On Pedals and Petals: A Qualitative Exploratory Analysis of Local Bikers' Experiences with Nature during the Pandemic

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Abstract

With the onslaught of Covid-19 pandemic, numerous people engaged into cycling as a means for physical activity and alternative transport, thus paving a way to become a trend among local cyclists here in Angeles City. This research explored the factors influencing cycling, perceived risk and opportunities, as well as environmental health outcomes within the perspective of the cyclists. Using the Diffusion of Innovation (Rogers, 1962) and Risk Compensation (Wilde, 1998) theories as focal points, this study analyzed the top-of-mind concepts, thoughts, and experiences of local cyclists within Angeles City through Man-on-the-Street interviews. Forty-five (45) cyclists were recruited to participate in this qualitative-exploratory study through a combination of snowball and convenience sampling. Data were analyzed using Manual Qualitative Analysis through Transcription, Coding, Categorization, and Thematic Analysis. Themes emerged are as follows: (1) Establishing vigor; (2) Exhibiting threat; and (3) Endearing the environment. Implications to physical education and environmental studies were also emphasized.

Keywords: *biking, cycling, biological risk, man-made risk, environmental health, physical activity gardening*

Background of the Study

According to the World Health Organization (2020), moving around during the Covid-19 outbreak, advocating cycling to limit physical contact to prevent and slow down the pandemic. Promoting safe and environmentally responsible transportation alternatives mitigates the harmful effects of existing transportation practices on human health, such as air pollution and physical inactivity.

Some evidence suggests many people are turning to cycling as a resilient and reliable option to fill the gap. Many urban cycling networks, including those in China, Germany, Ireland, the United Kingdom, and the United States, have seen an increase in traffic. During the COVID-19 outbreak in Philadelphia, cycling has risen by more than 150 percent. Some governments are responding to the increase in demand by creating emergency bike lanes and providing personal access to shared fleet bikes for critical workers. Cycling is a low-cost, health-improving mode of transportation that also has environmental benefits for communities that encourage it. Recently, though, with concerns over climate change, pollution, congestion, and obesity among others, cities throughout the world have begun to implement policies to promote cycling (Karanikola et al., 2018).

Cycling is one of the most popular physical activities. Since the physical environment may affect bicycling behavior, it becomes an important determinant for cyclists to choose a cycleway. Exploratory factor analysis is being used to categorize cyclist's perceptions of environmental quality into five main factors: safety, lighting, lane design, landscape, and environmental cleanliness.

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(Yeh et al., 2019). Cycling is the suitable mode of transportation in the time of pandemic because people do not necessarily go in public transportation that have a great percentage to get a virus. However there are also risks in biking. Cyclists should be aware that in social distances it is about 1 to 2 meters and also avoid getting in windy places that have the possibility of carrying a virus from the people who sneeze or cough. The person running behind you in the so-called slip-stream goes through this cloud of droplets (Blocken et al., 2020).

Biking becomes highly in demand during a pandemic as it becomes the mode of transportation for people. Study suggests that biking is more practical to fulfil the essential tasks like buying food and mobility purposes. (Schwedhelm et al., 2020). This increase in popularity may partly be due to the increased promotion of cycling as a way to improve health outcomes and reduce road congestion and environmental pollution.

The Department of Transportation (2020), recognizes that cycling and personal mobility devices (PMDs) as alternative travel modes would be useful in maintaining physical distancing, while same time delivers substantial environmental and health benefits while achieving efficient use of road space following the recommendation for the Inter-Agency Task Force (IATF) to issue instructions to appropriate national and local authorities to undertake the following to support utilization of NMT and PMD. IATF (Inter-Agency Task Force on Emerging Infectious Diseases) considers exempting cyclists from wearing face shields. Moreover, recognizing the role of exercise in promoting mental and physical health, I also ask the IATF to exempt joggers from the requirement when jogging in open spaces, provided they observe social distancing measures. The IATF required face shields in order to stave off such a surge. The Department of Health said it would consider exempting bikers from wearing face shields because exercise requires increased oxygen intake (Cayetano, 2020). The Inter-Agency Task Force (IATF) for the Management of Emerging Infectious Diseases, said they would also require local government units (LGUs) to put up bicycle lanes. They are encouraging biking for transportation, noting that the two-wheeled vehicle is also cheaper as bikes do not need gasoline to run. Prior to the IATF recommendation, Pasig Transport identified new bike lanes to help essential workers commute amid the enhanced community quarantine (Marquez, 2020).

Factors Influencing Biking or Cycling

In the United States, the number of cyclists is increasing, and as a result, more bike lanes are being requested. Bicycle accidents are caused by a number of factors, including bike lanes, alcohol, lighting, distance, and helmet use (Helak et al, 2017). The factors which consist of cycle lanes, alcohol use, safety gears, and lighting conditions directly contribute to the risk and vulnerability of engaging into accidents to the bicycle users.

Wang et, al (2020) mentioned that risky cycling behaviors could be explained by gender, age, perceived risk, and perceived cycling skills. Gender had the greatest impact on risky cycling behaviors; male individuals were more likely to engage in risky behaviors (Wang et al., 2020). The risk in cycling may vary in gender and age and gender is one biggest factor that really contributes to risk because male cyclists are really into risky ways of cycling while females are more following rules. Furthermore, Thigpen (2019) explored whether attending a bike-friendly university led to high levels of cycling and a change in cycling attitudes, and to what extent changes are influenced by personal cycling experience. The study found that riding a bike at any point during college increases both pro-bike attitudes and cycling skills, while exposure to high levels of cycling appears not to influence attitudes or skills (Thigpen, 2019). The study proved that experiences and exposure influence bicycling skills and attitudes.

