

KU LEUVEN

SPM 17

Sport Policy & Management

WHO PARTICIPATES NOW AND IN THE FUTURE?

A case study of the Tour of Flanders Cyclo

Inge Derom
Rob VanWynsberghe
Jeroen Scheerder

2013

In cooperation with



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

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This is the seventeenth number in the series of Sport Policy & Management Reports (SPM).

The SPM reports are intended to contribute to the socialscientific research on policy and management with regard to sport and physical activity. These publications are a product of the Policy in Sports & Physical Activity Research Group, Department of Kinesiology, KU Leuven, Belgium.

The SPM Reports can be downloaded freely after registration via www.faber.kuleuven.be/SPM.

Series editors: Prof. dr. J. Scheerder, dr. S. Vos, and drs. Jeroen Meganck
Responsible publisher: Prof. dr. J. Scheerder
Technical support: Mr. Jos Feys

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© 2013 J. Scheerder, Policy in Sports & Physical Activity Research Group, Department of Kinesiology, Faculty of Kinesiology & Rehabilitation Sciences, KU Leuven
Tervuursevest 101, B-3001 Leuven (Heverlee), Belgium

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Seghers, J., Scheerder, J., Boen, F., Thibaut, E., & Meganck, J. (2012). *Medisch en ethisch verantwoord sporten. Praktijkvoorbeelden in Vlaamse Jeugdsportclubs [Medical and ethical issues in sport. Good practices in Flemish youth sport clubs]* (Beleid & Management in Sport 13). Leuven: KU Leuven/Departement Bewegingswetenschappen.

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No. 17

Derom, I., VanWynsberghe, R., & Scheerder, J. (2013). *Who participates now and in the future? A case study of the Tour of Flanders Cyclo* (Sport Policy & Management 17). Leuven: KU Leuven/Policy in Sport & Physical Activity Research Group.

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PREFACE

This report presents findings on a case study about the Tour of Flanders Cyclo, Belgium's most popular participatory cycling event. A participatory sport event attracts a large number of non-elite participants compared to a small number of spectators, many of whom are often friends and family members of those participating or local residents (Gratton & Taylor, 2000). In the Tour of Flanders Cyclo individuals from across the world compete in an 83, 133, or 259 km event. The Tour of Flanders also includes a professional spectator event in which a small number elite athletes compete the day after the Tour of Flanders Cyclo, attracting a large number of international spectators. Approximately 34 million people in Europe view some elements of the Tour of Flanders on television (Lagae & Vanclooster, 2011).

The objective of this report is twofold. Firstly, this report describes who participates in the Tour of Flanders Cyclo based on a number of different variables. However, in order to continuously and strategically attract individuals to participatory events such as the Tour of Flanders Cyclo, research should go beyond the mere description of event participants. Therefore, secondly, this report aims to predict future participation in the Tour of Flanders Cyclo based on different variables, for example socio-demographic characteristics, active participation in physical activity and cycling events, and passive spectating of the Tour of Flanders and other professional cycling events.

This report presents a section of Inge Derom's doctoral research conducted at the University of British Columbia, Vancouver (Canada). Her research examines how hosting and leveraging spectator and participatory events can result in health benefits for host residents and event participants. Social event leveraging is a process in which strategies can be designed to instrumentally use available resources in the host community to achieve social objectives (O'Brien & Chalip, 2007, 2008). In particular, she examines how strategies to increase physical activity participation can be designed in relation to hosting the Tour of Flanders.

CHAPTER 1

INTRODUCTION

Physical inactivity rates are problematic across the world, including Belgium. The 2008 National Health Survey shows that 62% of the Belgian population is sedentary or inactive (Tafforeau, 2008), not achieving the physical activity guidelines of 30 minutes of regular, moderate-intensity physical activity on most days of the week – generally five out of seven (World Health Organization, 2004). Physical activity is defined as “any bodily movement produced by skeletal muscles that results in energy expenditure. The energy expenditure can be measured in kilocalories. Physical activity in daily life can be categorized into occupational, sports, conditioning, household, or other activities” (Caspersen, Powell, & Christenson, 1985, p. 126). Sport participation is thus clearly defined as a subset of physical activity. Tafforeau (2008) reported significant differences in physical activity participation across the regions in Belgium. Although 38% of the Belgian population is physically active for at least 30 minutes per day, this number increases to 46% in Flanders and decreases to 29% in Wallonia and 25% in Brussels (Tafforeau, 2008).

Although physical activity participation is low, it appears that participatory sport events have never been more popular. Colijn and Kok (2007, p. 35) define participatory sport events as “events that are not tied to an ongoing competition, often organized on one day or a weekend for participants at every level. At these events, experience is increasingly more important than performance.” Not only has the total number of organized events grown, but the participant numbers have also increased (Colijn & Kok, 2007). In the Netherlands, participation at major running events has doubled over the past ten years. Due to the popularity of these events, some are sold out months before the race. For example, the Dam to Dam Run in Amsterdam (the Netherlands) takes place on September 22, 2013 and includes different distances for a maximum of 55,000 participants. Registration for the 2013 edition started on March 30 and the 40,000 bib numbers for the 10 mile run were sold out within hours (Le Champion, 2013). In order to guarantee safety and comfort for all participants, some participatory events have limited the number of registrations, which was also the case for the 2013 Tour of Flanders Cyclo. Given their popularity, participatory sport events present an opportunity to examine the relationships between physical activity and sport events as these events might encourage individuals to become or remain physically active.

CHAPTER 2

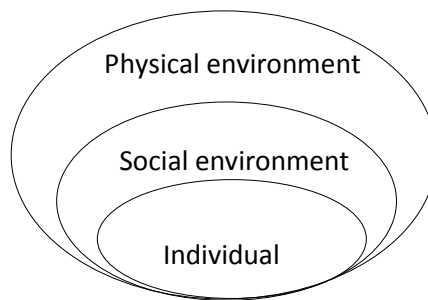
THEORETICAL FRAMEWORK

Murphy and Bauman (2007, p. 195) note that “there is a paucity of research on the impact of mass participation running or cycling events on subsequent PA [physical activity] ... unfortunately no evaluations have assessed pre-event PA, or tracked activity post event.” A handful of researchers have attempted to fill this gap in the literature and found evidence to support what has been called the participation effect. The participation effect assumes that by means of participating in a participatory sport event (and the training one completes prior to the event), inactive individuals are encouraged to become active and increase their physical activity and already active individuals are encouraged to remain active and maintain their physical activity. Following Dickson, Phelps, Schofield, and Funk (2009), it is not only important to investigate the health promotion potential of sport events among inactive individuals, but it is also important to investigate the role of participatory events in terms of health benefits among already active individuals.

Inge Derom’s doctoral research is grounded in social-ecological theory and conceptualizes sport events as health promotion interventions. The World Health Organization defines health in its constitution as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 1946). This definition goes beyond a condition of physical health and also includes mental health and social well-being. It is well established that health is not only influenced by individual factors but also by environmental factors as there is a proven positive relationship between ill-health and inequality (Low & Thériault, 2008), which is evident in areas such as social housing, employment opportunities, and access to recreation facilities. Individuals themselves cannot be solely responsible for their own health when they, for instance, live in ‘obesogenic’ environments that provide many barriers to physical activity and healthy living (Swinburn, Egger, & Raza, 1999). Raeburn and Rootman (2007, p. 28) capture this when they claim that “health is equivalent to healthiness and is related to concepts of resilience and capacity. It refers primarily to mental and physical dimensions of healthiness, has strong experiential and social aspects, and is determined by many internal and external factors, including those of a personal, collective, environmental, political, and global nature.” An individual’s health is thus influenced by multiple factors, situated at both the level of the individual and the environment, as stated by social-ecological theory.

