CHAPTER 6: FOREST USERS' ATTITUDES AND EXPERIENCES IN THE RECREATIONAL FORESTS

This chapter reports the results from the questionnaire survey regarding the use of the Ampang and Kanching Recreational Forests. First of all, this chapter presents the general patterns of use at both sites. Secondly, it shows in more detail the variation in usage both within and between the individual sites. Thirdly, it reports the questionnaire results in relation to respondents' attitudes towards forest amenities, their motives for visiting the forest, and the feelings they experience during their forest visit. Finally, it also describes the respondents' expectations towards the recreational forests. Throughout the chapter, significant associations between variables are highlighted and explored. The impact of personal characteristics and selected variables on recreational use and experience are also analysed.

6.1 General Patterns of Use of the Recreational Forests

This section explores the general pattern of use for both sites. The data for the two sites are presented together and separately where appropriate (when presented separately, this is shown in the key). The impact of age, gender and ethnicity are analysed where these factors have a significant impact on use.

6.1.1 Frequency of visits

Terms used to describe the frequency of visits are adapted from Dunnett et al.'s (2002) study regarding urban parks, play areas and green spaces in the United Kingdom who defined 'daily' as one visit per day or 365 visits per year; 'weekly' means one visit per week or 52 visits per year; 'monthly' refers to the use of green spaces once a month; and 'occasionally' means once a year or less (p.36). Figure 6.1 shows the frequency of respondents' visits to the recreational forests (the data exclude first time visitors). Over half of the respondents visited the forest only occasionally, with about a quarter of them visiting more frequently on a weekly basis, while a smaller number of respondents visited either daily or monthly (See Figure 6.1).

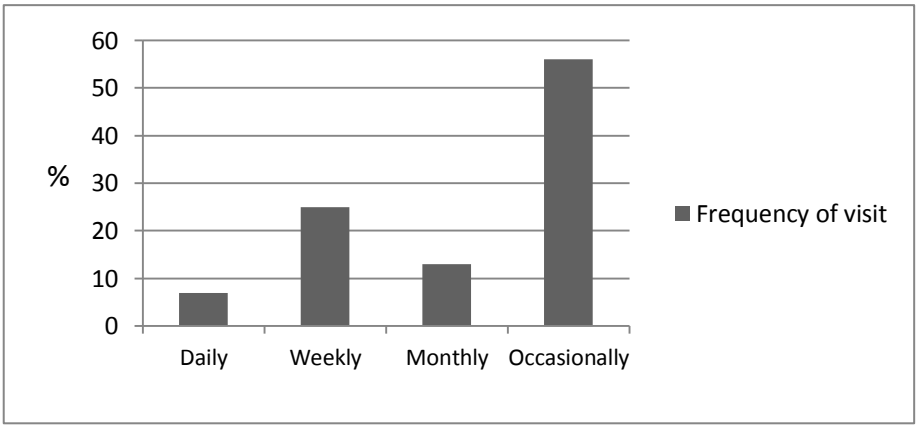

Figure 6.1 Frequency of visits to the recreational forests

6.1.2 Mode of transport to the recreational forests

Most respondents elected to travel to the recreational forests by car. Only a handful used public transport, and a relatively small proportion walked to the forest. Apart from demonstrating that the car is the users' most preferred mode of transport to the forests, this tendency to travel to the forests by car may also relate to the forest users' preference for visiting the forest together with their children and extended family (see Figure 6.3 for more information about forest visitors' social preferences). There was a significant relationship between social preferences and mode of transport (MC $\chi^2 = 65.553$, df = 15, $p < 0.001$). Forest users who came with their children and extended family members represented 49% of the group who came by car (Figure 6.3).

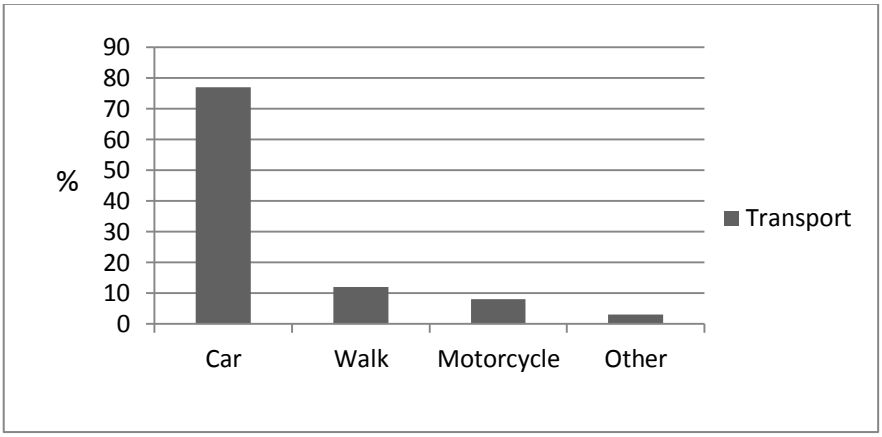

Figure 6.2 Mode of transport to the recreational forests

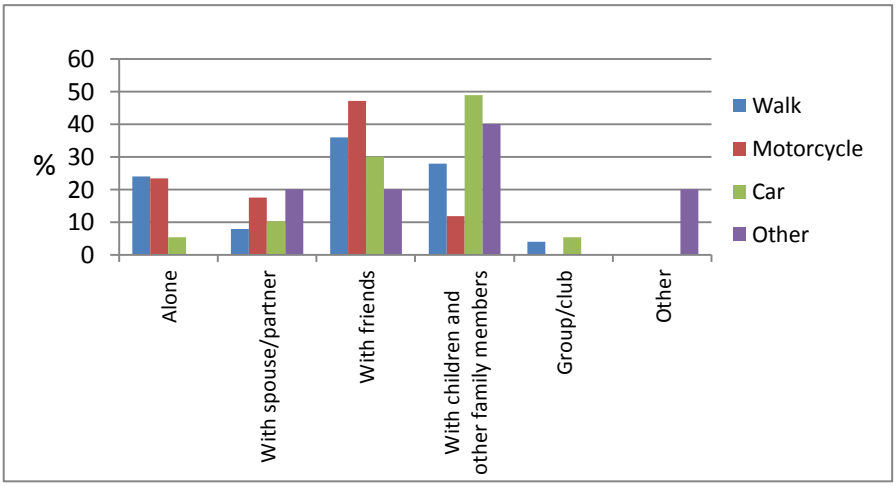

Figure 6.3 Social preferences by mode of transport to the recreational forests

6.1.3 Length of stay in the recreational forests

Staying one to two hours was the most popular option, followed by staying three to four hours. Roughly 10% of respondents stayed more than four hours. Only a few respondents stayed for 30 minutes or less (Figure 6.4).

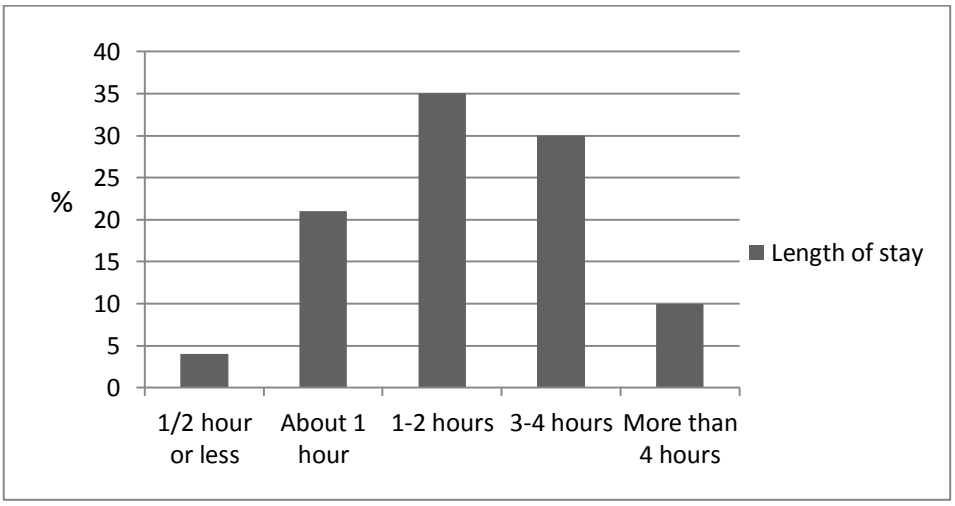

Figure 6.4 Length of stay and recreational forest visits

Further analyses were conducted between length of recreational forest stay and ethnicity, age and gender. There were significance associations between length of visits and ethnicity ($\chi^2 = 20.225$, df = 8, p = 0.010) and length of stay and age ($\chi^2 = 30.103$, df = 12, p = 0.003). In contrast, there was no significant association for length of visits and gender ($\chi^2 = 2.355$, df = 4, p = 0.671).

Figure 6.5 shows that compared to other age groups, 19% of respondents aged 19 to 25 years old were likely to stay the longest, which was more than 4 hours, compared to other age groups. There was no clear pattern for the mid-range of respondents aged between 26 and 55. However, 53% of respondents aged 56 years and above were mostly likely to stay about an hour.