Recent research findings on cycling mobility recognize that socio-demographics, built

environment, and trip characteristics as well psycho-attitudinal factors can contribute to influencing the choice to travel by bike (Gutiérrez et al., 2020). Cycling comfort has strong connections in bike infrastructure in certain areas that positively influence the propensity of the cycle. And lastly, latent risk factors, related to indicators such as theft and road safety, has a negative effect on cycle-to-campus frequency for university students (Kalarestaghi et al, 2019). The study proves that risk factors such as theft and road safety have a negative effect in cycling.

Health Outcomes of Biking or Cycling

Cycling enables individuals to interact with the environment, which offers sufficient but not overwhelming stimulation, and the associated physical activity can improve users' moods (Ettema & Schekkerman, 2016). Thus, cycling helps individuals to interact with their surroundings that will create stimulation to improve the cyclist's mood while engaging in physical activity.

Kaplan et al., (2019) found that cycling has the potential for making people feel better about themselves from a physical and psychological perspective. Engaging cycling has the capacity for people to become more effective physically and mentally. According to Woolsgrove (2020), cycling and walking are the only two safe options at both the individual level to keep people healthy and protected against COVID19, but also at the public level to improve public health, get people to their destinations and solve many of the problems that they have without access to public transport. Cycling has a positive impact on almost everyone's fitness, airways are well ventilated and your blood flow is increased when cycling.

A study by Swiers et al. (2017) of a sample of University students in the UK found that regular cyclists (daily/weekly) were significantly more likely to perceive health benefits as a motivator than monthly/annual cyclists. Engaging cycling every day is more relevant to attain health benefits than engaging cycling monthly or annually. Cyclists are consistently shown to have the highest levels of satisfaction with the trip to work, yet the reasons for this contentment remain understudied. Exercise science points to the critical role that pleasure plays in motivating people to engage in and sustain physical activity (Wild & Woodward 2019). Encourage them to keep track of their exercises by supplying them with a training log. Simply recognizing these minor enhancements to your everyday quality of life will boost your drive to exercise and maintain a healthy lifestyle.

Environmental Impact of Biking or Cycling

According to Woolsgrove (2020), Air pollution has been shown to be a carrier of the Coronavirus which may increase the exposure over a wider area, and patients with severe Covid-19 are twice as likely to have had pre-existing respiratory diseases as a result of air pollution, shifting away from motorised transport to a non-emission mode of transport like cycling can counteract these effects. Bicycling, on the other hand, consumes very little fossil fuel. As a result, riding a bike is a pollution-free form of transportation. If you commute to work every day on a bike instead of driving a car. Bicycle riding uses minimal fossil fuels and is a pollution-free mode of transport. It reduces the need to build, service and dispose of cars. Bicycle riding conserves roadway and residential space, thereby providing opportunities for less concrete and more plant life in urban areas (Queensland, 2020). Bicycles do not use any kind of fuel and it's not difficult to build, unlike other vehicles, and it can help to sustain plant life because it increases the quality of air in urban areas.

Cycling for transport offers an opportunity to promote active and sustainable mobility among the growing population of older adults including seven environmental themes emerged; traffic safety, cycling infrastructure, road design & maintenance, connectivity, aesthetics, hilliness and weather (Van Cauwenberg et al., 2018). Biking promotes the sustainable movement to adults as well as the

arising seven environmental themes. Bikes reduce the need to build, service and dispose of cars therefore bicycle riding conserves roadway and residential space while providing opportunities for less concrete and more plant life in urban areas (Queensland, 2020). Bicycle riding minimizes the demand to build roadways for motorized vehicles which gives space for more vegetation of urban areas in concert to bike itself lessens the demand for car use.

Primary environmental outcomes associated with biking are related to the shift in travel mode from automobiles, which can produce benefits in terms of pollution, traffic, congestion, and air quality, resulting in a more sustainable environment (Bopp et al,. 2018). Biking as a mode of transportation will lessen the pollution, traffic, and congestion that will result in increasing a good air quality to become environmentally friendly.

The purpose of this study is to explore the connection of Health Outcomes among Bikers in Angeles City. Furthermore, this research will have to answer the following specific questions:

1. What are the perceived risks and opportunities of biking during pandemic as viewed by the participants?
2. What are the perceived health outcomes among Bikers during pandemic?
3. How may the demographic and biking history influence the risks, opportunities and health outcomes among Bikers during the pandemic?
4. What is the implication of the result of this study in overall wellbeing and physical activity among cyclists?

To fully understand the concepts behind This research in underpinned with the following theories below:

Diffusion of Innovation (DOI) Theory

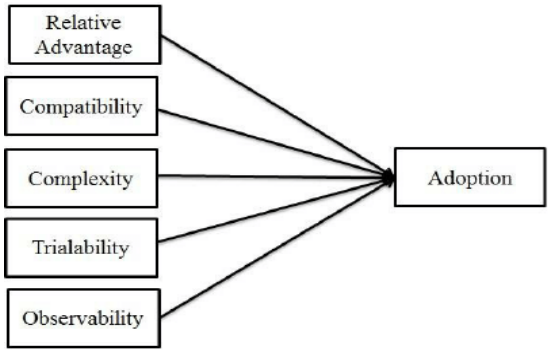

Figure 1. Theoretical Framework

Diffusion of Innovation (DOI) Theory, developed by E.M. Rogers in 1962, is one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (i.e., purchase or use a new product, acquire and perform a new behavior, etc.). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible (LaMorte, 2019).