The term ecology refers to the study of the relationships between organisms and their environments (Green & Kreuter, 1999). The field of social ecology, Stokols (1996, p. 285) notes, “gives greater attention to the social, institutional, and cultural contexts of people-environment relations than did earlier versions of human ecology, which focused primarily on biological processes and the geographic environment.” Social-ecological theory describes how health is not only influenced by a variety of individual characteristics but also by multiple environmental conditions (Stokols, 1992; 1996). More specifically, the social-ecological model includes elements at the level of the individual, the social environment, and the physical environment that are linked and are interdependent determinants of health (Bartholomew, Parcel, Kok, Gottlieb, & Fernández, 2011; Green & Kreuter, 1999; McLeroy, Bibeau, Steckler, & Glanz, 1988; Stokols, 1992, 1996). The social-ecological model is presented in Figure 1.

Figure 1. *The social-ecological model*



Source: Adapted from Bartholomew et al. (2011)

Different elements at the level of the individual are important determinants of health, including biological, socio-demographical, psychological, and behavioural characteristics. It is important to note that both modifiable and non-modifiable characteristics determine health behaviour, including physical activity participation. At the level of the social environment, interpersonal elements are important, for instance relating to family and friends, or other social institutions such as schools, the workplace, and the community. The availability of organizational and community services and support is also relevant. Lastly, the level of the physical environment includes elements such as geography, architecture, and technology, referring to, for instance, recreational infrastructure and access to high-end facilities (Stokols, 1992). Health promotion is defined by O’Neill and Stirling (2007) as the planned interventions aimed at making changes at the levels of the individual and the environment of the social-ecological model. These changes should be made simultaneously, using a variety of behavioural and environmentally based strategies (Stokols, 1996).

The goal of social-ecological theory is to provide a healthy community environment that implements supportive policies, provides access to resources and facilities, social support, and information to

enable people to live a healthier life (Stokols, Allen, & Bellingham as cited in Wharf Higgins, Rickert, & Naylor, 2006). The social ecological model has been applied to different health promotion interventions, including healthy eating (Robinson, 2008) and active living (Sallis et al., 2006), but it has never been applied to health and physical activity in the context of hosting and leveraging sport events.

Some researchers have found evidence to support what has been called the participation effect. For instance, the 2007 Women's Mini Marathon in Dublin (Ireland) was examined by Lane, Murphy, and Bauman (2008). This 10 km event is the largest women's only event in the world with over 40,000 participants annually. It is oversubscribed and entries close two months before the start of the event each year. The event is organized on a public holiday the first Monday of June and includes a charity component. An online and postal survey collected data before (exact timing not specified) and after the event (at two and six months). In total, 2,020 respondents could be matched for pre- and post-event analyses. Almost 40% of respondents were first-time participants and about 22% of respondents were inactive prior to deciding to partake in the event – not achieving the physical activity guidelines of 30 minutes of regular, moderate-intensity physical activity on most days of the week, generally five out of seven (World Health Organization, 2004). The authors note that the event is an important stimulus to become more active as 90% of the respondents did some training prior to their participation, with more than 60% training for at least three months leading up to the event. Interestingly, 70% of respondents indicated that local events would help them become more active, expressing the need for more participatory events as this particular event has to turn down potential participants. After the event, 80% of respondents either maintained or increased their physical activity behaviour (Lane et al., 2008).

Two popular participatory events in New Zealand were evaluated by Crofts (2010) and Dickson et al. (2009). The first event is the 2008 Around Taupo Cycling Challenge, a 160 km cycling event with more than 10,000 participants who compete individually or as part of a two to four person relay team. The second event is the 2008-2009 Triwoman series which are 10 series of female only triathlons with swim, bike and run events that are shorter than most triathlons (300 meter, 10 km and 3 km respectively). Online surveys were conducted before the event at the time of registration and after the event (at one week and three months) to measure physical activity participation. In addition to the online surveys, interviews with 17 participants were completed after the event to examine the role of the sport event “in facilitating a once insufficiently active and sedentary adult to [become] one who reports sufficiently active levels of physical activity after the event” (Dickson et al., 2009, p. 26). The majority of participants were already active prior to their event training – only 4% of cycling and 12% of triathlon respondents indicated being inactive. However, 32% of triathlon respondents

noted that they became recently active, suggesting that their event participation can be associated with an increase in physical activity or vice versa. Lastly, previously inactive respondents reported higher levels of physical activity three months after the event. Interview data showed that participatory sport events can be useful catalysts to get inactive individuals to become active and help other people to maintain their activity levels (Dickson et al., 2009).

The social outcomes of the 2009 World Masters Games in Sydney (Australia) were studied by Thomson, Darcy, and Edwards (2010) by inviting event participants to partake in an online survey distributed one week prior to the event. The World Masters Games is hosted every four years and brings together tens of thousands non-elite athletes and their teams to participate in many sports including athletics, football, basketball, swimming, rowing, softball, volleyball, etc. Approximately 26,000 participants from 95 different countries took part in the 2009 event and 3,149 of them participated in the study. The event attracts older and more mature participants and the study findings confirm this as the majority of respondents were between 45 and 54 years of age. In total, 75% of respondents were first-time participants. The event mainly attracted already active sport participants as 90% of respondents were already member of a local community sport club or organization, with an additional 6% who have become or intend to become a member because of their participation in the World Masters Games. Also, 28% of respondents increased their sport participation since they became aware of the event. Respondents agreed that the event is encouraging healthy and active lifestyles for all participants (Thomson et al., 2010).

These studies highlight the popularity of participatory sport events. There is also a significant number of first-time participants at these events, ranging from 40% of respondents at the annual Women's Mini Marathon (Lane et al., 2008) to 75% at the World Masters Games (Thomson et al., 2010). Although events become more inclusive when many individuals have a chance to participate, there is a large number of participants that does not return to future events. Therefore, an analysis to predict future participation is necessary to better understand event participation. Funk, Jordan, Ridinger, and Kaplanidou (2011) conducted a study at a running event in Philadelphia, Pennsylvania (marathon, half marathon, and 8 km) which attracted almost 15,000 participants. They found that participants' commitment to running and their future intentions to exercise on a regular basis after the event were determined by their level of satisfaction with the event, their motives for partaking in the event, and their prior physical activity involvement. Thus, a positive event experience has the potential to get the least active members to be more active but other factors are also important (Funk et al., 2011).

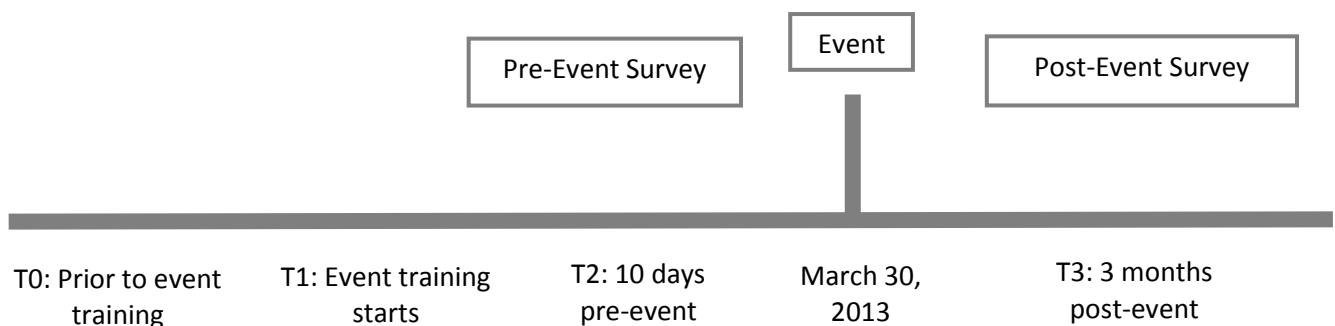
CHAPTER 3

RESEARCH FRAMEWORK

1. Research design

The research design is presented in Figure 2 and includes a pre- and post-event survey. There were a total of 16,000 participants in the 2013 Tour of Flanders Cyclo, of which 15,700 registered online and 300 registered in the week leading-up to the event at the BMC Concept Store Belgium. The 15,700 online registrants received an email from event organisers Sportinez and Golazo sports ten days prior to the event which included information about their participation and an invitation to complete the pre-event survey prior to their participation in the event. In this survey, participants were asked to reflect on their previous physical activity participation, both prior to commencing training for the event (= T0) and after commencing training for the event (= T1). If respondents agreed to partake in the post-event survey which will take place three months after the event to (= T3), they were asked to provide their contact information (i.e., email address). The post-event survey will be conducted in June 2013. This report only discusses findings of the pre-event survey. The survey was developed in Dutch, French, and English. Approval of research ethics was received from the University of British Columbia. Confidentiality and anonymity were guaranteed. A total of 1,092 registrants completed the survey between March 22 and 30 (response rate = 6.95%). The online survey tool showed that an additional 765 individuals started the survey but ended before completion. These data were not included in the study.

