

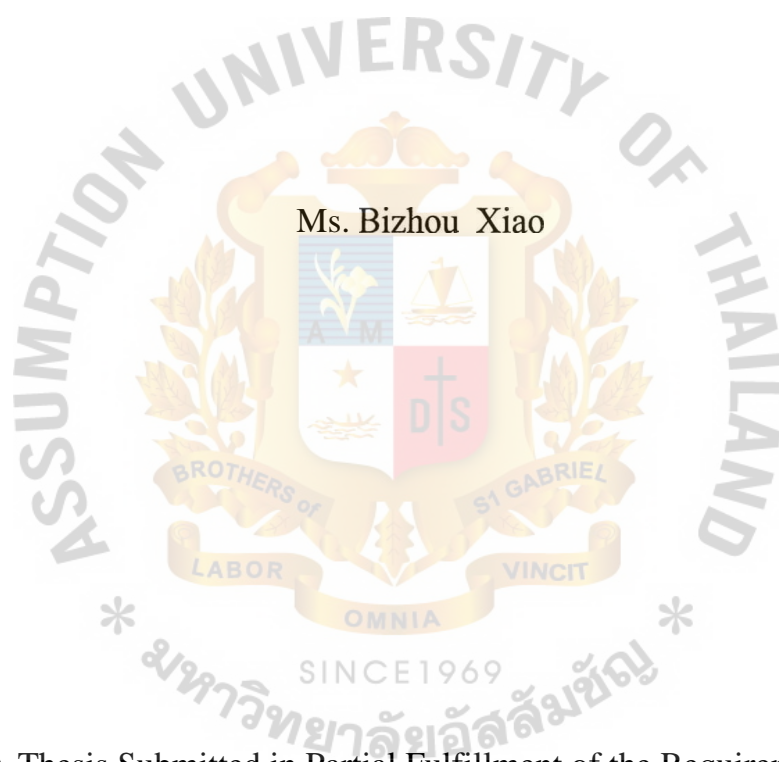


Visitors' Hiking Behaviors, Importance of Hiking Related Tourism
Products and High Altitude Travel Ailments Experienced
in Bing Zhong Luo, Yunnan, China.

Ms. Bizhou Xiao

151
A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Business Administration in Tourism Management
Graduate School of Business
Assumption University
Academic Year 2011
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By Ms. Bizhou Xiao

Thesis Advisor Adarsh Batra, Ph.D.


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The Graduate School/Faculty of Business, Assumption University, has approved this thesis as a partial fulfillment of the requirements for the Degree of Master of Business in Tourism Management

School of Business  Dean of the Graduate
(Kitti Phothikitti, Ph.D.)

THESIS EXAMINATION COMMITTEE

 Chairman
(John Arthur Barnes, Ph.D.)

 Thesis Advisor
(Adarsh Batra, Ph.D.)

 External Member
(Associate Professor Wirat Saguangwongwan)

 r Member
(Thong ee Kijboonchoo, Ph.D.)

 Member
(Charnchai Athichitskul, Ph.D.)

**VISITORS' HIKING BEHAVIORS, IMPORTANCE OF HIKING RELATED
TOURISM PRODUCTS AND HIGH ALTITUDE TRAVEL AILMENTS
EXPERIENCED IN BING ZHONG LUO, YUNNAN, CHINA**

by

Ms. Bizhou Xiao

A Thesis submitted in partial fulfillments
of the requirements for the degree of

Master of Business Administration in Tourism Management

Graduate School of Business
Assumption University
Bangkok, Thailand

October, 2011

Abstract

Hiking is a potential market for tourism industry in Yunnan. Bing Zhong Luo is an upcoming hiking destination and therefore has academic and commercial interest to investigate.

This study tries to understand hiking tourists' motivation and behavior on their visit, and then to examine the importance of the hiking related tourism products based on age, gender and previous hiking experience in Bing Zhong Luo. The study also focuses on common travel associated ailments experienced by hikers in Bing Zhong Luo. Four hundred and fifty questionnaires were given out during July and August in 2011, of which 382 completed usable questionnaires were returned giving an 84.8% response rate.

The results show that tourists visit Bing Zhong Luo for hiking mainly with friends and families; they prefer views of gorges and views of streams, lakes, waterfall and rivers along hiking trails; and to appreciate beautiful landscape and to be close to nature as their main hiking motivation. It was further revealed that significant differences exist in the availability of hiking related tourism products and the incidence of common travel associated ailments with regard to hikers' age, gender and previous hiking experience. The findings indicate that the tourists above 40 years feel the level of importance in hiking related tourism products are higher than those below 40 years; and the old aged groups are more vulnerable to common travel ailments. In addition, the results imply that the tourists who have no or two to three times of previous hiking experience feel the availability of hiking related tourism products is

more important than those who have four or more times of previous hiking experience; and the chances of ailments are decrease with well versed previous hiking experience.

This study proposes in light of the findings that for high altitude hiking destination as Bing Zhong Luo, to set up some hiking tourism service to provide hiking trail consulting service, hiking equipment supplement or replacement and necessary transportation be provided to the tourists. To prevent tourists suffering from some form of health ailments in the study area, basic guidelines on hiking, especially relevant knowledge and training course to impart hiking skills along with first aid, be given to both potential tourists and locals.

