



## JUARA: Jurnal Olahraga

E-ISSN 2655-1896 ISSN 2443-1117

<https://doi.org/10.33222/juara.v7i1.1453>



### Motivation Patterns of Cyclists in the New-Normal Era

Vicki Ahmad Karisman

STKIP Pasundan, Indonesia, Street Permana No.32B, Citeureup, City of Cimahi, West Java 40512, Indonesia

\*e-mail: [vicki4karisman@gmail.com](mailto:vicki4karisman@gmail.com)

#### Info Artikel

Article History:

Received 11 October 2021

Approved 15 December 2021

Published 17 December 2021

*Keywords:*

*Motivation, Bike, New-Normal Era*

#### Abstract

This study aimed to determine the motivation pattern of mountain, road, and folding bikes in the new-normal era. The method used in this study is descriptive quantitative. The participants of this study were 258 cyclists in Bandung. The data was collected through a Sport Motivation Scale-6 questionnaire. This study indicates no significant difference between the motivation of mountain bike, road bike, and folding bike riders. However, there is a substantial difference in income indicators in sociodemography, especially for road bike riders, while mountain bike and folding bike riders do not have any significant differences. This study shows that the motivation patterns of cyclists impact the cycling activities undertaken.

© 2022 Vicki Ahmad Karisman  
Under the license CC BY-SA 4.0

✉ Alamat korespondensi: Street Permana No.32B, Citeureup, City of Cimahi

E-mail : [vicki4karisman@gmail.com](mailto:vicki4karisman@gmail.com)

#### INTRODUCTION

Every sport has features that appeal to people with various interests, talents, and expectations. A complex combination of social and economic factors also influences patterns of behavior and sport participation decisions. Many variables influence one's decision to participate in one sport or activity over another or engage at all. Recreational sports significantly affect human physiology and psychology and play an essential role in our leisure activities. Exercise has physiological

benefits in improving health and lowering mortality rates (Chen et al., 2017). Participating in sports has a range of advantages. Personal enjoyment, personal development, social cohesion, and social change have all been shown to have various potential benefits (Wankel & Berger, 1990). In terms of physical health benefits, this is simply an exercise regimen that includes the correct form, intensity, length, and frequency of activity to achieve the desired results

The benefits of physical activity are a dominant aspect of cycling from a public

health point of view (Götschi, Garrard, & Giles-Corti, 2016). Bicycle sharing systems have grown in popularity in nations across Europe, Asia, and America to encourage people to pedal as a mode of transportation in cities and as a recreational activity. Based on a significant body of research, planners, health experts, and decision-makers can rest comfortably that the benefits of cycling-related physical exercise are worthwhile to pursue (Götschi et al., 2016). Bicycling provides more health benefits than drawbacks, and it cuts carbon dioxide emissions (Rojas-Rueda, De Nazelle, Tainio, & Nieuwenhuijsen, 2011). Participation in sports and recreational activities (such as running, cycling, resistance training, and yoga / tai chi) was linked to decreased hypertension, diabetes, and obesity in people aged six years. These findings back with existing attempts to encourage a broader and long-term engagement in sports and recreational activities among people in their forties and fifties (Mielke, Bailey, Burton, & Brown, 2020).

The new-normal era forces people to live healthily and avoid Covid-19. Recently, many people have chosen cycling to maintain health through exercise. Based on research conducted by the meta-search site I price, the number of bicycle orders increased by 50% during the pandemic. Bicycle users in Jakarta increased by 1,000% in the first week of July 2020 compared to 2019 (Annur, 2020). Cycling is chosen as a way to do a fun exercise. Bicycles are an environmentally friendly mode of transportation with multiple

benefits, including reduced congestion, reduced vehicle emissions, improved health, and improved economy (Oxley, O'Hern, Raftery, & Woolley 2016)(Arbis, Rashidi, Dixit, & Vandebona, 2016).

