THE TRAILBLAZER PROJECT PHASE 1

COUNTRY PARKS
USAGE AND WELL-BEING

HKU Med LKS Faculty of Medicine School of Public Health 香港大學公共衞生學院

TrailWatch

ABOUT THE RESEARCH TEAM

The study was led by Dr Felix Cheung, Research Assistant Professor, and Dr Michael Ni, Clinical Assistant Professor and Programme Director of the FAMILY Cohort in the School of Public Health at HKUMed. This programme is part of the 'Trailblazer Project' that is exclusively supported by WYNG Foundation. The project was funded by WYNG Foundation.

ABOUT FAMILY COHORT

The FAMILY Cohort is a territory-wide longitudinal cohort study that seeks to understand the health, happiness, and harmony of individuals, households, and neighbourhoods in Hong Kong. The cohort has sampled 20,279 households and 46,001 participants that are representative of the Hong Kong population and the other subsamples of interest.
Website: https://familycohort.sph.hku.hk/en/

ABOUT THE SCHOOL OF PUBLIC HEALTH, HKUMED

The School of Public Health, LKS Faculty of Medicine of The University of Hong Kong (HKUMed) has a long and distinguished history in public health education and high impact research. With world leading research in infectious diseases as well as on non-communicable diseases of both local and global importance, the School has made significant contributions through its research and advocacy to improve the health of populations and individuals, both locally and globally. The School is a leading research and teaching hub in public health on influenza and other emerging viruses, control of infectious and non-communicable diseases, tobacco control, air pollution, psycho-oncology, behavioral sciences, exercise science, life-course epidemiology, and health economics, health services planning and management. This work has informed international (e.g. the World Health Organization, Food and Agriculture Organization of the United Nations), national and local public health policies.

ABOUT WYNG FOUNDATION

WYNG Foundation was formed in 2011 in Hong Kong. It is a private foundation which recognizes that knowledge is power. It seeks to give back to the community by empowering individuals and institutions through support of information exchange platforms – by providing opportunities to acquire, exchange, disseminate and to apply knowledge to achieve a more advanced and a more caring society.

The development and conservation of country parks in Hong Kong is one of the areas of interest of WYNG Foundation. In 2014, the Foundation launched the city's first and leading mobile app, TrailWatch, which promotes nature conservation and hiking. In 2019, a new initiative Country Parks X was launched with the aim to improve, promote and protect the country parks through evidence-based research and community engagement.

CONTENTS

EXECUTIVE SUMMARY

The Trailblazer Project Phase 1 is part of the The WYNG-HKU Flagship Programme on Country Parks and Well-being that is exclusively supported by the WYNG Foundation to investigate country park usage in Hong Kong and its associations with the physical, mental, and social well-being among Hong Kong residents. The School of Public Health at The University of Hong Kong conducted a territory-wide telephone survey with 1,011 respondents between 21 September, 2018 and 10 October, 2018. This final report presents the country park usage of these respondents as well as their well-being in relation to country park usage. This report also offers a comparison of country park usage data collected in the current study with territory-wide data collected in previous country park visitor surveys and the government's General Household Survey between 1980s and early 1990s.

The 1,011 respondents sampled in the current project were recruited from the University of Hong Kong School of Public Health's long-term FAMILY Cohort Study and were representative of the Hong Kong population in terms of sex, age, and household income. More than half of the respondents (56.1%) visited a country park in the past year. The three districts with the highest percentage of country park users were Sai Kung (68.7%), Eastern District (66.8%), and Tsuen Wan (63.0%). Country park users averaged 5.9 visits or about once every 2 months in the past year. Among these users, 47.0% hiked during their visit for an average duration of 2.5 hours, fulfilling the WHO's recommendation of 150 minutes of weekly physical activity in one setting. A total of 444 respondents (43.9%) were identified as country park non-users in this survey, and 118 (11.6%) of them never visited a country park in their lifetime.

Demographic and well-being comparisons were made between country park users and non-country park users. Compared to non-users, country park users tended to be young, male, and have a higher household income. Preliminary analyses suggest that country park users had better self-reported health than non-users.

The country park usage data collected in the current project were compared with similar territory-wide surveys conducted between 1980s and 1990s. In 2018, 32.9% of our respondents visited country parks in the past three months, which was 2.6 times more than the number recorded in 1990 (12.7%). The popularity of hiking increased by more than 3.5 times from 12.6% from 1981-1991 to 47.0% in 2018. Good scenery remains the top reason in choosing which country park to visit and lack of time continues to be a major barrier to visiting country parks. Visiting country parks has been regarded as a social activity in recent years: participants reporting trips arranged by others as an important reason for visiting country parks have increased by three times; at the same time, those citing a lack of companions as a major barrier have increased four-fold. Therefore, to facilitate country park usage, we should take into account both the physical (e.g. scenery) and social (e.g. time and companions) environments.

Overall, Phase 1 of the Trailblazer Project offers an updated overview of country park usage in Hong Kong since 1991. The research team is among one of the first to investigate the relationships between patterns of country park visits and physical, mental, and social well-being. Phase 2 of the Project will broaden the scope and provide an in-depth and comprehensive analysis of the role of country parks in contributing to the well-being of the population using household face-to-face interviews. This would allow public health researchers to formulate and publicise evidence-based health promotion strategies through country park usage.

郊野公園使用情況與身心健康

摘要 開拓者計劃第一期為WYNG-HKU郊野公園與健康旗艦計劃的一部份。本計劃獲WYNG基金會的獨家支持，以研究香港郊野公園的使用情況及其與香港市民身心社交健康的關係。香港大學公共衛生學院於二零一八年九月二十一日至十月十日期間，以全港性電話調查形式訪問了1,011位市民。此終期報告將陳述這些受訪者的郊野公園使用情況及其與健康的關係。同時，報告亦將是次收集到的郊野公園使用情況數據，與八十年代至九十年代期間完成的全港性郊野公園訪客調查及政府的綜合住戶統計調查結果進行比較。

本計劃抽樣調查了1,011位長期參與香港大學公共衛生學院「愛+人」隊列研究的受訪者。受訪者在全港人口的性別、年齡和家庭收入等各方面均具有代表性。逾半數受訪者（56.1%）在過去一年曾到訪郊野公園。其中，在全港十八區，西貢（68.7%）、東區（66.8%）及荃灣（63.0%）的居民最常使用郊野公園。在過去一年，郊野公園使用者平均到訪郊野公園5.9次，大約兩個月一次。當中，近半數（47.0%）郊野公園使用者在最近一次到訪郊野公園時有行山，平均時間約2.5小時，單次達到了世界衛生組織建議每週進行150分鐘的體能活動指標。此次調查共發現444位受訪者（43.9%）為郊野公園的非使用者而其中118位（11.6%）更從未到訪過郊野公園。

報告在郊野公園使用者和非使用者之間進行了人口特徵和健康狀況方面的比較。相比非使用者，郊野公園使用者多為年輕、男性及家庭收入較高的人士。初步分析顯示，郊野公園使用者的自我健康評價較非使用者為佳。

報告亦將是次研究收集的調查結果與1982至1991年進行的實地郊野公園訪客調查和1990年進行的綜合住戶統計調查得出的結果進行對比。在2018年，32.9%的受訪者在過去3個月曾到訪過郊野公園，較1990年同類型調查（12.7%）高出2.6倍。行山的受歡迎程度增長了超過3.5倍（1982-1991年為12.6%，而2018年為47.0%）。優美風景是受訪者前往郊野公園的最大動力，而缺乏時間則為最大的阻礙。近年來，到訪郊野公園已被視為一項社交活動：其中，認為經他人安排行程是前往郊野公園的重要動力的受訪者增加了三倍；同時，將缺乏同伴視為前往郊野公園的主要阻礙的非使用者亦增加了四倍。因此，為增加郊野公園的使用量，我們應該同時將自然環境（例如景色）和社會環境（例如時間和同伴）納入考量。

總體而言，開拓者計劃第一期提供了自1991年以來最新的香港市民郊野公園使用概況。該團隊亦是首批研究郊野公園與健康、幸福及家庭和睦關係的學術團隊之一。開拓者計劃第二期將會擴闊研究範圍，並透過面對面訪談的形式深入全面分析郊野公園的益處。這將協助公共衛生研究學者根據郊野公園的使用情況制定及發佈循證的健康促進策略。

1 INTRODUCTION

BACKGROUND

Hong Kong is one of the most economically developed and densely populated cities in the world.[1] This highly urbanised setting contrasts with the other 40% of Hong Kong's land mass that is designated as country parks, a figure that has been hailed as the highest in the world.[2] These country parks provide the platform, facilities, and physical environment for physical activities, ecotourism, and social activities for over 13 million visitors annually.[3] Country park usage in Hong Kong were last studied in surveys from 1982-1991.[4,5] These surveys revealed that about 15% of Hong Kong residents visited a country park in the prior 3 months and about 42% visited in the past year. The majority of the visitors travelled in groups of 2-5 people.[4] At the time, the top 3 reasons for choosing a particular country park to visit were 1) scenery, 2) accessibility, and 3) availability of amenities, whereas the top three barriers to visiting country parks were 1) lack of time, 2) lack of interest, and 3) mobility difficulties.[5] These surveys provided a useful baseline on country park usage, but the dated results call for a new territory-wide survey to keep our understanding of country park usage in Hong Kong up-to-date.

STUDY OBJECTIVES

The overall objectives of the Trailblazer Project are 1) to assess the utilisation of country parks and its link with physical, mental, and social well-being of Hong Kong residents and 2) to formulate and initiate a public health policy dialogue on evidence-based health promotion strategies through country park usage. Phase 1 of the Trailblazer Project sets the stage for this comprehensive project by addressing Objective 1 using a territory-wide phone survey.

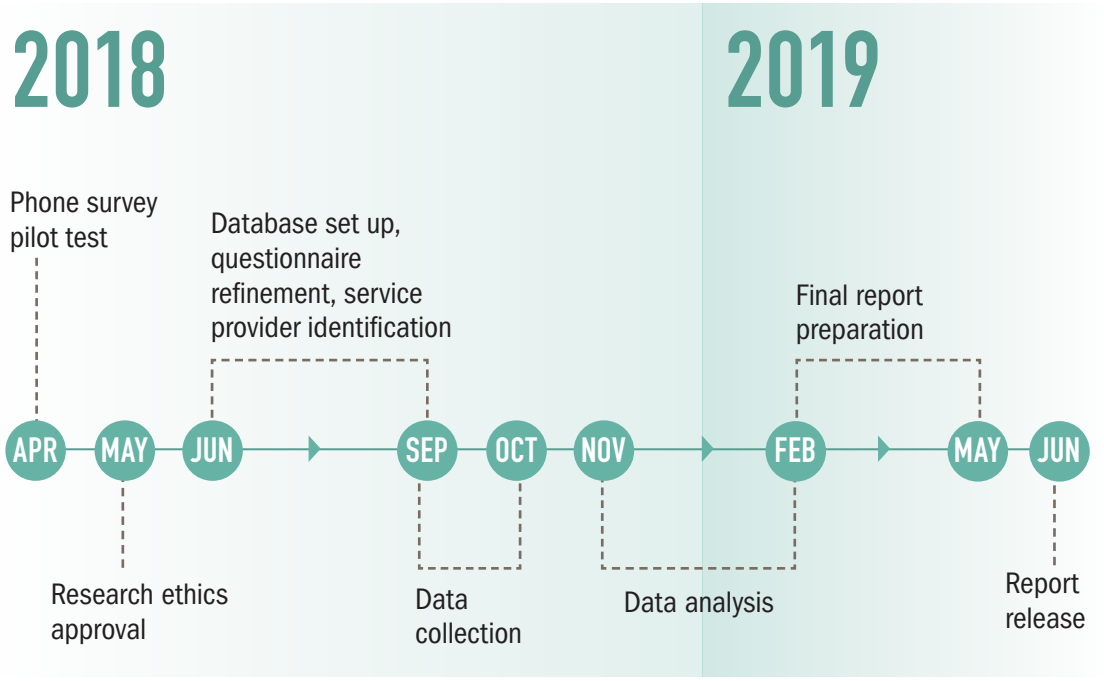
STUDY PROCEDURE

The questionnaire design and the piloting of phone survey were completed in April and May 2018. Ethics approval from the Institutional Review Board of The University of Hong Kong/ Hospital Authority Hong Kong West Cluster was obtained in May 2018. Project preparation, which included setting up the database, seeking an experienced research service provider through the University's tender process, refining the questionnaire and logistics planning was underway between June and September 2018. Data collection occurred between 21 September, 2018 and 10 October, 2018.

