of cyclists in the social environment often proves to be determining in avoiding the abandonment of cycling during adolescence, which is line with the results of Dill (2017), Frater and Kingham (2018) and Underwood et al. (2014).

Anything sporty is not really my thing, I’m a bit lazy [...] I think that if I had a friend to go cycling with, that might motivate me (Assia, 17, intermediate middle class regarding economic capital, outer suburbs of Strasbourg metropolis).

Also, it can happen that an encounter – including a love encounter – precipitates the resumption of cycling. That was the case for Laïla, an interesting case to illustrate how the gender order (Clair, 2012) as well as the social order can be questioned through cycling experiences between peers of the same sex but from different social backgrounds. While cycling to primary school, she moved to her current neighborhood (QPV) when she was 12 years old, and walked to school because none of her ‘neighborhood friends’ cycled. However, when she arrived in 11th grade (4 years later), she took a great deal of admiration for a girl in her class who lived in a ‘wealthy neighborhood’: Pauline. At first, the latter made her want to ride her bike again, to get to high school. Then their exchanges and the journeys they shared (notably to Pauline’s house) allowed her to develop skills and a way of perceiving and practicing cycling that are quite unusual for a teenage girl from her social background, but which increased her opportunities to get around:

She showed me how to get on the pavement while staying on the bike ... and also, I didn’t really know how to shift gears and even adjust my brakes [...] she made me realize that cycling is good for your health, for the ecology, for everything in fact! and you go faster ... you can go fast if someone is bothering you (Laïla, 18, high school student, lower class, QPV of Strasbourg).



Overall, we observe a kind of duality between girls/women who feel safer cycling than walking and girls/women who feel safer walking than cycling. While both tend to feel unsafe walking alone, the latter tend to be much more accompanied in their trips. Quite often, they point out that walking is more conducive to conversation. This aspect is enlightening insofar as adolescent girls' sociabilities are strongly based on conversational activities, which probably helps explain why during this period, girls are as much likely than boys to walk to school (McDonald, 2012). On the contrary, for some adolescent girls, particularly from the middle or upper-middle class regarding cultural capital, and whose mothers are mostly cyclists, cycling helps to emancipate them from the feeling of vulnerability in public space. The daughters and mothers concerned put forward the idea that by cycling they are less conspicuous or that they can leave more quickly in case of danger: a strategy, which is often passed on unconsciously by mothers.

Moreover, it is common for the girls and women concerned to point out that cycling allows them to keep control of their bodies and preserve their health. Contrary to the appropriation of the bicycle with a view to losing weight – which rarely translates into a long-term practice – the appropriation with the idea of staying slim is particularly recurrent among the women who do not stop cycling during adolescence. Often, this appropriation concerns fairly sporty girls and women from the middle or upper-middle class. Most show some pride in being physically active. For some, the bicycle is clearly an instrument of social distinction through weight control. This aspect is clearly seen in the words of Gwenaëlle (17, upper middle class regarding economic capital, inner Montpellier metropolis), who explains in a way how the bicycle enables her to distinguish herself from those who 'eat too much' and 'think little'.

Gwenaëlle: [Cycling] I also use it for sport, to stay in good health [...] some people eat, me I do sport, that's how it is! [Laughter]

Us: There are some who eat, don't you eat?

Gwenaëlle: Yes of course, but I mean... some people eat too much, like those who spend their life in McDonald's and then wonder why they are fat! I don't know if they think a lot!

While most women who cycled frequently during adolescence had a particular inclination to be physically active, it seems important to note that only one woman in the sample was involved in an appropriation of the bicycle around the idea of strengthening her muscular power. She is also one of the few women in the sample to have practised a formal sport during adolescence with performance objectives. She explains that once she had 'sports goals', she took her bicycle instead of taking the bus, with the aim of 'building up her thighs'. In spite of the fact that a 'sporting' inclination seem to favor the practice of cycling, it should be noted that girls (especially those from lower class) are significantly less likely to participate in formal sports, even less likely to participate in competition, and even less likely to have performance objectives than boys and men (Naves and Octobre, 2014); they are therefore particularly unlikely to appropriate the bicycle as a means of physical preparation.