In this research, diffusion of innovation theory was utilized to determine the reasons why other people shift into biking as a vehicle tool for transportation during this pandemic. As the world was stopped for full or partial lockdown due to the spread of COVID-19 virus, other people contributed that biking is essential to limit the contact to the virus. Biking is a new modern alternative way as a mode of transportation which can help to lessen the contact following the safety protocols. Biking as an innovation during this pandemic contributed to promotion of physical activity to boost our immune system and have a healthy lifestyle.

Risk Compensation Theory

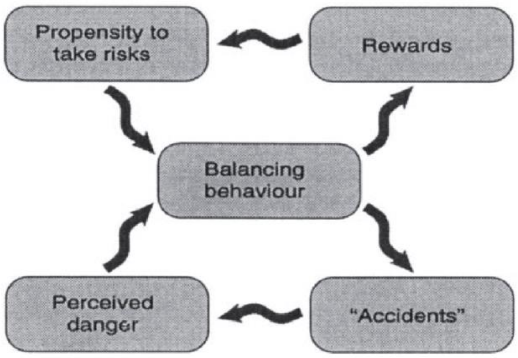

Figure 2. Theoretical Framework

Risk homoeostasis (also called risk compensation) theory predicts that, as safety features are added to vehicles and roads, drivers tend to increase their exposure to collision risk because they feel better protected. Gerald Wilde provides evidence for it and suggests that it should be used to inform road safety strategies.

In this research, RCT was utilized by the researchers to determine the risk of engaging in bicycle riding. This theory explains that bicycle users which are more protected will engage into riskier behavior that makes them vulnerable to bicycling risk. On the other hand, the opportunities determine how the person will become more confident, increase their exposure, and be ready to face the possible risk. This theory focuses on safety features to eliminate the risk and provide safety strategies of engagement to cycling.

Methodology

The study employed the Qualitative - Exploratory method. Qualitative research involves collecting and analyzing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences (Bhandari, 2020). Exploratory method is the process of investigating a problem that has not been studied or thoroughly investigated in the past and it is the process of the research that varies according to the finding of new data or insight. Data will be collected through informal interviews. Through participant's narrative experience, a descriptive exploratory approach was initiated by means of Man on the Street Interview is a project requiring that you have a predetermined target audience in mind (Crane & Stenziano 2017). For the researchers to know the top of mind thoughts and perspectives of the participants. The sampling technique to be used is a combination of Snowball sampling and Convenience Sampling. Snowball sampling the researcher recruits a single participant, while the second nominee recruits the third participant. The chain continues to refer linearly up to the end of the sampling (Alkassim & Etikan, 2016). Convenience Sampling is a non-probability sampling method, it is the most applicable and widely used method in clinical research. In this method, the investigators enroll subjects according to their availability and accessibility. Therefore, this method is quick, inexpensive, and convenient (Elfil & Negida, 2017). The selection criteria are as follows:

- the participant should be using a bicycle for at least six months during this pandemic within Angeles City.
- must be aged 18 years old and above.
- must be any gender or sexual orientation.

Instrumentation

This study will be using a two (2) part questionnaire. An Informal Interview Guide will be formulated by the researchers. Informal interview talks with people in the field informally, without use of a structured interview guide of any kind (Cohen D. 2006). Part I deals with the demographic profile and biking history. In demographic profile the researchers will ask about the respondents background information, and for the history the researchers will ask about the respondents' reason why they are engaged in biking. Part II deals with questions and concepts being studied as guided by the research objectives. All items on parts I and II are identified by the researchers based on 3rd existing literature review.

To ensure validity and transferability of the data gathering tool to be used, (1) face, (2) content, and (3) expert validation will be secured. For Face

Validity, member checking was conducted. Face validity refers to the extent to which a test appears to measure what it is intended to measure (Johnson E. 2013). For Content Validity, the researchers secured an approval from the CCA College Guidance and Formation Office. Content validity refers to the degree to which an assessment instrument is relevant to, and representative of, the targeted construct it is designed to measure (Rusticus, S. 2014). And for Expert Validity, the researchers asked professional advice from faculty handling the subject matter. In Expert validity, Experts examine the items and decide what that specific item is intended to measure (Schuman M. 2017).

The researchers conduct the pilot testing to improve the validity and reliability of the data gathering tool to be used. Pilot test is a small preliminary study used to test a proposed research study before a full scale performance. This smaller study usually follows the exact same processes and procedures as its full-scale counterpart (Adnan, 2018). The target pilot required is three (3). The researchers followed the health and safety protocols. The researchers seek verbal consent to target individuals, Indicating the objectives of the study and the Cyclists expected contribution, risks, and benefits. Provided a sample questionnaire/interview guide. The researcher conducted face to face and online data gathering provided the minimum health protocols. The schedule is based upon the agreed conditions of the participants.

Sampling and Data Gathering

This research utilized a combination of Snowball sampling and Convenience sampling. The researchers gathered 45 cyclists in this study, following the health and safety protocols. Verbal consent was sought from the respondents. Provided with a formal letter containing the objectives of the study and the bikers expected contribution, risks, and benefits. Questionnaire/ interview guide was provided to the participants. Names and contact information of the participants was secured. The objectives of the study as well as the Bikers expected contribution, risks, and benefits was explained to the identified potential participants. The researchers secured both verbal and written consents. Data gathering is conducted via online and face to face, provided minimum health and safety protocols. The data gathering was conducted upon the agreed schedule of the participants.

