

1 **BICYCLING IS FREEDOM: A QUALITATIVE ANALYSIS OF IMMIGRANT**
2 **CYCLING EXPERIENCES**

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1 ABSTRACT

2 While factors such as urban form, infrastructure, and attitudes motivate cycling, the experience
3 of cycling can vary drastically across socioeconomic groups. For low-income immigrants, the
4 experience can be constrained both by income and by cultural factors associated with countries
5 of origin. In this study, I ask what contributes to the cycling experience for Latino immigrants.
6 Results are based on 23 individual in-depth interviews in the San Francisco Bay Area. Through
7 an iterative qualitative coding process, five prominent themes emerged from the conversations. I
8 find that Latino immigrants discover freedom and emotion in cycling, that cultural norms
9 motivate and constrain bicycle use, and that immigrant cyclists face unique opportunities and
10 barriers when spatially navigating the city. Furthermore, cost and traffic safety concerns are also
11 present, but providing remittances for families and living in disinvested neighborhoods creates a
12 distinct set of experiences that others may not face. Cultural identity plays a strong role in
13 encouraging and dissuading cycling among Latino immigrants.
14

1 INTRODUCTION

2 Why do people bicycle? This question is simple, but the answer is complex. Supportive built
3 environment characteristics, such as dense urban form that promotes shorter travel distances,
4 high-quality cycling infrastructure, and bicycle facilities at destinations play a role in motivating
5 cycling (1–3). Favorable attitudes toward cycling also encourage people to take it up or to
6 continue (4–9). But cycling rates are not the same across all sociodemographic groups, so the
7 reasons for cycling are likely to differ as well. For example, some research suggests that
8 immigrants to the United States cycle more than their US-born counterparts, controlling for
9 several built environment and socioeconomic characteristics (10). Although there are few studies
10 that examine why immigrants bicycle, research suggests that reasons for higher rates of non-
11 automobile use include culturally-specific factors, such as social network ties to borrow cars and
12 get rides and sending remittances to family that delays automobile ownership (11–14).

13 Moreover, the experience of traveling can vary drastically depending on neighborhood
14 conditions, socioeconomic position, and personal need. Some scholars have argued that
15 transportation planning abstracts individual travel experiences to present a neat and tidy picture
16 of a transportation system (15–17). A bus trip, for example, may meet level of service
17 expectations for a transit agency, but might be an unpleasant and abusive experience for a rider
18 or inaccessible for a person with disabilities (15, 18, 19). Cycling experiences vary widely too.
19 Personal connections with other cyclists and expertise about cycling in the city can promote or
20 reflect positive experiences (20), while negative perceptions of cycling safety change depending
21 on time spent cycling and comfort (21). Travel choice is motivated by much more than time,
22 cost, and access.

23 With projected increases in the Latin American immigrant population over the next
24 several decades (22), it is critical to understand what these demographic shifts mean for
25 transportation planning and policy. To that end, this paper focuses on Latino immigrants' cycling
26 experiences, asking which factors are potentially unique in contributing to those experiences. I
27 present a qualitative understanding of immigrant cycling based on in-depth, semi-structured
28 interviews with 23 Latino immigrants in the San Francisco Bay Area. The purpose of this study
29 is not to produce generalizable findings as one might associate with quantitative research, but to
30 generate hypotheses about travel experiences and strengthen claims that planning and policy
31 should address particular factors related to immigrant cycling.

32 LITERATURE REVIEW

33 While the built environment, travel preferences, and attitudes have received substantial attention
34 in the cycling literature, other factors that contribute to the cycling experience are not as well-
35 studied. Research points to a connection between affect—or a temporary emotional state—and
36 travel, arguing that some proportion of travel is undertaken for its own enjoyment (23, 24). A
37 study with commuters found bicycling to meet needs such as flexibility, cost, and convenience as
38 well as other modes did, but that affective evaluations of bicycle commutes were generally
39 higher than for motorized modes (25). Other studies found people to take pleasure in cycling,
40 and to rate it as more relaxing and exciting than other modes (26–28).