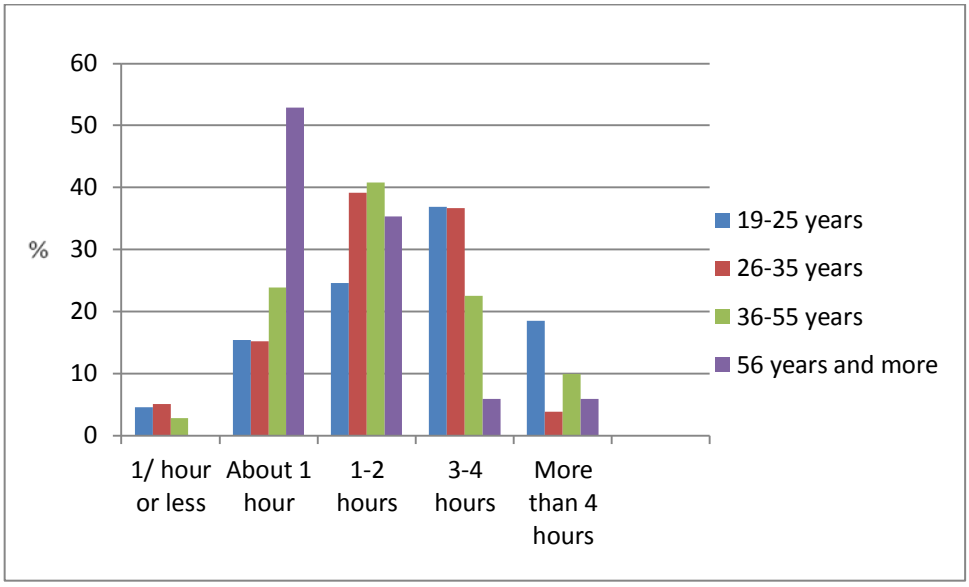

Figure 6.5 Duration of recreational forest visits and age of respondents

In terms of the duration of recreational forest visits among the ethnic groups, about 50% of the Chinese visitors preferred shorter visits (one to two hours) compared to Malays and Indians. On the other hand, 41% of Indian visitors liked to stay for three to four hours (Figure 6.6).

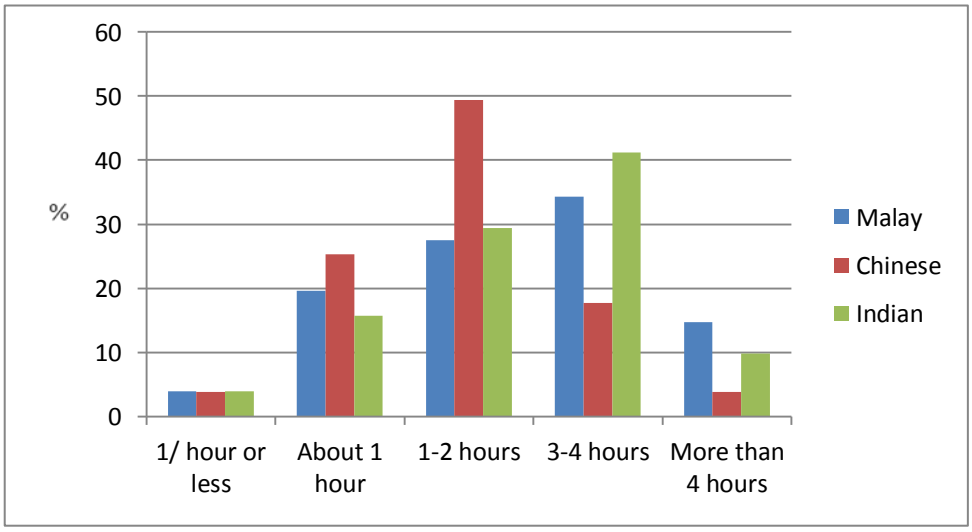

Figure 6.6 Duration of recreational forest visits and ethnicity of respondents

6.1.4 Time of visit

The majority of the respondents came in the morning (before 11.00 a.m), with 28% preferring to visit in the very early morning (6.00 a.m to 8.00 a.m). Far fewer respondents chose to come in the afternoon (12.00 p.m to 2.00 p.m). Most liked to come in the morning (Figure 6.7) to take advantage of lower temperatures. The climate factor will be explored in greater detail in the qualitative results and discussion chapters.

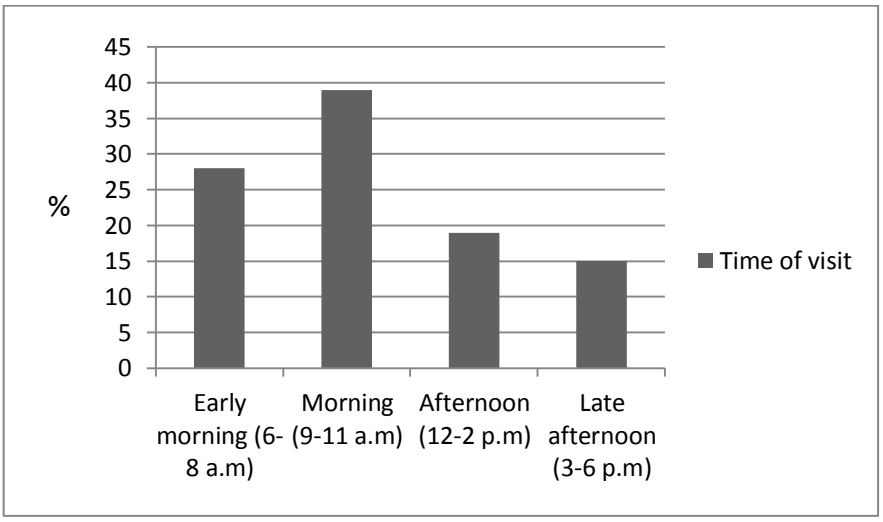

Figure 6.7 Time of visit to the recreational forests

Further analyses were conducted to look at the relationship between time of visit to recreational forests and age, gender and ethnicity. There were significance associations between time of visit and age ($\chi^2 = 35.474$, df = 9, p = 0.000); and ethnicity ($\chi^2 = 37.338$, df = 6, p = 0.000). In contrast, there was no association between time of visit and gender ($\chi^2 = 0.485$, df = 3, p = 0.922).

Figure 6.8 clearly shows that 80% of respondents aged over 55 years old were more likely to visit recreational forests in the very early morning (6.00 a.m to 8.00 a.m) compared to other age groups. Forty-five percent of respondents aged between 19 to 25 years old liked to come in the morning (9.00 a.m to 11.00 a.m). However, there was no preferred time of visit for respondents aged 36 to 55.

The Chinese and Malay respondents were more likely to visit before noon. Forty percent of the Chinese were more likely to come in the very

early morning (6.00 a.m to 8.00 a.m) and 50% of the Malays later on during the morning (9.00 a.m to 11.00 a.m). In contrast, 38% of the Indian respondents were more likely to come in the afternoon (12.00 p.m to 2.00 p.m) and 28% in the late afternoon (3.00 p.m to 6.00 p.m) compared to the Malay and Chinese respondents (Figure 6.9).

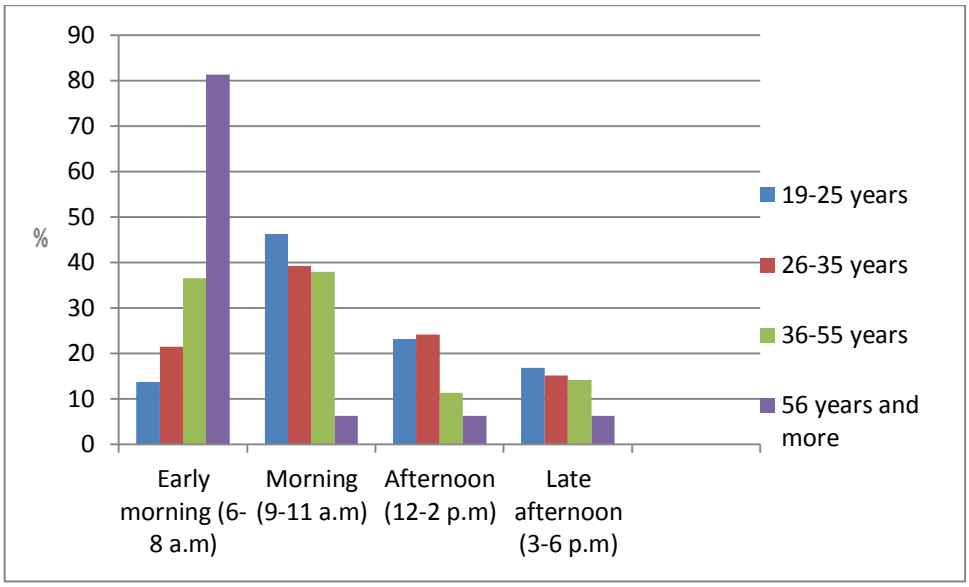

Figure 6.8 Time of visit to the recreational forests and age of respondents

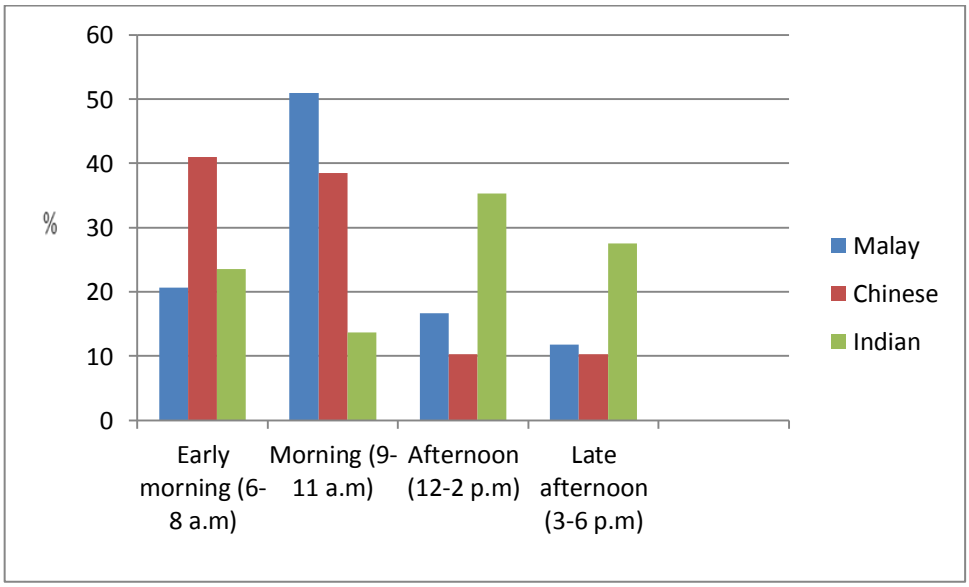

Figure 6.9 Time of visit to the recreational forests and ethnicity of respondents

6.1.5 The social preferences of visitors to the recreational forests

The majority of the respondents preferred to visit recreational forests together with other people rather than on their own. Most of them elected to visit in family groups of three or more, comprising adults (parents and extended family members) and children (Figure 6.10).