Figure 2. Research design



2. Survey instrument

In order to ensure validity, five experts reviewed the content validity of the survey questions. Subsequently, a pilot study was conducted among doctoral students at the University of British Columbia and the KU Leuven who completed the online survey. The time to complete the survey was determined and minor changes regarding the wording of some questions were made. The survey instrument included measurements that can be categorized into socio-demographic variables, active participation variables, and passive spectating variables.

Socio-demographics

It is important to collect data about event participants that can be compared to other (event) populations. The socio-demographic questions have been previously used in the Participation Survey examining participation in sport and culture in the region of Flanders (Lievens & Waege, 2011) and the Cycling Survey examining cycling participation in the city of Leuven (Scheerder, Vos, & Pauwels, 2011).

Active participation

These variables include two subcategories, namely one related to general physical activity and one related to cycling participation. Earlier in this report we have referred to the definition of physical activity by Caspersen et al. (1985) which has been adopted by the World Health Organization (2004). Physical activity participation is measured retrospectively, asking individuals to think back to the period prior to commencing event training and following event training (Figure 2). Dickson et al. (2009) note that it is important to measure physical activity behaviour prior to commencing training for the event (=T0) as the time of event registration is a poor baseline measure of physical activity. The question examining physical activity prior to event training has been used by Dickson et al. (2009) and Funk et al. (2011) in their research investigating the participation effect of participatory sport events. The wording of the question has been slightly adjusted, for example a sentence was added to clarify that physical activity can include many activities on top of the well-known leisure time activities, namely work related activities, household chores, and active transportation. Also, the difference between moderate and vigorous-intensity was explained with an example to ensure validity of the measures. The question examining physical activity following event training was adapted from Thomson et al. (2010) to specifically focus on the changes in physical activity related to training for the event (=T1). These authors originally examined perceptions of how participation in the World Masters Games has influenced event participants' sport and physical activity participation.

One other physical activity measure asked about how many weeks participants trained to prepare themselves for the Tour of Flanders Cyclo.

Cycling participation was measured asking respondents questions about their participation in the Tour of Flanders Cyclo. They were asked in which event they will participate (i.e., 83, 133, or 259 km) and whether they had previously participated in the Tour of Flanders Cyclo and if yes, how many times. Respondents were also asked whether they will participate in other participatory cycling events in addition to the Tour of Flanders Cyclo. Lastly, respondents were asked to identify which type of cyclist they are. Respondents could select one or more of the following options: 1) recreational cyclist who cycles to relax, socialize or improve his/her health; 2) competitive cyclist who cycles to improve his/her distance, time and/or performance, possible through a competition; and 3) functional cyclist who cycles to get to work, to the store, or to school.

Passive spectating

Participants were asked if and how they would watch the Tour of Flanders for elite cyclists which takes place the day after the Tour of Flanders Cyclo. Multiple options were included, namely spectating live along the route, at the start in Bruges, at the finish in Oudenaerde, and/or live on television. Participants were also asked how many professional cycling races they attended live in the past 12 months and if they feel inspired to be more physically active by attending a cycling race.

A more detailed description of the survey instrument is available upon request.

3. Data analysis

All statistical analyses were performed using IBM SPSS Statistics version 20.0, a scientific software package to analyse quantitative data. There were no missing values in the data set as participants could not submit the survey without responding to all the closed-ended questions. The socio-demographical variables were analysed descriptively (i.e., percentages, means, standard deviations, minimums, and maximums). The socio-demographical variables of the sample of event participants is compared firstly, with the population of 2013 Tour of Flanders Cyclo participants and secondly, with the sample of Flemish cyclists who participated in at least one participatory cycling event in 2009 (Scheerder et al., 2011) via a chi-squared test.

Using regression analyses, we could determine which variables predict future event participation in the Tour of Flanders Cyclo. Three blocks of independent variables were included: socio-demographic, active participation, and passive spectating variables. Using a binary logistic regression analysis, these

blocks were used to predict whether participants are more likely to be a first-time participant or repeat participant. Following, using a multinomial logistic regression analysis, these blocks were used to predict whether participants are more likely to be a first-time, occasional, or regular participant. First-time participants are those who participate for the first time in the 2013 edition, whereas occasional participants are those who already participated once or twice prior to the 2013 edition and regular participants already participated three times or more prior to the 2013 edition.

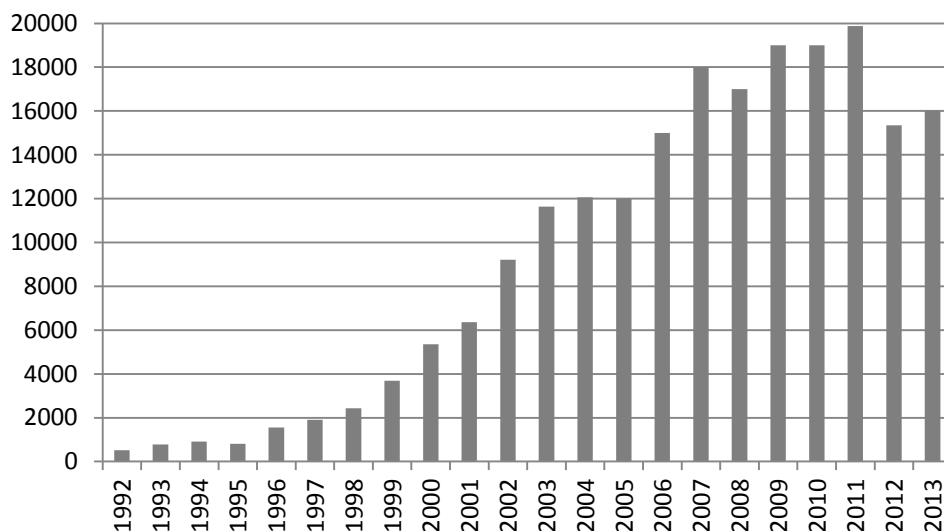
CHAPTER 4

RESEARCH FINDINGS

1. Popularity of the Tour of Flanders Cyclo

The Tour of Flanders Cyclo is Belgium's most well-known participatory cycling event. When the Tour of Flanders Cyclo was first organized in 1992, it attracted only 517 participants. In 1996 there were more than 1,000 participants and in 2000 more than 5,000 participants. The event has grown rapidly, exceeding 10,000 participants by 2003 and 15,000 by 2006 (Vannoppen as cited in Leenknecht, 2005). The weather is an important element in determining the number of participants on the day of the event. The sunny weather in 2011 resulted in a peak of nearly 20,000 cyclists whereas the cold weather in 2012 attracted approximately 15,000 cyclists. In 2013, for the first time, the organizing body of the Tour of Flanders Cyclo implemented a maximum number of registrations to guarantee safety and accessibility on all hills. Ten days prior to the start of the event, the maximum number of 16,000 registrations was reached. Figure 3 shows the evolution of the number of participants for the Tour of Flanders Cyclo from 1992 until 2013.