It is undeniable that cycling has various functions. Cycling is used as a tool to promote an active lifestyle and to get an adequate amount of physical activity (Bélanger-Gravel, Gauvin, Fuller, & Drouin, 2015). In addition, cycling is a form of participation in active transportation, defined as a physical activity such as walking and cycling to routine destinations. It has significant benefits for individual and community health (Noyes et al., 2014)(Nehme, Pérez, Ranjit, Amick, & Kohl, 2016). Cycling positively affects risk factors for falling, including reduced balance, muscle weakness, and low self-confidence in maintaining balance (Harvey, Rissel, & Pijnappels, 2014). So many benefits that can be obtained from cycling. A study (Zander, Passmore, Mason, & Rissel, 2013) shows that cycling can positively influence the quality of life of the elderly, primarily through a sense of empowerment and pride, expansion, and refreshment of social networks simple pleasures. However, during the Covid-19 pandemic and the era of new habits, did all who use bicycles think about this or follow the trend?

Nowadays, cycling is not only used as a sports facility. Many people buy bicycles because they follow the growing trends in society, especially during the Covid-19 pandemic and the era of new habits.

(Lemoyne, Rivard, Girard, & Dubreuil, 2019) Little is known about the relationship between teenagers' motivations for participating in organized sports and their motivation to be physically active outside of their sports. In this study, the authors tried to explore the motivation patterns of cyclists. Motivation patterns are the ways of people in viewing and live their lives. (Schlemmer, Barth, & Schnitzer, 2020) In self-determination theory, motivation leads to greater self-regulation, competition, and engagement in action. In general, self-determination distinguishes between autonomous and controlled motivation, identifying people according to their interests and the subjective stress they experience while doing physical activity. Logically, self-determination theory shows a degree of independence in the motivational process. The type of motivation is more independent (Ryan & Deci, 2017). Many studies have found links between motivation and critical outcomes in various life domains (Gillet, Berjot, Vallerand, & Amoura, 2012). In sports, motivation is a crucial factor in performance. It's a complicated construct, with athletes' motivations for initiating, directing, sustaining, and terminating effort being diverse and dynamic. Internal or external forces, or a combination of both, can motivate athletes, and motivation varies by context and time. Researchers have established hypotheses, examined social contextual elements, discovered universal antecedents, and researched other relevant variables to

understand better the motivation (Sheehan, Herring, & Campbell, 2018).

In a nutshell, motivation is a condition of internal and extrinsic stimulation that steers a person toward a specific activity. Motivation is defined as acting goal-oriented by getting ready via impulse or demands and experiencing a sense of relaxation and joy after achieving the goal (Kucukibis & Gul, 2019). (Gillet, Berjot, & Gobancé, 2009) These findings indicate that it may be beneficial to consider both motivation and enthusiasm when understanding and evaluating sports success. As a result, it would be interesting to incorporate many determinants in the current model. This case related to the motivation of cyclists during the Covid-19 pandemic and the new normal era. This study aimed to examine the motivation patterns of cycling during the new normal.

## **METHODS**

The research method used is descriptive quantitative through a survey conducted to cyclists from various groups and the bicycles' specifications. The survey was conducted online through Google Form and distributed to all road bikes, mountain bikes, and folding bikes. Two hundred thirty-five participants filled out the survey questionnaire, consisting of 57 women and 178 men. It consists of 50 road-bike cyclists, 100 mountain-bike cyclists, and 78 folding-bike cyclists. The Sports Motivation Scale (SMS-II) (Pelletier, Rocchi, Vallerand, Deci, & Ryan, 2013), including intrinsic regulation, integrated regulation,

identified regulation, introjected regulation, external regulation, and unmotivated regulation, was applied, Cronbach's  $\alpha = 0.75$  (in this study:  $\alpha = 0.78$ ) with the instrument using a Likert scale. In addition, to obtain data from cyclists, we used sociodemographic data, including information on gender, age, education level, income, occupation, origin, and status of physical activity. Data processing using SPSS 20.

## FINDINGS AND DISCUSSION

To facilitate understanding and reading,

the study results are described first, followed by the discussion section. The results subtitles and discussion subtitles are presented separately. This section must be the most numerous, a minimum of 60% of the entire body of the article.