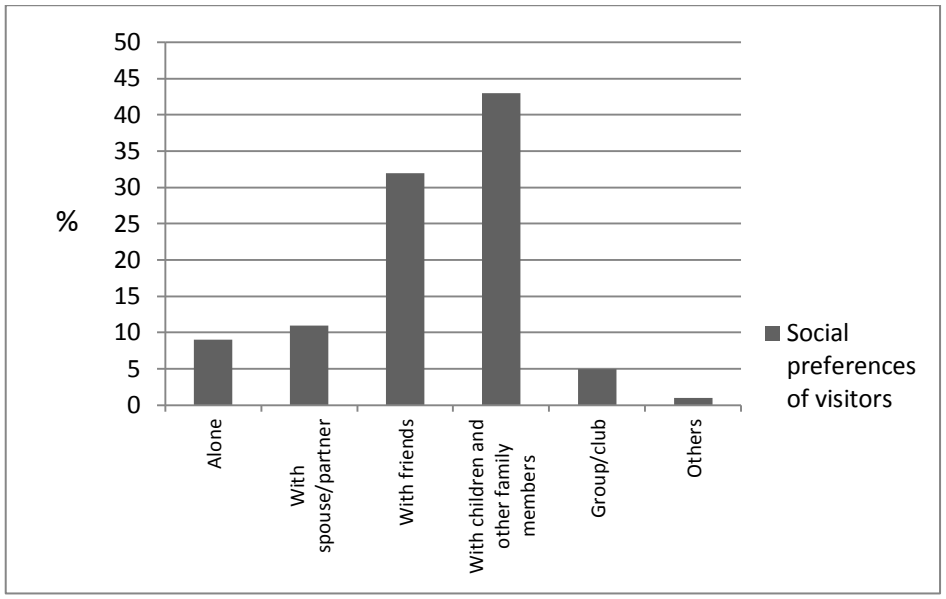

Figure 6.10 Social preferences of visitors to the recreational forests

Further analyses were conducted to compare visitors' social preferences with their age, gender and ethnicity. There were significance associations between social preferences and age ($\chi^2 = 57.939$, df = 15, p = 0.000); and gender ($\chi^2 = 13.799$, df = 5, p = 0.017). In contrast, there was no significant association between social preferences and ethnicity ($\chi^2 = 8.908$, df = 10, p = 0.541).

Respondents aged 19 to 25 years old were most likely to come with friends compared to other age groups (Figure 6.11).

There was a similarity between respondents aged 19 to 25 years and those who were 56 years and above in the sense that both groups were more likely to come with friends to the recreational forests. In contrast, respondents aged 26 to 55 years old liked to come with children and other family members (Figure 6.11).

Fifty-seven percent of the female respondents were generally more likely to come with children and other family members compared to 35% of male respondents. On the other hand, 35% of male respondents preferred to come with friends and 13% liked to come alone (Figure 6.12).

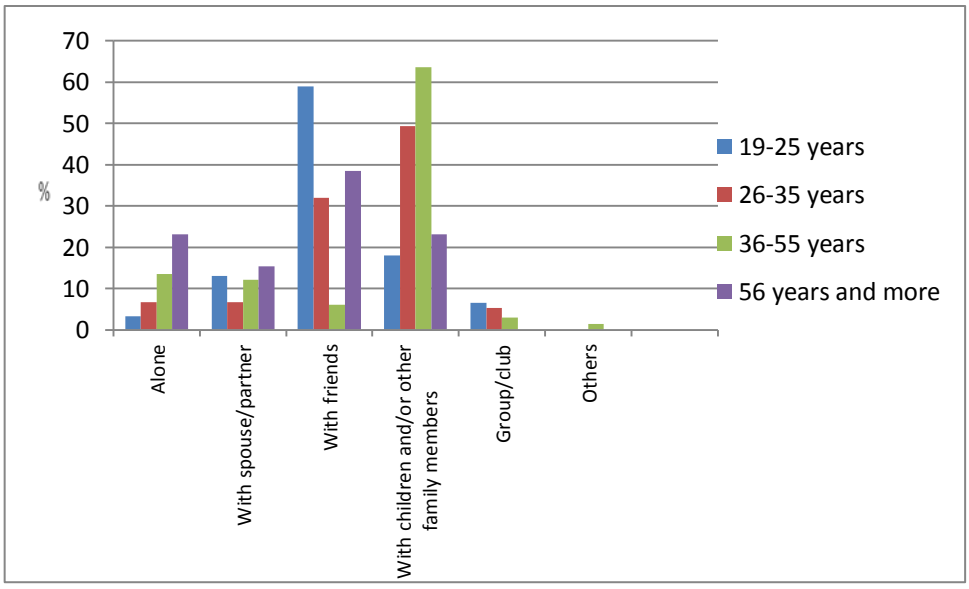

Figure 6.11 Social preferences during recreational forest visits and age of respondents

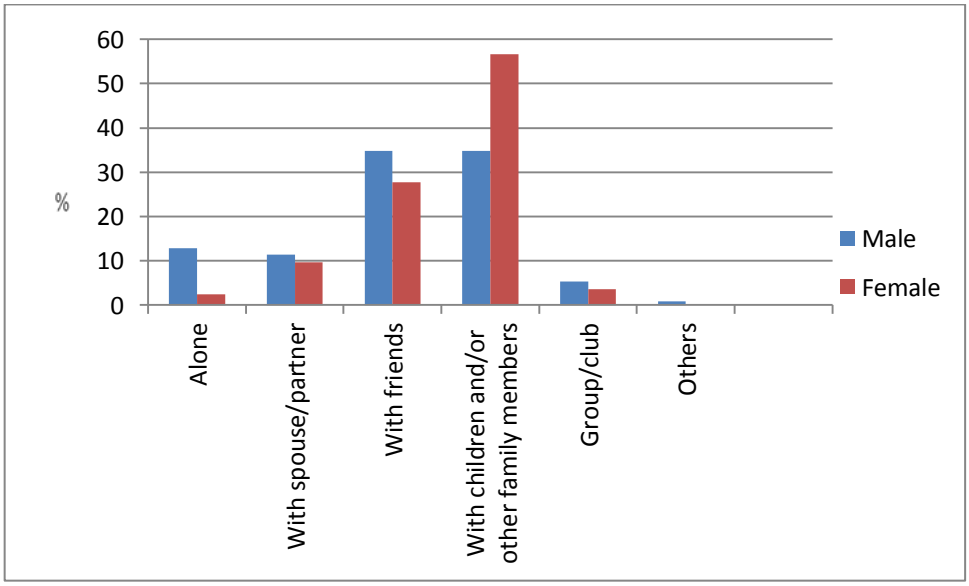

Figure 6.12 Social preferences during recreational forest visits and gender of respondents

6.2 Variations in Use between Ampang and Kanching Recreational Forests

This section reports the patterns of use at the two sites in more detail. In addition, it explores associations between patterns of use and personal characteristics.

6.2.1 First or repeat visit at Ampang and Kanching Recreational Forests

Most of the respondents in Ampang and Kanching Recreational Forest had visited at least twice before and these frequent visitors were more likely to have visited forests regularly when they were children (once a month or more) and to have lived in a rural area. Just under half of the respondents were first time visitors to both sites. Those who visited two times or more at both forests were most likely to have lived in a rural area (Table 6.1).

Table 6.1 Frequencies of type of visit, childhood visits and residence in a rural area

	Ampang		Kanching	
	First visit Nos. (%)	Twice or more Nos. (%)	First visit Nos. (%)	Twice or more Nos. (%)
Type of visit	80 (38.8)	**126 (61.2)**	95 (46.8)	**108 (53.2)**
Regular forest visits during childhood	43 (36.4)	**75 (63.6)**	48 (39.3)	**74 (60.7)**
Previously lived in rural area	52 (40.6)	**76 (59.4)**	59 (44.0)	**75 (56.0)**

Further analysis was carried out to examine the association between "regular childhood visits" and regular forest visits (twice or more) by using the Chi-Square test. As expected from literature, there was a significant association between ongoing regular visits and "regular childhood visits" in the past ($\chi^2 = 5.587$, df = 1, p = 0.018). Regular visitors were more likely to have visited forests during their childhood. However, this pattern related only to the Kanching Recreational Forest respondents ($\chi^2 = 6.401$, df = 1, p = 0.011, Table 5.1), whereas at Ampang Recreational Forest, no such association was observed ($\chi^2 = 0.780$, df = 1, p = 0.377).

6.2.2 Frequency of visits to Ampang and Kanching Recreational Forests

There were marked association between the frequency of visits and the two recreational forests ($\chi^2 = 20.957$, df = 3, p < 0.001). Ampang

Recreational Forest respondents were much more likely to visit often (weekly) compared to the respondents at Kanching. In contrast, the respondents at Kanching were more likely to be occasional visitors (Figure 6.13). This very likely reflects the respective locations of the recreational forests in that Ampang Recreational Forest is more urban and Kanching relatively more distant. These differences are explored further in Chapter 9 (Discussion) later.