STUDY METHODS

Respondents aged 18 years or older were randomly drawn from the random core sample of the FAMILY Cohort, a large prospective population-representative sample in Hong Kong,[6] to complete a phone survey on country park usage and well-being. A total of 1,011 respondents were successfully recruited to participate in the project. Each respondent was provided a supermarket coupon with a value of HK$50 as an incentive to complete the phone survey. The surveys were conducted by a research service provider, the MOV Data Collection Center Limited. The School of Public Health at The University of Hong Kong maintained a close supervision in the data collection process.

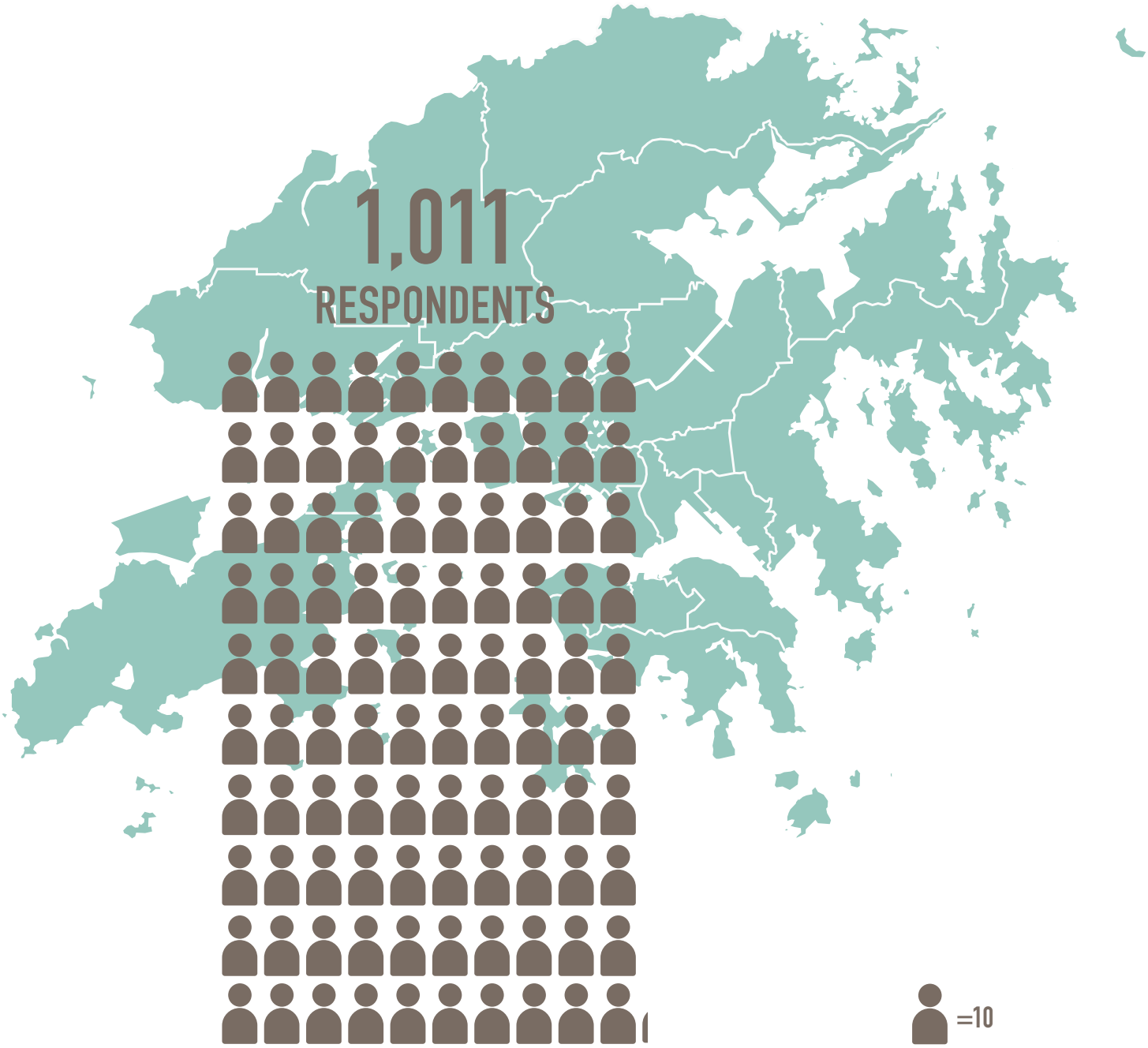
PROJECT TIMELINE



2 STUDY SAMPLE

WHO WERE INTERVIEWED IN THE WYNG-HKU TRAILBLAZER PROJECT PHASE 1?

A total of 1,011 respondents from all 18 districts who were representative of the Hong Kong general population participated in the WYNG-HKU Trailblazer Project Phase 1 (See Appendix – Table 1). All statistics presented in this report were weighted by age, sex, and monthly household income to improve the representativeness of the results.



3 COUNTRY PARK USAGE

HOW OFTEN DO HONG KONG PEOPLE VISIT COUNTRY PARKS?

More than half of the respondents (n = 567 or 56.1%) visited country parks in the past year, and 8.3% of the respondents were frequent users who visited country parks more than once a month (See Appendix – Table 2). In addition, 32.9% of the respondents paid a recent visit in the past three months. Among the respondents who did not visit any country parks in the past year (n = 444), 26.5% of them never visited a country park in their lifetime. The following sections pertain to country park users, defined as the respondents who visited country parks at least once in the past year. Their patterns of country park visits as well as the details of their last visit are presented below.

PATTERNS OF COUNTRY PARK VISITS

When do Hong Kong people visit country parks? (Figures 1 & 2). The weekly pattern of country park visits revealed that a majority of the country park users visit country parks on Sunday (49.8%) and Saturday (35.5%). The most popular months for country park visits are November (22.2%) and October (19.2%), followed by September (9.4%) and August (9.3%).

How long do they stay in country parks? (Figure 3) Country park users on average stay in country parks for 3.5 hours (Mean = 212.2, SD = 150.4, in minutes). They spend more than half of the time conducting physical activities (Mean = 133.5, SD = 111.8, in minutes), fulfilling 89.0% of the WHO's guideline on physical activity of 150 minutes of moderate to intense physical activities per week with an average visit.[7]

FIGURE 1 Weekly pattern of country park visits

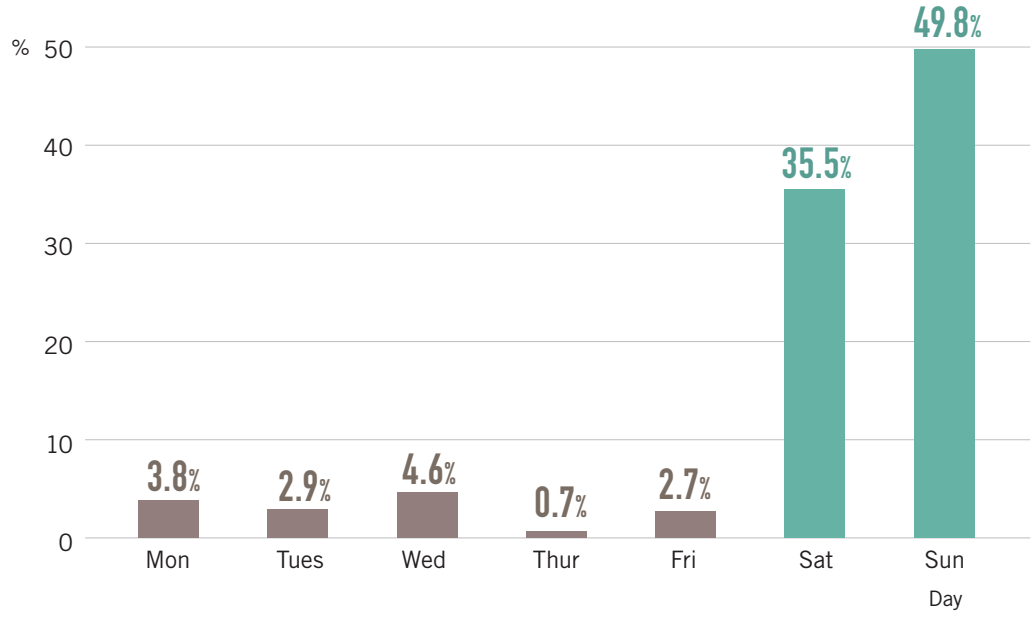
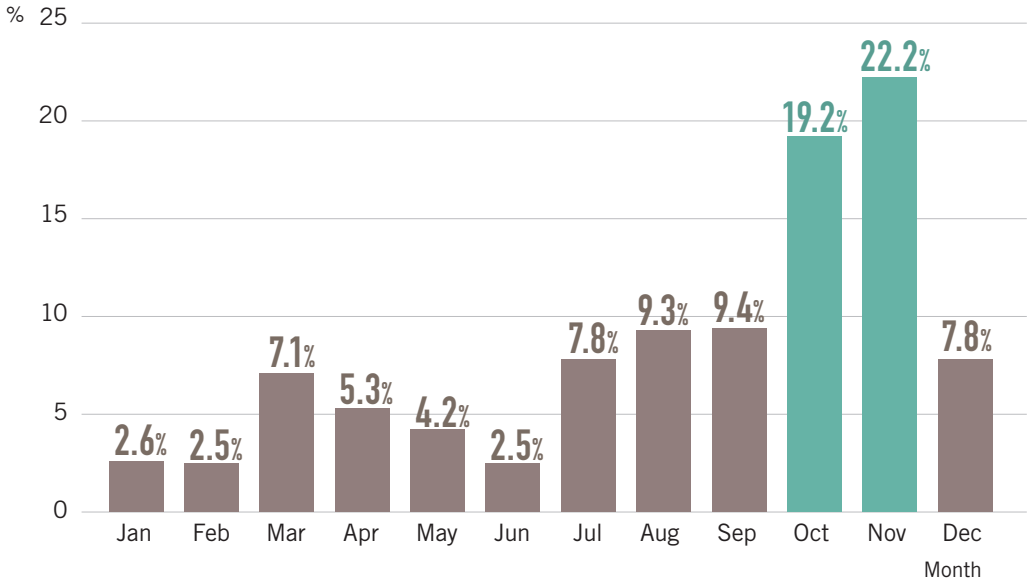