## Conclusion

The main objective of this article was to study why women are particularly inclined to stop cycling during adolescence. We first saw how a 'feminine' socialization to risk-taking, body esthetics, sport, street and mechanics is an obstacle to cycling during adolescence, especially in the working-class environment and all the more so in spatial contexts where norms of male appropriation of the public space are particularly prevalent. We have underlined the essential role of the instances of socialization represented by parents, peers, the street and sport, but also the important role of peripheral agents of socialization such as the bicycles themselves, clothes and make-up. We have shown that certain experiences and events – often concomitant – prove to be particularly influential during this period in precipitating the interruption of cycling, mainly: a fall, secondary school entrance, body changes, street sexual harassment, abandonment of formal sport, and losing the opportunity to cycle with a friend. We then showed how the fact of having cyclists in one's social environment and a sporting inclination can play an important role in limiting the risk of abandonment.

Our results corroborate those of studies conducted in Australia, the USA and New Zealand based in particular on social psychology theories (Bonham and Wilson, 2012; Dill, 2017; Frater and Kingham, 2018; Goddard and Dill, 2014; Underwood et al., 2014), but they shed more light on the social construction processes involved. They underscore the importance of gendered socialisation by highlighting processes of reinforcement of gendered corporal and spatial inclinations (to move alone, to venture and occupy public spaces; to be physically active, to take risks) that underpin the sociogenesis of inequalities in access to public space between women and men. By showing close links between mobility socialization and sport socialization, the results suggest that the fight against inequalities in access to public space should be considered as an important lever for the promotion of physical and sports activities among women.

Furthermore, our results encourage the study of bicycle socialisation in an intersectional way. They suggest that middle- and upper-class women, especially those with strong cultural capital, are in the best position to respond to current health and environmental injunctions. In light of this observation, the challenge is to prevent the promotion of cycling among women from becoming a stigmatizing moral enterprise for women from the most underprivileged social and spatial backgrounds, who turn out to be the least inclined to cycle. In summary, our results suggest the interest of studying the links between urban, ecological, health, sport and mobility socializations in a systematic way.

Finally, it seems to us that the main limitation of our study lies in the fact that the accuracy of the interviewees' memories tends to deteriorate with age. While we tried to limit this bias by recruiting as many girls as possible in their late teens, it would be interesting to complete our study by focusing on the adolescent cycling socializations 'in the making'.


## Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

## Funding

The authors disclosed receipt of the following financial support for the research, authorship and/or publication of this article: This work was supported by the French Institute of Science and Technology for Transport, Development and Networks (public funding from the French State)

## ORCID iD

David Sayagh  <https://orcid.org/0000-0001-5337-8427>

## Note

1. *Quartiers de la Politique de la Ville* in French.

## References

- Abasahl F, Kelarestaghi KB and Ermagun A (2018) Gender gap generators for bicycle mode choice in Baltimore college campuses. *Travel Behaviour and Society* 11: 78–85.
- Andersen LB, Wedderkopp N, Kristensen P, et al. (2011) Cycling to school and cardiovascular risk factors: A longitudinal study. *Journal of Physical Activity & Health* 8(8): 1025–1033.
- Bach L (1993) Sports without facilities: The Use of urban spaces by informal sports. *International Review for the Sociology of Sport* 28(2–3): 281–296.
- Bereni L, Chauvin S, Jaunait A, et al. (2020) *Introduction aux études sur le Genre*. Bruxelles: De Boeck.
- Bonham J and Wilson A (2012) Bicycling and the life course: The start-stop-start experiences of women cycling. *International Journal of Sustainable Transportation* 6(4): 195–213.
- Briem V, Radeborg K, Salo I, et al. (2004) Developmental aspects of children's behavior and safety while cycling. *Journal of Pediatric Psychology* 29(5): 369–377.
- Carver A, Timperio A, Hesketh K, et al. (2012) How does perceived risk mediate associations between perceived safety and parental restriction of adolescents' physical activity in their neighborhood? *International Journal of Behavioral Nutrition and Physical Activity* 9(1): 57.
- Clair I (2012) *Sociologie du Genre*. crot. Paris: Armand Colin.
- Crotty M (1998) *The Foundations of Social Research: Meaning and Perspective in the Research Process*. London: Sage Publications.
- Darmon M (2010) *La Socialisation*. Paris: Armand Colin.
- Davisse A, Dechavanne N and Labridy F (2000) La mixité est-elle garante d'une réelle égalité des sexes en éducation physique? *Hyper EPS* 210(1): 24–28.
- Dellas V and Elling A (2018) *Towards Gender Equity in Urban Outdoor Sport Spaces. An Explorative Study on Women and Outdoor Sports in Five European Cities*. Utrecht: Erasmus; European Union.
- Delphy C (2001) *L'ennemi Principal - Tome 2, Penser Le Genre*. Paris: Syllepse.
- de Singly F (2002) La "liberté de circulation": Un droit aussi de la jeunesse. *Revue des politiques sociales et familiales* 67(1): 21–36.
- Devaux J (2013) Mobilités du quotidien, manières d'habiter et socialisation d'adolescents d'un village rural francilien. PhD Thesis. Université Paris-Est
- Dill J (2017) Why do girls' attitudes about bicycling decline as they get older? Active Living Research Conference.
- Dumith SC, Gigante DP, Domingues MR, et al. (2011) Physical activity change during adolescence: A systematic review and a pooled analysis. *International Journal of Epidemiology* 40(3): 685–698.