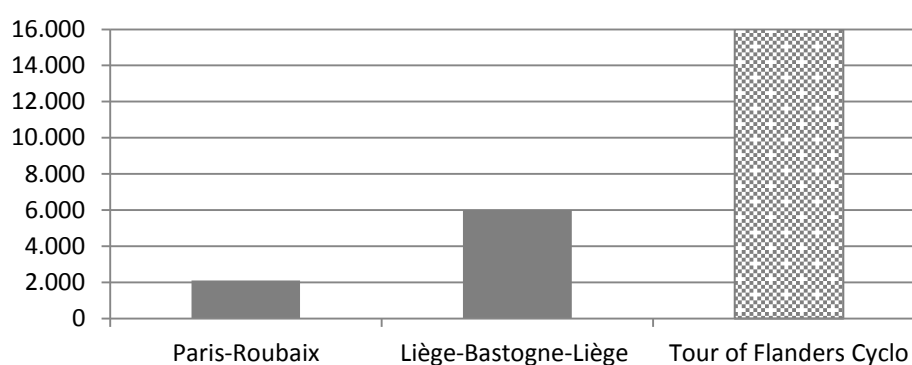
Figure 3. Number of participants of the Tour of Flanders Cyclo



Source: Adapted from Vannoppen as cited in Leenknecht, 2005 and Sportinez & Golazo sports (2013)

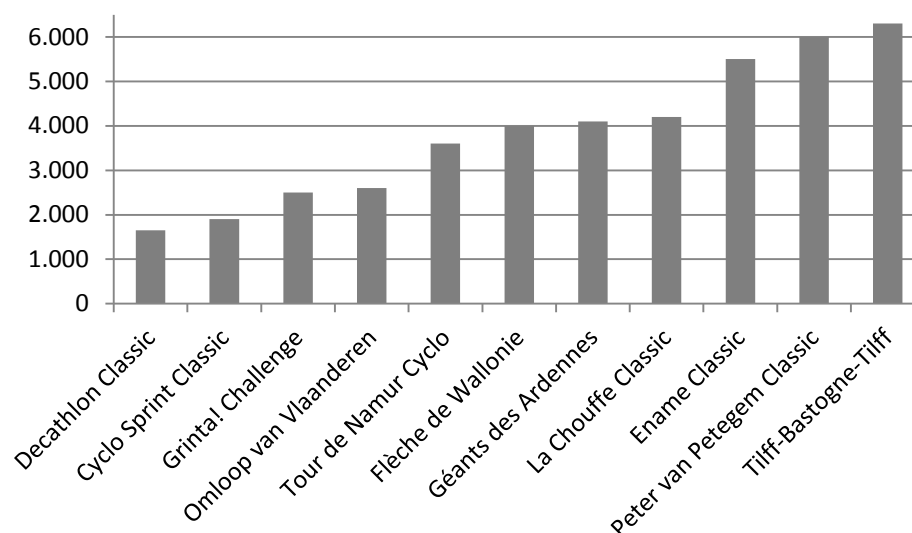
The Tour of Flanders Cyclo is the largest participatory cycling event in Belgium. Only De Gordel, which was last organized in 2012, attracted more participants. De Gordel, however, includes shorter distances starting at 25 km and is therefore a more family-oriented event. Figure 4 examines the 2013 participant numbers of the Škoda Classic Challenge, which is organized by Sportinez and Golazo sports. The Škoda Classic Challenge combines the participatory events of three very popular professional cycling events in Belgium and France. Although the Tour of Flanders Cyclo is clearly the largest event, we need to mention that both Paris-Roubaix and Liège-Bastogne-Liège are relatively young events. The Tour of Flanders was first organized in 1992, whereas both Paris-Roubaix and Liège-Bastogne-Liège were first organized in 2011.

Figure 4. Participant numbers of the Škoda Classic Challenge (2013 data)



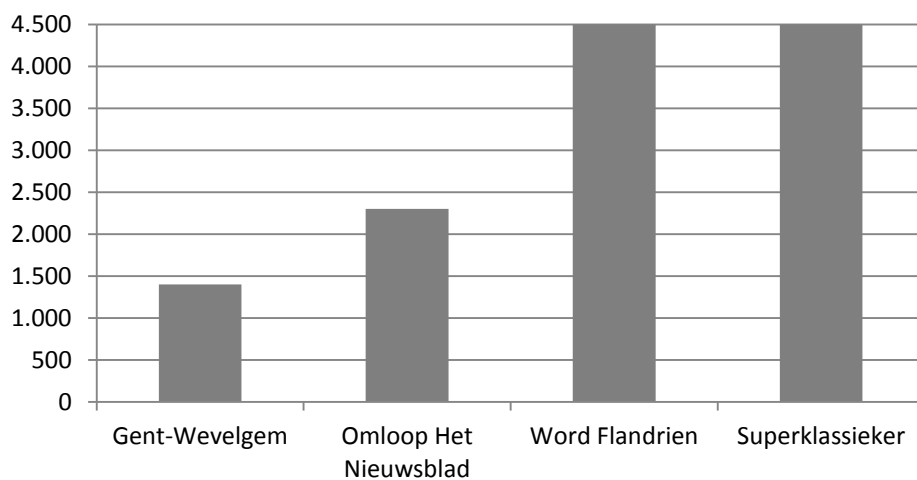
Sportinez and Golazo sports also organize the Bank of the Post Cycling Tour which combines 11 participatory cycling events in Belgium. Figure 5 shows the participant numbers of the 2012 events. When compared with the Škoda Classic Challenge, these events are quite popular with six events attracting 4,000 participants or more.

Figure 5. Participant numbers of the Bank of the Post Cycling Tour (2012 data)



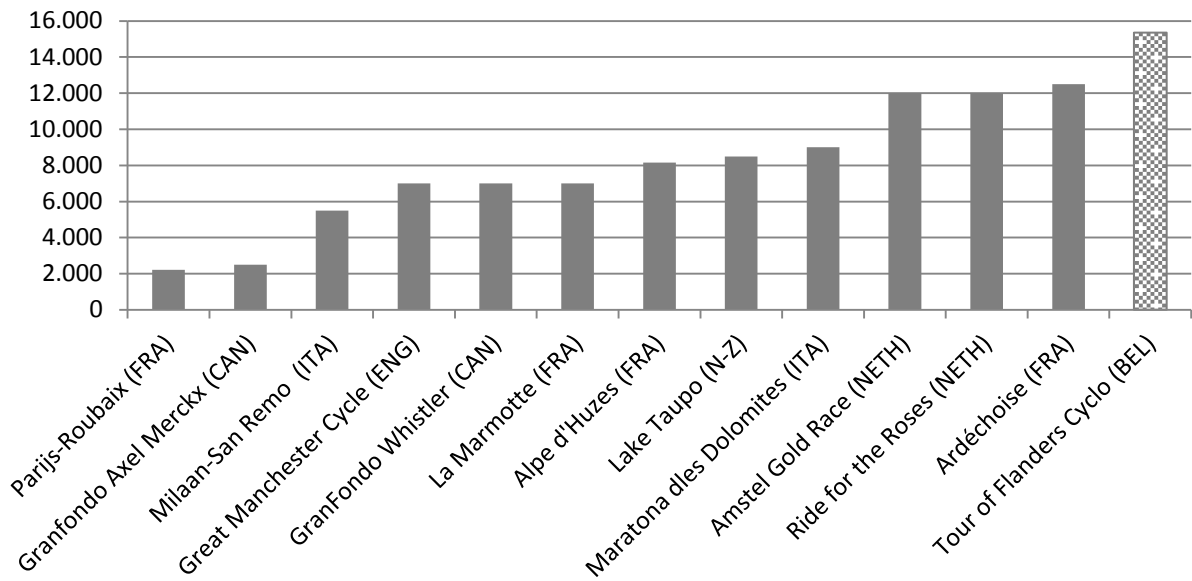
Flanders Classics is the organizing body of the Tour of Flanders for elite cyclists. In 2011, Flanders Classics started organizing participatory cycling events on the day before their professional cycling events. These events include the Omloop Het Nieuwsblad and Gent-Wevelgem. Flanders Classics also organizes Word Flandrien which is a more moderate active event as it includes routes of 30 and 50 km in addition to the longer routes of 80 and 110 km. The Word Flandrien was first organized in 2003. Another event that deserves to be mentioned is the Superklassieker which is organized by the Visitor Centre Tour of Flanders. This event combines the best passages of both the Tour of Flanders and Paris-Roubaix and was first organized in 2009. The participant numbers of these events in 2012 are presented in Figure 6.