41 Research relying on larger datasets find a relationship between bicycling and positive
42 emotions, albeit less significantly so. Using American Time Use Survey data, scholars find
43 bicycle commuters are more likely to be in a good mood while commuting than those who use
44 other modes, though the difference is not statistically significant (29). A parallel study finds that

1 although longer distance bicycle commutes are associated with significantly more stress, being a
2 bicyclist is associated with greater happiness, higher overall affect, lower stress, and lower
3 fatigue after controlling for distance (30). Looking at non-motorized modes together, a
4 representative survey in the San Francisco Bay Area found that people who liked to walk or
5 cycle to work were more likely to take trips just to think more clearly, to explore new places, to
6 have pro-environmental attitudes, and to live family- or community-oriented lives (31).

7 Bicycling is also motivated by personal connections with others. For example, strong
8 network ties among immigrants facilitate pooling of resources, extending the practice of getting
9 rides to and from work, shopping, errands, and during emergencies (11–13, 32). Immigrants who
10 live in immigrant neighborhoods may be more likely to bicycle because of stronger social ties
11 with neighborhood bicyclists, while non-immigrants in the same neighborhoods may be
12 dissuaded from bicycling because they view the activity as something “other people” do (33).

13 Finally, personal danger invokes strong opinions about bicycling as a suitable, everyday
14 mode of transportation. Safety is consistently ranked as one of the top deterrents to bicycling
15 regularly (5, 34, 35), and bicycling is the mode that carries the second-highest risk of injury or
16 death per person-trip (36). However, bicycle safety concerns may be more acute for immigrants
17 and their descendants. Latinos in the US are involved in a disproportionate number of bicycle
18 crashes because they are more likely to ride during darkness and may be less familiar with traffic
19 laws (37). In New York City, researchers found census tracts with higher proportions of both
20 Latin American immigrants and newer immigrants to have more bicycle and pedestrian crashes,
21 controlling for built environment characteristics (38).

22 **DATA COLLECTION AND METHODS**

23 How do Latino immigrants experience cycling, and what lessons do those experiences offer for
24 planning and policy? I explored these questions through in-depth personal interviews, which I
25 describe in more detail in this section. The 23 interviews for this study were conducted in two
26 phases, the first of which was meant to generate questions for an intercept survey about public
27 transportation and cycling use for a parallel research effort (19). Eligible participants were any
28 low-income Latino immigrant age 18 or older who lived in the San Francisco Bay Area,
29 regardless of usual mode of travel. For the second set of interviews, eligible participants had to
30 meet the same criteria as the first phase interviews but also had to have ridden a bicycle within
31 the last year. The first set of interviews took place in spring and summer 2014, while the
32 remainder took place in winter and spring 2016. Participants were offered movie tickets or a \$20
33 gift card as incentives. Interviewees were recruited by intercept and with assistance from
34 community-based organizations throughout the San Francisco Bay Area. About 30 percent of the
35 population in the region is foreign born, nearly a quarter of whom are from Mexico—the most
36 common single country of origin (39).

37 Interviews were semi-structured with open-ended questions focused on topics of the
38 neighborhood environment, experiences with various modes of travel, and recommendations for
39 planning improvements (see (40) for detailed topic guides). The topic guides were designed to
40 encourage participants to talk in detail about their transportation experiences related to public
41 transit and cycling. Participants were asked to describe their perceptions of their neighborhoods,
42 to talk about why they did or did not cycle, class differences in travel behavior, and community
43 needs. As participants talked about themes not explicitly covered in topic guides, I added
44 questions to later interviews that covered those topics. For example, several initial interviewees

1 talked in detail about emotional and cultural aspects of cycling, so I included questions about
2 how cycling made people feel and whether interviewees thought many Latino immigrants cycled
3 in later interviews. Importantly, the semi-structured nature of the interviews and purposefully
4 designed open-ended questions allowed participants to bring up topics that were important to
5 them; the interviewers followed participants' leads if they fit within the conversation. Although
6 interviewees knew they were participating in a study about transportation use, interviews led
7 with a general discussion about neighborhood perceptions to minimize inadvertent signalling that
8 interviewers expected certain responses.