Keywords: hiking tourism, hiking tourism product, health ailment, high altitude



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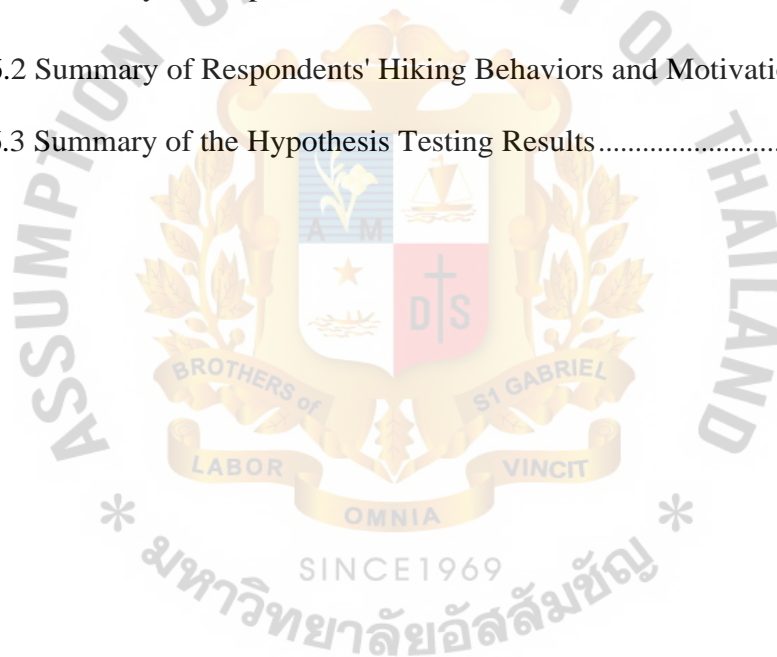
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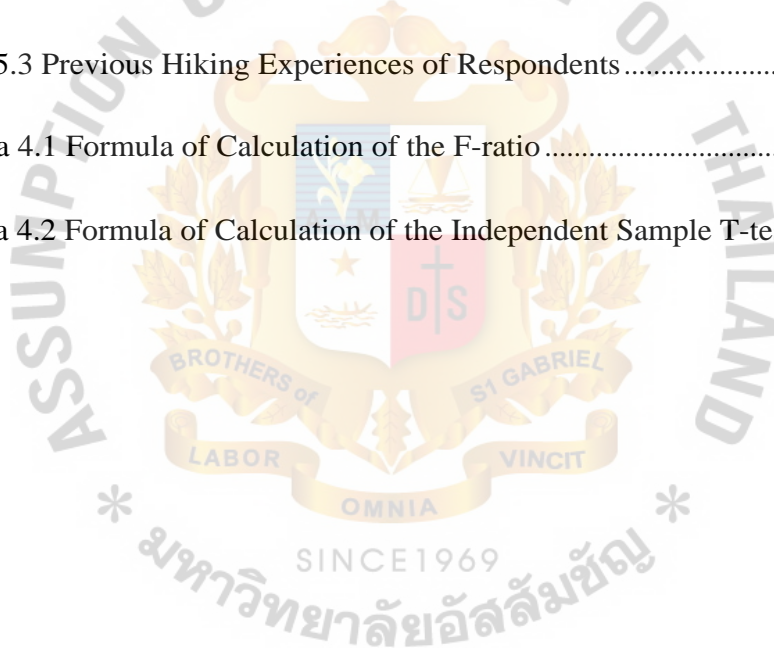
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CHAPTER I

GENERALITIES OF THE STUDY

1.1 Background of the Study

1.1.1 Hiking Tourism Development in China

With social and economic development, the tourism industry has increasingly taken sustainable development into account. However, tourism has long ignored the sustainable approach. Nature based tourism – of which hiking forms an important part – is a fast growing sector within the tourism industry (Hugo, 1999). Hiking tourism in China started around 1958; the early hiking tourism activities were organized by individuals or small groups; and the purposes of hiking were for scientific expeditions (Liu and Ming, 2001). Now, hiking has been receiving growing attention and acceptance by travelers as some kind of fashionable activities in China. Compared with other countries', Chinese hiking tourism can be considered at the initial stage of development. But China possesses the diverse geographic formations and rare natural environments, which have provided the superior conditions for tourists who are keen on hiking.

In recent years, an increasing number of tourists have participated in hiking tourism. However, there is a lack of specific research and investigation into the hiking tourism market, and a systematic compilation of data collection. According to National Tourism Administration of China (CNTA) (2008)'s Analysis and Investment Consulting Report on China Tourism Industry, hiking has been defined as one of the

potential ecotourism activity in the next 10 years, and the report also mentions that hikers in China have taken the form of membership in different outdoor adventure clubs. For instance, since 1999, the China Mountaineering Association and Outdoor Sports Club have kept up the high-speed membership growth rate each year. By the end of 2006, there were 700 standard outdoor clubs. At the same time, a large number of informal hiker associations have been developing well which were not taken into account by CNTA.

In the year 2004, the website of www.xinhuanet.com introduced "Best 10 Hiking Trails in China" which was voted by domestic hikers to masses and then aroused the public attention to participate in the hiking tourism. Most of these trails are located in the west high altitude part of China and these after the local governments had give prominence to these hiking trails (Huang, 2005).

The information of hiking tourism is available through the internet channel. Domestic tourists usually use the EMAIL, MSN, QQ and tourism forum to exchange hiking experiences. Moreover, in terms of web hits, the top five websites for hiking tourism information exchange in China are shown in Table 1.1.

Table 1.1 Top Five Hiking Tourism Websites in China

Names of the hiking websites	URL
SOHU	club.travel.sohu.com
Ctrip	www.ctrip.com/community/comunityHome.asp
21CN	travel.21cn.com
SINA	tour.sina.com.cn
XICI	www.xici.net

Source: Modified from www.Google.com search engine, 2010

On the other hand, foreign tourists usually use the EMAIL, MSN, ICQ and tourism forum, such as Lonely Planet Travel Forum, the website of hiking and backpacking.