FIGURE 2 Monthly pattern of country park visits



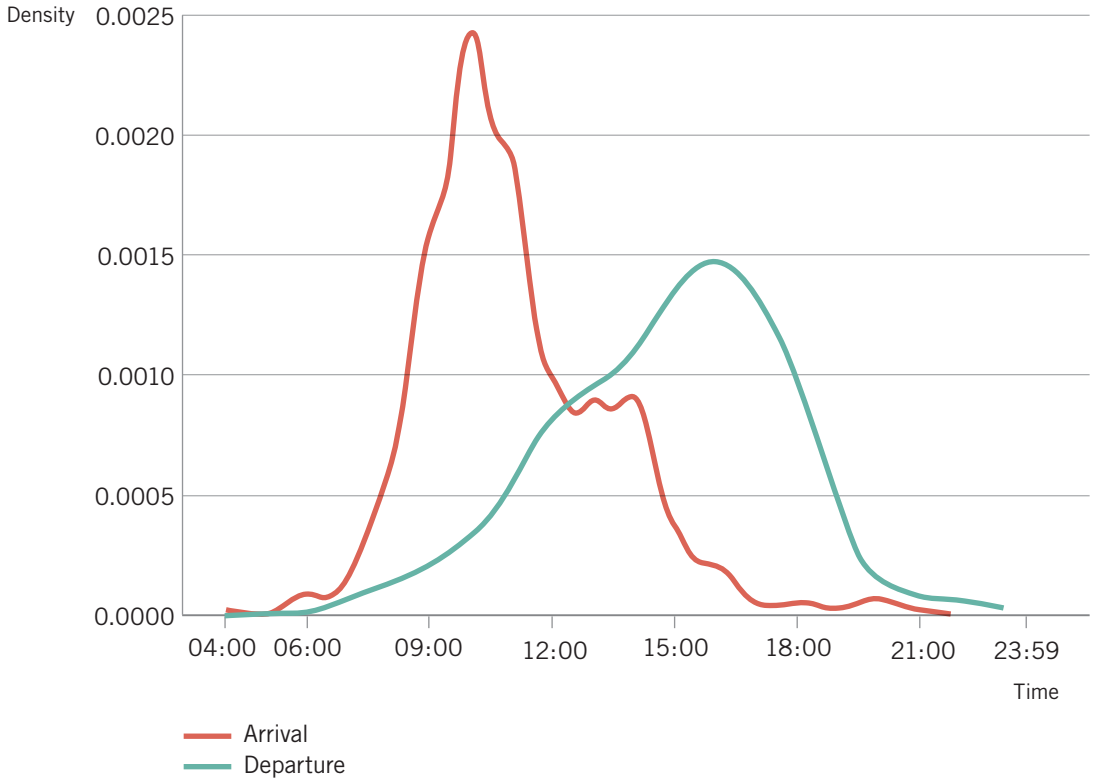
HONG KONG PEOPLE'S LAST VISIT TO COUNTRY PARKS

After answering questions on their general usage of country parks, respondents were asked to recall their last visit to a country park.

How long did it take to travel to the country park? The average travel time to country parks was 59.3 minutes (SD = 33.8).

How long did country park users stay in country parks during their last visit? Country park users spent about 5.5 hours in the country park (Mean = 5.34, SD = 9.23, Interquartile Range (IQR) = 3.00). Only a small number of the country park users stayed overnight during their last visit (2.0%). For those who spent fewer than 24 hours in the country park, their average time of stay was close to 4 hours (Mean = 3.86, SD = 2.21). The departure and arrival times of the country park users are further illustrated in Figure 3. The peak hours of arrival at country parks were between 9am and 12pm and between 12pm and 2pm; however, departure time varied widely (between 12pm and 6pm).

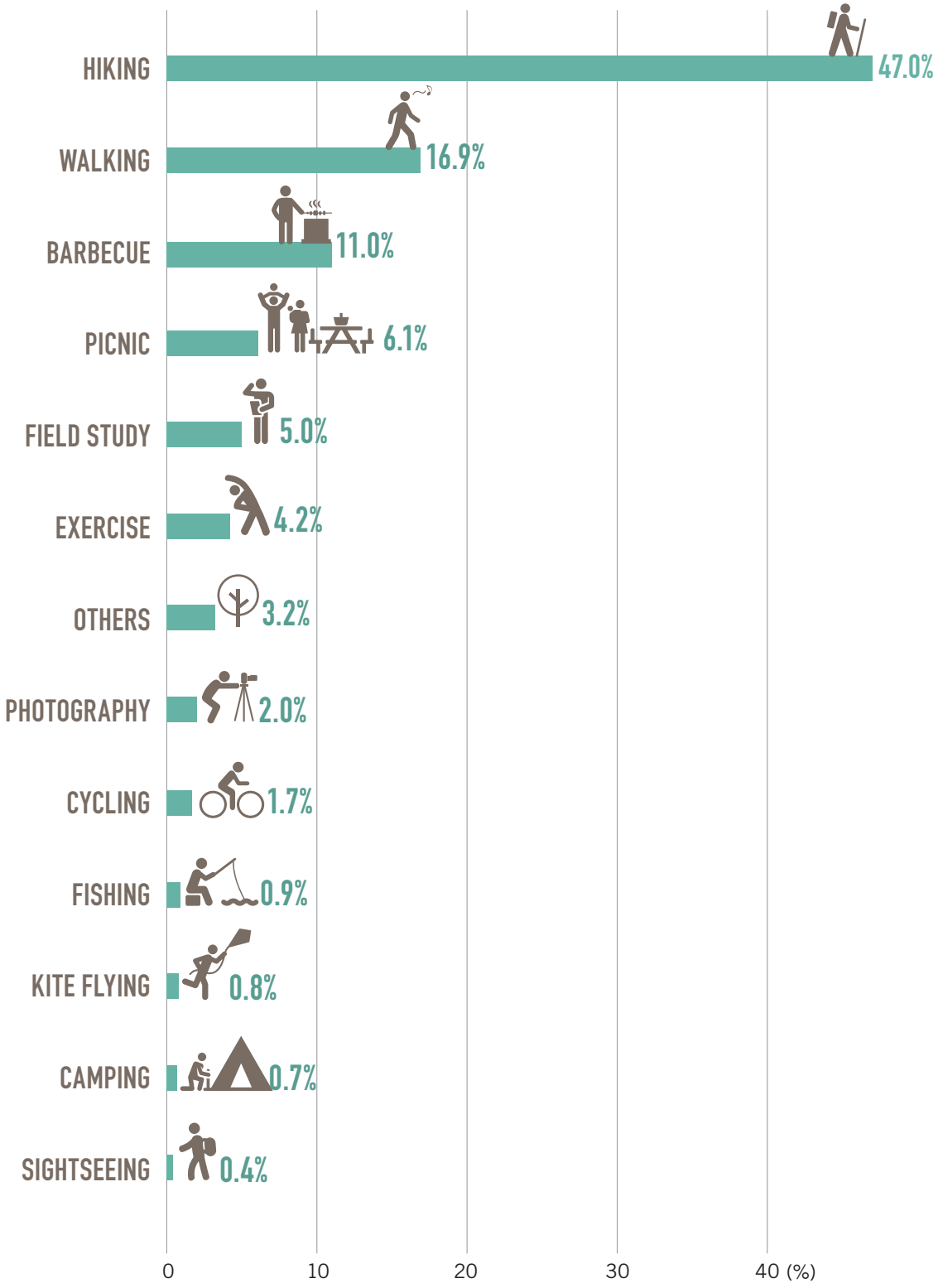
FIGURE 3 Arrival and departure times of country park users



With whom did country park users visit country parks? (See Appendix – Table 3). Most country park users were in the company of friends and families during their last visit. About equal numbers of country park users went to country parks with classmates (5.5%), colleagues (6.5%) and by themselves (5.6%).

What did they do in country parks? (Figure 4). A majority of country park users went hiking (47.0%), took a walk (16.9%), or had a barbecue (11.0%). Other common activities included having a picnic (6.1%), conducting a field study (5.0%), and exercising (4.2%). Most respondents engaged in their preferred activities during their last country park visit. Further questions were posed to country parks users who hiked during their last visit (n = 267). They hiked for an average of 2.46 hours (Mean = 147.5, SD = 85.5, in minutes), fulfilling nearly the entirety of the WHO's guideline on weekly physical activity.[7] Almost half of these respondents hiked between 5 and 10 kilometres, and about one-fifth hiked for less than 5 kilometres and for 11 to 30 kilometres respectively. More than 10% of the hikers were not aware of their hiking distance.

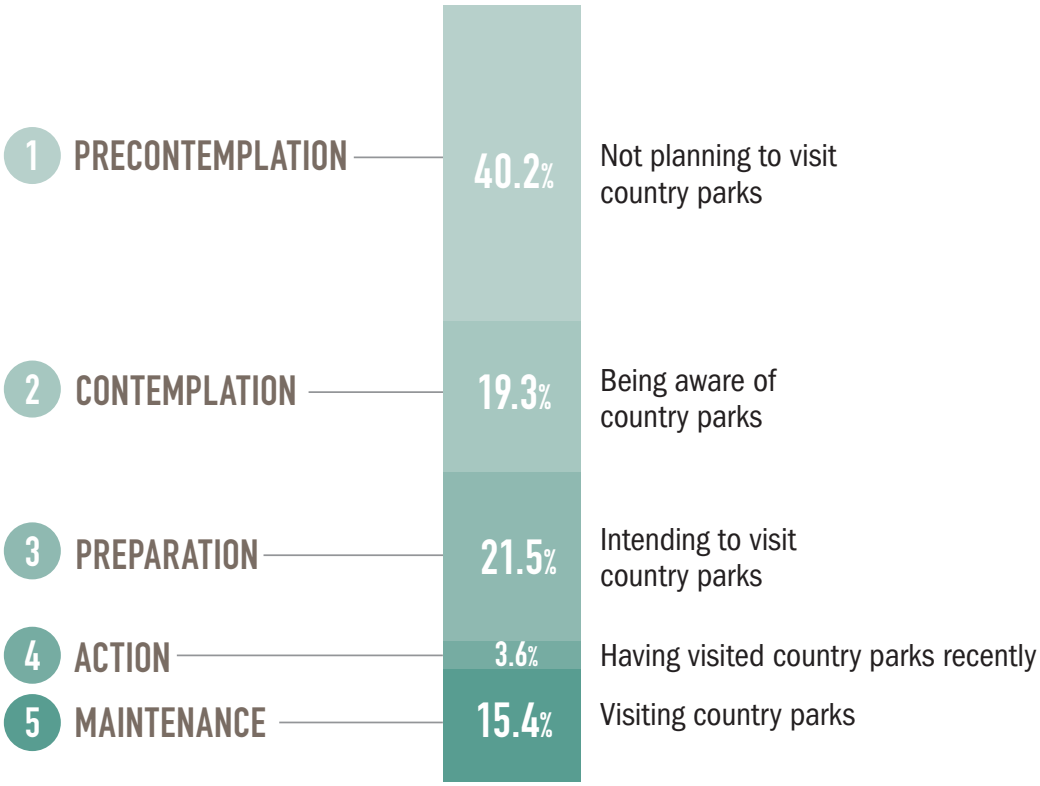
FIGURE 4 Actual activities in the country parks



STAGES OF CHANGE

The validated Chinese version of Physical Activity Stages of Change Questionnaire (PASCQ) was adapted to capture respondents' habit of visiting country parks in five stages: precontemplation (i.e. not planning to visit country parks), contemplation (i.e. being aware of country parks), preparation (i.e. intending to visit country parks), action (i.e. having visited country parks recently), and maintenance (i.e. visiting country parks regularly).[8] The stages of change stemmed from the trans-theoretical model of health behaviour used to measure the temporal change of behaviour.[9] Studying the stages at which the country park users and non-users belong would allow us to further understand the groups to target in promotion of country park usage.