Data Analysis

Data saturation is defined as 'information redundancy' or the point at which no new themes or codes 'emerge' from data (Braun & Clarke 2019). Once data saturation is reached, data gathered will be analyzed using Manual Qualitative Analysis through the following steps:

- Transcriptions – integral process in the qualitative analysis of language data and is widely employed in basic and applied research across several disciplines and in professional practice fields (Jagda et al., 2018).
- Coding – process of labeling and organizing your qualitative data to identify different themes and the relationships between them (Medelyan, 2020).
- Categorization - the primary product of analytical process, has a descriptive identity and is mainly used at the beginning of the theme development process to classify findings (Jones et al., 2016).
- Thematic Analysis – extracts themes from text by analyzing the word and sentence structure, researcher closely examines the data to identify common themes (topics, ideas and patterns) of meaning that come up repeatedly (Caulfield, 2020).

Participants

The following table presents the summary of information on the Demographic and Biking History of the recruited participants:

Table 1. Demographic and Background of the Participants

Codename	*Age*	*Gender*	*Civil Status*	*Location*	*Date Started Biking*	*Influence on Biking*	*Brand / Type of Bike*
1R	20	M	Single	Angeles City	March 2020	Lack of Exercise	Mountain Bike
2J	19	M	Single	Sto. Domingo, A.C	2008	Transportation	FSA Mountain Bike
3S	21	M	Single	Cutcut, A.C	February 2020	Friends	Phantom Mountain Bike
4A	21	M	Single	Cuayan, A.C	2016	Friend	Fixed Gear
5K	20	M	Single	Cuayan, A.C	2017	Work	Mountain Bike
6C	21	M	Single	Angeles City	2012	Friend	BMX
7L	23	M	Single	Anunas, A.C	December 2018	Friends	Hard Drill Mountain Bike
8T	18	M	Single	Malabanias, A.C	2013	Friends	Fix Gear
9G	19	M	Single	Sto. Rosario A.C	October 2020	Work	Mountain Bike
10R	24	M	Single	Margot, A.C	March 2020	Friends/Exercise	Mountain Bike
11L	18	M	Single	Pampang, A.C	December 2021	Friends	BikeTech Mountain Bike
12JM	21	M	Single	Pampang, A.C	May 2020	Friends	Trinx Mountain Bike
13R	20	M	Single	Angeles City	2012	Physical Health	BMX
14J	18	M	Single	Pampang A.C	2015	Physical Health	Alloy Bike
15A	18	M	Single	Pampang, A.C	January 2021	Friends	Trinx Mountain Bike
16R	18	M	Single	San Jose, A.C	August 2019	Classmate	Road Bike
17D	25	F	Single	Pampang A.C	February 2020	Exercise	Trinx Mountain Bike
18A	22	M	Single	Balibago, A.C	August 2020	Trauma	Mountain Bike
19C	18	M	Single	Pandan, A.C	October 2020	Transportation	Aleoca Mountain Bike
20G	18	M	Single	Claro M. Recto A.C	2019	Friends	Rocky Mountain Bike
21J	18	M	Single	Balibago, A.C	0ctober 2020	Friends	Trinx Mountain Bike
22J	20	M	Single	Claro M. Recto A.C	November 2020	Friends	Road Bike
23J	19	M	Single	Angeles City	November 2020	Sibling	Fix Gear
24L	18	M	Single	Balibago, A.C	September 2020	Friends	Mountain Bike
25L	20	F	Single	Marisol, A.C	May 2020	Father	Mountain Bike
26F	24	M	Single	Balibago, A.C	August 2020	Friends	Fixed Gear
27L	18	M	Single	Claro M. Recto, A.C	August 2020	Classmate	Fixed Gear
28J	20	M	Single	Salapungan A.C	2013	Friends	Mountain Bike
29A	22	M	Single	Angeles City	2013	Personal Choice	Fix Gear
30J	21	M	Single	LNS A.C	March 2020	Friends	Razer Bike
31B	21	M	Single	Angeles City	2015	Friends	Mountain Bike
32J	19	M	Single	Angeles City	March 2020	Friends	Mountain Bike
33M	18	M	Single	Angeles City	June 2020	Friends	Japanese Bike
34N	22	M	Single	Angeles City	2020	Personal Choice	Mountain Bike
35E	18	M	Single	Angeles City	March 2020	To Lose weight	Mountain Bike
36A	21	M	Single	Angeles City	2013	Group of cyclist	Fix Gear
37O	18	M	Single	Angeles City	February	Family/Friends	Budget MTB
38P	19	M	Single	Cut-Cut Angeles City	October 2020	Family	Foxster Bike
39K	21	M	Single	Angeles City	April 2020	Friends	Mountain Bike
40P	19	F	Single	Angeles City	March 2020	Personal Choice	Twenty Niner
41B	19	M	Single	Angeles City	July 2020	Friends	Mountain Bike
42A	21	M	Single	Cuayan Angeles City	2015	Personal Choice	Fixie
43S	24	F	Single	Angeles City	October 2020	Family	Foxster Bike
44C	52	M	Separate	Angeles City	1980	Personal Choice	BMX Bike
45J	40	F	Married	Angeles City	April 2020	Family	Mountain Bike

The Table 1 shows that most of the respondents are male and ranging from 18 to 25 years old. The participants mostly use mountain bikes and they are influenced by their peers and physical needs during this pandemic.