### Findings

This study provides an overview of the motivation of cyclists during the Covid-19 pandemic and the new normal era. The results of the survey show the sociodemographic data and motivation to exercise, which are as follows:

**Table 1:** Sociodemographic of cyclist

		RB	MTB	FB
		(n = 50)	(n = 100)	(n = 78)
Gender	Men	84%	85%	73%
	Women	16%	15%	27%
Education Level	Elementary School	4%	15%	21%
	Junior High School	16%	9%	7%
	Senior High School	22%	28%	32%
	Undergraduate	44%	32%	26%
	Master Degree	8%	11%	11%
Income	Doctoral Degree	6%	5%	4%
	Low	0%	12%	2%
	Middle to low	0%	21%	14%
	Middle to high	52%	39%	61%
Physical Activity Level	High	48%	28%	22%
	Five times a week or more	6%	4%	5%
	3-4 times a week	38%	22%	28%
	1-2 times a week	54%	46%	44%
	1-3 times a month	2%	26%	18%
	Less than once a month	0%	2%	6%
	Never	0%	0%	0%

Note: Sociodemographic of riders of Road Bike (RB), Mountain Bike (MTB), and Folding Bike (FB).

Table 1 From the data, socio-demographically revealed that males dominate the bikers. From an economic perspective, the road-bikers come from middle to high-income people, while the mountain-bike and folding-

bike cyclists' average income distribution are almost equal. Moreover, from an educational perspective, the cyclists' educational background is relatively scattered at every level of education. Most cyclists' intensity

cycling activity is evenly done 1-2 times and 3-4 times a week. It proved that during the covid-19 pandemic, cycling turned out to become the most wanted physical activity to

do. Motivation differences of the riders of road bike (RB), mountain bike (MTB) dan folding bike (FB).

**Table 2:** Motivation differences among RB, MTB, and FB. ANOVA cyclists/bikers

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.653	13	.358	.636	.823
Within Groups	124.428	221	.563		
Total	129.081	234			

Table 2 shows a significance level of  $0.823 > 0.05$ , so it can be concluded that there is no difference in motivation between

cyclists, either road bikes, mountain bikes, or folding bikes. It showed that every cyclist has the same motivation in doing cycling activity.

**Table 3:** Multiple comparisons Bonferroni

Dependent Variable	(I) Cyclist	(J) Cyclist	Mean Difference (I-J)	Sig.	
Intrinsic_Regulation	dimension2	RB	MT	-.2200	.678
			B	-.0400	1.000
	dimension3	MT	RB	.2200	.678
			B	.1800	.734
	dimension3	FB	RB	.0400	1.000
			MT	-.1800	.734
Integrated_Regulation	dimension2	RB	MT	.0300	1.000
			B	-.0565	1.000
	dimension3	MT	RB	-.0300	1.000
			B	-.0865	1.000
	dimension3	FB	RB	.0565	1.000
			MT	.0865	1.000
Identified_Regulation	dimension2	RB	MT	-.1300	1.000
			B	-.1012	1.000
	dimension3	MT	RB	.1300	1.000
			B	.0288	1.000
	dimension3	FB	RB	.1012	1.000
			MT	-.0288	1.000
Introjected_Regulation	dimension2	RB	MT	-.0200	1.000
			B	.0612	1.000
	dimension3	MT	RB	.0200	1.000
			B	.0812	1.000
	dimension3	FB	RB	-.0612	1.000

				MT					
				B					
				MT					
			RB	dimension3	B				
					FB				
					RB				
External_Regulation	dimension2	MT		dimension3	FB				
		B			FB				
					RB				
			FB	dimension3	MT				
					B				
					MT				
			RB	dimension3	B				
					FB				
					RB				
Amotivated_Regulation	dimension2	MT		dimension3	FB				
		B			FB				
					RB				
			FB	dimension3	MT				
					B				

Based on the data results, there is no significant difference in the motivation of the cyclists of road bikes, mountain bikes, and folding bikes. On each motivation subscale, intrinsic regulation, integrated regulation, identified regulation, introjected regulation, external regulation, and motivated regulation show a value of  $> 0.05$ . There is no difference in motivation for each group of cyclists.