FIGURE 5 **Stages of change in country park usage**
(Refer to p.22 for explanation)



Country park users and non-users (See Appendix – Table 4). The percentages of country park users and non-users in different stages of change were compared. There were comparable percentages of country park users and non-users in the contemplation stage (19.8% vs 18.7%). Almost three quarters of country park users belonged to the preparation, action, and maintenance stages (71.6%). A majority of country park non-users were in the pre-contemplation stage (80.4%). A small number of country park users were categorised into the pre-contemplation stage (8.6% of all users). This suggests that although they had visited a country park at least once in the past year, they did not consider themselves a current user and they had no plan to visit a country park in the next six months.

CHANGES IN COUNTRY PARK VISITING PATTERNS IN THE PAST THREE DECADES

The aggregated data collected in the four onsite visitor surveys conducted in 1982/1983, 1985, 1987/1988, and 1990/1991 and in the General Household Survey conducted by the government in 1990 were compared with the data of country park users gathered in the current project.[4,5]

Country Park usage. The current project found that 32.9% of our respondents visited country parks in the past three months, which was 2.6 times more than the number recorded in 1990 (12.7%).

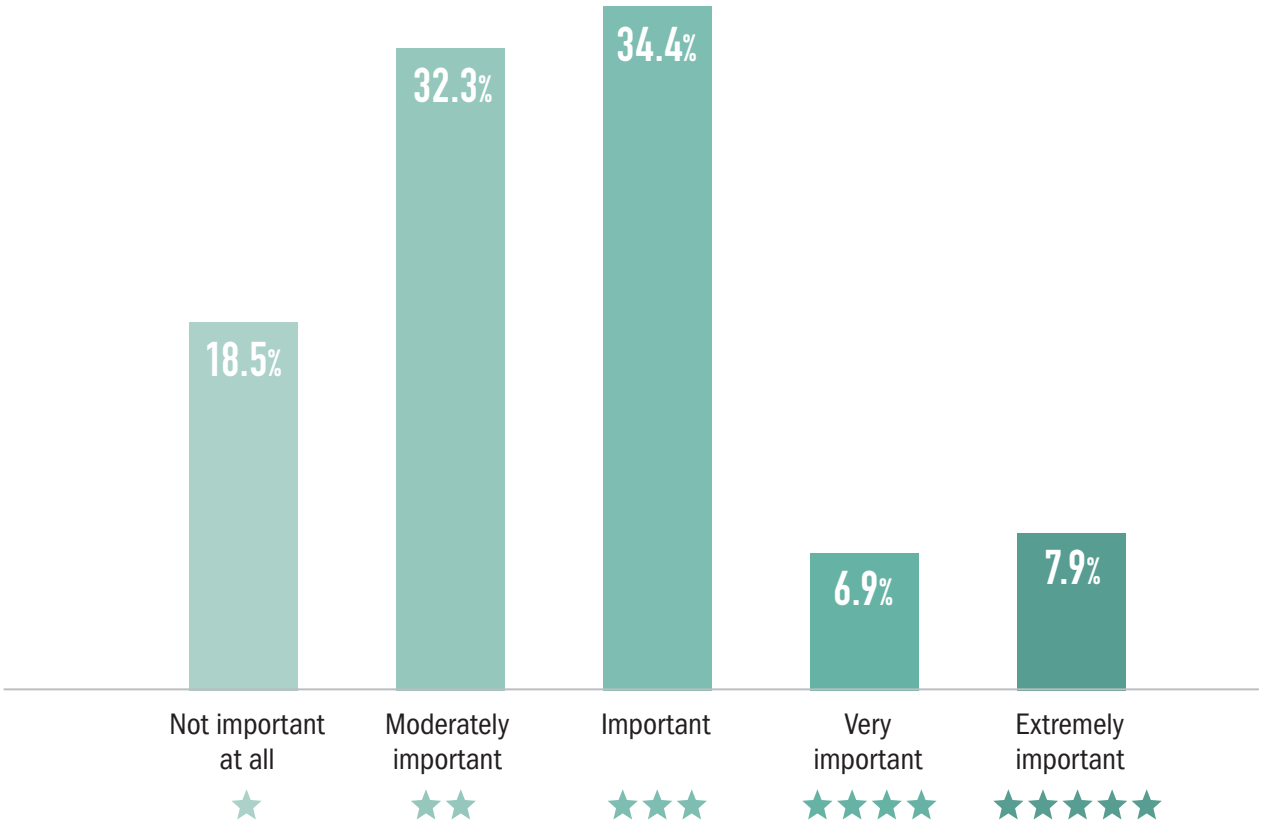
Activities in country parks. Most of the activities performed in country parks remained the same with a few notable differences. Hiking (47.0% in 2018 vs. 12.6% in 1982-1991) and field study (5.0% in 2018 vs. 1.3% in 1982-1991) became more popular amongst current country park users while barbecues waned in popularity in 2018 (11.0% in 2018 vs. 40.6% in 1982-1991). Therefore, Hong Kong people have been switching from more sedentary activities (e.g. barbecues) to more active ones (e.g. hiking) when visiting country parks.

4 IMPRESSIONS OF COUNTRY PARKS

HOW IMPORTANT ARE COUNTRY PARKS TO HONG KONG PEOPLE?

Respondents rated the importance of country parks to their lives on a 5-point unipolar scale. Almost half of the respondents (49.2%) consider country parks to be important to extremely important (Figure 6). Please refer to Table 5 in appendix for the demographic table by perceived importance of country parks. Overall, younger and higher-income individuals tend to perceive country parks as more important.

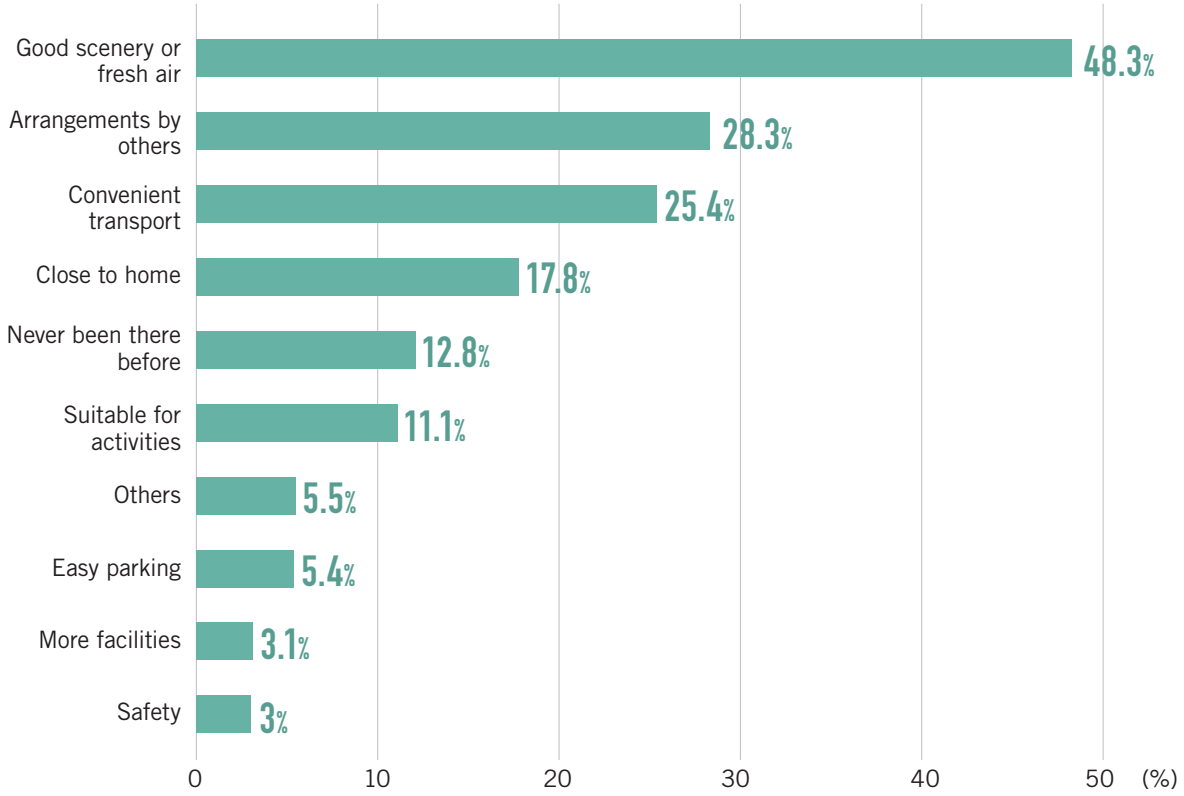
FIGURE 6 Importance of country parks to life



WHY DID HONG KONG PEOPLE VISIT THE COUNTRY PARK?

Country park users were asked to name up to two reasons why they chose to go to the particular country park that they visited most recently. The reasons for their most recent visits are listed in Figure 7. The top three reasons were good scenery or fresh air, trip arrangements made by others, and convenient transport.

FIGURE 7 Reasons for visiting the country parks[a]