Generally, the hiking market is divided by Chinese scholars into two types in terms of expenditure levels. One is the high expenditure level market. It mainly consists of foreign tourists, large numbers of whom have a high expenditure, long stays (10-15 days) at hiking destinations and they prefer a hard hiking version to soft hiking. The other one is middle and lowest expenditure levels market which consists of domestic tourists, who just stay at destinations for 2 to 5 days and choose much easier trails to do hiking tourism (Huang, 2005).

Recently, China has carried out the "Go-West" campaign for developing the western part of the country; the western provinces have a certain more priority by the government supporting than other provinces in China. Some provinces which possess high quality natural resources and unique culture or local communities have been launching hiking tourism, such as Tibet, Sichuan, Yunnan, Guangxi and Guizhou. Some of hiking destinations in the western China have become well known by foreign tourists, for instance Guilin, Lijiang and Tiger Jumping valley. From Pro-Poor tourism perspective, developing hiking tourism in these poor and remote western mountainous areas can bring the abounding economic benefits and socio-cultural exchanges for the local community.

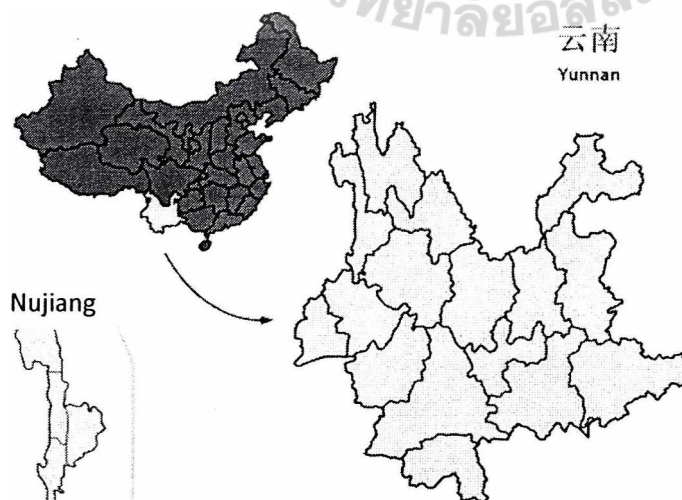
According to the China Tourism Academy's report (2010), released on 16 December, 2010, the total revenue of China's tourism industry is expected to grow by

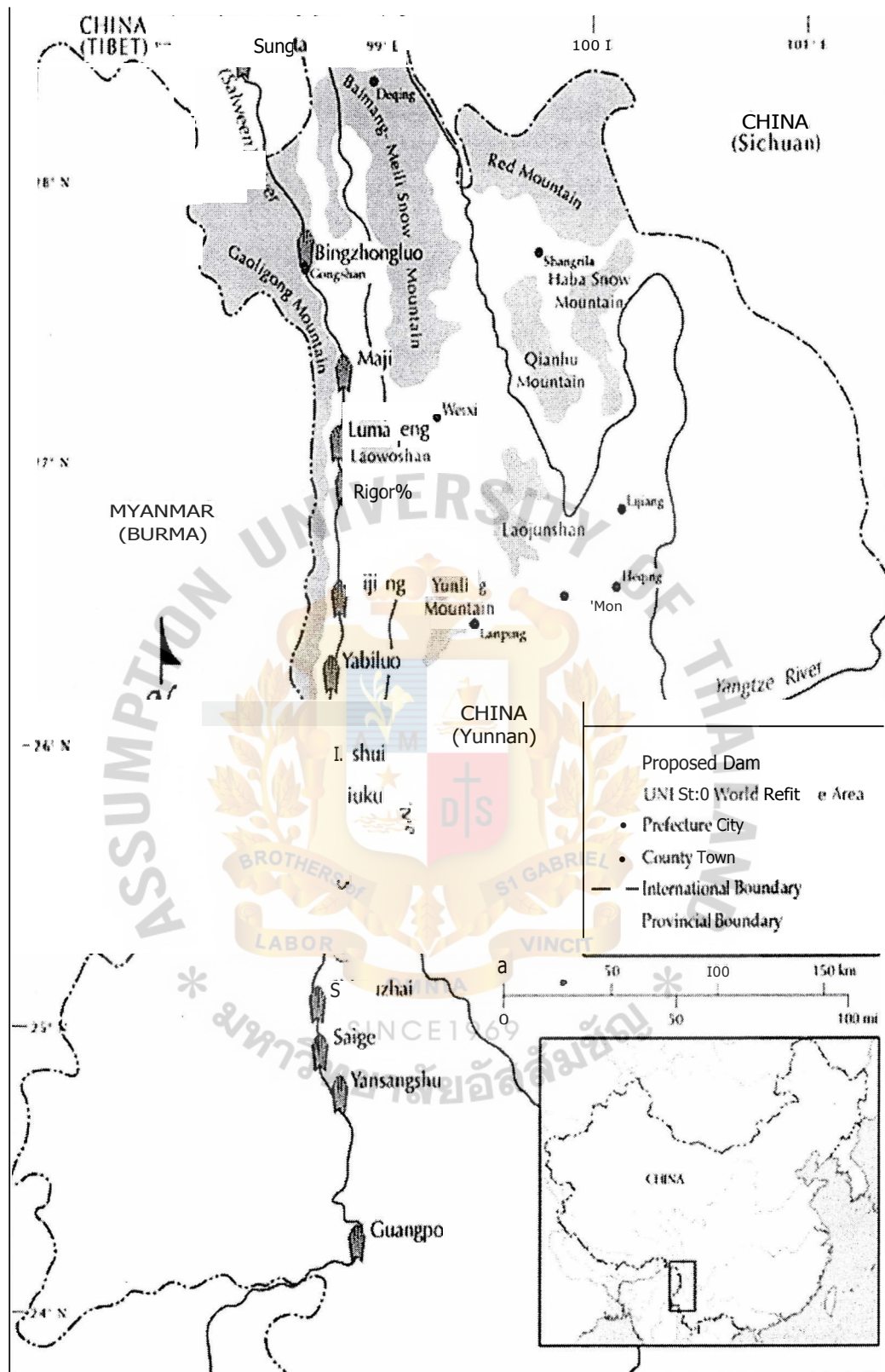
13 percent to hit 205 billion U.S. dollars. The number of inbound trips by overseas tourists would stand at 136 million, up 8 percent from a year earlier. To face the high-seeped growth rate, the Chinese government hopes an increasing number of tourists can participate in the ecotourism side in the future. It means it is the best time to promote the hiking tourism in China.