- Faulkner GE, Buliung RN, Flora PK, et al. (2009) Active school transport, physical activity levels and body weight of children and youth: A systematic review. *Preventive Medicine* 48(1): 3–8.
- Frater J and Kingham S (2018) Gender equity in health and the influence of intrapersonal factors on adolescent girls' decisions to bicycle to school. *Journal of Transport Geography* 71: 130–138.
- Gardner CB (1990) Safe conduct: Women, crime, and self in public places. *Social Problems* 37(3). Oxford Academic: 311–328.
- Garrard J, Handy S and Dill J (2012) Women and cycling. In: *City Cycling*. Cambridge: The MIT Press, pp. 211–234.
- Gaudric P, Mauger G and Zunigo X (2016) *Lectures Numériques : Une Enquête sur les Grands Lecteurs. Études et Recherche*. Paris: Éditions de la Bibliothèque publique d'information.
- Gleizes F and Pénicaud É (2017) Pratiques physiques ou sportives des femmes et des hommes : Des rapprochements mais aussi des différences qui persistent. *Insee Première* (1675): 1–4.
- Goddard T and Dill J (2014) Gender differences in adolescent attitudes about active travel. In: 93rd Annual Meeting of the Transportation Research Board, Washington, p. 15.
- Granié M-A (2013) Différences de sexe et rôle de l'internalisation des règles sur la propension des enfants à prendre des risques à vélo. *Recherche Transports Sécurité* 2011(1): 34–41.
- Grélot L (2016) Activités physiques et sportives de l'enfant et de l'adolescent : Des croyances aux recommandations sanitaires. *Journal de Pédiatrie et de Puériculture* 29(2): 57–68.
- Guérandel C (2016) *Le Sport Fait Mâle: La Fabrique des Filles et des Garçons dans les Cités*. Fontaine: Presses Universitaires de Grenoble.
- Harms L (2007) Mobility among ethnic minorities in the urban Netherlands. Urban mobility and social inequity. *German Journal of Urban Studies* 46(2).
- Heim LaFrombois ME (2019) (Re)Producing and challenging gender in and through urban space: Women bicyclists' experiences in Chicago. *Gender, Place & Culture* 26(5): 659–679.
- Héran F (2014) *Le retour de la bicyclette. Une histoire des déplacements urbains en Europe, de 1817 à 2050*. Paris: La Découverte.
- Jones H, Chatterjee K and Gray S (2014) A biographical approach to studying individual change and continuity in walking and cycling over the life course. *Journal of Transport & Health* 1(3): 182–189.
- Karsten L (2003) Children's use of public space: The gendered world of the playground. *Childhood (Copenhagen, Denmark)* 10(4).
- Lebugle A and Virage L (2017) Les violences dans les espaces publics touchent surtout les jeunes femmes des grandes villes. *Population Sociétés* 550(11): 1–4.
- Lieber M (2008) *Genre, Violences et Espaces Publics: La Vulnérabilité Des Femmes En Question*. Fait politique. Paris: Presses de Sciences Po.
- Mardon A (2009) Les premières règles des jeunes filles : Puberté et entrée dans l'adolescence. *Sociétés Contemporaines* 75(3): 109.
- Maruéjols É (2011) La mixité à l'épreuve des loisirs des jeunes dans trois communes de gironde. *Agora Debats/Jeunesses* 59(3): 79–91.
- McDonald NC (2012) Is there a gender gap in school travel? An examination of US children and adolescents. *Journal of Transport Geography* 20(1). Special Section On Child & Youth Mobility: 80–86.
- Mennesson C (2005) *Être Une Femme Dans Le Monde Des Hommes: Socialisation Sportive et Construction Du Genre*. Sports en société. Paris: Harmattan.
- Moulin C (2005) *Féminités Adolescentes : Itinéraires Personnels et Fabrication des Identités Sexuées*. Rennes: Presses universitaires de Rennes.
- Naves M-C and Octobre S (2014) *Lutter Contre les Stéréotypes Filles-Garçons Un Enjeu D'égalité et de Mixité dès L'enfance*. Paris: CGSP.