9 Each participant provided informed consent prior to the interviews. Discussions lasted
10 between 45 minutes and an hour. Interviews were in English or Spanish at the request of the
11 interviewee. Although 26 people were interviewed, I analyzed the 23 interviews from people
12 who met the criteria for this study. Length of time in the country varied from two weeks to over
13 20 years. All participants were originally from Mexico, El Salvador, Guatemala, or Cuba. In the
14 text, all participants are identified by pseudonym that either I assigned or they selected.

15 I relied on grounded theory methods in part to construct the analysis. Grounded theory
16 methodology distinguishes itself from other qualitative methods in two primary ways. First, data
17 categories are generated during analysis rather than in advance, in a process known as open
18 coding. Second, analysis and data collection are done hand-in-hand, so that the researcher can
19 follow new themes as they arise during interviews (41). In contrast to a quantitative modeling
20 approach to studying travel behavior, which seeks to explain how outcomes are caused by
21 particular factors, a qualitative approach seeks to explain why particular factors influence
22 behavior. The initial interviews were transcribed, which I then coded line-by-line in the original
23 interview language without a prior codebook. Most initial codes were descriptive: "Bicycling is
24 healthy," "Bicycling is environmentally friendly," "Infrastructure improvements would promote
25 cycling." Some were in-vivo, or directly quoted, codes ("Bicycling is freedom") and a few were
26 analytical ("Conflicted feelings"). I searched for these same ideas in the transcribed text of later
27 interviews and added new codes as they appeared. Once I developed the 121 initial codes, I
28 added similar codes into broader categories in an intermediate coding process, later synthesized
29 into the analytical headings presented below. I also used the intermediate codes and field notes to
30 focus questioning in later interviews to understand the relationships in those categories better as
31 suggested by grounded theory methods (42). A qualitative data analysis package in R (RQDA)
32 provided the software tool for data analysis.

33 The methodology introduces a few limitations to the study. Most study participants I
34 recruited had some connection with a community-based organization. Three of those
35 organizations advocate for immigrant rights and empowerment, so interviewees affiliated with
36 them may be more knowledgeable about social justice and community issues than other Latino
37 immigrants. I did not recruit non-immigrants for the study, so it is not possible to distinguish
38 fully between the experiences of immigrants and non-immigrants. Furthermore, only immigrants
39 from four countries participated in the study, whose experiences may not reflect those of other
40 prominent immigrant groups in the San Francisco Bay Area. Nevertheless, reflections on
41 interviewees' daily experiences with bicycling speak to unique factors that contribute to travel
42 decisions, many of which are not traditionally considered in transportation planning applications
43 (17).

1 **HOW DO LATINO IMMIGRANTS EXPERIENCE CYCLING?**

2 This section describes findings from the interviews. I categorize cycling experiences into five
3 major themes: emotions and empowerment, culture and identity, cost, safety, and spatial
4 awareness. These themes represent common ideas in each conversation, but are not a quantitative
5 accounting of the most numerous analytical codes. Instead, they reflect possibilities of how the
6 immigrant cycling experience is unique. I also focus the findings on how motivations for cycling
7 might differ from more conventional understandings of mode choice.

8 Despite speaking of an “immigrant cycling experience,” it is not possible to draw
9 universal generalizations. Interviews were as varied as the participants themselves. Several were
10 short and matter-of-fact; participants had little to say beyond the fact that they bicycled, and
11 could not think of many ways to improve their experiences. A few meandered, which made it
12 difficult to get interviewees to talk about specific instances in response to the questions. But for
13 the most part, the conversations were rich and often emotional. It was clear that participants had
14 given much thought to their mobility options and needs. Everyone talked not just about
15 bicycling, but about transportation in general and its impacts on themselves and their families.