1.1.2 Tourism in **Nujiang**, Yunnan

The Nujiang is one of the rivers within the Three Parallel Rivers of Yunnan Protected Areas (A world heritage site). It flows into Myanmar and joins the Salween River. The Nujiang Gorge from northwest Yunnan to Tibet lies in a narrow strip of land bordering Myanmar, places in between the Gaoligong Mountain range and the Biluo Mountain range, both of which are at an average altitude of over 3000 meters. They were selected as nature reserves and places of scenic beauty in this unique region and were collectively awarded World Heritage Site status in 2003 for their very rich biodiversity and outstanding topographical diversity.

Figure 1.1 Map of **Nujiang Lisu** Autonomous Prefecture, Yunnan





Source: www.internationalrivers.org/en/china/nu-salween-river/size=_original

Nujiang Lisu Autonomous Prefecture was established in 1954; it is named after the Nujiang River and the Lisu Ethnic Group. It has a total area of 14,703 km². The

prefecture is subdivided into four county- level divisions: two counties and two autonomous ones. They are Lushui County, Fugong County, Lanping Bai and Pumi Autonomous County, and Gongshan Dulong and Nu Autonomous County.

Although this region has been acknowledged as a natural World Heritage Site, its demography make-up is also highly interesting as it contains many of the twenty-five minorities found in Yunnan province including the Derung, the smallest of all of China's minority groups; and the Nu people just live in this region. Some of the other minorities found in this region are the Tibetan people, Lisu, Bai, Pumi and Naxi. Many of these minorities still use traditional costumes as their normal daily attire.

Nujiang prefecture government mainly launches ecotourism, mountain- based hiking adventure tourism and community- based cultural tourism as it possess abundant original natural and cultural resources. From 2006 to 2010, Nujiang tried to make a meticulous plan to speed up its development and turn potential tourism resource superiority into real economic superiority. With the tourism development, the level of economy in Nujiang has increased stably.

Over the last five years from 2006 to 2010, the Nujiang prefecture received an accumulative total of 61,505 overseas tourists, an average annual increase of 15.17%, received an accumulative total of 5,854,100 domestic tourists, an average annual increase of 14.77%, and then earned an accumulative total of 2.967 billion Yuan of tourism income, an average annual growth of 10.8%. The details of tourism statistics (2006 – 2010) are shown in Table 1.2.

Table 1.2 Tourism Statistics in Nujiang, Yunan, China from 2006 - 2010

Indicators Year	Overseas tourists				Domestic tourists		Total income (10 thousand Yuan)
	Tourists		Excursionists		The	Income	
	The number	Income (10 thousand US Dollar)	The number (10 thousand tourists)	Income (10 thousand US Dollar)	number (10 thousand tourists)	(10 thousand Yuan)	
2006	8467	353.02	4.14	190.03	87.70	40650.41	44994.78
2007	10020	435.08	2.08	95.25	98.26	44864.18	48841.63
2008	13009	810.74	3.57	195.51	119.61	66713.87	66713.87
2009	14609	628.66	5.37	311.74	134.54	59980.45	66403.39
2010	15400	788.86	5.92	367.21	145.3	62446.21	69800.00

Source: Nujiang tourism industry report (Nujiang Lisu Autonomous Prefecture Tourist Bureau (NTB), 2010)

Most tourists arriving in this area are domestic tourists. Nujiang hopes that they could attract more overseas tourists' attention. They have promoted Nujiang's nature and culture by holding some festivals and international competitions, such as the 2010 Nujiang "Kuoshi" Cultural Tourism Festival and 1st China Wild water Canoeing International Competition held from December 18 to 20, 2010 in Nujiang Lisu Autonomous Prefecture, Yunnan Province (Yunnan Adventure Travel, 2010). It was the first time to hold a wild water international competition in Yunnan.

1.1.3 Study Area – Bing Zhong Luo Village, Gongshan Dulong and Nu Autonomous County

Bing Zhong Luo is located at the extreme northern Gongshan County, which as a frontier village is bordered east of Myanmar and south of Tibet, China. It is a part of UNESCO World Natural Heritage Site at Three Parallel Rivers Area. The population here is around 6,453, most of whom are Tibetan, Nu, Dulong, Lisu people. Bing Zhong Luo is called as the Land of Gods & Human due to its distinctive natural and cultural environment. Different ethnicities here always mingle harmoniously with each other, and Primitive religion, Christianity, Catholicism, Tibetan Buddhism also co-exist peacefully here, for instance, members of one family may have different religions.

Bing Zhong Luo has a long history. From the Tang Dynasty (AD.618- AD.907), it was a village that had to be passed to enter Tibet from Yunnan for carrying tea and salt. Therefore, the business travelers in the past built a walking trail which was called as the Tea Horse Road through Nujiang Grand Canyon and across the Gaoligong mountains. From then on, Chinese people have crossed this area by hiking.