### Discussion

The results showed that there were differences in each group of cyclists socio-demographically. Men dominated cycling, with 84 percent of men and 16 percent of women participating. Gender, for example, is Another essential element: males are more active than women in most circumstances. Gender will not make a significant difference if reasonable efforts are made to persuade women to participate, as in the case of (Allender, Cowburn, & Foster, 2006). The most significant is the income level. It can be seen that the average road bike rider has middle to high and high income. This happens

because the price of road bikes is indeed high. Low-income people confront several challenges when it comes to sports engagement. To participate in any sport, you'll need to invest in clothing, equipment, and a venue to play.

On the other hand, lower-income persons find it challenging to afford to participate in a few sports (Nahata & Raizada, 2020). In addition, for mountain bike and folding bike riders, all income levels are available, but most people are middle to high-income earners. An individual's career influences various additional elements, such as the amount of time left for leisure/other activities. The individual's financial situation determines whether or not they can financially sustain participation in a sport. A person's age influences whether or not they participate in sports at different phases of their lives. The sport in which one engages may also be affected by one's age. It was suggested that as individuals get older, they may become more financially secure and hence participate in

more opulent sports (Nahata & Raizada, 2020).

Interest in recreational sports participation was also linked to gender, educational achievement, participation frequency, health-motivated interest, and appearance-motivated interest (Chen et al., 2017). The gender of an individual plays a vital role in determining the behavior of females, males, or others towards sports participation. An individual's profession helps determine the financial condition and stability in the individual's life, the amount of time an individual has remaining for leisure activities. Social recognition or the peer's interests also help determine whether one would take up a sport or not. Support from parents is one of the key social factors in determining the participation in sport by an individual. They are the financial support for children until they earn (Nahata & Raizada, 2020). (Chen et al., 2017) also found gender, educational attainment, health-motivated interest, and appearance-motivated interest to be essential factors affecting recreational sports participation.

The motivation results using the Sport Motivation Scale (SMS-II) showed insignificant results. This indicates that the motivation of cyclists in cycling sports tends to be the same in intrinsic regulation, integrated regulation, identified rule, introjected regulation, external regulation, and motivated regulation. This occurs because multiphase motivation appears among various groups of cyclists (Hallmann, Müller, &

Feiler, 2014). During the Covid-19 pandemic and the new normal era, cyclists also increased. The fact shows that cyclists have the same motivational background, but their demographic characteristics are different because they may indicate other demands (Schlemmer et al., 2020).

Participation, persistence, and performance in sports are all influenced by various circumstances. Individuals' attitudes about sport may be affected by concepts such as games, health, status, or performance. Motivation is crucial for maintaining and achieving success in sports and developing a positive attitude toward sports (Kucukibis & Gul, 2019). The intellectual component assesses how inspired people are to participate in mentally stimulating activities such as studying, researching, finding, designing, and imagining in their spare time. The social factor assesses how often people participate in recreational activities for social purposes, based on two fundamental needs: interpersonal relationships and the need for others' esteem (Beggs, Nicholson, Elkins, & Dunleavy, 2014). When a person develops positive affect and a desire for engaging in a particular activity-related behavior, they have entered the attraction stage (Beaton, Funk, & Alexandras, 2009). Because extrinsic motivational stimuli primarily trigger goal-directed behaviors, the psychological link has improved but remains relatively malleable (Brandon-Lai, Funk, & Jordan, 2015).

Cyclists have the same motivation, not because of the kind of bike they are interested

in but because of its physical activity. Besides that, they wanted to be healthy during this covid-19 pandemic. These factors affected the enhancement of cycling activity during the covid-19 pandemic. Sport can be of various grades on the same dimension, stemming from socialization and representing similar needs and motives (Shamir & Ruskin, 1984). Despite their perceptions of leisure limitations, some people engage in recreational activities and show a desire to continue doing so. As predicted, evidence was presented for attitude strength, as measured by the activity attachment variable, as one of the main factors in effective leisure constraint negotiation. The partial mediation o supports this as well (Alexandris, Funk, & Pritchard, 2011). Aside from that, there's a societal component to consider. Another aspect is recognition since some people do not have a social circle of individuals interested in sports and hence do not participate. On the other hand, others use sport to expand their social circles and are considerably more interested in sports involvement since it allows them to engage in some form of physical exercise while also meeting their social demands. One of the most essential criteria for sports involvement is a social connection (Nahata & Raizada, 2020).