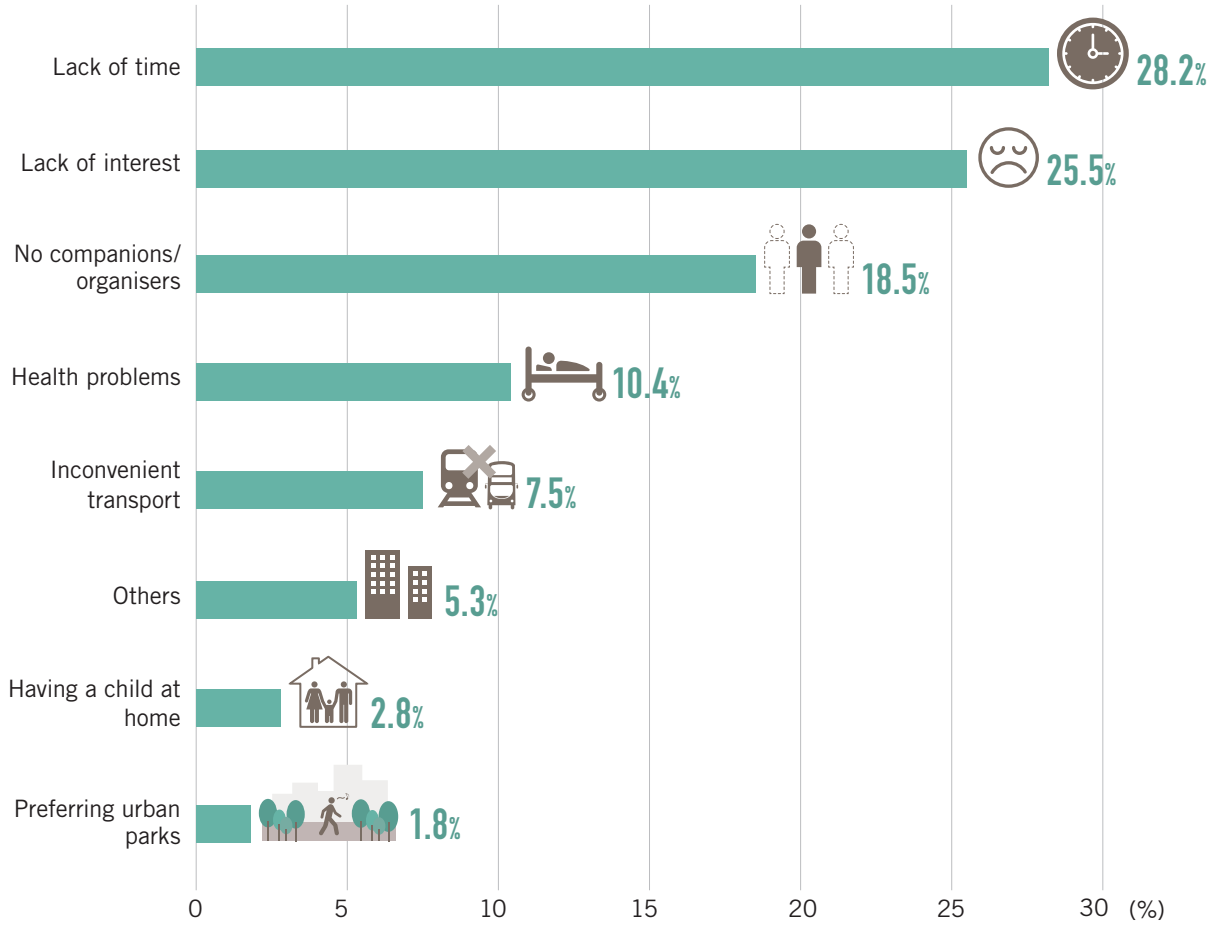


[a]Respondents could select up to 2 options.

WHAT KEPT HONG KONG PEOPLE FROM VISITING COUNTRY PARKS?

The respondents who did not visit a country park in the past year (n = 444) were classified as country park non-users in this project. The major barriers cited by these non-users were the lack of time (28.2%), interest (25.5%), and companions/organisers (18.5%), as shown in Figure 8.

FIGURE 8 Reasons for not visiting country parks in the past year



CHANGES IN COUNTRY PARK IMPRESSIONS IN THE PAST THREE DECADES

Reasons for visiting country parks (See Appendix – Table 6). Good scenery or fresh air, convenient transport, distance from home and easy parking remained the major considerations in country park selection 2018. Trip arrangements by others became a more popular reason for visiting country parks in 2018 (28.3%) than in 1982-1991 (8.0%).

Barriers to visiting country parks (See Appendix – Table 7). The lack of time and interest prevailed as the main reasons why people do not go to country parks over the decades. The lack of companions/organisers as well as inconvenient transportation emerged as major obstacles keeping people from visiting country parks in the current day.

5 WELL-BEING

COUNTRY PARKS AND WELL-BEING

Differences in well-being between recent country park users and non-users (See Appendix – Tables 8 and 9). Country park users and non-users were compared on different indicators of physical, mental, and social well-being. Country park users had better self-reported health than country park non-users. The results showed that a randomly-chosen country park user has a 56% chance of reporting better health than a randomly-chosen non-user. However, country park users also reported more family conflicts than non-users.

Well-being and number of yearly country park visits (See Appendix – Tables 10 to 12). Participants who visited country parks more frequently tended to have a higher rating of self-reported happiness and life satisfaction. Further analyses revealed that the positive relationship between number of country park visits and self-reported health levelled off after 23.8 visits per year.

FURTHER ANALYSES ON COUNTRY PARKS AND WELL-BEING

Well-being between recent country park users and non-users To further explore the relationship between country park visits and well-being indicators, we compared participants who visited a country park in the past three months to those who did not. It was suspected that the associations between physical, mental, and social well-being and country park usage might be more prominent among respondents who recently paid a visit to country parks. A total of 324 respondents visited country parks in the past 3 months. As in the previous analysis, recent country park visitors had higher self-reported health and a higher level of happiness than non-users. In contrast to earlier findings, recent country park users did not have more family conflicts than country park non-users. Country park users who paid a visit to country parks in the past three months were also about 43% more likely to have a sense of purpose in life.

Well-being and number of visits in the past three months In line with the well-being analyses on the number of yearly country park visits, country park users who visited country parks more frequently in the past three months had better self-reported health and a higher level of happiness than non-users. Family functioning, as measured in terms of family availability, partnership, groups, affection, and resolve,[10] also increased with the number of country park visits in the past three months. The positive relationship between number of country park visits and self-reported health levelled off after 8.15 visits or about 3 visits per month.

LIMITATIONS

The country park usage data gathered in the current project might be subjected to seasonal effects. The telephone interviews were conducted in September and October 2018, and the responses gathered for respondents' country park visits in the past three months might be lower than expected due to the prior summer months in Hong Kong.

Causality is difficult to establish with cross-sectional data. While significant associations were found between country park usage and certain well-being indicators, it is conceivable that healthier respondents were more likely to visit country parks. Therefore, further research is needed to verify the current findings and to strengthen the evidence for the direction of causality.

CONCLUSION

The Trailblazer Project Phase 1: The WYNG-HKU Flagship Programme on Country Parks and Well-being has provided valuable insights on the utilisation of country parks and the potential pathways to promote physical, mental and social well-being of the residents of Hong Kong. While country park users and non-users differed in some demographic characteristics, the majority agreed that country parks were important to their life. An average hiking trip in country park took 2.5 hours, which fulfils the 150-minute weekly physical activity recommendation by the World Health Organization. In addition, the higher self-reported health and higher likelihood of having a sense of purpose in life found in country park users suggest that country park usage is a promising avenue for enhancing physical and mental well-being. Country park users may also strengthen social ties, as people frequently visit country parks with their families and friends. The updated information on the reasons for and barriers to visiting country parks will allow us to initiate a public dialogue related to accessibility and usage of contry parks. Taken together, the results of the Trailblazer Project Phase 1 will inform the study design of the subsequent Trailblazer Project Phase 2, which is to commence in the format of household face-to-face interviews in 2020.

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FURTHER DISCUSSIONS ON PROJECT METHODOLOGY AND RESULTS

1. WHY IS THE WEIGHTED GENDER BALANCE SEVERAL PERCENTAGE POINTS OFF FROM THE ACTUAL POPULATION (REFERRING TO TABLE 1)?

The recruitment sample was drawn from the FAMILY Cohort random core.[6] The research team made the best efforts to ensure the study sample approximated the key demographic characteristics of the general Hong Kong population. In Table 1, the weighted percentage of female was 55.1% compared to 51.9% in the By-census conducted in 2016.

Statistical weighting has to achieve 2 goals: (a) approximating the population characteristics and (b) avoiding instances of having highly imbalanced weights (i.e. a situation where certain participants' response count many times more than others'). We followed the current best practice of readjusting extreme statistical weights. Although these extreme weights may achieve (a), the highly unbalanced weights could bias the results. Generally speaking, a larger sample size (e.g. Phase 2) would allow statistical weighting to better achieve both goals.

2. WHAT IS THE LINK BETWEEN FREQUENCY OF USE OF COUNTRY PARK AND PERCEIVED IMPORTANCE OF COUNTRY PARKS?

Figure 9 shows a heat map of respondents' frequency of visits in the past year by their rating of the importance of country parks to their life. The number in each grid and shade of green correspond to the proportion of respondents who chose the particular level of importance of country parks and who had a certain number of country park visit. Using the cell in the upper-right hand corner as an example, 4% of participants visited country parks 7 or more times in the past year and rated country parks as extremely important. Table 18 provides a correlation table of the number of visits in the past year and the perceived importance of country parks. Participants who visited country parks more frequently tend to perceive country parks as more important.

FIGURE 9 Heat map of importance of country parks by frequency of visits

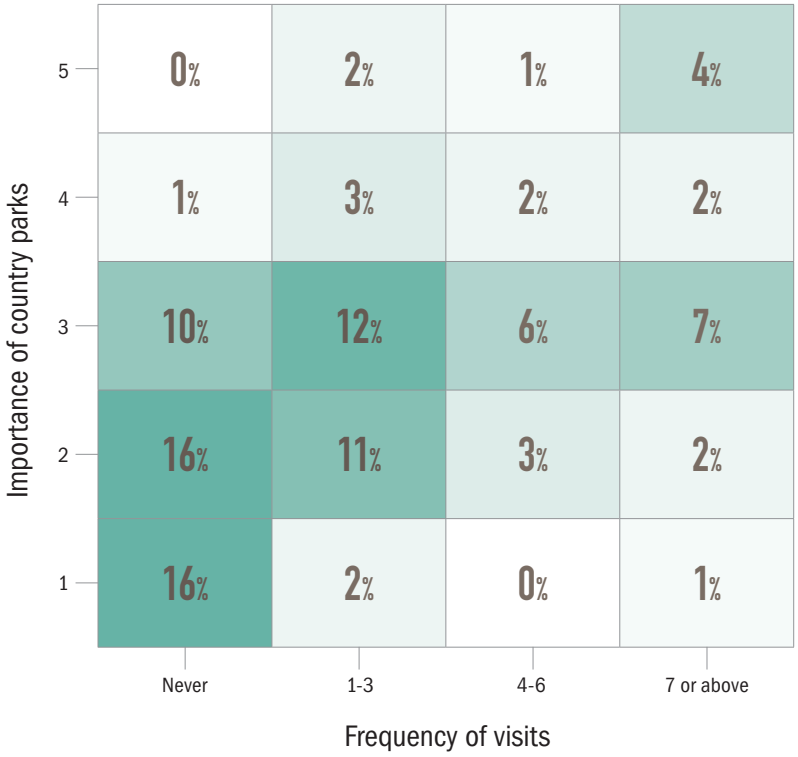


TABLE 18 Correlation and test statistic of the number of visits in the past year and the perceived importance of country parks

Pearson's r	*df*	t-statistic	*p*-value
0.2145	1009	6.977	<0.001

Abbreviation: *df* = degrees of freedom (*n*-*k*).

3. INTERPRETATION OF THE STAGES OF CHANGE BETWEEN COUNTRY PARK USERS AND COUNTRY PARK NON-USERS

The stages of change stemmed from the trans-theoretical model of health behaviour.[9] In adaptation to the current project, the five stages of the model were defined as follows:

- **Precontemplation:** Not a current country park user and not planning to visit country parks in the foreseeable future (e.g. in the next 6 months)
- **Contemplation:** Not a current country park user but planning to visit country parks in the foreseeable future (e.g. in the next 6 months)
- **Preparation:** A current user who intends to visit country parks in the immediate future (e.g. in the next 6 months)
- **Action:** Have visited country parks regularly for a short time period (fewer than 6 months)
- **Maintenance:** Visit country parks regularly for at least 6 months

TABLE 19 Country Park Usage: Stages of Change Questionnaire

Chinese version		
1. 我目前有去郊野公園。	是	否
2. 我打算在接下來的6個月會去郊野公園。	是	否
3. 目前我會有規律地去郊野公園。	是	否
4. 在過去6個月中我一直在有規律地去郊野公園。	是	否
English version		
1. I am a country park user.	Yes	No
2. I intend to visit country parks in the next six months.	Yes	No
3. I currently visit country parks regularly.	Yes	No
4. I have been regularly visiting country parks for the past six months.	Yes	No
Scoring algorithm		
Stage 1 (Pre-contemplation)	Question 1 = No and Question 2 = No	
Stage 2 (Contemplation)	Question 1 = No and Question 2 = Yes	
Stage 3 (Preparation)	Question 1 = Yes and Question 3 = No	
Stage 4 (Action)	Question 1 = Yes, Question 3 = Yes, and Question 4 = No	
Stage 5 (Maintenance)	Question 1 = Yes, Question 3 = Yes, and Question 4 = Yes	

A small number of country park users were categorised into the pre-contemplation stage (8.6% of all users). This suggests that although they had visited a country park at least once in the past year, they did not consider themselves a current user and they had no plan to visit a country park in the next six months.