- Observatoire des mobilités actives (2013) Le vélo et les Français en 2012. Available at: [http://www.villes-cyclables.org/modules/kameleon/upload/1LesFrancaisetLeVelo\\_v3.pdf](http://www.villes-cyclables.org/modules/kameleon/upload/1LesFrancaisetLeVelo_v3.pdf).
- Olivier de Sardan J-P (1995) La politique du terrain. Sur la production des données en anthropologie. *Enquête. Archives de la revue Enquête* 263(1): 71–109.
- Olson JD, Mcallister C and Grinnell LD (2016) Applying constant comparative method with multiple investigators and inter-coder reliability. *The Qualitative Report* 21(1): 26–42.
- Omnil (2010) Enquête globale transport 2010. Observatoire de la mobilité en Île-de-France.
- Oppenchain N (2011) Mobilité quotidienne, socialisation et ségrégation: une analyse à partir des manières d'habiter des adolescents de Zones Urbaines Sensibles. PhD Thesis. Université Paris-Est
- Papon F, Chaurand N, Dusong C, et al. (2017) Revue de littérature sur les risques et les avantages sur la santé, réels et perçus, de la pratique des modes actifs. IFSTTAR.
- Pfefferkorn R (2007) *Inégalités et Rapports Sociaux: Rapports de Classes, Rapports de Sexes*. Le genre du monde. Paris: Dispute.
- Raubaud Y (2015) Durable mais inégalitaire : La ville. *Travail, Genre et Sociétés* n° 33(1): 29.
- Rees R, Kavanagh J, Harden A, et al. (2006) Young people and physical activity: A systematic review matching their views to effective interventions. *Health Education Research* 21(6): 806–825.
- Rivière C (2014) Ce que tous les parents disent? approche compréhensive de l'encadrement parental des pratiques urbaines des enfants en contexte de mixité sociale (Paris-Milan). PhD Thesis. Institut d'Études Politiques.
- Saunders TJ, Gray CE, Poitras VJ, et al. (2016) Combinations of physical activity, sedentary behaviour and sleep: Relationships with health indicators in school-aged children and youth. *Applied Physiology, Nutrition, and Metabolism* 41(6): S283–S293.
- Sayagh D (2016) Analyse sociospatiale du clivage sexué des pratiques du vélo durant l'adolescence. *Recherche Transports Sécurité* 2016(01–02): 43–58.
- Sayagh D (2018) Les adolescentes font-elles moins de vélo en raison de moindres possibilités réelles d'investir l'espace public? *Enfances Familles Générations* 30(1): 1–26.
- Sayagh D (2020) Étudier des inégalités d'alternatives de mobilité à vélo. *EspacesTemps.net*. DOI: 10.26151/espacestemp.net-2sqy-r334.
- Scott JW (1986) Gender: A useful category of historical analysis. *The American Historical Review* 91(5): 1053.
- SDES (2020) Résultats de l'enquête mobilité des personnes. Ministère de la transition écologique.
- Segert A and Brunmayr E (2018) *Can Public Bike Sharing Systems Encourage Migrant Women to Use Bicycles?* Wien: Institut für Höhere Studien.
- Soemers J (2016) Steps towards an active future. A study on the influences on transport mode choice to school among Dutch adolescents. Master's thesis. Utrecht University, Utrecht.
- Sparkes AC and Smith B (2014) *Qualitative Research Methods in Sport*. London: Taylor and Francis.
- Steinbach R, Green J, Datta J, et al. (2011) Cycling and the city: A case study of how gendered, ethnic and class identities can shape healthy transport choices. *Social Science & Medicine* 72(7): 1123–1130.
- Thierry T and Zancarini-Fournel M (2006) *Le Genre Du Sport. CLIO. Histoire Femmes Sociétés*. Toulouse: Toulouse PU Mirail.
- Thigpen C (2019) Do bicycling experiences and exposure influence bicycling skills and attitudes? Evidence from a bicycle-friendly university. *Transportation Research Part A: Policy and Practice* 123: 68–79.
- Underwood SK, Handy SL, Paterniti DA, et al. (2014) Why do teens abandon bicycling? A retrospective look at attitudes and behaviors. *Journal of Transport & Health* 1(1): 17–24.

- 
- Woodward D, Green E and Hebron S (1989) The sociology of women's leisure and physical recreation: Constraints and opportunities. *International Review for the Sociology of Sport* 24(2): 121–135.
- Zaffran J (2016) Bouger pour grandir. Défection et mobilité des adolescents. *Les Annales de la recherche urbaine* 111(1): 68–77.