16 **Emotions, empowerment, and self-improvement**

17 Almost universally, participants talked about bicycling in positive, emotional language. In the
18 words of María, a Mexican woman in her 60s, bicycling enables “freedom” and “independence”;
19 freedom from relying on others to give them rides, or waiting on a bus schedule, or having to
20 circle the block for a parking spot. Many interviewees concurred. When asked why he felt more
21 comfortable riding a bicycle than using other modes of transportation, David, 20s, put it this
22 way:

23 I think that you go by yourself and you can stop wherever you want. And sometimes I think it’s not so
24 complicated—you go and don’t have to go at a certain speed. You can go at the speed you want, and
25 because of this, it feels good.

26 Many described joy in being able to get around traffic congestion quickly, and for short trips,
27 found bicycling to be much quicker and more convenient than taking the bus. Others described
28 the usefulness and practicality of bicycling in emotional terms. Gabriela, a young mother who
29 lives in Oakland, found bicycling to be “marvelous” because her job was a 15-minute bicycle
30 ride from her house. She could bicycle home on her lunch break “for a half an hour, sometimes
31 to eat, sometimes to see my children—but it was good to be able to use my bicycle.”

32 For many interviewees, bicycling boosts mental energy. A few talked of the “mind-
33 clearing” effects of bicycling. For José, a young Guatemalan immigrant, bicycling helped him
34 “freshen up,” taking his mind off of difficult things: “My mind is always awake, always when
35 I’m on my bike—I do it every day.” Some people had immigrated to the United States
36 unaccompanied, leaving their families back home. Bicycling was an emotional link to remember
37 them by, such as when Gabriel used to ride his bike with his family in Mexico, and then took
38 them to a regional lake to bicycle around when they came to visit. And the positive emotions
39 associated with bicycling could simply result from the psychological effects of physical activity.
40 Nearly every respondent liked to ride their bicycle as a form of exercise, and some explicitly
41 linked their physical and mental health. Gabriel G., a car mechanic, described how he felt before
42 he starting bicycling regularly about ten months earlier:

1 Before, I had a lot of cars and I almost never used my bicycle. Physically—I didn't feel good, because
 2 [using cars] makes you lazy when going to the store, going to whichever place. Even though it might be
 3 around the corner from house, getting the car and going—we're not exercising.

4 Even those who had not ridden a bicycle recently imagined that it would be a positive
 5 experience for them to pick up bicycling. Alejandra, a Guatemalan woman in her 30s, wanted to
 6 ride more because her husband and friends told her how easy it was to get around San Francisco.
 7 Guadalupe, who had not ridden a bicycle before, said that "it had been her dream since [she] was
 8 a little girl" to ride a bicycle. She continued:

9 I used to hang out with a girl who took her bicycle and I said "one day I will have one, some day." It has
 10 always called out to me and now I have the possibility, like I say "maybe I can't," but only because I
 11 haven't tried—but I know that I can.

12 She imagined that if she picked up bicycling she would ride her bike for work and to her favorite
 13 park for exercise. But Guadalupe's story was also emblematic of the conflicted feelings people
 14 have toward bicycling. Her remarks suggested that she thought one had to learn bicycling as a
 15 child to be able to do it as an adult. People told her how she could build her own bicycle using
 16 the free bike workshops, or how it is a practical mode of transportation and invited her to come,
 17 but she thought that the time for riding a bicycle had "already passed [her] by." Gabriela, who
 18 had stopped riding a bicycle recently, also described conflicted emotions about bicycling: "the
 19 truth is it makes me afraid. I am afraid [to bicycle] because of safety....But I love bicycling."
 20 Others described bicycling in largely positive terms, but added that they had never been in a
 21 crash "thanks to god," acknowledging an ever-present danger and undercurrent of fear when
 22 cycling.

23 For a rare few, bicycling was pure joy. María offered how strongly bicycling can be tied
 24 to positive emotions, describing it as a "something special that we humans must learn to
 25 value"—something that allows her to be "in communion with nature." She continued this way:

26 To me, I find the coexistence between the bicycle and people to be very healthy. It is like a friend, it is like
 27 a tool, it is like a mode of transportation, it is like a helper. That's my feeling. It's that for me, a bike—well,
 28 I have seen it, I have used it, I have touched it, I care for it....If they made a monument to the bicycle, it
 29 would be good.