Figure 6. Participant numbers of other participatory cycling events in Belgium (2012 data)



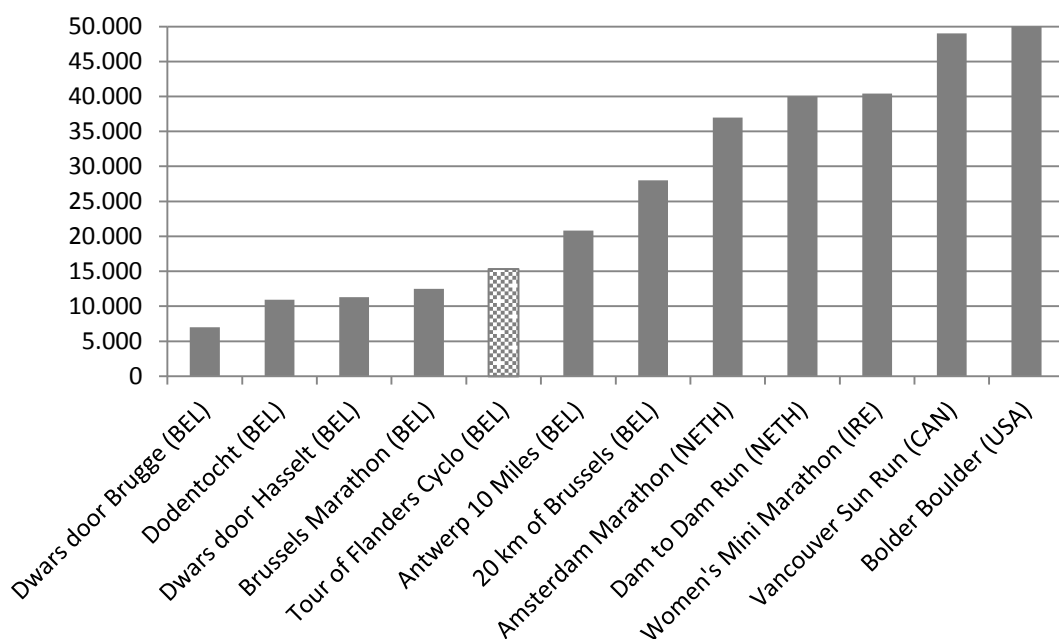
When comparing the Tour of Flanders Cyclo with other participatory cycling events around the world, the popularity of the Flemish event is evident (Figure 7 – this list is not exhaustive and serves as an example only). In 2012, the Milan-San Remo Cyclosporitive in Italy attracted 5,500 participants and the Amstel Gold Race in the Netherlands 12,000.

Figure 7. Participant numbers of participatory cycling events around the world (2012 data)



It is only when the Tour of Flanders Cyclo is compared with other running events around the world that the participant number is placed in perspective (Figure 8 - this list is not exhaustive and serves as an example only). Participatory running events such as marathons but also shorter distances including 10 or 16 km (e.g., Dam to Dam Run, Women’s Mini Marathon, Vancouver Sun Run and Bolder Boulder) are extremely popular with participation numbers exceeding 40,000 individuals. If participatory sport events are found to have a health promoting effect, participatory running events might be a more effective health promotion intervention given the fact that these events have a far greater reach and only require participants to have a pair of running shoes to partake in the event.

Figure 8. Participant numbers of participatory running events around the world (2012 data)



2. Who participates now?

The descriptive statistics (including percentages, means, standard deviations, minimums, and maximums) of all variables included in the analyses are presented in Table 1. Variables are categorized under four subheadings, namely outcome variables, socio-demographic variables, active participation variables, and passive spectating variables.

Table 1. Describing event participants, in percentages (N=1,092)

Outcome variables		
Repeat participation	First-time participant	46.2
	Repeat participant	53.8
Level of participation	First-timer (has never participated)	46.2
	Occasional (participated already 1-2 times)	27.5
	Regular (participated 3 times or more)	26.4
Socio-demographic variables		
Gender	Male	95.3
	Female	4.7
Age	Twenties (and younger)	15.8
	Thirties	30.9
	Forties	31.3
	Fifties	17.2
	Sixties (and older)	4.9 (M=40.74; SD=10.76, min=14; max=72)
Education	(no) lower (secondary) education	8.4
	higher secondary education	23.1
	higher non-university education	31.4
	higher university education	37.1
Subjective income	Difficult to make ends meet	2.2
	In between	49.3
	Easy to make ends meet	48.5
Professional position	Employed	88.5
	Student	5.1
	No paid employment	2.5
	Retired	3.9
Home country	Belgium	59.5
	Other than Belgium	40.5

Table 1. *Continued.*

Active participation variables		
Event distance	83 km	17.3
	133 km	56.1
	259 km	26.6
Other events	No, only Tour of Flanders Cyclo	47.7
	Yes, also other participatory events	52.3
Recreational cyclist	Yes	70
	No	30
Competitive cyclist	Yes	39.1
	No	60.9
Functional cyclist	Yes	23.6
	No	76.4
Training weeks	0-8 weeks	34.8
	9-16 weeks	37.5
	17-24 weeks	9.2
	25-32 weeks	3.6
	33-40 weeks	1.3
	41-52 weeks	13.6 (M=16.53; SD=15.24; min=0; max=52)
Physical activity pre-training	Inactive	3.7
	Active less than 6 months	16.2
	Active more than 6 months	80.1
Physical activity post-training	Inactive	1.3
	Less active than before	0.8
	Active at the same level	48.0
	More active than before	49.9
Passive spectating variables		
Watching Tour of Flanders along route	Yes	25.3
	No	74.7
Watching Tour of Flanders in Bruges	Yes	8.5
	No	91.5
Watching Tour of Flanders in Oudenaerde	Yes	5.9
	No	94.1
Watching Tour of Flanders on television	Yes	72.8
	No	27.2
Attending other professional events	Never	28.9
	1 time	21.2
	2-3 times	29.8
	More than 3 times	20.1
Feeling inspired by attending	Disagree	16.2
	Neutral	27.1
	Agree	56.7

These descriptive statistics show that almost half of the respondents were first-time participants in the Tour of Flanders Cyclo in 2013. Similarly, almost half of the respondents indicated to only participate in the Tour of Flanders Cyclo, thus not in other participatory cycling events in Belgium or any other country. Respondents were almost exclusively male, in their thirties or forties, who completed higher (non) university education. On average, respondents trained for about four months to prepare themselves for the Tour of Flanders Cyclo and half of the respondents indicated to have become more physically active after commencing training. Almost three-fourths of the respondents would watch the Tour of Flanders for elite cyclists on television the day after they completed the event themselves.

A chi squared test was used to identify whether the sample of survey respondents significantly differs from two groups: 1) the population of 2013 Tour of Flanders Cyclo participants and 2) the sample of Flemish cyclists who participated in at least one participatory cycling event or cyclo sportive in 2009. The website of the Tour of Flanders Cyclo provided information about the participants in the 2013 event based on race distance and home country. Scheerder et al. (2011) describe Flemish cyclists, including those who participated in at least on cyclo sportive in 2009 (which can include the Tour of Flanders Cyclo but possibly also other events), based on a number of socio-demographical variables.