Results and Discussion

After qualitative data analysis, the following results were obtained:

Table 2. Common Motivation in Biking during the Pandemic

Common Motivations in Biking
1R = Healthy Lifestyle
2J = Encouragement
3S = Healthy Lifestyle
4A = Healthy Lifestyle
5K = Healthy Lifestyle
6C = Prevent Virus
7L = Physical Fitness
8T = Physical Fitness
9G = Self Encouragement
10R = Prevent Virus
11L = Coping Stress
12JM = Inspiration
13R = Healthy Lifestyle
14J = Inspiration
15A = Bikers
16R = Family
17D = Father
18A = Prevent Virus
19C = Quality Time
20G = Quality Time
21J = Physical Fitness
22J = Physical Fitness
23J = Exercise
24L = Exercise
25L = Father
26F = Exercise
27L = Exercise
28J = Exercise
29A = Prevent Virus / Healthy Lifestyle
30J = Physical Health
31B = Physical Fitness / Relax
32J = Exercise/Relax
33M = Physical Fitness
34N = Physically Fit
35E= Exercise
36A= Adventure
37O= Exercise
38P= Exercise/Quality time
39K= Exercise/Physically fit
40P= Physically fit
41B= Exercise/Quality time
42A= Exercise
43C= Bonding with family/Exercise
44C= Exercise
45J= Exercise

The Table 2 above common motivation in biking during the Pandemic shows that healthy life is their main motivation to engage in cycling activity during this pandemic because for them engaging in a physical activity like cycling/biking it will improve their health especially in the aspect of immunity. Biking serves physical enhancement when you ride a bicycle and offers the possibility to sustain an appropriate level of physical activity, which consequently improves our physical and mental well-being (Bouyat et al., 2021).

15A stated that, *"Naging inspirasyon ko lang po yung para yung mga bike habang ano po kami nag bike yung nakasalubong po namin parang nae enjoy ko po yung pag babati nila sa isa't isa" (Biking becomes my inspiration because when I encounter other bikers, I enjoyed when we greet each other).*

Table 3. Identified Adaptions on Biking Behavior during the Pandemic According to Participants

Relative Advantage	Compatibility	Complexity	Trialability	Observability
Habit diversion, Transportation, Divert trauma, Alternative Vehicle, Physical Fitness, Coping mechanism, Self improvement, Adventure, Health betterment.	Peer influence, Escapade, Health maintenance, Healthy Living, Affection, Encouragement, Role model, Realization, Family encouragement, Exercise, Passion, Leisure, Physical Awareness, Sustainable training, Happiness, Travel, Loss weight.	Reversibility.	Personal choice, Virus prevention, Reinstate, Boredom, Stress Reliever, Invitation.	Immune strengthening, Socialize, Well-being, Convenience, Healthy Lifestyle, Colleagues growth, Mingle, Inspired, Enthusiasm, Bonding, Immunity Boost, Affiliation, Cardio Enhancing, Relaxation.

"My weight increased ten kilos because of the pandemic. It motivates me to ride a bicycle" 43S said.

29A states that, We need to enhance or improve our body our immune system so from that I think I need to boost my or improve my body my immune system or at least to avoid or to ease the virus".

The statements above, adaptions on biking behaviour during the pandemic were recognized. Biking is considered as a way to improve and maintain the well-being of bikers. Kaplan et al., (2019) found that cycling has the potential for making people feel better about them from a physical and psychological perspective. Engaging cycling has the capacity for people to become more effective physically and mentally.

"It motivates me a lot because I want to get stronger and I think it is a good idea since the pandemic exists because it helps strengthen our heart, it gives us good resistance and stamina and you do not easily get tired and sick" 40P said.

The Table 3 identified adaptions on biking behavior during the pandemic according to Participants shows the different adaptions on biking behavior during the pandemic namely: 1) relative advantage, 2) compatibility, 3) complexity, 4) trialability, and 5) observability the categories use is adapted from diffusion of innovation theory. Relative advantage is the degree to which the innovation is perceived to be superior to current practice. Compatibility is the degree to which the innovation is perceived to be consistent with socio-cultural values, previous ideas, and/or perceived needs. Complexity is the degree to which an innovation is difficult to use or understand, its simplicity. Trialability is the degree to which the innovation can be experienced on a limited basis. Observability is the degree to which the results of an innovation are visible to potential adopters (Kaminski, 2011).

Table 4. Identified Rewards of Biking During the Pandemic According to Participants

Physical	Intellectual	Emotional	Environmental	Financial	Occupational	Social
Immunity boost, Health development, Exercise, Leisure, Prevention, Body Maintenance, Physically fit, Physical development, Resistance, Healthy lifestyle.	Well-being, Mental Stability, Benign, Unwind.	Travel, Diversion, Stress reliever, Relaxation.	Community welfare, Wanderlust, Confinement, Eco friendly, Ecological, Aesthetic, Convenience	Confinement.	Alternative, Competitiveness.	Enthusiasm, Socialize, Growth.

1R stated that, *"Naeenhance yung immune system natin which is the primary ano by primary weapon natin pang combat sa covid 19" (It enhances our immune system which is the primary weapon to combat the Covid 19).*

"It became a healthy lifestyle. It helps me lose weight. It is also a form of exercise that for me is an advantage. I can also mingle or bond with my cousin and my friends through biking and I visit many places through biking" 43S said.

33M stated that, *"you get to exercise and bond with your friends by exploring the beauty of nature and the places you go to".*

"Minimize the pollution specially to air because of not producing toxic waste as we use our bike as our mode of transportation. With the help of it we successfully help our mother nature to survive and provide a safe and breathable space for everyone" 41B said.

The statement determines the rewards of biking during the pandemic according to participants. Positive outcomes of biking manifest across health, lifestyle, beautification, and promotion of environmental health.

According to Buehler & Pucher (2021), benefits of cycling fall into two broad areas encompassing (a) the health enhancing social interactions that occur when people participate in physical activities with other people, and (b) the health-enhancing lifestyles associated with living in "healthy spaces and places" that provide supportive environments for active living and social engagement. Bikers embrace the responsibility of promoting and taking care of the environment.