Because of its location at Nujiang Grand Canyon, there is a big altitude drop of 3378 meter from the top of the Gawa Gapu Snow Mountain (5128 m) to the river valley of Bing Zhong Luo (1750 m). The different altitude makes the Bing Zhong Luo's geographic features and weather varied and distinctive. Since tourism began to develop in this area around 2004, it has grown in popularity as a charming tourist destination. However, due to the impact of the warm current of the Indian Ocean, the

climate is mild and moist and it receives an annual rainfall of 1400 mm; the roads entering Bing Zhong Luo are dangerous and could cave in at any time. This big problem not only influences the accessibility of Bing Zhong Luo, but also poses threats to the tourists' safety.

1.1.3.1 Tourism Activities

Mountain- based hiking adventure tourism

Mountain- based hiking adventure tourism in Bing Zhong Luo is proposed as the most interesting or unforgettable trip in the whole life by the local government and some tourists. Compared with the mountains in the Hindu Kush-Himalayan Region, the average altitude (3000 m) of Bing Zhong Luo area is more suitable for the tourists who plan to do mountain- based hiking tourism but lack skills or experiences. According to the hikers' and tourists' experiences, published on the hiking and backpacker forum on the internet, there are nine main relatively mature hiking trails in this study area. Most of them are more than 20 km. To take three trails as examples, the detailed trails information is stated as following:

- Bing Zhong Luo- the Ancient Ruins of Shambhala palace- Fairy Cave- Dong Feng Christ Church- Pu Hua Temple- Zhong Ding- Gold Gate- Stone Door- Siji Tong- The Tea And Horse Road- Wu Li- Nida Dang- Qiuna Tong- Naqia Luo (This trail includes most of the attractions in Bing Zhong Luo, which are worthy of appreciating).
- Bing Zhong Luo- De Qin (This trail need to cross the Bi Luo Snow Mountains where the average altitude is more than 4000 m).

- Bing Zhong Luo- Gawa Gapu Snow Mountains (5128 m).

Community- based cultural tourism

Different ethnicities and religions co-existing constitute communities' peculiar lifestyle in Bing Zhong Luo. Their unique architecture, food and custom become a new bright point to fascinate tourists. The people here are simple, honest, and unspoiled. Sometimes, if the hotels or lodges do not have enough beds, local people will invite tourists to live in their home and experience their daily life (NTB, 2010).

Pro-Poor tourism

As it is located at a remote mountainous area, there are many impoverished people in Bing Zhong Luo. The needy depend on government relief. Their children do not have enough money to go to school. The local government and NGOs advocate hikers to do some charity to help these needy children so that they can improve their living conditions. The most famous charity activity is called as "1 kg More", which is a grassroots project run by "1 kg org.". It advocates hikers who plan to visit remote regions to voluntarily carry and donate one kilogram of stationery or books to the children living there (NTB, 2010).

1.1.3.2 Supply Components of Tourism in Bing **Zhong Luo**

Accommodation

There are three hotels (no star) and 128 rooms available for tourists in central Bing Zhong Luo. Besides, lodges and guest houses also are available. The total number of beds in and around Bing Zhong Luo is 420 (NTB, 2008). In the hotels, lodges and guest houses, tourists can easily find the map and guide book. If tourists

plan to do hiking or trekking across the mountains, the operator will provide the guide telephone number.

Transportation

Even Bing Zhong Luo is a remote small village by the southwestern frontier; tourists still have different ways to enter this area. The three most popular modes of transportation are airplane, coach and self- driving (NTB, 2008).

Specialty product and folk crafts

Bing Zhong Luo does not have the folk crafts plant for producing and selling souvenirs. But local people often make some folk crafts for their daily lives or sell them to tourists. All these folk crafts are made by hand, so they are small in quantity. Domestic tourists usually purchase woolen blanket of Nu people and shawl made by Du Long people.

Moreover, this region is well known for its fine traditional Chinese medicinal materials, such as rhizome gastrodiae, Chinese caterpillar fungus and fritillaria.

1.2 Statement of the Problem

Hiking is a recreational tourism activity; it belongs to niche tourism. For a remote village in Yunnan such as Bing Zhong Luo, the tourism development process, developers often ignore the potential hiking market and the economic benefits it has offered. Discussing hiking tourists' motivation and behavior on their visit to Bing Zhong Luo can help tourism planners to better understand the importance of investing in this new and sustainable tourism.

The main supply elements of hiking tourism include a trail network (e.g.

footpaths), services (e.g. accommodation, guided tours), information (e.g. signposting, maps, books) and the natural and cultural landscape of a region. The optimal development of hiking tourism in a given area may be obtained if the demands of the different visitor types are known and the appropriate supply put into practice in the right locations. Without a proper study, it would be difficult to say whether existing traditional cultural landscape be preserved and promoted or tourist oriented modern facilities such as new roads or cable-car access be avoided. Therefore, at many remote areas, the development of new huts, paths, and service can be controversial. Different types of visitors demand facilities or services, such as mountain huts, availability of food, which on one side, are seen as an income opportunity but lead to a crucial dilemma of tourism development because provision of city type facilities harbors the risk of reducing the essential qualities that attract the visitors in the first place.

This study also aims to investigate health consequences of visiting Bing Zhong Luo. Health issues, despite the number of ailments commonly experienced by tourists, remain neglected in tourism literature. At the first stage, tourists are attracted by the natural resources available at Bing Zhong Luo but might overlook individual's stamina to cope with physical and mental strains. Understanding the most common travel associated ailments experienced by hikers in Bing Zhong Luo will help tourists to prepare well for hiking.

This study aims to ask:

RQ1: What are the tourists' destination- specific behaviors and motivation on their visit to Bing Zhong Luo?

RQ2: How can hiking tourism supply be organized and optimized to meet the demand of visitors?

RQ3: What health consequences of visiting Bing Zhong Luo are felt by hikers?