Additionally, country park non-users who had not visited country parks in the last year said yes to regularly visiting country parks in this section. It is admittedly unclear how their inconsistent responses in the two sections of the questionnaire can be reconciled. We aim to update our questionnaire software to flag this issue so that interviewers can confirm with participants when we are conducting Phase 2.

Please note that while our definition of country park users pertained to the respondents who visited country parks at least once in the past year. The trans-theoretical model of stages of change focused on a temporal change of behaviour. Together they allow us to further understand the groups to target in promotion of country parks usage.

4. WHICH DISTRICT HAS THE HIGHEST NUMBER OF COUNTRY PARK USERS?

Figures 10 and 11 show the geographic distribution of country park users in Hong Kong and the proportion of country park users in each of the 18 districts. More than 35% of the country park users surveyed resided in Sha Tin (14.3%), Kwun Tong (11.4%), and Wong Tai Sin (9.9%) (Figure 10). As shown in Figure 11, Sai Kung (68.7%), Eastern (66.8%), Tsuen Wan (63.0%) had the highest percentage of residents being country park users. On the opposite end of the spectrum, Wan Chai (20.9%), Yau Tsim Mong (40.8%), and Kowloon City (41.3%) had the smallest percentage of country park users.

FIGURE 10 Geographic distribution of country park users

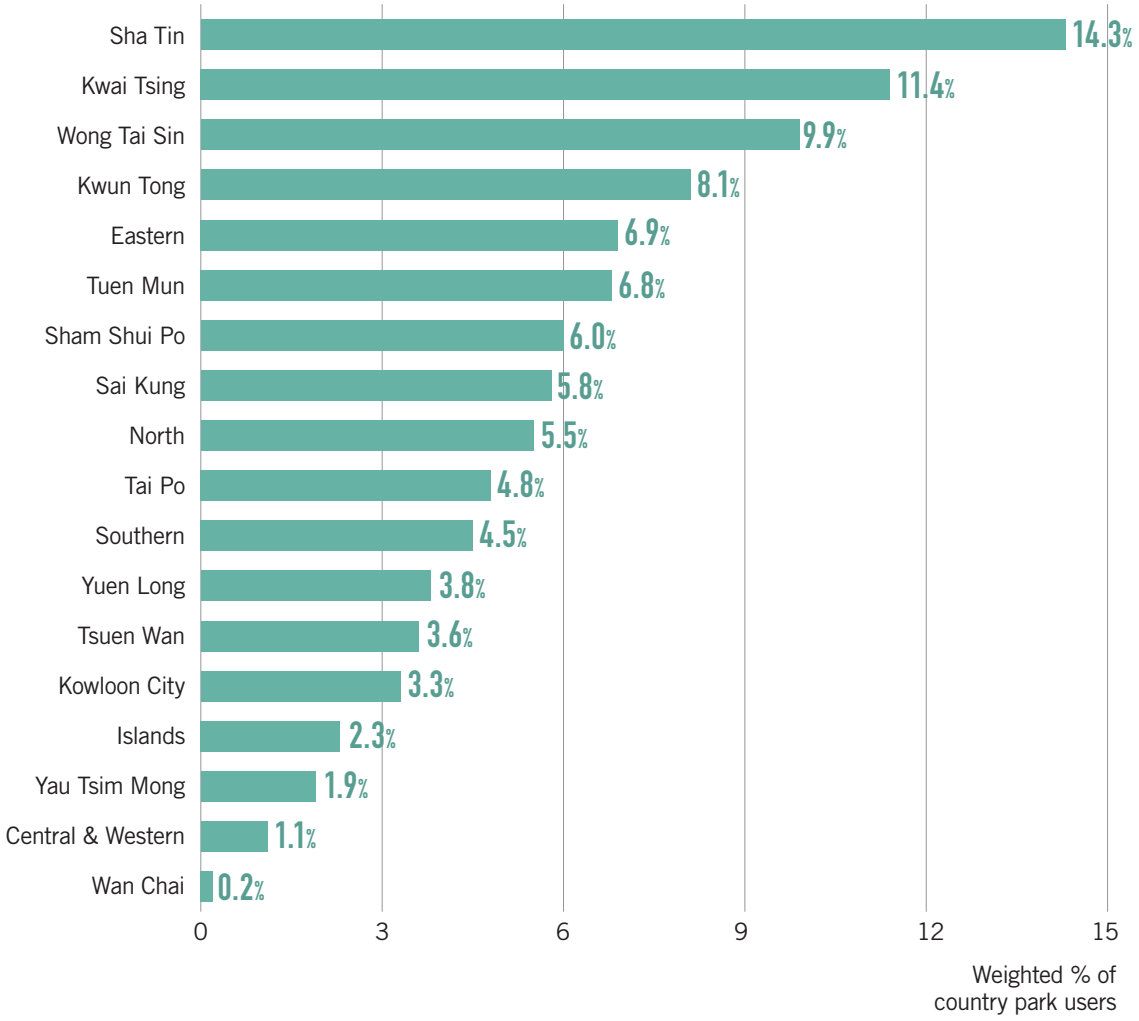
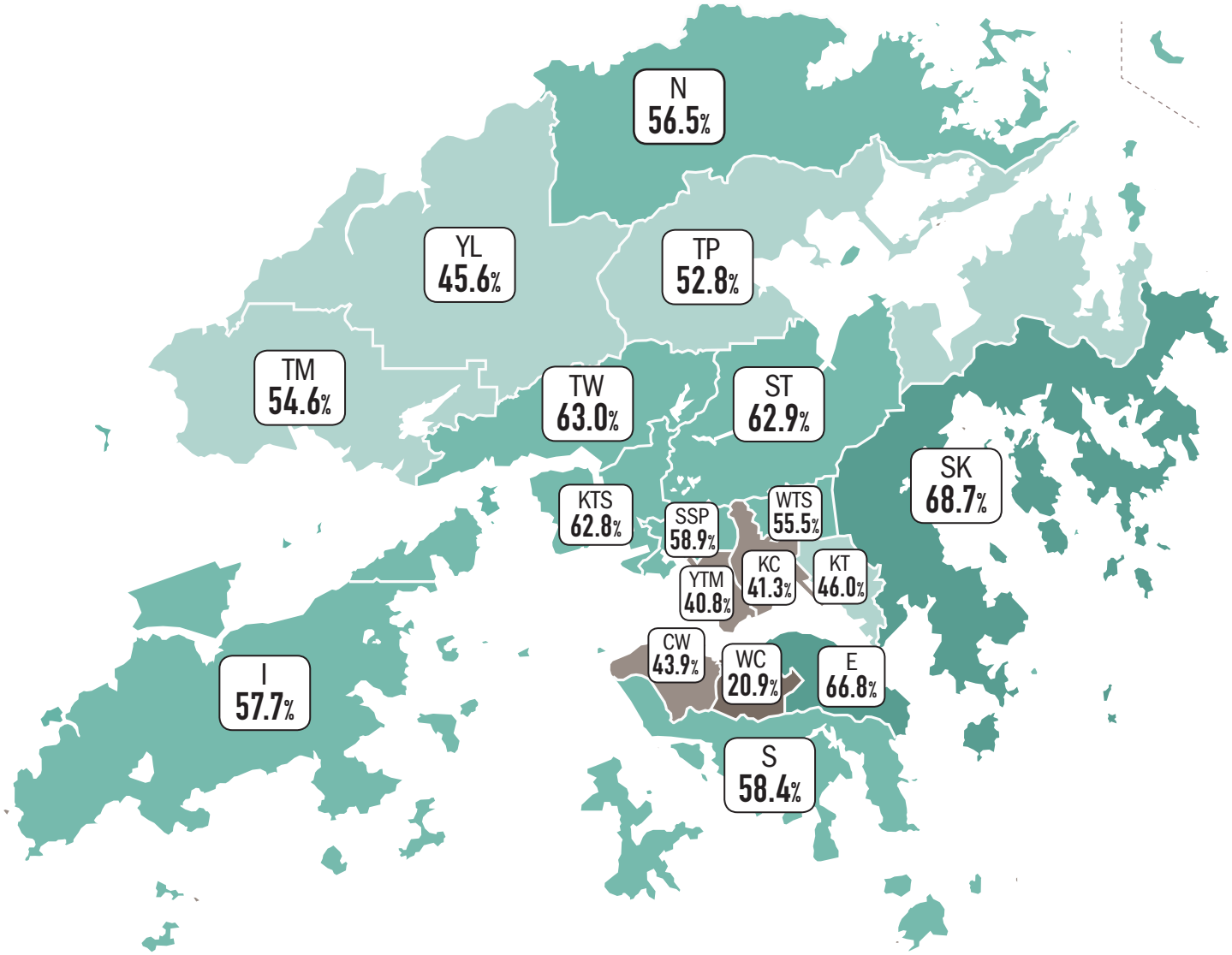


FIGURE 11 Proportion of country park users in each district



Districts:

CW	Central & Western
E	Eastern
I	Islands
KC	Kowloon City
KT	Kwun Tong
KTS	Kwai Tsing
N	Northern
S	Southern
SK	Sai Kung
SSP	Sham Shui Po
ST	Sha Tin
TM	Tuen Mun
TP	Tai Po
TW	Tseun Wan
WC	Wan Chai
WTS	Wong Tai Sin
YL	Yuen Long
YTM	Yau Tsim Mong

Weighted % of country park users

- <35%
- 35-45%
- 45-55%
- 55-65%
- >65%

APPENDIX

TABLE 1 **Sociodemographic profile of the sample** (n = 1,011)

Characteristics		Non-weighted n (%)	Weighted n[a] (%)	CSD in 2016 n (%)
Age (Mean ± SD)		50.64 ± 17.62	49.28 ± 17.35	42.6 ± 21.5
18 - 35		258 (25.5)	272 (26.9)	1,807,371 (28.6)
36 - 60		432 (42.7)	474 (46.9)	2,966,515 (46.9)
61 and above		321 (31.8)	265 (26.2)	1,546,989 (24.5)
Sex				
Male		439 (43.4)	454 (44.9)	3,371,476 (48.1)
Female		572 (56.6)	557 (55.1)	3,643,314 (51.9)
District				
HONG KONG ISLAND	Central and Western	14 (1.4)	14 (1.4)	243,266 (3.3)
	Eastern	60 (5.9)	59 (5.8)	555,034 (7.6)
	Southern	45 (4.5)	44 (4.4)	274,994 (3.7)
	Wan Chai	6 (0.6)	5 (0.5)	180,123 (2.5)
KOWLOON	Kowloon City	45 (4.4)	45 (4.4)	418,732 (5.7)
	Kwun Tong	98 (9.7)	99 (9.8)	648,541 (8.8)
	Sham Shui Po	60 (5.9)	58 (5.7)	405,869 (5.5)
	Wong Tai Sin	95 (9.4)	101 (10.0)	425,235 (5.8)
	Yau Tsim Mong	27 (2.7)	26 (2.6)	342,970 (4.7)
NEW TERRITORIES	Islands	23 (2.3)	22 (2.2)	156,801 (2.1)
	Kwai Tsing	100 (9.9)	103 (10.1)	520,572 (7.1)
	North	56 (5.5)	55 (5.4)	315,270 (4.3)
	Sai Kung	48 (4.7)	48 (4.7)	461,864 (6.3)
	Sha Tin	128 (12.7)	128 (12.7)	659,794 (9.0)
	Tai Po	53 (5.2)	51 (5.1)	303,926 (4.1)
	Tsuen Wan	31 (3.1)	32 (3.2)	318,916 (4.3)
	Tuen Mun	73 (7.2)	70 (7.0)	489,299 (6.7)
	Yuen Long	46 (4.5)	47 (4.7)	614,178 (8.4)
Do not know/ Refuse to answer		3 (0.3)	3 (0.3)	
Monthly household income (HKD)				
Under $10,000		142 (14.0)	171 (16.9)	480,117 (19.2)
$10,000-19,999		180 (17.8)	212 (21.0)	547,784 (21.8)
$20,000-39,999		300 (29.7)	271 (26.8)	699,450 (27.8)
$40,000 or above		329 (32.5)	303 (30.0)	782,383 (31.2)
Do not know/ Refuse to answer		60 (5.9)	55 (5.4)	-

Abbreviations: CSD, Census and Statistics Department; n, number of respondents; SD, standard deviation; %, percentage.
Note: [a]The weighted numbers of respondents were rounded to the nearest integer.