30 **Culture and identity**

31 Several aspects of Latino immigrants' culture and identity spoke to their cycling experience
 32 according to many interviewees. The first was a strong sense of dedication to and primacy of
 33 family and community, which might reflect cultural norms anthropologists have called *familismo*
 34 (43, 44). Several interviewees were motivated to bicycle for environmental reasons, but tied
 35 them to broader social and cultural concerns. Gabriel G. thought that he and others cycled
 36 because "they are trying to protect [the environment] a little bit." Vico, a regular cyclist from
 37 Guatemala, felt that if there were "a global culture of using bicycles instead of combustion-
 38 engine vehicles," it would make "a fairly important difference" in terms of environmental
 39 consequences. Gabriel M., a recently-arrived immigrant from Guatemala, considered that
 40 environmental awareness and concern for others should start at an early age by introducing
 41 bicycling programs in schools. Bicycling as a response to environmental problems would thus be
 42 imprinted upon people at an early age:

43 Well I think that the awareness...when children receive it at that age is when it stays with them the most,
 44 let's say. Children would get an awareness about future generations. Listen, if they tell us that now, "No, if

1 you don't use a bike...you are going to contaminate the world and all this," it is much more difficult when
2 someone has never used a bike and begins to use one. But yes, when they begin to impress that culture on
3 you from when you're a child...when they become adults, it's not going to cost them anything because
4 they're already accustomed to it. Riding a bicycle is basically going to be part of their culture.

5 Some interviewees thought community-oriented events organized by and targeted to
6 Latino immigrants could encourage more cycling. Many talked about Critical Mass events (that
7 is, informally organized demonstration rides that promote cycling), group bicycle rides for
8 recreation, and family activities as having an impact on how their friends and families saw
9 bicycling. One participant, for example, said he brought a friend who had never ridden a bicycle
10 before on a community-organized ride to the beach. He reported that his friend now has taken up
11 bicycling more regularly. Interviewees knew about community build-a-bike programs, often
12 aimed at immigrants and usually designed so that low-income earners can get free bikes by
13 volunteering time with the organization. They thought that type of program was beneficial in
14 encouraging more bicycling.

15 Second, some interviews spoke more directly about the role identity as Latino immigrants
16 played in the cycling experience. Many perceived that Latinos cycled far less frequently than
17 whites. For example, Kevin, a young Salvadoran immigrant, estimated that 90 percent of the
18 people he saw on bicycles did not match his cultural background. He attributed the absence of
19 Latino bicyclists to a lack of investment in bicycle infrastructure in Latin American countries:

20 I come from El Salvador but from Mexico to the rest of Latin America, people have never been
21 incentivized to use a bicycle for transportation, only for recreation....People use it less than here, because
22 in our countries bike lanes and safety measures for bicyclists don't exist. Neither does accessibility or
23 having a bicycle....Someone grows up with that and when he comes to a country like this, a first-world
24 country like the United States, he is used to using the bus and doesn't look for other modes of
25 transportation.

26 Others agreed, suggesting that bicycling in their home countries was seen only a children's
27 activity, used "more than anything for fun and by young people—children, basically" (Vico).
28 Still others tied less frequent cycling to occupations immigrants traditionally held. Gabriel G., a
29 manual laborer, described his coworkers as not wanting to cycle because they were it would
30 make them more tired after a long day. Donaji, a mother of two who lives in San Francisco,
31 could get to work on a bicycle, but it would be impossible for some of her friends:

32 For example, I work [in a neighborhood about four miles from home] but I just take care of a patient. I'm
33 the only one who has to go. But I have friends who clean houses and sometimes they have to bring vacuum
34 cleaners and things like that. How do you do that on a bicycle? Or the men who have to carry tools. Or if
35 you have two young kids. So, bicycling is a good alternative but it's not for everybody.