Table 2. Comparing three samples based on socio-demographic variables, in percentages

	Survey respondents (N=1,094)	Tour of Flanders Cyclo (N=16,000)	Flemish cyclists participating in cyclo sportive (N=227)
Race distance ($\chi^2=1,36$; NS)			
83 km	17.3	21.7	N/A
133 km	56.1	54.9	
259 km	26.6	23.4	
Home country ($\chi^2=0,49$; NS)			
Belgium	59.6	57.7	N/A
The Netherlands	20.2	19.6	
Great Britain	7.8	8.6	
France	5	3.9	
Germany	1.5	1.7	
Gender ($\chi^2=6,52$; $p<.05$)			
Male	95.3	N/A	86.6
Female	4.7		13.4
Age ($\chi^2=12,34$; $p<.001$)			
Twenties	15.8	N/A	12.1
Thirties	30.8		24.7
Forties	31.3		25.1
Fifties	17.2		23.4
Sixties	4.9		14.7

Table 2. *Continued.*

	Survey respondents (N=1,094)	Tour of Flanders Cyclo (N=16,000)	Flemish cyclists participating in cyclosporive (N=227)
Education ($\chi^2=60,02; p<.001$)			
Student	5.1	N/A	1.4
(No) lower (secondary) education	7.8		29.1
Higher secondary education	22.1		35.9
Higher (non) university education	65.0		33.6

Table 2 shows that the sample of survey respondents is representative of the population of Tour of Flanders Cyclo participants based on race distance and home country. The sample of survey respondents significantly differs from Flemish cyclists who indicated to participate in at least one cyclosporive in 2009. Individuals who are male, in their forties or younger, completed higher (non) university education or are currently studying, are overrepresented as participants in the Tour of Flanders Cyclo when compared to the sample of Flemish cyclists. Thus, the Tour of Flanders Cyclo attracts a different segment of the population, with participants being more often male, younger, and higher educated in comparison with other participatory cycling events.

3. Who participates in the future?

A central question that we ask ourselves in this report is: which variables determine participation in the Tour of Flanders Cyclo? The dependent variable of event participation has two outcomes: first-time participant or repeat participant. Using a binary logistic regression analysis, we can estimate a probability that participation occurs, in this case the chance for repeat participation in the future. Three assumptions of logistic regressions were confirmed, being linearity, independence of errors, and multicollinearity (Field, 2009). All dependent and independent variables are categorical and all cases of data are not related as they represent individual respondents. Lastly, there were no problems with multicollinearity among the variables which was checked through a correlation matrix.

A model including three blocks of variables was entered into SPSS. The first block included socio-demographical variables such as gender, age, education, subjective income, professional position, and home country. The second block included active participation variables such as event distance, participation in other participatory events, identification as a recreational, competitive, and functional cyclist, number of training weeks, and physical activity participation pre- and post-training. The third block included passive spectating variables such as watching the Tour of Flanders along the route, in Bruges, in Oudenaerde and on television, attending other professional cycling events and

feeling inspired by attending these professional cycling events. The Odds Ratios and Wald Statistics are presented in Table 3. The Wald Statistic indicates whether a variable significantly contributes to the prediction of the outcome variable, in this case repeat participation in the Tour of Flanders Cyclo. The Odds Ratio presents findings of different categories within the variables. If the Odds Ratio is greater than one, the chance for the outcome to occur for the category (e.g., males) when compared to the reference category (e.g., females) increases.

Table 3. Results of the binary logistic regression analysis for the logit for repeat participation in the Tour of Flanders Cyclo

Variables and Categories		Odds Ratio	Wald Statistic
Gender	Male	2.57	7.16**
	Female (ref. cat.)		
Age	Sixties	2.70	4.55*
	Fifties	2.38	9.98**
	Forties	1.80	5.91*
	Thirties	NS	
	Twenties (ref. cat.)		
Home country	Belgium	2.10	20.17***
	Other than Belgium (ref. cat.)		
Event distance	259 km	2.34	13.46***
	133 km	1.49	4.17*
	83 km (ref. cat.)		
Other participatory events	Yes	2.30	33.49***
	No (ref. cat.)		
Training weeks	41-52 weeks	NS	
	33-40 weeks	NS	
	25-32 weeks	0.33	7.42**
	17-24 weeks	NS	
	9-16 weeks	NS	
	0-8 weeks (ref. cat.)		
Physical activity post-training	More active than before	0.19	5.24*
	Active at the same level	NS	
	Less active than before	NS	
	Inactive (ref. cat.)		
Watching Tour of Flanders along the route	Yes	1.62	6.13*
	No (ref. cat.)		
Watching Tour of Flanders on television	Yes	2.24	17.58***
	No (ref. cat.)		

N = 1,092 ref. cat. = reference category NS = not significant *p < .05 **p < .01 ***p < .001

Hosmer-Lemeshow = 0.42 Nagelkerke R² = 0.22 The following variables were not significant and excluded from the model: education, subjective income, professional position, recreational cyclist, competitive cyclist, functional cyclist, physical activity pre-training, watching Tour of Flanders in Bruges and Oudenaerde, attending other professional cycling events, and feeling inspired by attending.

Results in Table 3 show that age followed by gender are the strongest determinants of repeat participation in the Tour of Flanders Cyclo. Individuals in their forties or older and males are more often repeat participants. Individuals who live in Belgium have more than twice the odds to become repeat participants when compared to individuals who live outside of Belgium. Participation is not determined by education, subjective income, or professional position. This does not mean that participation in the Tour of Flanders Cyclo is not socially stratified, as the findings of the descriptive analyses have shown that the majority of participants in the Tour of Flanders Cyclo are highly educated, have no difficulties making ends meet with their disposable household income, and are employed. The socio-demographic variables resulted in a Nagelkerke R^2 equal to 0.11, explaining half of the models' predictive power.

Individuals who participate in longer event distances and those who take part in other participatory events in addition to the Tour of Flanders Cyclo are more often repeat participants. The number of training weeks and individuals' physical activity participation post-training also has an effect. Surprisingly, individuals who have trained between six and eight months have 67% less chance to become a repeat participant. Similarly, individuals who became more active since commencing training for the Tour of Flanders Cyclo have 81% less chance to become a repeat participant. Whether individuals are recreational, competitive, or functional cyclists has no significant effect. The same is true for individuals' physical activity participation prior to commencing training. The addition of the active participation variables resulted in a Nagelkerke R^2 equal to 0.20, almost the entire models' predictive power.

In addition to active participation, passive spectating of the Tour of Flanders for elite cyclists also determines repeat event participation. Individuals who watch the event on television or along the route have a greater chance to become repeat participants in the Tour of Flanders Cyclo. Watching the event at the start in Bruges or at the finish in Oudenaerde did not have an effect. Also, attending other professional cycling events and feeling inspired to become more active by attending these events were excluded from the model. The addition of passive spectating variables resulted in a Nagelkerke R^2 equal to 0.22.

In addition to this binary logistical model, a multinomial logistical model predicting occasional participation (once or twice) and regular participation (three times or more) was developed, with the first-timers as a reference category. The results are presented in Table 4.