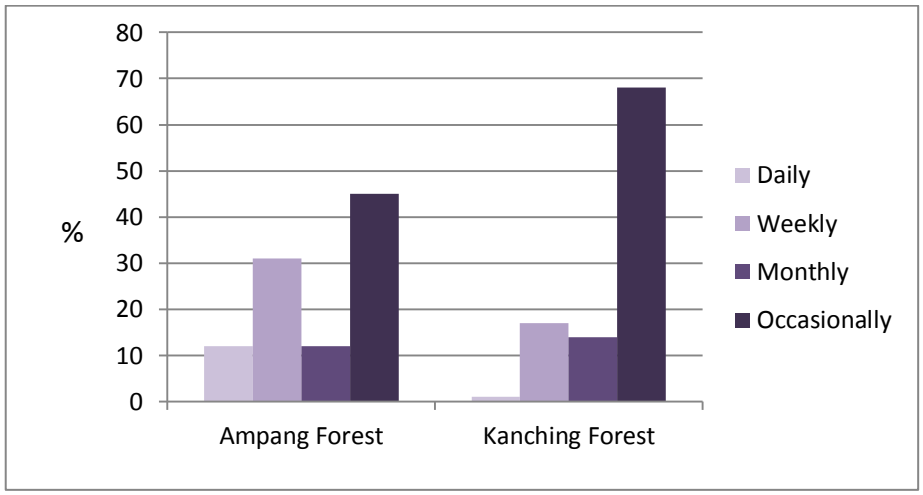

Figure 6.13 Frequency of visits to the Ampang and Kanching Recreational Forests

6.2.3 Frequency of visits of local and non-local visitors to Ampang and Kanching Recreational Forests

In the questionnaire, the respondents were asked to give the postcode of the area they live in. The postcode areas were used to determine whether the respondents were locals (meaning that they were from either the Ampang or Rawang areas, where the Ampang and Kanching Recreational Forests are located) or non-locals meaning that they were from outside these areas. Local and non-locals (Figure 6.14) differed significantly in terms of the frequency of their visits ($\chi^2 = 37.224$, df = 9, $p < 0.001$). However, this difference was attributable only to the Ampang respondents. At Ampang Recreational Forest, locals were more likely to visit frequently (daily: $\chi^2 = 9.880$, df = 3, $p = 0.020$), while at Kanching Recreational Forest, no such association was observed ($\chi^2 = 5.574$, df = 3, $p = 0.134$).

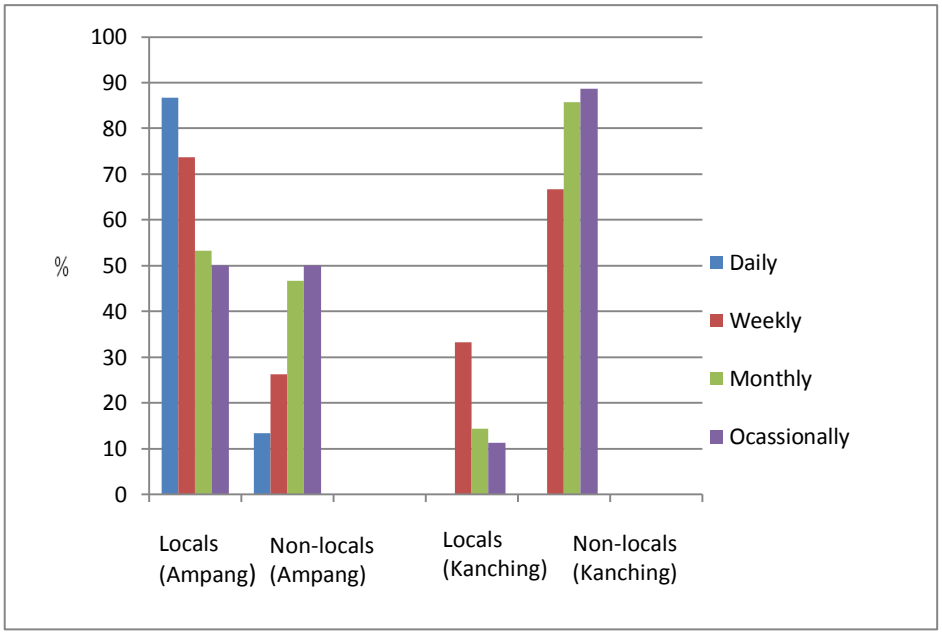

Figure 6.14 Frequency of visits of locals and non-local respondents to Ampang and Kanching Recreational Forests

6.2.4 Mode of transport

The location of the recreational forests seemed to influence the mode of transport used by the respondents. The majority of the respondents came to both forests by car. The second most popular option was on foot. However, twice as many respondents walked to Ampang Forest compared to Kanching Forest (Figure 6.15).

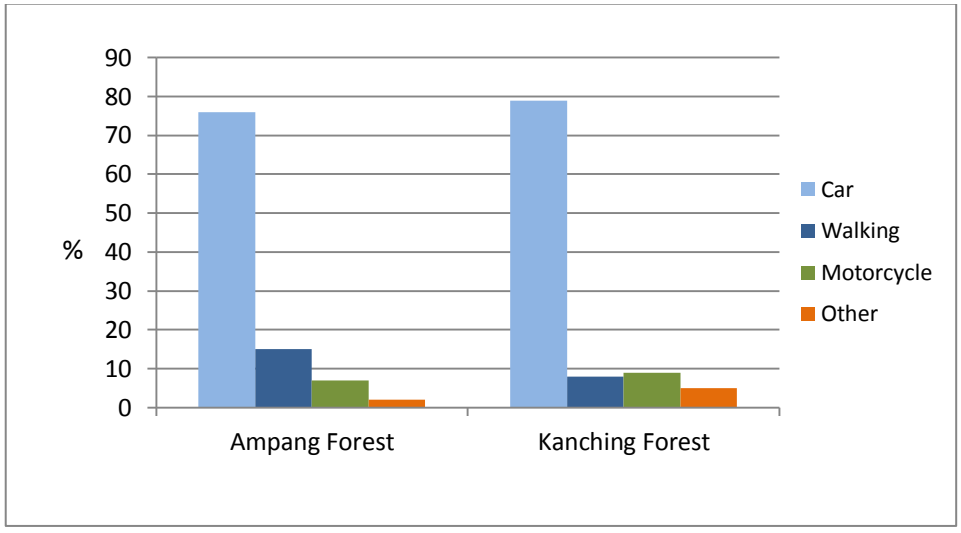

Figure 6.15 Modes of transport used to travel to the Ampang and Kanching Recreational Forests

6.2.5 Length of stay

There was a variance between the Ampang and Kanching Recreational Forests in terms of respondents' length of stay. The preferred visit duration for most of the respondents in Ampang Recreational Forest was one to two hours; while in Kanching it was three to four hours. Almost twice as many respondents stayed for three to four hours in Kanching Recreational Forest compared with the Ampang respondents (Figure 6.16). It was assumed that the length of stay is related to the recreational forests' location. As Ampang is more urban, and therefore more local for a greater number of residents who live nearby, the respondents could visit the Ampang Forest for a short stay, whereas people who have made the effort to travel to Kanching from further away might be more inclined to stay longer.

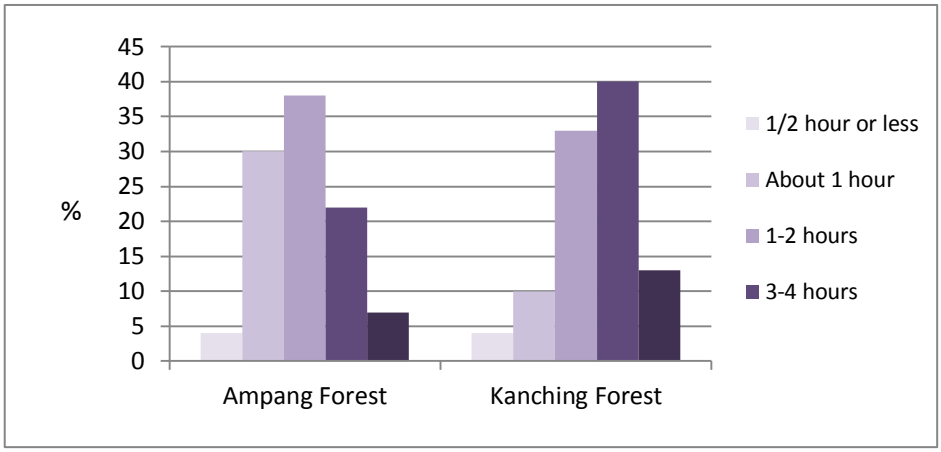

Figure 6.16 Length of stay in the Ampang and Kanching Recreational Forests

It was assumed that the length of stay was probably also related to the motives for recreational forests use. Therefore, Spearman's rho was used to test the relationship between length of stay and the motives for forest use (Section 3, questionnaire). Table 6.2 shows that there are positive correlations between length of stay and some motives for forest use, with the exception of "to go running/jogging/take exercise". In general, the respondents who came for the intended activities mentioned in Table 6.2 (as opposed to the other activities included in the full list contained in the questionnaire), spent more time in the forests. There was a negative correlation between length of stay and the motive "to go

running/jogging/take exercise", meaning that the respondents who came for this purpose spent less time compared to the others, and they were also more likely to be the regular visitors.

Table 6.2 Relationship between length of stay and motive for forest use

Length of stay and motive for forest use items	Test used	Results	P value
To explore the paths and trails	Spearman's rho	0.142*	0.031
To have adventures	Spearman's rho	0.194**	0.003
To go running/jogging/take exercise	Spearman's rho	- 0.186**	0.005
To have a picnic	Spearman's rho	0.130*	0.049
To go jungle trekking	Spearman's rho	0.228**	0.001

*. Correlation is significant at the level 0.05 level (2-tailed)
**. Correlation is significant at the level 0.01 level (2-tailed)

6.3 Forest Amenities that Influence the Use of the Recreational Forests

In Section 2 of the questionnaire, respondents were asked to identify the forest amenities that attracted them to visit the recreational forest. Most respondents agreed that the streams weree the most important attractions in both forests (Mean = 4.26). Available parking was the second most important aspect (Mean = 4.20). Figure 6.17 shows that over 90% of respondents rated available parking and ease of access as important factors that influence their visit to the recreational forests. The other factor that was considered important was the availability of basic facilities such as toilets, shelters and praying room (Mean = 4.17). Surprisingly, having recreational forests within walking distance was considered least important (Mean = 3.16).