36 Others thought that bicycling was an activity Latino immigrants were wont to leave
37 behind, if they picked it up at all. Vico talked of the narrative of economic achievement
38 associated with car ownership as something Latino immigrants come to the United States to
39 achieve, which discouraged bicycle use:

40 I feel that it can be economic and also cultural aspects, right? Because the idea of what it means to be
41 prosperous and all that has taken over the media. It is having a vehicle, having, like, the ability to buy
42 expensive vehicles and, then, that's what people look for, right? And then the bicycle is seen as something,
43 like a hobby or simply for fun.... For me it's not only that but it is something that is driven by the
44 community.

1 But simply seeing more people like oneself on bicycles could be encouraging. Donaji proposed
2 public cycling events where Latinos and other people of color were visible could regularized
3 bicycling:

4 I have seen that every month some bicycle marches go by.... If there were more things like that with people
5 of color, where a ton of people go together and they can go places like that, I also think that would
6 encourage people to ride bikes more.

7 Finally, some interviewees spoke specifically of how traditional women's roles and
8 cultural narratives prevent Latina women from cycling. For the women who discussed it, safety
9 issues were the primary reasons for not cycling more. Others also described being primary
10 caretakers of their children, which prevented them from cycling. But María also attributed it to
11 outmoded values:

12 When I have tried to teach women [to bicycle]—adults—they say, “I’m afraid, I’m afraid. I have never
13 done it before.” And sometimes, it’s that—among Latinos, among Latinos it is said a lot, “Don’t ride a
14 bike, don’t ride a horse, because then you won’t be a virgin and no one is going to want you.” That is, they
15 are ancestral taboos from I don’t know how many hundreds of years ago. “Women shouldn’t use a bicycle,
16 women shouldn’t ride a horse, women shouldn’t do this thing.” Without realizing in reality that we are in
17 the 21st century, we are in the United States, we have another way of seeing life. For many women, we
18 cling to our roots and we don’t use bicycles out of fear.

19 **Cost**

20 Although cost was not the primary motivation for bicycling for most of the people I talked to,
21 saving money substantially factored into their transportation decision-making. One participant
22 found bicycling necessary because he did not work a regular schedule and could not afford to use
23 an alternative, saying “I don’t have stable work and I don’t have money to pay for the bus all the
24 time....I use my bike the most” (Francisco). Others spoke of the sacrifices they would have to
25 make for their families if they relied on public transit more often. “If I go and come back by
26 bicycle, look, those five dollars will let me buy milk and eggs for my children,” Donaji said
27 about saving money on bus fares. One participant spoke about how saving money on transit fares
28 allows him to send money back home for his children’s food and university tuition.

29 But bicycling was not immune to cost pressures. A few participants were surprised at the
30 cost of obtaining a bicycle. One participant thought that the rising popularity of certain types of
31 bicycles was pushing prices for all bicycles up: “Before they were cheaper but suddenly the
32 prices started to rise because they were other brands of bicycles, either European brands, or
33 Italian brands or...the classic brands that everyone is using nowadays and wants to buy”
34 (Alejandra). For many, theft was a real concern tied to the cost of bicycle ownership. Gabriel M.,
35 who had immigrated less than a month earlier, described a stark contrast in his perception of the
36 security of unattended bicycles between his home country and his adopted one:

37 A negative factor that I’ve found that hasn’t happened to me yet, but there is a lot of fear in the risk that
38 they are going to steal your bicycle. It’s a little— Well, I come from a third-world country, in Guatemala,
39 then, the city is dangerous and they steal but here people are afraid of leaving their bicycle and so they use
40 those big padlocks and such. In my home city I would put a cable on it and leave it locked to a tree. There
41 is more respect.

42 **Traffic safety**

43 Unsurprisingly, safety was a major concern participants had about bicycling, even for those who
44 rode a bicycle almost daily. Interviewees expressed concern about cars that passed too close,

1 drivers who were distracted by cell phones, and heavy traffic. Many had to live in and travel to
2 low-income neighborhoods, which in some cases had little bicycle infrastructure and whose
3 roads were poorly maintained. One interviewee tried to avoid a busy street by riding on the
4 sidewalk, but found even that was not safe:

5 Because I'm afraid of the highway, because of the traffic—but yes, I go slowly [on the sidewalk]. But even
6 when I go slowly little children come running out of a store toward me and I have to stop myself and it's
7 dangerous. (Francisco)