The results of this study can be used as consideration for policymakers, especially those related to bicycles. Cyclists share the same motivation but come from different socio-demographics (Ryan & Deci, 2017), providing a well-established and comprehensive framework for understanding

differences in the quality and well-being of sporting engagement during or about meetings. In addition (Tóth-Király, Amoura, Bóthe, Orosz, & Rigó, 2020) psychological needs during exercise appear to be very important in promoting more independent motivation. The specific factors that determine a person's involvement in sports can be seen in cyclists who have the same motivation to do sports. Because (Gucciardi, 2010) motivation is considered a complex multidimensional construct in which people can be motivated for different reasons, which can be modeled on a continuum according to the extent to which motivation is self-determined.

Individuals may experience either a task-related environment, which emphasizes commitment, progress, and ability mastery, or an ego-related climate, in which the focus is on performance results and only the best are remembered (Fontana, Fry, & Cramer, 2017). According to the results, individuals who liked to pursue adventure and take chances in their lives and those who were easily bored were the most likely to indulge in outdoor leisure activities. Furthermore, it was discovered that people who usually turned to their surroundings for entertainment rather than inward to their imagination were more likely to partake in outdoor activities (Barnett, 2006). Motivation can be defined as a desire that motivates and directs action in a sporting context. Motivation can be stated to be a precondition for the emergence of any effort. Motivation is linked to the direction and intensity of effort. While the power of the



effort refers to how much effort is expended in a circumstance, the law of the action refers to how one approaches or avoids a problem (Kucukibis & Gul, 2019).

There is no significant difference between the cyclists' motivation. It showed that during the covid-19 pandemic, they were actively involved in cycling activities to keep their health. All of the cyclists have the same motivation in doing cycling. It is suggested that further researchers investigate the patterns of cyclists' motivation after the covid-19 pandemic so that each cyclists' motivational way can be noticeably seen.

## CONCLUSION

This study revealed that every cyclist has no significant difference in doing cycling. The covid-19 pandemic promotes the citizen to be actively involved in physical activity – one of them by cycling. It showed the existence of the same motivation among cyclists in terms of health as they are actively engaged in physical activity. However, there were significant differences among road-bike, folding-bike, and mountain-bike cyclists socio-demographically. These differences come from the purchasing power and the community around them.

## ACKNOWLEDGMENTS

The author would like to thank the Head of STKIP Pasundan and LPPM STKIP Pasundan, who has supported the financing of this study, as well as all parties who helped carry out this study, especially to the

participants who came from the road bike, mountain bike and folding bike communities in Bandung.

## REFERENCES

- Alexandris, K., Funk, D. C., & Pritchard, M. (2011). The impact of constraints on motivation, activity attachment, and skier intentions to continue. *Journal of Leisure Research*, 43(1), 56–79. <https://doi.org/10.1080/00222216.2011.11950226>
- Allender, S., Cowburn, G., & Foster, C. (2006). Understanding participation in sport and physical activity among children and adults: a review of qualitative studies. *Health Education Research*, 21(6), 826–835. <https://doi.org/10.1093/her/cyl063>
- Annur, C. M. (2020). Penjualan Sepeda di E-Commerce Naik Hingga 4 Kali Lipat Selama Pandemi. Retrieved from <https://katadata.co.id/agustiyanti/digital/5f1fbb6a1f608/penjualan-sepeda-di-e-commerce-naik-hingga-4-kali-lipat-selama-pandemi>
- Arbis, D., Rashidi, T. H., Dixit, V. V., & Vandebona, U. (2016). Analysis and planning of bicycle parking for public transport stations. *International Journal of Sustainable Transportation*, 10(6), 495–504. <https://doi.org/10.1080/15568318.2015.1010668>
- Barnett, L. A. (2006). Accounting for leisure preferences from within: The relative contributions of gender, race or ethnicity, personality, affective style, and motivational orientation. *Journal of Leisure Research*, 38(4), 445–474. <https://doi.org/10.1080/00222216.2006.11950087>
- Beaton, A. A., Funk, D. C., & Alexandras, K. (2009). Operationalizing a theory of participation in physically active leisure.