1.3 Research Objectives

The objectives of the research are as follows:

- 1) To ascertain the hiking tourists' motivation and behavior (trail activities and trail attribute preferences) on their visit to Bing Zhong Luo;
- 2) To examine the importance of hiking tourism products based on age, gender and previous hiking experience; and,
- 3) To investigate the most common travel associated ailments experienced by hikers upon visiting Bing Zhong Luo based on selected variables.

1.4 Scope of the Research

This research intends to understand hiking tourists' motivation and behavior on their visit to Bing Zhong Luo and cover an area of approximately 823 km² in Bing Zhong Luo. The questionnaires were distributed to 400 hiking tourists around the study area at hotels, lodges, guest houses and hiking trails in July 2011 and along with distribution of 50 questionnaires by online survey.

1.5 Limitations of the Research

On the one hand, hiking is a niche tourism activity; it incorporates the features of small-scale market and few participants. Hiking not only puts a great emphasis on original natural and cultural resources in particular region, but also requires unique facilities. So, they usually go to different areas around Bing Zhong Luo for hiking to

meet their preferences. It is difficult to access and find hikers.

On the other hand, in order to distribute and collect the questionnaires, it will take considerable time and effort because Bing Zhong Luo is a widely scattered area and tourists used to put themselves up in different places like Wu Li, Nida Dang and Qiuna Tong.

1.6 Significance of the Research

Hiking is a potential market for tourism industry in Yunnan. Bing Zhong Luo being a hiking destination has academic and commercial interest for investigation. The findings of this study would provide guidelines to suggest appropriate strategies for the market to improve and promote hiking in Bing Zhong Luo.

This study tries to understand hiking tourists' motivation and behavior on their visit, and then examine the hiking related tourism products which constitute the essential hiking tourism elements in Bing Zhong Luo. The measurement of hiking visitors' experience can provide more meaningful information and kinds of activities preferred by tourists to physical design attributes to evaluate activity settings. Knowing support facilities for hikers will help planners to estimate the extent to which the region has been developed for mountaineers. These will act as pull factors for hikers in their destination decision-making. The study also focuses on common travel associated ailments experienced by hikers. Each issue may help relevant tourism developers and operators of Bing Zhong Luo to understand current situations of hiking tourism from the view point of tourists.

1.7 Definition of Terms

Adventure Tourism:

A self- initiated recreational activity, typically involving a travel and overnight stay component, that usually involves a close interaction with the natural environment, structurally contains elements of perceived or real risks and dangers, and has an uncertain outcome that can be influenced by the participant and / or circumstance (Ewert, 2000).

Hard Adventure:

Tourism activities, that require more physical effort, particular abilities and knowledge, and in which, risk level is rather high, (e.g. mountaineering and rock climbing) (Maroudas, Kyriakkib & Gouvis, 2004).

Hiking:

Hiking means to walk a great distance, usually in rural or wilderness settings. It can be differentiated from walking for pleasure not only by the greater distances involved, but often by the need for specialized equipment such as hiking boots, backpacks, lightweight protective clothing and camping gear, and non- refrigerated preserved foods. Hiking is usually combined with tourism ranging from a day- trip on a pack tour to a tailored trekking trip in remote areas (Broxon, 2000).

Soft Adventure:

Tourism activities, which do not require particular physical effort, neither pre supposed particular abilities, knowledge, and experience (e.g. canoeing and animal watching) (Maroudas et al., 2004).

Trekking:

Trekking is a journey undertaken on foot or in a wagon, for seeing natural and cultural scenes in areas where normally a modern transport system is not available (Kohli, 2000).

Hiking related tourism products:

The hiking related tourism products are the certain things that can be provide to the market to meet the needs and demands of hiking tourists, it includes a trail network (e.g. footpaths), services (e.g. accommodation, guided tours), information (e.g. signposting, maps, books) and the natural and cultural landscape of a region.

Travel ailments:

The most common diseases are experienced by travels, usually includes the muscle pain and strain caused by enormous physical activities, diarrhea and altitude illness (mountain sickness).

CHAPTER II

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter is organized as follows: the first section introduces the hiking tourism, types of hiking tourism and hiking related tourism. Section two is about the theories related to dependent and independent variables, and the third section provides a table which briefly illustrates the previous studies.

2.1 Introduction of Hiking Tourism

Travelling on foot through the backcountry carrying all one's own supplies and equipment is a popular recreational activity in many developed nations. It is variously known, in different countries, as hiking, trekking or simply walking; and it may take hours, days or weeks, on or off trail. In sparsely populated areas in some developing nations, travelling by foot with one's own supplies and possessions is simply part of a normal daily livelihood. In other areas, locals can now make a living guiding or otherwise assisting foreign hikers (Buckley, 2006).

Hugo (1999) mentioned that a hiking activity forms as an important part of nature based tourism as a quickly growing sector within the tourism industry. Lane (1999) stated that hiking was amongst the most popular leisure and holiday activities in Europe. It was established that there are more than three million hikers in Italy and France, the number rises to ten millions in the UK, while more than thirty percent of the Swedish population use to walk in forests and in the countryside and almost half of the population in England hikes regularly (Kastenholz & Rodrigues, 2007).

Recently, besides the classical hiking form which is walking a great distance in rural or wilderness settings, another innovation of hiking has appeared. It is heli-hiking, where hikers are flown by helicopter from a luxury lodge to a wilderness hiking area for day hikes, and flown back at the end of each day. This kind of hiking products needs to pay quite heavily to enjoy a few days' hiking in scenic areas, but in luxury (Buckley, 2006). Nowadays, due to the popularity of hiking tourism, more and more researchers have been concerned about subjects and issues which are related with hiking tourism to try to find a sustainable strategy to develop this niche tourism.