This Table 4 identified rewards of biking during the pandemic according to Participants shows the different rewards of biking during the pandemic based on the eight dimensions of wellness namely: 1) Physical, relates to maintaining a healthy body and seeking care when needed. 2) Intellectual, having an open mind when you encounter new ideas and continuing to expand your knowledge. 3) Emotional, relates to understanding your feelings and coping effectively with stress. 4) Spiritual, allows you to develop a set of values that help you seek meaning and purpose. 5) Environmental, inspires us to live a lifestyle that is respectful of our surroundings. 6) Financial, the process of learning how to successfully manage financial expenses. 7) Occupational, is about enjoying your occupational endeavors and

appreciating your contributions. 8) Social, helps you perform social roles effectively and comfortably, and create a support network.

18A states that, *"natakot ako kase pandemic so uhm may tendency na kapag na gumamit ako ng public transportation may tendency na hindi ko alam baka yung katabi ko is may covid pala" (I am afraid because it is pandemic there is a tendency when I use public transportation you cannot know if your seat meat is a virus carrier).*

"The virus itself, since its pandemic we are very prone to viruses because we don't know who is the carrier of it and also the things you will encounter along your ride" 33M said.

Table 5. Identified Risks of Biking during the Pandemic according to Participants

Physical	Biological	Other factors
Accident, Reckless, Fright, Collision, Incompetent.	Vulnerable, Social anxiety, Exhaustion, Strained, Fatigue, Infection, Suffocation, Contact, Unease, Scared, Fear, Inconsistent, Tired, Errant, Obstruction, Discomfort, Illness, Anxious, Inept, Handicap.	Malfunction, Irresponsible, Restriction, Inaccessible, Novice, Limitation, Separation, Lack of information, Annoyance, Exploitation, Paranoid, Hindrance, Damaged, Impotent, Limited resources, Strict, Unwary.

3S states that, *"Circumstances yung nasiraan ka sa kalagitnaan ng highway, wala kang mahingian ng tulong kung hindi ang sarili mo (Circumstances that I encounter while biking is that the bike was broken in the middle of the road and there is no other people that can help me other than myself)".*

According to 37O, *"Mga bike lane natin hindi pa siya ganun ka linis may natitira pang mga bubog (A lot of bike lanes are not that clean, there are still broken fragile bottles on the road)".*

The statement above presents the risks of biking during the pandemic. Virus contact and man-made risk are identified by the bikers while engaging in biking during this pandemic. As stated by Mohammadian et al., (2021) the pandemic provokes public fear, which may result in changes in travel behavior, and more specifically, alterations in the activities people engage in and transportation modes they use to reach their activity locations. Risks also include the safety of women against abuse as noted on the table. Al-Tayyar and Dabbagh (2021) examines preferences for cycling clothes, and the current situation of women's practice of cycling with the aim to produce some recommendations that could enable to produce women's cycling clothes that consider and respect social and religious values. According to Hologa (2020), In their daily routines, cyclists are often confronted with dangerous situations while commuting in an urban context. Based on previous experience, they are usually able to localize hazards, which may lead to an adaptation of cycling activities. Hazards and accidents in cycling influence infrastructure on accident occurrence. Most of them link road type, intersections, and bicycle facilities, e.g., the presence of bike lanes, to the risk of crash events and or injuries.

"Pinakaworst na nangyari sakin ay yung alam mo na syempre babae ka, lahat kami mga babae siklista. Ang mga babae nababastos ng kapwa siksilta" (The worst scenario that I experienced while biking, I was abused by my co-cyclist because I am a female) 18M said.

The Table 5 identified risks of biking during the pandemic according to participants shows the different risks of biking during the pandemic such as; 1) Physical, 2) Biological, 3) Chemical, and other factors that might occur like man made risks. This category is identified through the Human Health Risk. Physical, can lead to injuries such as choking, cuts, or broken teeth. Also, there can be environmental factors. Biological include microorganisms such as bacteria, viruses, yeasts, molds and parasites. Some of these are pathogens or may produce toxins. Chemicals could be prior to a processor receiving product, such as the improper use of pesticides or antimicrobial residues (Schweihofer, & Wells, 2021).

Table 6. Identified Balancing Behavior of Safe Biking during the Pandemic according to Participants

Political	Economic	Social	Technological	Environmental	Legal
Adaptation, Vigilant, Comply, Strict, Restriction, Obedient, Imply, Complaint, Implementation, Prevention, Compelled, Doubting, Political, Compliance, Educating, Inclination.	Financial, Limited resources.	Discipline, Disobedient, Awareness.	Protective gear, Proper gear, Discomfort, Precaution.	Cautious.	Ignore, Aggressive, Preservation, Prevention, Protection, Irresponsible, Safety.

1R stated that, *"Strict implementation nang pagsusuot ng mga face mask nag reregards sila ng social distancing which is yung latest dito sa Clark (Strict implementation of wearing facemask and social distancing which is latest here in Clark)".*

"The government is giving us a safe space for us to enjoy the moment that we have with the rules that are being implemented" 41B said.

The statements indicate the balancing behaviour of safe biking during the pandemic. Bikers adjust to existing factors which influence their safety while biking during this pandemic. These factors include the implementation of guidelines and misbehaviour caused by other vehicle users. The Department of Transportation (2020) recognizes that cycling as alternative travel modes would be useful in maintaining physical distance, while achieving efficient use of road space following the recommendation for the Inter-Agency Task Force (IATF). Despite the fact that cyclists make up a small percentage of road users when compared to motorized vehicles, they are thought to be more vulnerable due to their smaller mass. Motorized vehicle and biker collisions are frequently caused by prematurely taking actions performing a manoeuvre in the wrong direction, missing information, or an incorrect understanding of other road users' action (De Angelis et al., 2017).