TABLE 2 Frequencies of visiting country parks

Frequency of park visit	Country Park n[a] (%)
In the past three months	
Total number (Mean ± SD[IQR])	1.56 ± 5.98 [1.00]
Into categories	
Never	678 (67.1)
1 - 3 times	230 (22.8)
4 - 6 times	56 (5.5)
≥ 7 times	47 (4.6)
In the past year	
Total number (Mean ± SD[IQR])	5.94 ± 23.49 [4.00]
Into categories	
Never	444 (43.9)
1 - 12 times	484 (47.9)
13 - 24 times	39 (3.9)
≥ 25 times	44 (4.4)

Abbreviations: IQR, interquartile range; n, number of respondents; SD, standard deviation; %, percentage.
Note: [a]The weighted numbers of respondents were rounded to the nearest integer.

TABLE 3 People with whom the country park users last visited the country park

People	n[a]	%
Country park users by themselves	32	5.6
Groups[b]		
Family	281	49.6
Friends	309	54.5
Classmates	31	5.5
Colleagues	37	6.5
Organisation	26	4.6
Organised tour	3	0.6
School	5	0.9
Others	2	0.3

Abbreviations: n, number of respondents; %, percentage.
Notes: [a]The weighted numbers of correspondents were rounded to the nearest integer. [b]The respondents could select more than one group if they did not go to country park by themselves.

TABLE 4 Comparison of stages of change between country park users and non-users

Stage of change	Country park users n[a] (%)	Country park non-users n[a] (%)	*p*-value
Pre-contemplation	49 (8.6)	357 (80.4)	<0.001
Contemplation	112 (19.8)	83 (18.7)	0.731
Preparation	217 (38.3)	1 (0.2)	<0.001
Action	37 (6.5)	0 (0.0)	<0.001
Maintenance	152 (26.8)	3 (0.7)	<0.001

Abbreviations: n, number of respondents; %, percentage.
Note: [a]The weighted numbers of respondents were rounded to the nearest integer.

TABLE 5 Demographic characteristics of respondents by perceived importance of country parks

Characteristic	Important n (%)	Not important n[a] (%)	*p*-value
Age (Mean ± SD)	46.1 ± 16.42	52.36 ± 17.69	<0.001
18 - 35	165 (33.1)	107 (20.9)	<0.001
36 - 60	239 (48.0)	235 (45.8)	0.527
61 and above	94 (18.9)	171 (33.3)	<0.001
Sex			
Male	227 (45.7)	227 (44.2)	0.675
Female	270 (54.3)	287 (55.8)	0.675
District			
Hong Kong Island	68 (13.7)	54 (10.6)	0.169
Central and Western	6 (1.2)	8 (1.6)	
Eastern	35 (7.1)	24 (4.7)	
Southern	26 (5.2)	18 (3.5)	
Wan Chai	1 (0.2)	4 (0.8)	
Kowloon	150 (30.2)	180 (35.2)	0.108
Kowloon City	22 (4.4)	23 (4.5)	
Kwun Tong	46 (9.3)	54 (10.5)	
Sham Shui Po	30 (6.0)	28 (5.5)	
Wong Tai Sin	40 (8.1)	61 (11.9)	
Yau Tsim Mong	11 (2.2)	15 (2.9)	
New Territories	279 (56.1)	277 (54.2)	0.545
Islands	7 (1.4)	16 (3.1)	
Kwai Tsing	53 (10.7)	49 (9.6)	
North	28 (5.6)	26 (5.1)	
Sai Kung	28 (5.6)	19 (3.7)	
Sha Tin	76 (15.3)	52 (10.2)	
Tai Po	28 (5.6)	23 (4.5)	
Tsuen Wan	12 (2.4)	21 (4.1)	
Tuen Mun	25 (5.0)	46 (9.0)	
Yuen Long	22 (4.4)	25 (4.9)	
Monthly household income (HKD)			
Under $10,000	51 (10.3)	119 (23.2)	<0.001
$10,000-19,999	106 (21.4)	106 (20.6)	0.830
$20,000-39,999	135 (27.2)	136 (26.5)	0.841
$40,000 or above	183 (36.9)	120 (23.3)	<0.001

Abbreviations: CSD, Census and Statistics Department; n, number of respondents; SD, standard deviation; %, percentage.
Note[1]: [a]The weighted numbers of respondents were rounded to the nearest integer.
Note[2]: This table compares participants who reported that country parks are "Important", "Very important", or "Extremely important" to their life ("Important" on the left column) to participants who reported "Not important at all" and "Moderately important" ("Not important" on the right column).

TABLE 6 Comparisons of reasons for visiting country parks

Reason	Aggregated data from 1982 to 1991	Present study	χ^2	*p*-value
	Frequency (%)	Frequency[a] (%)		
Good scenery or fresh air	8656 (24.6)	274 (48.3)	145.68	<0.001
Convenient transport	6120 (17.4)	144 (25.4)	18.71	<0.001
Suitable for activity	4605 (13.1)	63 (11.1)	3.01	0.083
Close to home	3940 (11.2)	101 (17.8)	19.35	<0.001
Arrangement by others	2814 (8.0)	160 (28.3)	274.56	<0.001
Easy parking	1238 (3.5)	31 (5.4)	4.02	0.045
Never been here before	1277 (3.6)	69 (12.1)	99.72	<0.001
More facilities	955 (2.7)	18 (3.1)	0.07	0.795
Publicity	130 (0.4)	1 (0.0)	0.64	0.423
Others	2813 (8.0)	31 (5.5)	5.79	0.016
Safety	702 (2.0)	17 (3.0)	1.61	0.204
Far from city	306 (0.9)	1 (0.0)	3.38	0.066
Total	**33556**	**910**		

Note: [a]The weighted frequencies of the present study were rounded to the nearest integer.

TABLE 7 Comparisons of reasons for not visiting country parks

Reason	GHS (1990)	Present study	χ^2	*p*-value
	Frequency[a] (%)			
Lack of time	1660700 (43.9)	125 (28.2)	43.44	<0.001
Lack of interest	996900 (26.3)	113 (25.5)	0.11	0.739
Health problem	562900 (14.9)	46 (10.4)	6.60	0.010
No companions/organizers	171600 (4.5)	82 (18.5)	195.74	<0.001
Child at home	132800 (3.5)	13 (2.8)	0.42	0.515
Preferring urban parks	86800 (2.3)	8 (1.8)	0.32	0.575
Inconvenient transport	56300 (1.5)	33 (7.5)	105.67	<0.001
Others	118000 (3.1)	23 (5.3)	6.05	0.014
Total	**3786000**	**443**		

Abbreviation: GHS: General Household Survey, Census and Statistic Department;
Note: [a]The weighted frequencies of the present study were rounded to the nearest integer.

TABLE 8 Comparison of physical, mental, and social well-being between country park users and non-users

Variable	Country park users (n^a = 553) (Mean ± SD)	Country park non-users (n^a = 458) (Mean ± SD)	β^b	IRR[b] (95% CI)	SE	*p*-value	Cohen's *d* (95% CI)
Self-reported health	2.2 ± 0.93	2.0 ± 0.99	0.219	-	0.063	<0.001	0.227 (0.100, 0.354)
Mental well-being							
PHQ-9	3.1 ± 3.46	3.4 ± 4.17	-	1.085 (0.934, 1.260)	-	0.289	-
Happiness	3.0 ± 0.49	2.9 ± 0.54	0.034	-	0.033	0.300	0.066 (-0.059, 0.190)
Life satisfaction	7.1 ± 1.48	7.2 ± 1.69	-0.064	-	0.103	0.533	-0.040 (-0.168, 0.087)
Life Stress Index	1.2 ± 1.30	0.9 ± 1.12	-	1.197(1.032, 1.389)	-	0.017	-
Social well-being							
Family harmony	19.7 ± 2.93	19.6 ± 2.75	-0.219	-	0.181	0.228	-0.077 (-0.201, 0.048)
Neighbourhood cohesion	16.7 ± 2.47	17.0 ± 2.43	-0.107	-	0.157	0.496	-0.044 (-0.169, 0.082)
FAMILY APGAR	6.3 ± 2.98	5.9 ± 2.99	0.264	-	0.195	0.176	0.089 (-0.040, 0.216)
Family conflict	1.0 ± 1.92	0.6 ± 1.51	0.299	-	0.113	0.009	0.173 (0.044, 0.302)

Abbreviations: CI, confidence interval; CP, country park; n, number of respondents; FAMILY APGAR: Family Adaptability, Partnership, Growth, Affection, and Resolve; IRR, incidence rate ratio; OR, odds ratio; PHQ-9, Patient Health Questionnaire-9; SE, standard error
Notes: [a]The numbers of respondents were calculated with inverse probability weighting and post-stratification weighting based on the availability of well-being data collected in previous studies and in the current project. [b]Linear and negative binomial regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Multiple imputation was used to control for missing values in the regression.

TABLE 9 Comparison of probable depression diagnosis and life purpose between country park users and non-users

Variable	Country park users (n^a = 553) (Mean ± SD)	Country park non-users (n^a = 458) (Mean ± SD)	IRR[b] (95% CI)	*p*-value
Probable depression				
No (PHQ-9 <10)	522 (94.4)	412 (90.0)	0.936 (0.867, 1.010)	0.089
Yes (PHQ-9 >=10)	31 (5.6)	46 (10.0)		
Having a purpose of life				
No	134 (24.3)	195 (42.6)	1.000 (0.995, 1.006)	0.650
Yes	419 (75.7)	263 (57.4)		

Abbreviations: n, number of respondents OR, odds ratio; PHQ-9, Patient Health Questionnaire.
Notes: [a]The numbers of respondents were calculated with inverse probability weighting and post-stratification weighting based on the availability of well-being data collected in previous studies and in the current project. [b]Logistic regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Multiple imputation was used to control for missing values in the regression.