2.2 Types of Hiking Tourism

Adventure tourism would usually occur to come at different levels, with the dangers and risks ranging from very low to very high. According to the Shephard and Evans (2005), based on the spectrum of adventure, activities can be ranged from non-hazardous to high risk; the concept of adventure tourism can be distinguished and categorized as either "Soft adventure" or "Hard adventure".

Soft adventure requires less physical effort and a minimal sense of danger (Swarbrooke, Beard, Leckie & Pomfret, 2003). Roberts (2011) giving a detailed explanation about soft adventure travel, pointed that soft adventure travel included activities with less physical risk and lower physically demanding involvement; participants would have less experience as the activity was less demanding. Moreover, accommodation would be provided and the motivation of tourists for soft adventure travel would be more to experience rather than the expectation of an encounter with any risk (Shephard & Evans, 2005).

On the other hand, hard adventure travel generally encompasses risk, physicality and challenge within unknown territories (Swarbrooke *et al.*, 2003). It would require previous experience, recognized levels of competence, ability to deal with the unexpected and skills associated with types of holidays (Shephard & Evans, 2005).

Sung, Morrison and O'Leary (2000) gave detailed examples about adventure categories shown in Table 2.1. It specifies adventure activities to analyze adventure segments and it also mentions about two forms of hiking which are under the different kinds of adventure categories.

Table 2.1 Examples of Adventure Categories

Soft adventure tourism might include	Hard adventure tourism might include
Wilderness jeep safaris	Climbing and mountaineering
Supervised and escorted hiking	Long distance back country hiking
Cycling holiday	Downhill mountain biking
Learning to surf and to windsurf	Paragliding
Camping	Heli-skiing holidays

Source: Sung *et al.* (2000) Segmenting the Adventure Travel Market by Activities.
Journal of Travel and Tourism Marketing, 9: 1-20

Huang (2005) considered that hiking tourism could be categorized as two categories-"Hard hiking" and "Soft hiking", of which based on physical requirements, skills and the level of risks. Hard hiking has the following features: high level of risk, high expenditure level, long duration and high physical and technical requirements for participants, such as hiking in Mount Everest. As for soft hiking, small cost, short duration and no requirement of skill are its features. Soft hiking is suitable for all ages to participate, such as hiking in national parks with a walking path or trail.

However, both forms of adventure travel include an intimate experience with the environment and culture of the destination (Swarbrooke *et al.*, 2003).

2.3 Hiking Related Tourism

While reviewing the previous researches on hiking tourism, some forms of tourism usually are related to hiking, the most common terms are adventure tourism and ecotourism.

2.3.1 Adventure Tourism

Sung, Morrison and O'Leary (1997) claimed that the definition of adventure tourism had traditionally centered on adventure recreation. Weber (2001) also mentioned that adventure tourism originated from traditional outdoor recreation. In the past two decades, due to the increasing number of participants in holiday for traveling to a destination for the purposes of camping, trekking or mountaineering, adventure travel as a phenomenon had been more observed; and adventure tourism was falling into a subcategory of tourism (Roberts, 2011).

Swarbrooke *et al.* (2003) identified that ten core characteristics of adventure could be related to tourism to establish the overall definition of adventure tourism. These main characteristics were "uncertain outcome", "danger and risk", "challenge", "anticipated rewards", "novelty", "stimulation and excitement", "escapism and separation", "exploration and discovery", "absorption and focus" and "contrasting emotions". However, it is too difficult to combine all elements under one absolute term. And at the same time, adventure tourism can mean different things to different groups of participants at various levels of risk (Shephard and Evans, 2005). This feature makes establishing a definition for adventure tourism more difficult.

In order to come up with an overall definition, Ewert (2000) proposed a

definition associated with adventure tourism. It indicated that adventure tourism were "a self-initiated recreational activity, typically involving a travel and overnight stay component, that usually involves a close interaction with the natural environment, structurally contains elements of perceived or real risk and danger, and has an uncertain outcome that can be influenced by the participant and / or circumstance".

According to Pomfret (2006), adventure tourism activities can be divided into four categories in terms of land-based, water-based, air-based and mixed, for example, hiking, backpacking, mountaineering, bicycling, rock climbing, and skiing, all of which are land-based activities.

2.3.1.1 Mountaineering

Mountaineering is a palpable form of adventure tourism. It involves activities such as rock climbing, backpacking, physical fitness programs and cross-country skiing (Mitchell, 1983, cited in Pomfret, 2006). According to the Adventure Travel Society (2000) cited in Beedie and Hudson (2003), they distinguished between "hard" and "soft" adventure tourism, where mountaineering was classified as a "hard" form activity along with activities like water rafting, scuba diving, and mountain biking. However, Pomfret (2006) insisted that mountaineering operated at different levels and involved "hard" and "soft" adventure tourism activities, such as hiking, backpacking, climbing, mountaineering, skiing, via ferrata and wildness experiences should be all mountaineering-related activities.

In terms of Pomfret's (2006) conceptual framework about key influences on people's participation in mountaineering, push elements (including risk and mastery),

pull elements (involving natural mountain environment and conditions), personality attributes such as sensation seeking and lifestyle factors (including previous mountaineering experience) were regarded as the key influences on people's participation in mountaineering.

Swarbrooke *et al.* (2003) suggested that during participation, adventure tourists experienced contrasting emotions. Mountaineers would potentially experience flow, which combines enjoyment and exhilaration (Csikszentmihalyi, 1992, cited in Pomfret, 2006), and peak experience (Maslow, 1976, cited in Pomfret, 2006), which generates emotions leading to intense happiness.