8 Several interviewees thought safety was in their own hands because they were less likely to
9 know traffic laws and responsibilities as immigrants. They talked about the actions they needed
10 to take to avoid collisions. One participant was in a serious bicycle crash with another car during
11 a dark, rainy morning and placed blame for the incident entirely on herself for not knowing the
12 rules of the road well. She described the incident as “the life lesson that I needed to know which
13 things I must have for my own safety” (María), and emphasized that bicycling safety education
14 would help others avoid collisions, know their rights, and stay within the law. Another described
15 the complexity of managing to stay safe in heavy traffic, requiring experience and mutual
16 understanding between parties:

17 I think there are a lot of neighborhoods where there is a lot of heavy traffic but also—they give you signs
18 like, if you're crossing, you're asking to go left and there is a truck that's coming behind you and then
19 you're looking at the driver, and he is also signaling that he is going to cross to the right, then what he is
20 telling you is that he is going to cover so that you can pass by. “First you go, then I go” (Eduardo).

21 However, bicycle safety extends beyond road conditions. Several talked about being
22 victim to or witnessing assaults and thefts while riding bicycles. Violent events caused people to
23 fear for their personal safety, in some instances preventing them from riding a bicycle again.

24 **Gabriela:** Unfortunately, I happened to see someone getting his bicycle stolen. The person was going along
25 very peacefully, riding his bicycle, when only one person stopped him, did this with his hand [*holds hand*
26 *straight out*], and knocked him over. And before the man got up from the blow, the other person took the
27 bicycle and ran off. That left me terrified.

28 **Interviewer:** Before that, did you use to ride a bike?

29 **Gabriela:** I used to ride a bike. Before that, yes, I used to ride a bike.

30 **Spatial awareness**

31 Interviewees seemed to hold opposing views about the ease with which a bicyclist could navigate
32 the city. Some found that bicycling around the city would aid in understanding an unfamiliar
33 place, giving them more confidence to continue to do so. Several talked about how paying
34 attention to street signs while bicycling is key to navigating. María described her own learning
35 process this way:

36 I didn't come to the United States to get a car or anything. A bicycle. Yes, and you know more, much more.
37 When someone rides a bike he learns directions better. You learn the street names, you sometimes learn
38 how to calculate time....Just because you're riding with the angle of the sun—you ride around watching.

39 Some participants talked about using public transit to learn their way around the city first, and
40 then starting bicycling farther afield from their own neighborhoods. One interviewee who had
41 arrived less than a month earlier began bicycling from place to place, using the maps on bus
42 shelters to help learn directions and navigate to new destinations.

1 But not everyone thought the street signs and bicycle markings were so helpful, having
2 the effect of deterring bicycling because of their confusion or absence. Some participants thought
3 bilingual signs were necessary and would make it easier for them to know where bicycle routes
4 went. And though I did not ask individuals about their legal immigration status for privacy
5 reasons, still others thought undocumented immigrants would be particularly discouraged from
6 bicycling if they didn't understand the rules and norms:

7 Another thing is that there should be access, signs and all that, if they were very clear for bicyclists, so that
8 people could understand them very well, people wouldn't be afraid. It is terrible that if you also have an
9 immigration status that isn't up to date, then you can't go around how you like because whatever small
10 error you commit will become a bigger complication for you and your family (Donaji).

11 Several interviewees spoke of these issues of lack of signs and infrastructure in broader terms of
12 social injustice against Latinos and other marginalized communities. This was particularly true
13 for interviewees who lived in San Francisco, who are often reminded of the pressures of
14 gentrification and displacement in their daily lives. Many spoke of the contrast in investment in
15 bicycle infrastructure between neighborhoods like the Financial District and the Mission District
16 with higher income residents and workers, and the Bayview, a neighborhood that has one of the
17 lowest median household incomes in San Francisco (45). By the time the city installed bike lanes
18 in the Mission District, it had already undergone demographic changes that displaced many of
19 the former residents, who could not benefit from them. Donaji, who lives near Valencia Street in
20 the Mission District, described it this way:

21 My neighborhood is more [bike] accessible [than my old neighborhood] because Valencia Street has a
22 bicycle route along the whole street but— These contradictions are very hard. Now that they have put more
23 bike lanes in the neighborhood, the families and children that need them aren't here anymore. The same has
24 happened with public transportation....It is super unjust.