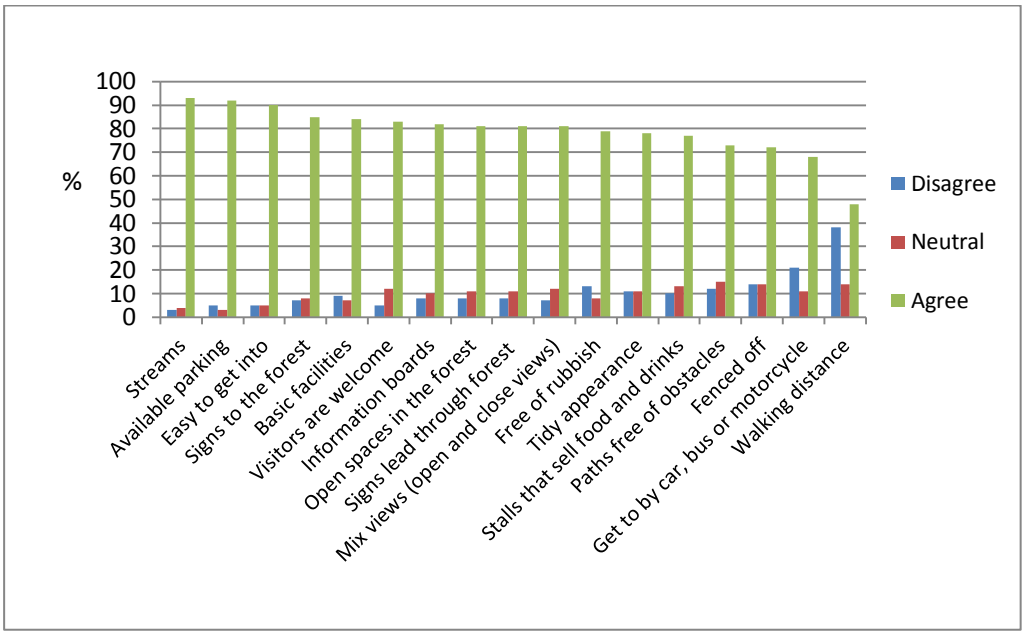

Figure 6.17 The importance of recreational forest amenities by rank

6.3.1 Level of agreement related to forest amenities

The respondents' attitudes to forest amenities were explored in order to examine the correlation with the frequency of their visits. It was assumed that the frequency of visit was probably related to the recreational forest amenities provided. Table 6.3 shows that there is negative correlation between frequency of visit. Respondents said that visiting a forest "within walking distance of home" was not important to them. This suggests that for the infrequent visitors, the proximity of the recreational forest is not important.

Table 6.3 Correlations between frequency of visit and forest amenities items

Frequency of visit and forest amenities items	Test used	Results	P value
Within walking distance of home	Spearman's rho	- 0.167*	0.012

*. Correlation is significant at the level 0.05 level (2-tailed)

6.4 Motives for Recreational Forest Use

The most common motives for recreational forest use (cited by more than 90% of respondents in each case) were: "to get fresh air" (Mean = 4.40), "to experience the calm" (Mean = 4.31), "to enjoy the sights, smell and sounds of nature" (Mean = 4.31), "to view the scenery" (Mean = 4.23) and "to relax and forget worries" (Mean = 4.28). A total of 70% to 80% respondents agreed that they came "to watch birds and animals" (Mean = 3.92), "to bathe/go swimming" (Mean = 3.94), "to take photographs" (Mean = 3.90), "to educate my children" (Mean = 3.89) and "to go running/jogging/take exercise" (Mean = 3.78). Fewer than 50% of the respondents came to the forest "to observe other people" (Mean = 3.06), "to be alone in the forest" (Mean = 2.84) and "to do voluntary work" (Mean = 3.08). "To be alone in the forest" was the least common motive for forests use (Table 6.4).

Table 6.4 Motives for recreational forest use

Motive for the recreational forest use *My reason for visiting the forest is:*	**Number of respondents in agreement (%)**
	81% to 100%
To get fresh air	391 (95.3)
To experience the calm	382 (92.9)
To enjoy the sights, smell and sounds of nature	381 (92.5)
To view the scenery	378 (92.0)
To relax and forget worries	369 (90.3)
To be with my family members	369 (90.0)
To spend quality time with family	365 (89.5)
To go walking	359 (87.6)
To lift my spirits when I am depressed	355 (86.6)
To experience the silence of the forest	346 (84.4)
To have a picnic	329 (80.6)
	70% to 80%
To watch birds and animals	320 (78.4)
To bathe/go swimming	315 (78.4)
To take photographs	309 (75.4)
To educate my children (outdoor environment)	307 (75.2)
To go running/jogging/take exercise	289 (71.2)
	50% to 70%
So my children can play	286 (69.6)
To have adventures	268 (65.7)
To explore the path and trails	255 (62.8)
To play	230 (56.8)
To meet my friends	229 (56.5)
To go jungle trekking	223 (55.5)
	Fewer than 50%
To be myself	201 (49.4)
To observe other people	168 (40.9)
To do voluntary work	145 (35.4)
To be alone in the forest	128 (31.4)

The motives for forest use were explored to examine the correlation with frequency of visit. Table 6.5 shows that there are positive correlation between frequency of visit and the motives “have a picnic”, “bathe/go swimming” and “to take photographs”. There are also negative correlations between frequency of visit and “experience the calm”, “go walking”, “go running/jogging/take exercise”, “be myself” and “voluntary work”. This means that frequent visitors were more likely to come to the forest in order to “experience the calm”, “go walking”, “go running/jogging/take exercise”, “be myself” or do “voluntary work”. On the other hand, infrequent visitors were more likely to “have a picnic”, “bathe/go swimming” and “to take photographs”.

Table 6.5 Correlations between frequency of visit and motives for recreational forest use

Frequency of visit and motives for use	Test used	Results	P value
Experience the calm	Spearman's rho	- 0.135*	0.040
Go walking	Spearman's rho	- 0.146*	0.027
Have a picnic	Spearman's rho	0.140*	0.034
Bathe/go swimming	Spearman's rho	0.163*	0.014
To take photographs	Spearman's rho	0.155*	0.018
Go running/jogging/take exercise	Spearman's rho	- 0.213**	0.001
Be myself	Spearman's rho	- 0.166*	0.012
Voluntary work	Spearman's rho	- 0.176**	0.007

*. Correlation is significant at the level 0.05 level (2-tailed)
**. Correlation is significant at the level 0.01 level (2-tailed)

Further analyses were conducted using the Mann-Whitney U test to look at the impact of gender on the motives for forest use. A Mann-Whitney U test revealed significant gender differences in relation to "to go jungle trekking", "to be myself" and "to be alone in the forest". Compared to female respondents', male respondents on average were more likely to be motivated "to go jungle trekking" (Male median = 4, Female median = 3.5), "to be myself" (Male median = 4, Female median = 3), and "to be alone in the forest" (Male median = 3, Female median = 2).

Table 6.6 Gender and forest use motives

Motives	Test used	Results	P value
To go jungle trekking	Mann-Whitney	Males more likely to agree, U = 17050, z = - 2.64	0.008*
To be myself	Mann-Whitney	Males more likely to agree, U = 16119, z = - 3.84	<0.001*
To be alone in the forest	Mann-Whitney	Males more likely to agree, U = 17794, z = - 2.45	0.014*

*. Significant at the level 0.05 level (2-tailed)

The Kruskal-Wallis test was performed to compare the scores between motives for forest use and ethnicity. Table 6.7 shows there are ten motives that differ significantly with ethnicity. Pairwise comparisons were used to make comparison between the groups. To make results easy to understand, and based on observations and literature reviews, the researcher categorised motives into four groups: "family outing activities", "groups/social activities", "explorative based activities" and "forest lovers activities" (Table 6.7). Compared to Malays and Indians, it was found that Chinese respondents were more likely to agree with the categories "family outing activities", "groups/social activities",

"explorative based activities" categories and the motive "to view the scenery". Indians were more likely to agree with the "to experience the calm" motive compared to Chinese and Malays. It is surprising to note that even though Malay respondents were the largest group, there were no significant results associated with this ethnic group, and will be discussed in detail in the Discussion Chapter (Chapter 9).

Table 6.7 Ethnicity and forest use motives

Activity categories	Forest use motives	Kruskal-Wallis Results	Remarks
Family outing activities	To be with my family members	$\chi^2 = 7.026$, df = 2, p = 0.030	Chinese were more likely to agree than Malays
	To spend quality time with family	$\chi^2 = 8.732$, df = 2, p = 0.013	
Groups/social activities	To bathe/go swimming	$\chi^2 = 38.429$, df = 2, p < 0.001	Chinese were more likely to agree than Indians and Malays
	To take photographs	$\chi^2 = 26.422$, df = 2, p < 0.001	
	To play	$\chi^2 = 14.179$, df = 2, p = 0.001	
Explorative based activities	To have adventures	$\chi^2 = 22.480$, df = 2, p < 0.001	Chinese were more likely to agree than Malays
	To explore the paths and trails	$\chi^2 = 15.257$, df = 2, p < 0.001	
	To go jungle trekking	$\chi^2 = 11.162$, df = 2, p = 0.004	Chinese were more likely to agree than Indians
Forest lovers	To experience the calm	$\chi^2 = 10.270$, df = 2, p = 0.006	Indians were more likely to agree than Chinese and Malays
	To view the scenery	$\chi^2 = 9.225$, df = 2, p = 0.010	Chinese were more likely to agree than Malays

Motives for forest use were examined to determine any correlation with the age of the respondents. Five items are significantly associated with age as a variable. Table 6.8 shows that there are positive correlations between age and these two motives for forest use: "go running/jogging/take exercise" and "to teach my children (outdoor environment)". This suggests that those motives were important drivers for the older age groups to use recreational forests, compared to younger age groups. On the other hand, the motives "to have picnic", "to explore the paths and trails" and "to meet my friends" were more important to the younger age groups.

Table 6.8 Correlations between motives for recreational forest use and age groups

Motives for forest use and age groups	Test used	Results	P value
To have a picnic	Spearman's rho	-0.097*	0.050
Go running/jogging/take exercise	Spearman's rho	0.160**	0.001
To teach my children (outdoor environment)	Spearman's rho	0.166**	0.001
To explore the paths and trails	Spearman's rho	-0.118*	0.018
To meet my friend	Spearman's rho	-0.171**	0.001

*. Correlation is significant at the level 0.05 level (2-tailed)
**. Correlation is significant at the level 0.01 level (2-tailed)

6.5 Feelings Experienced in the Recreational Forests

Section 4 of the questionnaire consisted of 22 questions about the respondents' perceptions and feelings when they were in the recreational forests.