Table 4. Results of the multinomial logistic regression analysis for the logit for occasional and regular participants in the Tour of Flanders Cyclo

Variables and Categories	Occasional Participant		Regular Participant	
	Odds Ratio	Wald Statistic	Odds Ratio	Wald Statistic
Gender				
Male	NS		10.09	8.71**
Female (ref. cat.)				
Age				
Sixties	NS		5.25	7.74**
Fifties			4.82	19.08***
Forties			3.22	13.02***
Thirties			NS	
Twenties (ref. cat.)				
Home country				
Belgium	1.86	10.70**	2.47	18.29***
Other than Belgium (ref. cat.)				
Event distance				
259 km	NS		4.71	25.48***
133 km			2.18	8.04**
83 km (ref. cat.)				
Other participatory events				
Yes	1.85	13.98***	3.22	39.22***
No (ref. cat.)				
Number of training weeks				
41-52 weeks	NS		NS	
33-40 weeks			NS	
25-32 weeks			0.25	7.07**
17-24 weeks			NS	
9-16 weeks			NS	
0-8 weeks (ref. cat.)				
Physical activity post-training				
More active than before	0.20	4.36*	0.18	3.99*
Active at the same level	NS		NS	
Less active than before	NS		NS	
Inactive (ref. cat.)				
Watching Tour of Flanders along the route				
Yes	1.69	5.92*	3.63	24.27***
No (ref. cat.)				
Watching Tour of Flanders on television				
Yes	NS		2.03	7.98**
No (ref. cat.)				
Attending other professional events				
More than 3 times	NS		1.71	4.26*
2-3 times				
Once				
Never (ref. cat.)				

N = 1,092 ref. cat. = reference category NS = not significant *p <.05 **p <.01 ***p <.001
-2LL= 302.571 (p <.001) Nagelkerke R² = 0.27

The following variables were not significant and excluded from the model: education, subjective income, professional position, recreational cyclist, competitive cyclist, functional cyclist, physical activity pre-training, watching Tour of Flanders in Bruges and Oudenaerde, and feeling inspired by attending.

Again, gender and age are the strongest determinants of becoming a regular participant in the Tour of Flanders Cyclo as men and older individuals (starting at the age of forty) have higher odds to become regular participants. Notably, first-timers and occasional participants have a similar profile with regard to these variables as no significant differences were found. Individuals who live in Belgium have more chance to become regular or occasional participants, when compared the group of first-time participants.

When looking at the active participation variables, event distance is the strongest determinant of regular participation in the Tour of Flanders Cyclo. Individuals who complete the 259 km distance are almost five times more likely to become a regular participant compared to a first-timer. Similarly, the odds of being a regular participant increase by a factor of more than two for those who complete the 133 km distance. Again, first-timers and occasional participants have a similar profile with regard to event distance as no significant differences were found. Chances of becoming an occasional or regular participant also increase when taking part in other participatory cycling events in addition to the Tour of Flanders Cyclo.

Quite surprising, individuals who are more physically active since commencing training for the Tour of Flanders have 80% less chance to become an occasional participant and 82% less chance to become a regular participant, when compared to the first-timers. Also individuals who have trained somewhere between six to eight months have 75% less chance to become a regular participant.

Watching the Tour of Flanders for elite cyclists live along the route increases the chances to become either an occasional or regular participant. Being a regular participant is also determined by watching the Tour of Flanders for elite cyclists on television and by attending other professional cycling events.

CHAPTER 5

DISCUSSION AND CONCLUSION

The participant numbers in the Tour of Flanders Cyclo have increased significantly from 517 since its inception in 1992 to 16,000 in the 2013 edition. Its popularity makes the Tour of Flanders Cyclo one of the best attended participatory cycling events around the world. The objective of this report was twofold. Firstly, to describe who participates in the Tour of Flanders Cyclo and secondly, to predict future participation in the Tour of Flanders Cyclo based on different variables, for example socio-demographic characteristics, active participation in physical activity and cycling events, and passive spectating of the Tour of Flanders.

With regards to the first objective, findings revealed that almost half of survey respondents (46.2%) were first-time participants in the Tour of Flanders Cyclo. This number is comparable to the findings of the annual Women's Mini Marathon in Dublin which is at 40% (Lane et al., 2008), but lower than the World Masters Games which is at 75% (Thomson et al., 2010). This can be explained by the fact that the World Masters Games is a more unique event which is only held every four years in different countries around the world. Also, the average age at the World Masters Games is slightly higher than the average age at the Tour of Flanders Cyclo.

Due to the many hills and long distances, physical activity during the Tour of Flanders Cyclo can be considered vigorous intense activity. Only 3.7% of survey respondents were inactive prior to commencing training for the event. Approximately 16% became recently active (less than six months) and 80% has been active for more than six months prior to starting training. Similarly, only 4% of participants in the 160 km Around Taupo Cycling Challenge were inactive prior to commencing training (Dickson et al., 2009) and these numbers increased to 12% at the Triwoman Series female marathons (Crofts, 2010) and 22% at the Women's Mini Marathon (Lane et al., 2008) which require both moderate intense activity. In total, almost 20% of survey respondents have been active for less than six month prior to commencing training for the Tour of Flanders Cyclo. This can be explained by the fact that individuals might have set a goal to participate in the event and as a result increase their physical activity, or individuals might have increased their physical activity and as a result decide to participate in the event.

Only 3% of survey respondents did not take part in any training prior to the Tour of Flanders Cyclo (and these individuals were inactive until the day of the event). Thus, 97% participated in some training with 72.3% training up to four months. Similarly, Lane et al. (2008) reported that 90% of participants at the Women's Mini Marathon trained with more than 60% training for at least three months. Since commencing training for the Tour of Flanders Cyclo, almost half of respondents (49.9%) became more physically active than before training. Thomson et al. (2010) reported that 28% of respondents at the World Masters Games increasing their sport participation prior to the event. These findings show that, whether or not individuals are physically active prior to deciding to participate in the Tour of Flanders Cyclo, the training that one completes prior to the event leads to an increase in physical activity participation.

When examining who participates in the Tour of Flanders Cyclo, it is clear that the event attracts a different segment of the population when compared to other participatory cycling events. The survey respondents were more often male, younger, and higher educated when compared to a sample of Flemish cyclists who participated in at least one participatory cycling event in 2009 (Scheerder et al., 2011). To some extent, this might be explained by the fact that companies use this well-known international event as a teambuilding and networking activity more so than other participatory events. Many businesses even have their own cycling jerseys to visibly mark their presence. An individual from the Visitor Centre Tour of Flanders described this phenomenon through the process of social upgrading.

I remember in my early years as a journalist at Het Nieuwsblad in the 80s, the editors of De Standaard literally and figuratively were housed one floor above us at Het Nieuwsblad. They were the intellectuals of De Standaard. [...] No one at De Standaard editorial looked at the Tour of Flanders or any other cycling race. Now the entire editorial is watching a leg of the Tour de France or something else. Ministers began cycling with Wilfried Martens. Doctors, lawyers, executives. Earlier in the 70s, bicycle tourism just simply didn't exist. [...] Now it's picked up by companies as an important factor in teambuilding and networking, a collective effort with drinks at the end. So it became a social instrument to do something together. (Visitor Centre Tour of Flanders, personal communication, March 6, 2013, own translation)

Given the high attendance of highly educated individuals, the Tour of Flanders Cyclo might be more often used as an instrument among professionals and/or managers. Future research should further examine the profile of event participants at different participatory cycling events to fully understand why a differentiation between these events exists.

With regards to the second objective, findings revealed that socio-demographical variables (which cannot be modified) and active participation and passive spectating variables (which can be modified) can be used to predict future participation in the Tour of Flanders Cyclo. The first analysis revealed that repeat participants were more often male and older, when compared to first-time participants. The second analysis, however, revealed that these differences in gender and age were only significant for regular participants (those who participated already three times or more prior to the 2013 edition). First-timers (those who participated for the first time in the 2013 edition) and occasional participants (those who participated already once or twice prior to the 2013 edition) have a similar profile. Thus, females are less likely to become regular participants when compared to males. In total, only 51 women were part of the current survey sample, of which 35 were first-timers, 14 were occasional participants and only 2 were regular participants. Since the number of female participants is significantly lower at the Tour of Flanders Cyclo compared to other participatory cycling events, women might feel less supported to continue to participate year after year. Furthermore, we know that it takes a few years to become a regular participant who has completed three or more events of the Tour of Flanders Cyclo, so a positive relationship with age is not surprising.

In general, individuals who live in Belgium, the country where the event takes place, are more likely to become either occasional or regular participants. Travelling to participate in the Tour of Flanders Cyclo can be considered a barrier for future participation.