19C states that,*"Yung mga sasakyan po parang hindi po nila ina-acknowledge yung mga cyclists (Other vehicles do not acknowledge the cyclists)".*

"Facemask to ensure our safety which is reasonable but on in all its good" 33M said.

This Table 6 identified balancing behavior of safe biking during the pandemic according to participants shows the different balancing behavior of safe biking during the pandemic namely: 1) Political, 2) Economic, 3) Social, 4) Technological, 5) Environmental, and 6) Legal. This category's use is adapted from the PESTEL analysis. Political Factors is the extent to which government and government policy may impact on an organisation or a specific industry. This would include political policy and stability as well as trade, fiscal and taxation policies too. Economic Factors impact on the economy and its performance, which in turn directly impacts on the organisation and its profitability. Factors include interest rates, employment or unemployment rates, raw material costs and foreign exchange rates. Social Factors include changing family demographics, education levels, cultural trends, attitude changes and changes in lifestyles. Technological Factors is the tendency to focus on developments only in digital technology, but consideration must also be given to new methods of distribution, manufacturing and also logistics. Environmental Factors relate to the influence of the surrounding environment and the impact of ecological aspects. Legal Factors include employment legislation, consumer law, health and safety, international as well as trade regulation and restrictions. The PESTEL was invented by Francis Aguilar in 1967. Analysis is one of the tools that is used to identify and analyze the key drivers of change in the organizational environment (Buye R, 2021).

Table 7. Identified Environmental Health Outcomes of Biking during the Pandemic According to Participants

Intrinsic	Extrinsic
Cherish, Aesthetic, Integration, Advocate, Influence, Promote, Willingness, Educated, Conservation, Refreshment, Pleasure, Appreciation, Fulfillment, Relaxation, Convenience, Community service, Interaction, Resourceful, Responsible, Safe,	Mitigate, Innovate, Abating, Reducing, Beneficial, Alleviate, Decrease, Attenuate, Increment, Restraining, Reduction, Less-traffic, Avoid, Regulate, Eco friendly, Cleansing, Less-hassle, Harmless, Helpful, Depletion, Lessen, Cleanliness, Absence, Cutdown, Advantage, Environmentalist, Minimizing, Diminish, Erode,

1R states that, *"Embrace, mas lalo mong naapreciate yung shimmery, yung ganda ng environment. 'Yun nakakaamaze lang" (The more you embrace the environment, the more you appreciate its shimmery and it's amazing)".*

"Nakikita ko po 'yung parang beauty of nature po, parang ang sarap po tingnan ng paligid habang nagba-bike (I see the beauty of the nature with satisfaction while riding bicycle)", 20G said.

As seen in the statement above, the identified environmental health outcomes of biking during the pandemic. Biking results in different environmental health benefits that go along with reduced car use. These benefits include improved air quality, reduced noise pollution, and reduced greenhouse gas emissions. The impact of air & noise pollution is greatest in dense urban centers. Therefore, biking offers significant potential to reduce environmental health risk (Buehler & Pucher, 2021). Biking generates satisfaction to bikers through aesthetic view from the environment. Wild & Woodward (2019), states that bikers are consistently shown to have the highest level of satisfaction with the beauty of the environment.

35E states that, *"Cycling noise pollution is reduced as well, bicycles require no gasoline, no anti-freeze and don't need many of the other fluid vehicles that need to be operated; this helps assure such fluid don't make their way on local waterways on the environment itself".*

"The environment to limit the gas emission and it reduces air pollutant and noise pollution", 43S said.

The Table 7 identified environmental health outcomes of biking during the pandemic according to participants show the intrinsic and extrinsic environmental health outcomes of biking during the pandemic. The categories adapted came from the model of motivation. Intrinsic motivation comes from within. When you're intrinsically motivated, you engage in an activity solely because you enjoy it and get personal satisfaction from it. Extrinsic motivation is when you do something in order to gain an external reward. This can mean getting something in return (Santos-Longhurst, 2019).

Themes

Establishing Vigor

Physical needs and fear of virus propels biking as transportation. Main factors of people diverting their transportation to biking are to improve physical needs and prevent virus contact. It is evident that physical strengthening is their primary weapon to at least fight or avoid severe effects of viruses. As 29A said, "*We need to enhance or improve our body, our immune system, so from that I think I need to boost my or improve my immune system or at least to avoid or to ease the virus*". Physical activity is one of the most efficacious pathways to promoting physical health, preventing disease, and, most important during the COVID-19 pandemic, bolstering a stronger immune system (Coleman et al,. 2021).

Our participant also highlights that biking is an alternative way to strengthen their physical well-being. 40P stated that, "*It motivates me a lot because I want to get stronger and I think it is a good idea since the pandemic exists because it helps strengthen our heart, it gives us good resistance and stamina and you do not easily get tired and sick*". Cycling for transport enables

individuals to incorporate physical activity into daily life (Buehler & Pucher, 2021).

Exhibiting Threat

Biking is attached to man-made and biological risk. Quarantine and larger scale of lockdowns led to fear over the health of oneself. Fears and concerns surrounding pandemics can have a particularly negative impact on physical well-being (Veldhuijzen van Zanten et al,. 2021). The same is true within the statement of our participant. 33M mentioned that, "*the virus itself since its pandemic we are very prone to virus because we don't know who is the carrier of it nor the things you will encounter along your ride*". Since the start of COVID-19 it has frightened bikers of possible contact with viruses especially when they engage into biking. There is an uneasy feeling for them that biking might cause virus infection.

Other bikers experienced inaccessibility of resources when they were having problems along their ride. These man-made factors including the encounter of 3S stated that, "*Circumstances that I encountered while biking, my bike was broken in the middle of the road and there are no other people that can help me other than myself*". Based on the participants' statement they experience the following man-made factors such as; 1) Bloated tires 2)Snapped Chain 3) Shifter and Brakes. When they experience this kind of situation sometimes they lack access to help.