In general, most of the respondents said that they experienced positive feelings while in the recreational forests, as shown in Table 6.9. The highest percentage of agreement (more than 70%) was with the items "I feel peaceful in the forest" (Mean = 4.12), "I feel joyful in the forest" (Mean = 4.10), "I feel alive: I can be in contact with the elements of nature" (Mean = 4.01) and "it brings back childhood memories of play" (Mean = 3.85). A total of 51% to 70% of the respondents agreed with the statements "it [the forest] links me to the future" (Mean = 3.68), "I feel free from human influences" (Mean = 3.67), "I feel equal to everyone else here" (Mean = 3.67) and "I feel attached to nature" (Mean = 3.52). However, there were considerable levels of agreement with the items related to negative experience: 23% to 50% of respondents agreed with the items "it is a place people can hide" (Mean = 2.69), "I fear having an accident in the forest" (Mean = 2.82), "I feel lonely in the forest" (Mean = 2.77), "the pathway is slippery, I might fall" (Mean = 3.05), "I am afraid of getting bitten by insects" (Mean = 2.96), "I am afraid of seeing a snake" (Mean = 3.06) and "I don't like being in the middle of dense vegetation" (Mean = 2.74). The least percentage of agreement (10.3%) was with feeling of "it is boring in the forest" (Mean = 2.05).

Table 6.9 Items related to feelings while in the recreational forests

Feelings in the forests *What is your perception and feeling when you are in the forest?*	**Level of agreement (%)**
	71% to 90%
I feel peaceful in the forest	354 (86.8)
I feel joyful in the forest	356 (86.2)
I feel alive: I can be in contact with the elements of nature	354 (85.7)
It brings back childhood memories of play	312 (75.6)
	51% to 70%
It links me to the future: I used to play, now my children do so as well	278 (67.7)
I feel free from human influences	278 (67.6)
I feel equal to everyone else here	273 (66.3)
I feel attached to nature, here there is order and a sequence of events (life cycle)	235 (57.3)
	23% to 50%
I feel safe in the forest	198 (48.4)
I don't like being in the middle of dense vegetation	191 (46.7)
I am afraid of seeing a snake	168 (40.8)
I am afraid of getting bitten by insects	159 (38.8)
The pathway is slippery, I might fall	146 (35.5)
I feel lonely in the forest	123 (29.9)
I fear having an accident in the forest	119 (29.0)
It is a place people can hide	94 (22.9)
	Fewer than 20%
I might get lost	77 (18.9)
It is a place for vandalism	59 (14.5)
I feel isolated in the forest	52 (12.7)
It is a place for rubbish dumping	45 (10.9)
It is a place for drug addicts	44 (10.8)
It is boring in the forest	42 (10.3)

As the literature review in Chapter 2 suggested, women are more likely to be concerned about encountering social incivilities and wild animals such as snakes (Kong et al., 1997) in natural environments. In view of that, further analyses were conducted using the Mann-Whitney U test to examine the impact of gender on the mean rankings of the following items: "I don't like being in the middle of dense vegetation", "I am afraid of seeing a snake", "afraid of getting bitten by insects" and "It is a place people can hide". A Mann-Whitney U test revealed significant gender differences in relation to "I don't like being in the middle of dense vegetation". On average, female respondents were significantly more likely to agree with this statement (Median = 2) compared with male respondents (Median = 3). It is to be noted that reverse coding was used for this item, where 1 = "Strongly agree" and 5 = "Strongly disagree".

Likewise, female respondents on average were more likely to agree with the statement "I am afraid of seeing a snake" (Median = 4) than male respondents (Median = 3). There was also a significant difference between male and female respondents on the item "[I am] afraid of getting bitten by insects": on average female respondents were again more likely to agree (Median = 4) compared to male respondents (Median = 3). However, male respondents were more likely to agree with the item "It is a place people can hide" (Median = 3) compared to female respondents (Median = 2), (See Table 6.10).

Table 6.10 Gender and three items related to feelings in the recreational forest

Items	Test used	Results	P value (Monte Carlo approach)
I don't like being in the middle of dense vegetation	Mann-Whitney	Females likely to agree, *U* = 17167, z = - 3.10	0.003*
I am afraid of seeing a snake	Mann-Whitney	Females likely to agree, *U* = 15646, z = - 4.61	0.000*
I am afraid of getting bitten by insects	Mann-Whitney	Females likely to agree, U = 16814, z = - 3.47	0.001*
It is a place people can hide	Mann-Whitney	Males likely to agree, *U* = 18415, z = - 2.18	0.029*

*. Significant at the level 0.05 level (2-tailed)

Table 6.11 Correlations between feelings in the forest and age groups

Feelings in the forest and age groups	Test used	Results	P value
It links me to the future: I used to play, now my children do so as well	Spearman's rho	0.143**	0.004
I feel isolated in the forest	Spearman's rho	-0.168**	0.001
It is a place for vandalism	Spearman's rho	0.147**	0.003

**. Correlation is significant at the level 0.01 level (2-tailed)

Further analyses were conducted to examine the correlation between respondents' age and feelings while in the recreational forests. Table 6.11 shows that there is positive correlation between age and the feelings items "it links me to the future: I used to play, now my children do so as well" and "it is a place for vandalism". There are also negative correlations between respondents' age and "I feel isolated in the forest". This means that older respondents were more likely to think of the continuity in their lives. On the other hand, this respondent group was also more concerned about vandalism, whilst younger respondents were more likely to see the forest as a place of potential isolation.

6.6 Personal Characteristics and Other Variables (in both recreational forests)

This section explores the relationship between personal characteristics and frequency of forest use, and personal characteristics and social preferences between the two recreational forests.

6.6.1. Frequency of visits and personal characteristics

Frequency of visits by ethnicity

Cross-tabulation revealed that there is an association between the frequency of visits and the ethnicity of the respondents at the recreational forests ($\chi^2 = 24.235$, df = 6, $p < 0.001$). Thirteen percent of the Chinese respondents were more likely to visit daily, and 41% of the Indians more likely to visit weekly, with 69% of the Malay respondents visiting occasionally (Figure 6.18).

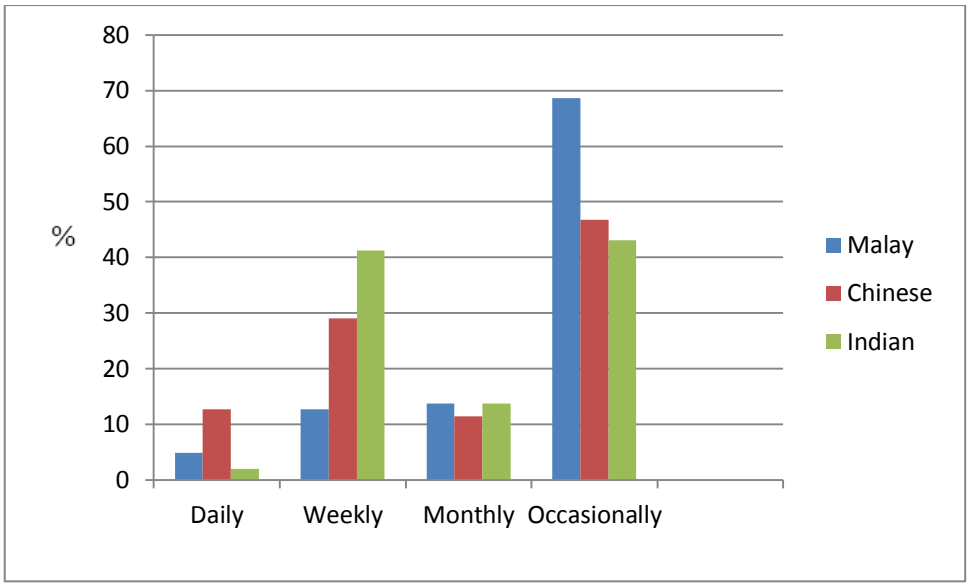

Figure 6.18 Frequency of respondents' recreational forest visits by ethnicity

When comparing the two forests, the results show that the frequency of respondents' visits varied significantly according to ethnicity in both Ampang ($\chi^2 = 18.074$, df = 6, $p = 0.006$) and Kanching Forest ($\chi^2 = 15.530$, df = 6, $p = 0.017$). Eighteen percent of the Chinese respondents were more likely to visit Ampang Forest on a daily basis. Fifty-eight percent of the Indian respondents were more likely to visit weekly in Ampang Forest (Figure 6.19) and 70% occasionally in Kanching Forest.

Malay respondents were generally infrequent visitors: they liked to make occasional visits to both Ampang Forest and Kanching Forest (Figure 6.20).