Other variables that result in a significant prediction of becoming a regular participant, one who is highly involved with the Tour of Flanders, were found. Individuals who participate in the longer event distances and those who take part in other participatory cycling events are more likely to become regular participants in the Tour of Flanders Cyclo. Furthermore, those who watch the Tour of Flanders live along the route or live on television and attend other professional cycling events have a greater chance to become regular participants. In other words, individuals who are highly involved with cycling both as a participant and a spectator (at the Tour of Flanders and other events) are more likely to participate regularly in the Tour of Flanders Cyclo. It is very likely that for these individuals cycling is part of their self-identity and social identity which results in a high commitment to this leisure activity.

Two variables, namely the number of training weeks completed prior to taking part in the event and the physical activity participation after commencing training for the event, were found to have a negative effect when predicting future participation. Individuals who trained for about six to eight months were less likely to become a regular participant when compared to first-timers. Similarly, individuals who increased their physical activity participation since commencing training for the

event were less likely to become a regular or occasional participant when compared to first-timers. This might be explained through the fact that occasional and regular participants are physically active and/or cycling multiple times a week already and do not necessarily increase their activity in order to prepare for the event. They might just continue with what they are doing at the same activity level. For occasional and regular participants, the Tour of Flanders might be regarded as a means to maintain physical activity participation whereas for first-timers it might be a means to increase physical activity participation. For this latter group, however, chances for future participation might be limited.

It is necessary to explain these findings in relation to the theoretical framework that social-ecological theory provides. Social-ecological theory highlights that physical activity behaviour is influenced by elements at the level of the individual and the level of the environment. At the level of the individual, participation in the Tour of Flanders Cyclo is socially stratified. Participants were mostly male, in their thirties or forties, had completed higher (non) university education, were employed, and had no difficulties to make ends meet with their current disposable income. In addition to these non-modifiable variables, behavioural variables in the form of active participation and passive spectating were also important. In total, 97% of survey respondents completed some training prior to partaking in the Tour of Flanders Cyclo. Details about the type of training were not included in the survey but most likely this activity will include cycling participation. Also, 70% of survey respondents indicated being a recreational cyclist who cycles to relax, socialize or improve his/her health. Although these are individual behavioural characteristics, cycling participation might be positively influenced by elements at the level of the social environment through support and commitment of family, friends, or co-workers. Furthermore, cycling participation might also be positively influenced by elements at the level of the physical environment through new, updated, or well-maintained cycling infrastructure including bike paths and trails, and through an enjoyable and safe environment. The connections between the level of the individual and the level of the environment will be examined in future research. Furthermore, future research will also examine physical activity participation post-event to evaluate whether the participation effect occurred in the context of the Tour of Flanders Cyclo.

By framing the study in social-ecological theory, the health promotion potential of hosting and leveraging sport events can provide very useful practical implications for participatory event organisers as well. Sportinez and Golazo sports, as described earlier, organize many different

participatory cycling events across Belgium, including the Tour of Flanders Cyclo. This report shows that individuals are more likely to become repeat participants, either occasional or regular, when they take part in other participatory cycling events in addition to the Tour of Flanders Cyclo. It might benefit event organisers to offer participants the option of buying a package of different events, for instance by adding a discounted price when participating in multiple participatory cycling events in the same year.

Furthermore, the findings did not reveal any differences between first-time participants and occasional participants based on event distance (i.e., 83, 133 or 256 km). Adding different distances might provide different results. Completing a 160 km distance, which is more common at other participatory cycling events, might provide a necessary challenge for those who seek to become occasional participants and find the 83 and 133 km event not challenging enough and the 256 km event too challenging. After completing the 160 km distance, these participants might find the 200 km distance the logical next step to become regular participants. Another option would be to include a shorter distance, for instance a 60 km event, which might attract a group of less experienced cyclists.

Watching the Tour of Flanders for elite cyclists live along the route the day after the Tour of Flanders Cyclo also positively predicts future participation. Event organisers Sportinez and Golazo sports might consider creating a VIP village together with Flanders Classics, the organiser of the Tour of Flanders. This VIP village could become the place where all participants from the Tour of Flanders Cyclo come together to watch the elite event and relive their own event experience. This might positively influence their self-identity and social identity as cyclists, giving them a greater chance to return to participate in the event in the future.

Lastly, individuals who live outside of Belgium are less likely to become repeat participants. An earlier analysis revealed that most participants in the Tour of Flanders Cyclo come from Belgium, the Netherlands, France, and England (Derom, VanWynsberghe, & Scheerder, 2013). Removing barriers related to travelling is not an easy task. Therefore, event organisers Sportinez and Golazo sports might consider working together with other organisers in different countries, for instance in the Netherlands and England, to create successful participatory events based on their extensive experience with the Tour of Flanders Cyclo. The event Paris-Roubaix, taking place in France, is already part of the company's event calendar since 2011.

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ABOUT THE AUTHORS

Inge Derom is a PhD Candidate in the School of Kinesiology at the University of British Columbia in Vancouver (Canada), working under the supervision of Rob VanWynsberghe. Her research program focuses on the social impacts and outcomes of hosting and leveraging different types of sport events. Previous graduate work at the University of Windsor examined the impact of the 2008 Canadian Transplant Games. In Vancouver she examined the outcomes of the 2010 Winter Olympics with a specific focus on public policy, including the Greenest City and Vancouver Active Communities. This research confirms that governments seek to leverage sport events by strategically designing and implementing public policy around the event to achieve certain objectives. Her doctoral dissertation seeks to answer the following question: if governments are seeking health benefits from hosting and leveraging sport events, could participatory sport events provide greater benefits compared to spectator events? The answer is sought by conducting a case study on the Tour of Flanders, Belgium's most popular annual cycling event.

E-mail: ingederom@gmail.com

Rob VanWynsberghe is an Assistant Professor in the Department of Educational Studies in the Faculty of Education at the University of British Columbia in Vancouver (Canada). As a sociologist, his research expertise is in sustainability and the related areas of social movements and capacity building. He is the academic lead of the 'Olympic Games Impact Study' in Vancouver. This research is designed by the International Olympic Committee to objectively measure and assign attribution to the potential effects of the Olympic and Paralympic Games on the host city, region and country, their environment and their citizens. The purposes of the Olympic Games Impact Study are to advance the understanding about the sustainability of the Games, to promote positive Games legacies, and to create a knowledge base for future hosts. Other questions that inspire his research are: How can catalytic interventions, such as mega-events, impact local communities? Also: Why do certain types of interactions among neighbourhood organizations, non-profits, and government bodies promote sustainable communities and others fail?

E-mail: rob.vanwynsberghe@ubc.ca

Jeroen Scheerder is associate professor in the Department of Kinesiology and head of the Policy in Sports & Physical Activity Research Group at the University of Leuven, Belgium. His research focuses on policy-related and socio-economic aspects of sport and leisure-time physical activity. He is (co-) author of about 40 peer-reviewed articles that have been published in international journals, and the editor/author of about fifteen books on sport, participation and policy. He is (co-)promoter of nine doctoral research projects in the fields of sport policy, sport sociology and sport marketing. Together with fellows from the Mulier Institute in the Netherlands he is the founding promoter of the MEASURE project, i.e. a European research network on sport participation and sport policy. Jeroen Scheerder lectures in the fields of public sport policy and public sport management. He is currently a guest professor at the universities of Cassino, Cologne, Jyväskylä, Kaunas and Porto. He is a lecturer in the Intensive Programme on *European Identity through Volunteering in Sport* (2011-present). He is a staff member/lecturer in the *Advanced Studies in European Sports Law & Policy* at the KU Leuven and a guest lecturer in sport policy in the *Expert Class sin Professional Sport Management* at the University of Brussels (VUB). Endurance sports are one of his passions.

E-mail: jeroen.scheerder@faber.kuleuven.be