Endearing the Environment

Engaging in biking during the pandemic enhances endearment to the environment. Biking promotes appreciation and care for our environment. It gives them the desire to protect and value the beauty of their surroundings. *"The more you embrace the environment, the more you appreciate its shimmery and it is amazing*" as 1R shares. Wild & Woodward (2019), states that bikers are consistently shown to have the highest level of satisfaction with the beauty of the environment.

Environmental benefits from biking consist of lessen air pollution, noise pollution, and antifreeze of motorized fluid. As stated by 35E, "*Cycling noise pollution is reduced as well. Bicycles require no gasoline, no anti-freeze and don't need many of the other fluid vehicles that need to be operated. This helps assure such fluid doesn't make their way on local waterways on the environment itself*". Biking is resulting in positive environmental health outcomes that help the conservation of nature. The primary environmental outcome associated with biking is that it can produce benefits in terms of pollution, traffic, congestion, and air quality, resulting in a more sustainable environment (Bopp et al,. 2018).

Implications

Based from the results of the study, the researchers would like to emphasize the following propositions within the areas of environmental health education as well as the implications of physical activity on the wellbeing of bikers:

1. Organization of local clubs and associations among bikers and cyclists to promote the benefits of biking and cycling in the community. These social groups are core drivers in achieving environmental initiatives of biking.
2. Integrate biking or cycling as part of Physical Education among basic courses / subjects to emphasize the importance of physical activity and environmental awareness.
3. Emphasize road safety and designation of bike lanes in the city to advocate for the benefit of bikers and cyclists.

Limitations

Since the research is conducted within the time of pandemic, several restrictions were noted. These are as follows:

1. Since face-to-face gathering is prohibited, the researchers had a difficulty in organizing their regular schedule due to logistical issues.

2. In terms of recruiting respondents/participants, due to availability and willingness.
3. Not everyone has good internet connectivity and not all bikers/cyclists are on the selected social media platforms.
4. Man-on-the-Street interviews do not have the capacity to probe further.

Summary

The general outcome in this study are as follows:

1. Majority of the participants in this study are aged between 18 to 25 years old and male
2. Almost all have just started or returned to biking due to the pandemic. They use mountain bikes, are influenced by their peers, and are physically motivated.
3. Contacting COVID-19 virus remains to be the most common risk associated with biking during the pandemic. Other factors are: man-made and negative behavior.
4. Biking or cycling brings physical, mental, social, as well as environmental benefits to holistically develop the person.
5. Organized biking communities are active and influential in promoting and advocating for environmental protection and conservation.

Conclusion

Thus, the following conclusion are offered:

1. Due to the pandemic, young males are more likely to engage in biking and cycling as a form of physical diversion and an increasingly important role in neighborhood transformations. Younger people were more physically active (eg. Biking) engaging more in both moderate and vigorous types of exercise and males were generally more active (Cai Lian et al., 2016).
2. Although biking or cycling poses several risks on health during the pandemic, there is a likelihood that bikers or cyclists will engage because the benefits outweigh the perceived risks of the activity. COVID-19 pandemic is risky due to the virus contact. Biking is environmentally friendly and co-managed mobility is gaining ground. In particular, bikes have seen double-digit growth rates of diffusion and use in its various forms. It is a fast and efficient solution, with zero emissions, convenience, speed of movement for short distances and beneficial effects on users' health that cyclists are willing to overcome the perceived risks (Begantino et al., 2021).
3. Environmental health outcomes and initiatives are more likely to happen in biking or cycling among organized groups as part of their advocacy and social dynamics. The COVID-19 builds an "educational peloton" that can help drive engagement and work satisfaction, which boost human connection and promote community. Educational Peloton can be defined as a group of bikers with the same goals (Berkowitz et al., 2021). Bicycling drives changes of attitudes and behavior in response to life events: Life events trigger change social norms, unleash a latent demand for bicycling, and change interest in destinations and activities. Meeting new partners prompted participants to discover new types of bicycling and contributed resources that facilitated bicycling. Bicycling drives changes of attitudes and behavior in response to life events: Life events trigger change in social norms, unleash a latent demand for bicycling, and change interest in destinations and activities. Meeting new partners prompted participants to discover new types of bicycling and contributed resources that facilitated bicycling (Handy & Jankea, 2019).
4. Biking or cycling can be integrated into the pedagogy of physical education that emphasizes the value of physical activity and well as environmental health. By designing and implementing cycling awareness in school programs, the future citizen is educated to a great degree in the field of education for the environment and sustainability, developing all those skills and views that will consciously and

decisively shape the future (Papavasileiou et al., 2018).

Recommendations

The following recommendations are presented to present a better understanding and appreciation of the research: (1) The researchers recommend a quantitative validation on the results of this study. (2) More bikers or cyclists should also be invited to gather more data to support this study as well as making sure the participants must have more experience. (3) Future researchers must also look into how gender, age, and other social determinants can influence the perception or experience of bikers or cyclists. (4) And, should there be a replication of the study, the researchers should try to use a more in-depth methodology to probe deeper narratives among the participants.

And to highlight the need of a better policy and educational impact, the following are suggested: (1) Bikers or cyclists, whether individual or in group, can use this study to have an idea about the different environmental health outcomes as well as their roles in promoting environmental awareness. (2) Schools can integrate biking and cycling on subjects such as physical education to enhance the physical activity and environmental engagement of the students. (3) And government authorities should intensify the laws and regulation to maintain the safety and security of bikers and cyclists within their jurisdictions.

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