25 **DISCUSSION AND CONCLUSIONS**

26 In general, convenience drives a large part of why people cycle according to the interviews in
27 this study. Bicycling costs less than other modes and can save time over short distances,
28 particularly in congested neighborhoods where vehicle parking is neither free nor plentiful. It can
29 be combined with public transit to make farther destinations more accessible, and it is more
30 reliable than waiting on the bus. Cycling promotes physical activity and associated health
31 benefits, both in body and in mind. Safe bicycling routes and a knowledge of the city make
32 getting around by bicycle easier and more enjoyable.

33 Participants used emotionally-charged language to describe their cycling motivations and
34 experiences, offering evidence that perceptions of cycling strongly figure in their decision
35 making. The psychological feelings seemed to act in both directions, with people speaking
36 passionately about how cycling made them feel in the moment and how they told others in their
37 social networks about the positive benefits of cycling. Fear was a prominent negative emotion
38 associated with cycling, usually associated with traffic danger, which hampered enjoyment,
39 preventing cycling along certain routes, and, in some cases, preventing cycling at all. Not all
40 were gripped by fear, overcoming it by actively taking measures to prevent collisions as much as
41 possible, such as defensive cycling and wearing lights and helmets while riding.

42 Many of the findings in this study can apply to immigrants and non-immigrants equally,
43 but some of the cycling experience appears to be unique to the Latino immigrants interviewed. A
44 significant example is a relatively consistent concern for socially-based sustainability. In other

1 words, Latino immigrants were motivated to bicycle in part because of its environmental
2 benefits, but they were not using the bicycle as a political statement of an environmental politics
3 (46). Instead, environmental motivations were tied closely to concern for the welfare of their
4 own families and society at large. These findings comport with anthropological observations
5 about the centrality of *familismo* in Latino cultures as described earlier. *Familismo* operates
6 beyond environmental issues, helping bicycling to become an important family activity that
7 everyone could do, regardless of ability or distance from home. Even concerns about costs were
8 often tied together with a sense of obligation to one's family through sending remittances or
9 purchasing food and necessary goods.

10 Conversely, issues specific to immigrant groups hinder bicycling from becoming a
11 normalized mode of transportation for them. First, identity plays a key role in understanding who
12 cyclists are (47). Most interviewees observed few other Latinos cycling. Not seeing familiar
13 faces among cyclists in the city can reduce their likelihood of considering it as a mode of
14 transportation they can use (48). Likewise, cycling is a gendered mode of transportation, at least
15 in the United States (49). The gender differences in cycling frequency among Latinos and
16 Latinas are even more disparate (10, 40), which partially result from cultural norms toward
17 women's roles in households. Second, navigating unfamiliar territory—a new country with
18 information posted in a foreign language—may induce a fear of getting lost or placing oneself in
19 danger. For undocumented immigrants, who already live their lives in under the precarity of
20 extra-legal status, the fear of committing a traffic infraction out of ignorance introduces
21 additional, unwanted opportunities for interacting with law enforcement (50). Bicycling does not
22 offer a chance to stay out of the spotlight; cyclists are more visible because of cycling's rarity.
23 Finally, immigrants may perceive that bicycle planning efforts are either not targeted at them or
24 have systematically excluded them from receiving the benefits. These perceptions echo
25 arguments that advocates in marginalized groups across the country debate about how bicycle
26 planning and infrastructure is implicated in social injustice and gentrification (51, 52). Whether
27 the perceptions are true in actual fact, they can have the effect of discouraging immigrants from
28 seeing bicycling as a mode of transportation they are welcome to use. These patterns speak to a
29 role for planning to coordinate outreach with culturally-relevant community organizations to
30 promote diversity and equity among cyclists.

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36

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