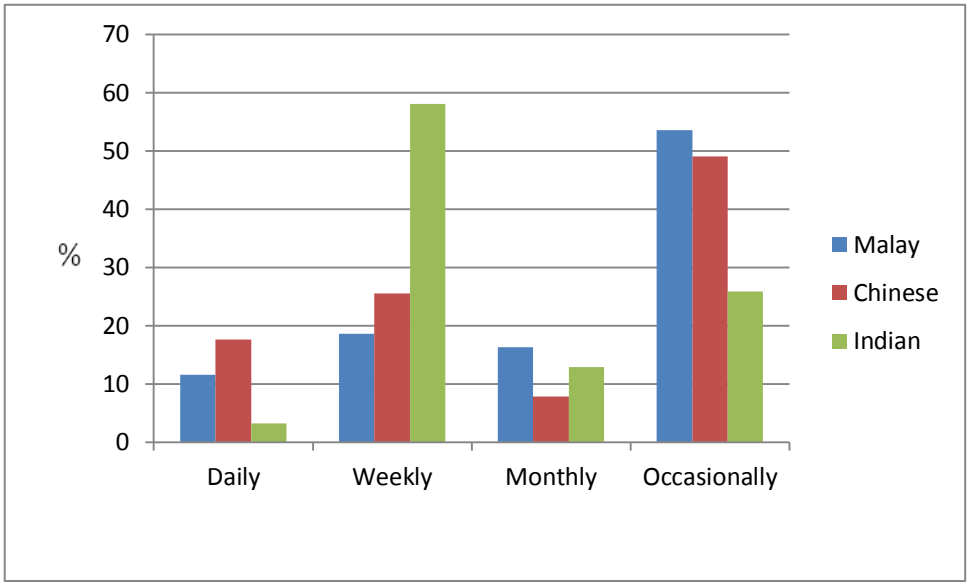

Figure 6.19 Frequency of visits by ethnicity of respondents at Ampang Forest

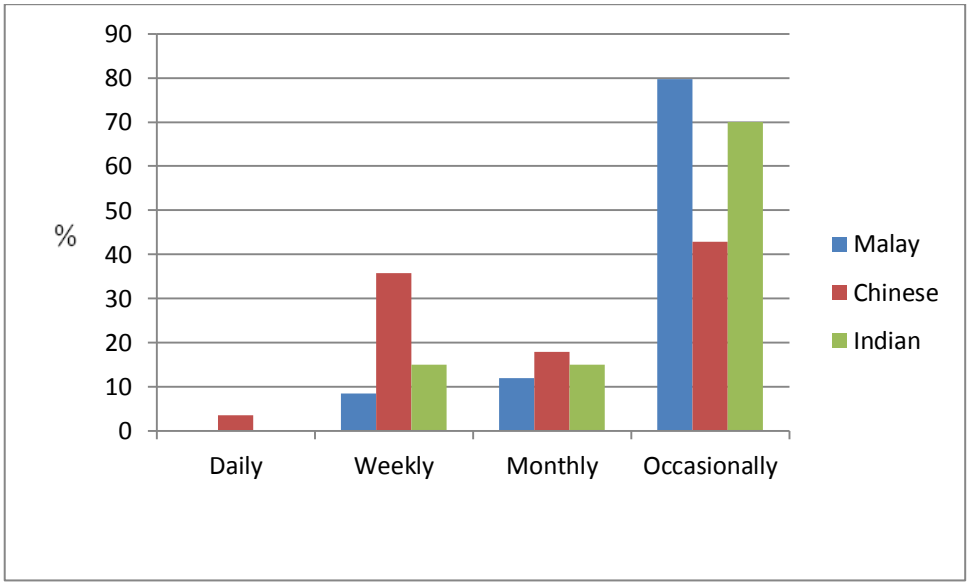

Figure 6.20 Frequency of visits by ethnicity of respondents at Kanching Forest

Frequency of visits by age groups

There was a strong association between the frequency of visits and the age of respondents at the recreational forests (χ^2 = 37.461, df = 9, $p < 0.001$). Respondents aged 19 to 35 years were more likely to be

infrequent users (occasionally), while older respondents aged 56 and above were the regular attendees (for example, 36% were daily users) (Figure 6.21).

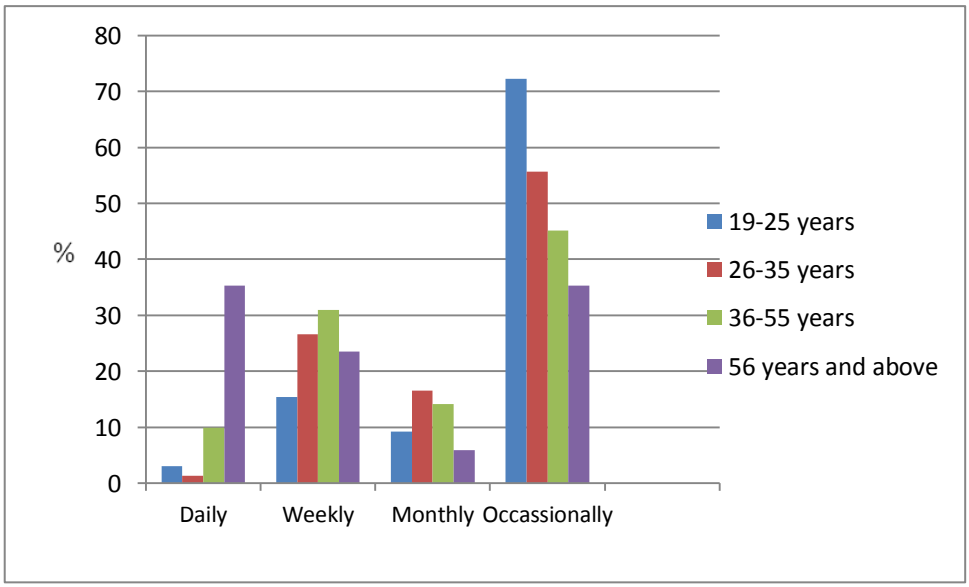

Figure 6.21 Frequency of visits according to age of respondents

When comparing the two forests, the results show that the frequency of respondents' visits varied significantly according to age in Ampang Forest (χ^2 = 25.339, df = 9, p = 0.003) but not in Kanching Forest (χ^2 = 10.264, df = 9, p = 0.330).

When comparing of the frequency of visits for the "Daily" visitor category, respondents aged 56 years and above were the largest group compared to the other two age groups (aged 19-25 and 36-55 years old) in Ampang Forest. Respondents aged 26 to 35 years were the largest group for "Weekly" visits. Respondents aged 19-25 years were the largest group for the "Occasionally" category. There was no clear pattern for the respondents aged 36 to 55 years (Figure 6.22).

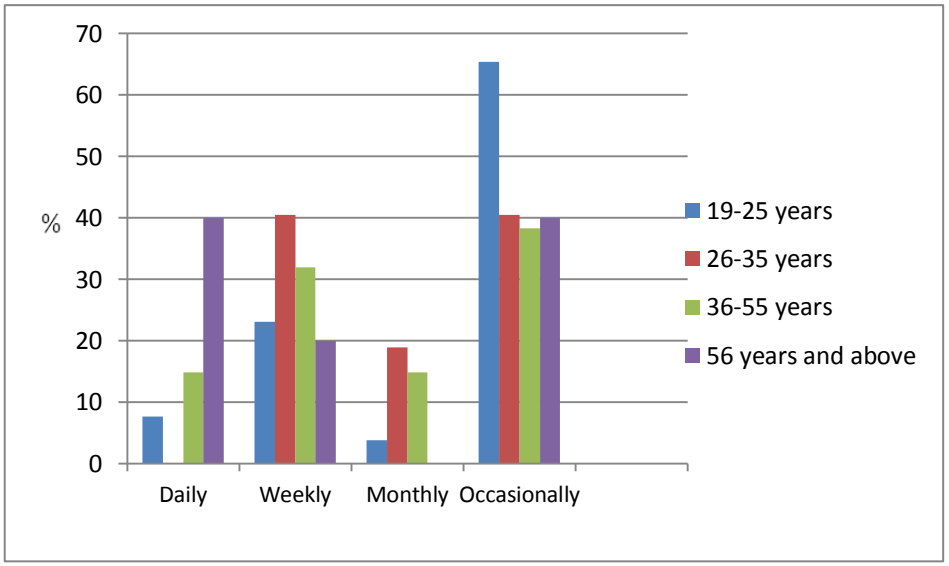

Figure 6.22 Frequency of visits according to respondents' age in Ampang Forest

Frequency of visits by employment status

There is an association between the frequency of visits to the recreational forests and employment status of the respondents (MC χ^2 = 46.892, df = 15, p = 0.001). As no clear pattern was discernible overall, the association was examined in the different forest locations. The results show that the frequency of respondents' visits to Ampang Forest varied significantly according to their employment status (MC χ^2 = 39.987, df = 15, p = 0.001) but not to Kanching Forest (MC χ^2 = 7.498, df = 12, p = 0.619). At Ampang Forest, daily visitors were mainly self-employed and retired respondents, whilst employed respondents came weekly. This suggests that respondents who had flexible time schedules were more likely to visit frequently (Figure 6.23). Respondents' educational qualifications had no significant impact on the frequency of their visits (χ^2 = 10.935, df = 9, p = 0.280).

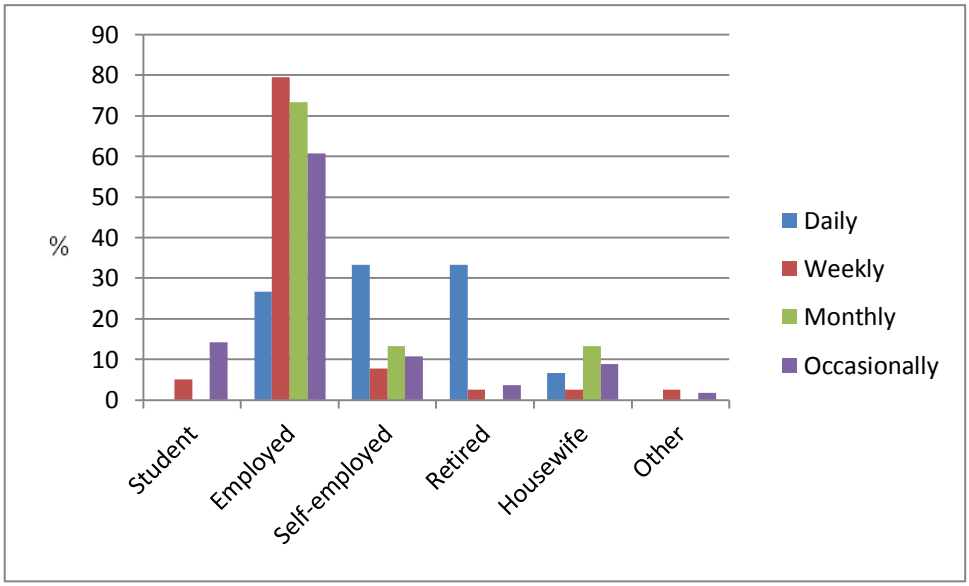

Figure 6.23 Frequency of visits by respondents' employment status in Ampang Forest

6.6.2 Personal characteristics and the social preferences of visitors to the recreational forests

In Table 6.12, there is an association between gender and the respondents' social preferences in related to Ampang Forest (MC $\chi^2 = 10.637$, df = 4, p = 0.030) but not to Kanching Forest (MC $\chi^2 = 7.356$, df = 5, p = 0.173). Both male and female respondents at Ampang Forest preferred to visit the forest in larger groups comprising their children and other family members. It is also worth mentioning that 14 men liked to visit alone compared to only two women (See Appendix 5).