TABLE 10 Summary of linear, negative binomial, and logistic regression of well-being indicators and the number of country park visits in the past year

Variable	Mean ± SD	β[a]	IRR[a] (95% CI)	OR[a] (95% CI)	SE	*p*-value
Self-reported health	2.1 ± 0.97	0.002	-	-	0.001	0.090
Mental well-being						
PHQ-9	3.4 ± 3.99	-	0.999 (0.996, 1.002)	-	-	0.497
Probable depression (PHQ-9 >=10)	-	-	-	0.936 (0.867, 1.010)	-	0.089
Happiness	2.9 ± 0.52	0.002	-	-	0.001	<0.001
Life satisfaction	7.18 ± 1.58	0.004	-	-	0.002	0.041
Life Stress Index	1.1 ± 1.23	-	1.003 (1.000, 1.005)	-	-	0.050
Having a purpose of life	-	-	-	1.000 (0.995, 1.005)	-	0.923
Social well-being						
Family harmony	19.7 ± 2.85	-0.001	-	-	0.004	0.865
Neighbourhood cohesion	16.9 ± 2.49	-0.002	-	-	0.004	0.595
FAMILY APGAR	6.1 ± 2.99	0.006	-	-	0.004	0.107
Family conflict	0.8 ± 1.76	-0.002	-	-	0.002	0.212

Abbreviations: CI, confidence interval; CP, country park; n, number of respondents; FAMILY APGAR: Family Adaptability, Partnership, Growth, Affection, and Resolve; IRR, incidence rate ratio; OR, odds ratio; PHQ-9, Patient Health Questionnaire; SE, standard error
Note: [a]Linear, Logistic and negative binomial regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Multiple imputation was used to control for missing values in the regression.

TABLE 11 Summary of the segmented linear regression of well-being indicators and the number of country park visits in the past year

Variable	Breakpoint	*p*-value	β	SE	*p*-value	β (after breakpoint)	SE	*p*-value
Self-reported health	23.823	<0.001	0.031	0.008	<0.001	-0.003	0.002	0.063
Mental well-being								
PHQ-9	200.851	0.011	-0.006	0.003	0.058	0.011	0.011	0.166
Happiness	9.319	0.371	0.012	0.008	0.158	0.002	0.001	0.008
Life satisfaction	1.000	0.581	-0.113	0.184	0.584	0.004	0.002	0.036
Life Stress Index	197.007	0.006	-0.001	0.004	0.864	0.013	0.006	0.036
Social well-being								
Family harmony	35.055	0.838	0.013	0.015	0.385	-0.007	0.006	0.223
Neighbourhood cohesion	23.537	0.116	0.025	0.020	0.215	-0.005	0.004	0.182
FAMILY APGAR	8.502	0.347	0.089	0.051	0.080	0.002	0.005	0.728
Family conflict	1.000	0.109	0.343	0.216	0.113	-0.005	0.003	0.072

Abbreviations: Family APGAR: Family Adaptability, Partnership, Growth, Affection, and Resolve; PHQ-9: Patient Health Questionnaire; SE= standard error.
Note: Segmented linear regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Cook's distance was used to identify outliers.

TABLE 12 Summary of the segmented logistic regression of well-being indicators and the number of country park visits in the past year

Variable	Breakpoint	*p*-value	OR (95% CI)	*p*-value	OR (after breakpoint)	*p*-value
Mental well-being						
Probable depression	1.000	0.658	1.170 (0.470, 2.915)	0.736	0.925 (0.838, 1.020)	0.118
Having a purpose of life	2.407	0.022	1.323 (1.041, 1.683)	0.022	0.997 (0.992, 1.002)	0.272

Abbreviations: CI: confidence interval; OR: odds ratio.
Note: Segmented logistic regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Cook's distance was used to identify outliers.

TABLE 13 Comparison of physical, mental, and social well-being between redefined country park users and non-users

Variable	Country park users (n^a = 324) (Mean ± SD)	Country park non-users (n^a = 687) (Mean ± SD)	β^b	IRR[b] (95% CI)	SE	*p*-value	Cohen's *d* (95% CI)
Self-reported health	2.2 ± 0.93	2.0 ± 0.99	0.219	-	0.063	<0.001	0.227 (0.100, 0.354)
Mental well-being							
PHQ-9	2.9 ± 3.35	3.4 ± 3.99	-	0.959 (0.822, 1.119)	-	0.597	-
Happiness	3.0 ± 0.48	2.9 ± 0.51	0.125	-	0.033	<0.001	0.247 (0.120, 0.374)
Life satisfaction	7.2 ± 1.54	7.2 ± 1.60	0.043	-	0.105	0.682	0.027 (-0.103, 0.158)
Life Stress Index	1.2 ± 1.30	0.9 ± 1.12	-	1.215 (1.050, 1.406)	-	0.009	-
Social well-being							
Family harmony	19.8 ± 2.99	19.7 ± 2.78	-0.082	-	0.186	0.661	-0.029 (-0.157, 0.099)
Neighbourhood cohesion	16.9 ± 2.27	16.8 ± 2.49	0.221	-	0.160	0.167	0.092 (-0.038, 0.221)
FAMILY APGAR	6.5 ± 3.05	6.0 ± 2.95	0.356	-	0.200	0.076	0.119 (-0.012, 0.250)
Family conflict	1.0 ± 2.00	0.7 ± 1.63	0.161	-	0.117	0.169	0.094 (-0.040, 0.227)

Abbreviations: CI, confidence interval; CP, country park; n, number of respondents; FAMILY APGAR: Family Adaptability, Partnership, Growth, Affection, and Resolve; IRR, incidence rate ratio; OR, odds ratio; PHQ-9, Patient Health Questionnaire; SE, standard error
Notes: [a]The numbers of respondents were calculated with inverse probability weighting and post-stratification weighting based on the availability of well-being data collected in previous studies and in the current project. [b]Linear and negative binomial regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Multiple imputation was used to control for missing values in the regression.

TABLE 14 Comparison of probable depression diagnosis and life purpose between redefined country park users and non-users

Variable	Country park users (n^a = 324) (%)	Country park non-users (n^a = 687) (%)	IRR[b] (95% CI)	*p*-value
Probable depression				
No (PHQ-9 <10)	311 (96.0)	623 (90.7)	0.520 (0.249, 1.087)	0.083
Yes (PHQ-9 >=10)	13 (4.0)	64 (9.3)		
Having a purpose of life				
No	77 (23.9)	252 (36.7)	1.427 (1.027, 1.984)	0.034
Yes	419 (75.7)	263 (57.4)		

Abbreviations: n, number of respondents OR, oddss ratio; PHQ-9, Patient Health Questionnaire.
Notes: [a]The numbers of respondents were calculated with inverse probability weighting and post-stratification weighting based on the availability of well-being data collected in previous studies and in the current project. [b]Logistic regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Multiple imputation was used to control for missing values in the regression.

TABLE 15 Summary of linear, negative binomial, and logistic regression of well-being indicators and the number of country park visits in the past three months

Variable	Mean ± SD	β[a]	IRR[a] (95% CI)	OR[a] (95% CI)	SE	*p*-value
Self-reported health	2.1 ± 0.97	0.016	-	-	0.006	0.007
Mental well-being						
PHQ-9	3.4 ± 3.99	-	0.997 (0.986, 1.009)	-	-	0.661
Probable depression (PHQ-9 >=10)	-	-	-	0.836 (0.400, 1.748)	-	0.126
Happiness	2.9 ± 0.52	0.011	-	-	0.002	<0.001
Life satisfaction	7.18 ± 1.58	0.014	-	-	0.008	0.080
Life Stress Index	1.1 ± 1.23	-	1.013 (1.001, 1.026)	-	-	0.039
Having a purpose of life	-	-	-	1.027 (0.991, 1.065)	-	0.141
Social well-being						
Family harmony	19.7 ± 2.85	-0.008	-	-	0.014	0.558
Neighbourhood cohesion	16.9 ± 2.49	0.017	-	-	0.015	0.251
FAMILY APGAR	6.1 ± 2.99	0.034	-	-	0.017	0.042
Family conflict	0.8 ± 1.76	-0.009	-	-	0.009	0.296

Abbreviations: CI, confidence interval; CP, country park; n, number of respondents; FAMILY APGAR: Family Adaptability, Partnership, Growth, Affection, and Resolve; IRR, incidence rate ratio; OR, odds ratio; PHQ-9, Patient Health Questionnaire; SE, standard error
Note: [a]Linear, Logistic and negative binomial regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Multiple imputation was used to control for missing values in the regression.

TABLE 16 Summary of the segmented linear regression of well-being indicators and the number of country park visits in the past three months

Variable	Breakpoint	*p*-value	β	SE	*p*-value	β (after breakpoint)	SE	*p*-value
Self-reported health	8.151	<0.001	0.102	0.026	<0.001	-0.019	0.011	0.089
Mental well-being								
PHQ-9	49.984	0.047	-0.011	0.012	0.391	0.025	0.028	0.372
Happiness	1.000	0.705	0.090	0.054	0.097	0.008	0.003	0.003
Life satisfaction	60.649	0.824	0.018	0.010	0.072	-0.025	0.461	0.956
Life Stress Index	2.004	0.279	0.085	0.062	0.171	0.007	0.008	0.397
Social well-being								
Family harmony	9.805	0.248	0.054	0.064	0.395	-0.030	0.021	0.150
Neighbourhood cohesion	2.998	0.567	0.142	0.132	0.280	0.0001	0.018	0.998
FAMILY APGAR	2.788	0.156	0.277	0.165	0.092	0.009	0.020	0.667
Family conflict	1.000	0.874	0.203	0.207	0.328	-0.018	0.012	0.116

Abbreviations: Family APGAR: Family Adaptability, Partnership, Growth, Affection, and Resolve; PHQ-9: Patient Health Questionnaire; SE= standard error.
Note: Segmented linear regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Cook's distance was used to identify outliers.

TABLE 17 Summary of the segmented logistic regression of well-being indicators and the number of country park visits in the past three months

Variable	Breakpoint	*p*-value	OR (95% CI)	*p*-value	OR (after breakpoint)	*p*-value
Mental well-being						
Probable depression	1.676	0.682	0.703 (0.222, 2.230)	0.550	0.916 (0.670, 1.252)	0.582
Having a purpose of life	2.407	0.305	1.397 (0.815, 2.397)	0.224	1.011 (0.974, 1.048)	0.574

Abbreviations: CI: confidence interval; OR: oddss ratio.
Note: Segmented logistic regression controlled for sex, age, household income, and the respective outcome variables collected from the same respondents in previous studies (as co-variates) if the data were available. Cook's distance was used to identify outliers.

TABLE 18 Sex and age of country park users and non-users

Characteristic	Country park users n[a] (%)	Country park non-users n[a] (%)	*p*-value
Male	284	169	
18 - 35	107 (37.7%)	37 (22.1%)	0.001
36 - 60	123 (43.4%)	69 (41.0%)	0.684
61 and above	54 (18.9%)	63 (36.9%)	<0.001
Female	283	274	
18 - 35	79 (28.1%)	48 (17.5%)	0.004
36 - 60	150 (53.0%)	131 (47.9%)	0.264
61 and above	54 (18.9%)	95 (34.6%)	<0.001

Note: [a]The weighted numbers of respondents were rounded to the nearest integer.