- Journal of Leisure Research*, 41(2), 177–203.  
<https://doi.org/10.1080/00222216.2009.11950165>
- Beggs, B., Nicholson, L., Elkins, D., & Dunleavy, S. (2014). Motivation for Participation in Campus Recreation Based on Activity Type. *Recreational Sports Journal*, 38(2), 163–174.  
<https://doi.org/10.1123/rsj.2014-0038>
- Bélangier-Gravel, A., Gauvin, L., Fuller, D., & Drouin, L. (2015). Implementing a public bicycle share program: Impact on perceptions and support for public policies for active transportation. *Journal of Physical Activity and Health*, 12(4), 477–482.  
<https://doi.org/10.1123/jpah.2013-0206>
- Brandon-Lai, S. A., Funk, D. C., & Jordan, J. S. (2015). The stage-based development of behavioral regulation within the context of physically active leisure. *Journal of Leisure Research*, 47(4), 401–424.  
<https://doi.org/10.1080/00222216.2015.11950368>
- Chen, C., Tsai, L. T., Lin, C. F., Huang, C. C., Chang, Y. T., Chen, R. Y., & Lyu, S. Y. (2017). Factors influencing interest in recreational sports participation and its rural-urban disparity. *PLoS ONE*, 12(5), 1–10.  
<https://doi.org/10.1371/journal.pone.0178052>
- Fontana, M. S., Fry, M. D., & Cramer, E. (2017). Exploring the Relationship Between Athletes' Perceptions of the Motivational Climate to Their Compassion, Self-Compassion, Shame, and Pride in Adult Recreational Sport. *Measurement in Physical Education and Exercise Science*, 21(2), 101–111.  
<https://doi.org/10.1080/1091367X.2017.1278698>
- Gillet, N., Berjot, S., & Gobancé, L. (2009). A motivational model of performance in the sport domain. *European Journal of Sport Science*, 9(3), 151–158.  
<https://doi.org/10.1080/17461390902736793>
- Gillet, N., Berjot, S., Vallerand, R. J., & Amoura, S. (2012). The role of autonomy support and motivation in the prediction of interest and dropout intentions in sport and education settings. *Basic and Applied Social Psychology*, 34(3), 278–286.  
<https://doi.org/10.1080/01973533.2012.674754>
- Götschi, T., Garrard, J., & Giles-Corti, B. (2016). Cycling as a Part of Daily Life: A Review of Health Perspectives. *Transport Reviews*, 36(1), 45–71.  
<https://doi.org/10.1080/01441647.2015.1057877>
- Gucciardi, D. F. (2010). Mental toughness profiles and their relations with achievement goals and sport motivation in adolescent Australian footballers. *Journal of Sports Sciences*, 28(6), 615–625.  
<https://doi.org/10.1080/02640410903582792>
- Hallmann, K., Müller, S., & Feiler, S. (2014). Destination competitiveness of winter sport resorts in the Alps: how sport tourists perceive destinations? *Current Issues in Tourism*, 17(4), 327–349.  
<https://doi.org/10.1080/13683500.2012.720247>
- Harvey, S., Rissel, C., & Pijnappels, M. (2014). Associations Between Bicycling and Fall Related Physical Performance in Older Adults. *Journal of Aging and Physical Activity*.
- Kucukibis, H. F., & Gul, M. (2019). Study on sports high school students' motivation levels in sports by some variables. *Universal Journal of Educational Research*, 7(3), 839–847.  
<https://doi.org/10.13189/ujer.2019.070325>