Table 6.12 Personal characteristics and social preferences

Variables (Personal characteristics and social preferences)	Recreational forests	Results	p value (MC Chi-square)
Gender and social preferences	Ampang Forest	$\chi^2 = 10.637$, df = 4	0.030*
	Kanching Forest	$\chi^2 = 7.356$, df = 5	0.173
Marital status and social preferences	Ampang Forest	$\chi^2 = 25.001$, df = 8	0.003*
	Kanching Forest	$\chi^2 = 53.859$, df = 10	0.014*
Age groups and social preferences	Ampang Forest	$\chi^2 = 36.368$, df = 12	< 0.001*
	Kanching Forest	$\chi^2 = 36.166$, df = 15	0.002*
Employment status and social preferences	Ampang Forest	$\chi^2 = 48.854$, df = 20	0.001*
	Kanching Forest	$\chi^2 = 17.119$, df = 20	0.645

*. Correlation is significant at the level 0.05 level (2-tailed)

There were similarities between both sites in the sense that there are associations between marital status and respondents' social preferences (Ampang: MC $\chi^2 = 25.001$, df = 8, p = 0.003; Kanching: MC $\chi^2 = 53.859$, df = 10, p = 0.014). As one might expect, single respondents liked to visit with friends, whereas married respondents preferred to visit with children and other family members (Appendix 5).

There are also significant associations between the age of the respondents and social preferences in respect of both sites (Ampang: MC $\chi^2 = 36.368$, df = 12, p < 0.001; Kanching: MC $\chi^2 = 36.166$, df = 15, p = 0.002). Younger respondents in Ampang Forest aged 19-25 years and older ones over 55 liked to visit with their friends. In contrast, respondents aged 26-55 years usually visited with children and other family members. However, the situation was different at Kanching Forest in the sense that the respondents aged over 56 also preferred to visit with children and other family members.

At Ampang Forest there is also an association between the respondents' employment status and their social preferences ($\chi^2 = 48.854$, df = 20, p = 0.001) but not at Kanching Forest ($\chi^2 = 17.119$, df = 20, p = 0.645). Students in Ampang Forest liked to come with friends and retired

respondents liked to visit alone compared with employed and self-employed respondents and housewives who preferred visiting with children and other family members.

6.7 Expectations towards the Recreational Forests

Section 5 of the questionnaire consisted of 15 items relating to the respondents' expectations towards the recreational forests. The respondents were asked to consider how changes in the provision of facilities would impact the frequency of their visits. They were to express their level of agreement with statements such as *I would visit the forest more often if*: "more signage to give guidance/directions" and "there were more nature trails through the forest". The responses to Question 13 ("Others" (please specify)) were omitted from the analyses because the response rates were too low, while the responses to Questions 14 ("I would be prepared to pay an increased entrance fee to help pay for the cost of these improvements") and 15 ("it is important to have more recreational forest in urban areas") were analysed separately later because they are related to future management and planning.

In general, the respondents had the highest level of agreement (90.4%) with the statement that they would visit more often if "more facilities such as seating, shelter areas, dustbins etc. were provided" (Mean = 4.24). Even though toilets are not indicated directly in "more facilities", it also can be grouped under "etc" in Question 9, Section 5. About 80% to 88% of the respondents said that they would visit more often [if] "the activities areas were kept in better and tidier condition (Mean = 4.17)", [if] "guardrails/railings were provided at steep sections of pathway/trails" (Mean = 4.04), and if there were "more signage to give guidance/directions" (Mean = 4.01) and "more facilities for people with disabilities" (Mean = 4.01). The lowest agreement (43.2%) was with the statement [if] "I was able to participate in organised litter picking" (Mean = 3.33) (Table 6.13).

Table 6.13 Rating of expectations (mean across all respondents)

Questionnaire items	**Level of agreement (%)**
Section 5	**81% to 100%**
Q9 More facilities such as seating, shelter areas, dustbins etc. were provided	373 (90.4)
Q3 The activities areas were kept in better and tidier condition	360 (87.6)
Q10 Guardrails/railings were provided at steep sections of pathway/trails	344 (83.7)
Q8 More signage to give guidance/directions	340 (82.5)
Q11 There were more facilities for people with disabilities	331 (80.5)
	71% to 80%
Q2 More parking spaces were provided	322 (78.1)
Q4 There were more nature trails through the forest	315 (76.4)
Q5 Forest Rangers were walking around the forest	311 (75.7)
Q7 There were health activities organised by the forest department	311 (75.5)
Q6 Different pathways were provided for joggers and pedestrians	292 (70.9)
	Fewer than 60%
Q12 There were more opportunities to be alone	227 (55.4)
Q1 I was able to participate in organised litter picking	219 (43.2)

More than 80% of the respondents in the Ampang Forest wanted "more facilities such as seating, dustbins etc." and wanted "the activities areas [to be] kept in better and tidier condition". However, in the Kanching Forest, more than 80% of the respondents expected to have "guardrails/railings provided at steep sections of pathway/trails", "more facilities such as seating, dustbins etc.", "more signage to give guidance/directions" and "more facilities for people with disabilities". This indicated that the steep topography of the Kanching Forest may influence the expectations of the respondents. As expected, based on the site observations, fewer respondents at both forests felt inclined "to participate in organised litter picking" (Table 6.14).

Table 6.14 Expectations towards the recreational forests

Questionnaire items *I would visit the forest more often if:*	**Number of people in agreement (%)**
Ampang Forest	
More facilities such as seating, dustbins, toilets etc.	189 (90.9)
The activities areas were kept in better and tidier condition	178 (86.4)
There were more facilities for people with disabilities	162 (78.3)
Guardrails/railings were provided at steep sections of pathway/trails	159 (77.2)
More signage to give guidance/directions	158 (76.3)
More parking spaces were provided	158 (76.0)
There were more nature trails through the forest	154 (74.0)
Forest Rangers were walking around the forest	150 (72.8)
There were health activities organised by the forest department	151 (72.6)
Different pathways were provided for joggers and pedestrians	134 (64.7)
I was able to participate in organised litter picking	108 (52.2)
Kanching Forest	
Guardrails/railings were provided at steep sections of pathway/trails	185 (90.2)
More facilities such as seating, dustbins, toilets etc.	184 (89.8)
The activities areas were kept in better and tidier condition	182 (88.8)
More signage to give guidance/directions	182 (88.8)
There were more facilities for people with disabilities	169 (82.9)
More parking spaces were provided	164 (80.4)
Forest Rangers were walking around the forest	161 (78.6)
There were more nature trails through the forest	161 (78.5)
There were health activities organised by the forest department	160 (78.4)
Different pathways were provided for joggers and pedestrians	158 (77.0)
I was able to participate in organised litter picking	111 (54.1)

Note: Total number of people in agreement in the "agree" and "strongly agree" categories have been combined.

Further analyses were conducted to test for correlations between the "Expectations towards Recreational Forest" items (Q1 to Q12) and gender, age and ethnicity. The Mann-Whitney test was used for gender, the Kruskal-Wallis test was used for ethnicity and Spearman's Correlation was used for age. There were no significant differences between gender and expectations for recreational forest items.

The "Expectations" items were explored to determine correlations between these items and the age of the respondents'. Table 6.15 shows that there is a negative correlation between the age of the respondents and the item "health activities organised by the forest department". This means that as a respondent's age decreases, he/she becomes more enthusiastic about "health activities organised by the forest department".

Table 6.15 Correlations between expectations towards the recreational forest and age groups

Expectations towards the recreational forest and age groups	Test used	Results	P value
Health activities organised by the forest department	Spearman's rho	- 0.138	0.005**

**. Correlation is significant at the level 0.01 level (2-tailed)

More than half of the respondents at both forests were prepared to pay an increased entrance fee to help pay for the cost of the improvements mentioned in Table 6.16. Respondents at both forests also said that they wanted to "have more recreational forests in urban areas". The respondents at Ampang Forest placed more importance on this than the respondents at Kanching Forest (See Table 6.16).

Table 6.16 Percentage agreement with "increas[ing] entrance fee" and "[having] more recreational forest[s] in urban areas"

Questionnaire items	Number of respondents who are in agreement (%)
Ampang Forest	
Q14 I would be prepared to pay an increased entrance fee to help pay for the cost of these improvements	**125 (60.9)**
Q15 It is important to have more recreational forest in urban areas	**184 (90.1)**
Kanching Forest	
Q14 I would be prepared to pay an increased entrance fee to help pay for the cost of these improvements	112 **(**54.6)
Q15 It is important to have more recreational forest in urban areas	174 (85.3)

6.8 Conclusion

This chapter reported the quantitative results in a descriptive manner and also an array of statistical tests. The results show variations in terms of patterns of use, motives for forest use and the expectations of respondents in the two recreational forests, both separately and together. It also shows the significant associations between personal characteristics (age, gender or ethnicity) in terms of use, motives for forest use and the expectations of respondents in the recreational forests. Some analytical results are also discussed along with the scientific results to make it easier to understand. Age has an impact on frequency of visits, length of stay, time of visit and social preferences. Ethnicity also has an effect

on frequency of visits, length of stay and time of visit but not on social preferences. There is significant variation in social preferences and gender. Male respondents were keener “to go jungle trekking”, “to be myself” and “to be alone in the forest” compared to female respondents. Female respondents tended to feel afraid of seeing wild animal such as “snake”, “afraid of getting bitten by insects”, and disliked “being in the middle of dense vegetation”, compared to male respondents.

Chapter 7 will explore the underlying factors that drive respondents to use and experience the recreational forests. It is an extension of the results from this chapter with the aim of enriching this study and giving new perspectives in explaining the experience of recreational forests.