- Lemoyne, J., Rivard, M. C., Girard, S., & Dubreuil, P. (2019). From organized sport motivation to exercise regulations: differences according sport type and intensity. *Leisure/ Loisir*, 43(4), 479–498.  
<https://doi.org/10.1080/14927713.2019.1697348>
- Mielke, G. I., Bailey, T. G., Burton, N. W., & Brown, W. J. (2020). Participation in sports/recreational activities and incidence of hypertension, diabetes, and obesity in adults. *Scandinavian Journal of Medicine and Science in Sports*, 30(12), 2390–2398.  
<https://doi.org/10.1111/sms.13795>
- Nahata, B., & Raizada, S. (2020). Factors Affecting Sports Participation at the Recreational Level 1. *Annals of Tropical Medicine & Public Health*, 23(17).
- Nehme, E. K., Pérez, A., Ranjit, N., Amick, B. C., & Kohl, H. W. (2016). Sociodemographic factors, population density, and bicycling for transportation in the United States. *Journal of Physical Activity and Health*, 13(1), 36–43.  
<https://doi.org/10.1123/jpah.2014-0469>
- Noyes, P., Fung, L., Lee, K. K., Grimshaw, V. E., Karpati, A., & DiGrande, L. (2014). Cycling in the City: An in-depth examination of bicycle lane use in a low-income urban neighborhood. *Journal of Physical Activity and Health*, 11(1), 1–9.  
<https://doi.org/10.1123/jpah.2011-0429>
- Oxley, J., O'Hern, S., Raftery, S., & Woolley, J. (2016). How safe are children when transported by bicycle? *Traffic Injury Prevention*, 17(S1), 163–167.  
<https://doi.org/10.1080/15389588.2016.1199866>
- Pelletier, L. G., Rocchi, M. A., Vallerand, R. J., Deci, E. L., & Ryan, R. M. (2013). Validation of the revised sport motivation scale (SMS-II). *Psychology of Sport and Exercise*, 14(3), 329–341.  
<https://doi.org/10.1016/j.psychsport.2012.12.002>
- Rojas-Rueda, D., De Nazelle, A., Tainio, M., & Nieuwenhuijsen, M. J. (2011). The health risks and benefits of cycling in urban environments compared with car use: Health impact assessment study. *BMJ (Online)*, 343(7819), 1–8.  
<https://doi.org/10.1136/bmj.d4521>
- Ryan, R. M., & Deci, E. L. (2017). *Self-Determination Theory. Progress in Neuro-Psychopharmacology and Biological Psychiatry* (Vol. 27).  
[https://doi.org/10.1016/S0278-5846\(03\)00119-2](https://doi.org/10.1016/S0278-5846(03)00119-2)
- Schlemmer, P., Barth, M., & Schnitzer, M. (2020). Comparing motivational patterns of e-mountain bike and common mountain bike tourists. *Current Issues in Tourism*, 23(10), 1186–1190.  
<https://doi.org/10.1080/13683500.2019.1606168>
- Shamir, B., & Ruskin, H. (1984). Sport participation vs. sport spectatorship: two modes of leisure behavior. *Journal of Leisure Research*, 16(1), 9–21.  
<https://doi.org/10.1080/00222216.1984.11969569>
- Sheehan, R. B., Herring, M. P., & Campbell, M. J. (2018). Associations between motivation and mental health in sport: A test of the hierarchical model of intrinsic and extrinsic motivation. *Frontiers in Psychology*, 9(MAY).  
<https://doi.org/10.3389/fpsyg.2018.00707>
- Tóth-Király, I., Amoura, C., Bőthe, B., Orosz, G., & Rigó, A. (2020). Predictors and outcomes of core and peripheral sport motivation profiles: A person-centered study. *Journal of Sports Sciences*, 38(8), 897–909.  
<https://doi.org/10.1080/02640414.2020.1736765>
- Wankel, L. M., & Berger, B. G. (1990). The Psychological and Social Benefits of Sport and Physical Activity. *Journal of Leisure Research*, 22(2), 167–182.  
<https://doi.org/10.1080/00222216.1990.11969823>

Zander, A., Passmore, E., Mason, C., & Rissel, C. (2013). Joy, exercise, enjoyment, getting out: A qualitative study of older people's experience of cycling in

Sydney, Australia. *Journal of Environmental and Public Health*, 2013. <https://doi.org/10.1155/2013/547453>