2.3.2 Ecotourism

Huang (2005) proposed that hiking tourism should be focused on as an ecotourism product by developers because of its environment-friendly features. For example, hikers prefer nature with only basic facilities required, which is the way to optimize and organize the resources for attracting hikers while protecting resources in a long term should be thought of by developers. Hugo (1999) suggested that hiking trails not only are links between places or attractions but also a part of holistic integrated person-environment system; if hiking trails and their associated facilities and services have the following features: financially viable, community friendly, educationally enlightened, psychologically satisfying and environmentally sustainable on a long term basis, thus, hiking trails could be considered as a ecotourism products. Developers can organize and optimize hiking trails as true destinations based on natural, cultural, activities, facilities setting along the trails to satisfy tourists'

expectation.

2.4 Benefits of Hiking Tourism

2.4.1 Economic Benefits

The economic benefits range from the generally acknowledged multiplier-effects (of any type of tourism but which may be particularly strong in the remote destination) (Kastenholze & Rodrigues, 2007), the creation of local employment and business opportunities (Schutt, 1998 cited by Kastenholze & Rodrigues, 2007), while not requiring large public or private investments for developing a "hiking destination" (Kastenholze & Rodrigues, 2007).

The China Outdoor Recreation Industry Study written by China Outdoor Commerce Alliance (COCA) in 2008 found that fifty million of the Chinese population had taken part in some form of outdoor recreation in 2007, with hiking and backpacking among the most common activities, except for hiking equipment, each person would cost more than 3000 Yuan during hiking (COCA, 2008). So, hiking tourism has a great economic impact. It is ecological and environmental friendly, not enough resources are needed in developing hiking, in good tourism resources conditions but poor area, and it should be developed as a main tourism product (Huang, 2005).

2.4.2 Environmental Benefits

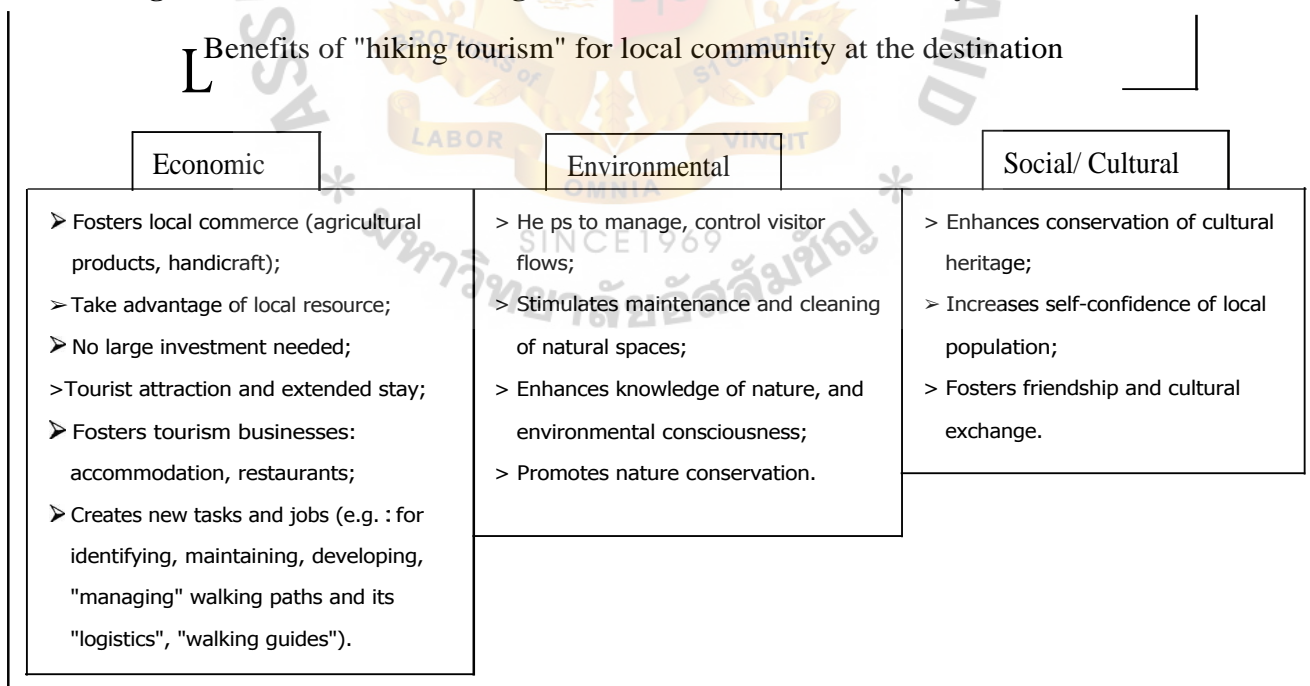
Environmental benefits are related to the potential of improved visitor management and environmental education through signed walking trails, as well as the increased value attributed to nature and its conservation, being generally the main

purpose of hiking (Kastenholze & Rodrigues, 2007). Additionally, a cultural site may be a special attraction of some hiking trails (e.g. an ancient temple or church, even ethnic villages on the way, etc.), whose protection might be enhanced through the increased value attributed by visitors.

2.4.3 Social and Cultural Benefits

Hall and Nylander (2005) cited in Kastenholze and Rodrigues (2007): social and cultural benefits may occur due to the increasing contact of a remote rural community with a relatively large number and variety of individuals, breaking their typical isolation, permitting the exchange of ideas and experiences, enhancing the rural population's self-esteem, and mutual learning for all involved. To sum up, the benefits of hiking for local community tourism are presented in Figure 2.1.

Figure 2.1 Benefits of "Hiking Tourism" for Local Community at the Destination



Source: Kastenholze and Rodrigues (2007). Discussing the potential benefits of hiking tourism in Portugal. *Anatolia: An International Journal of Tourism Hospitality Research*, 18(1): 5-21.

2.5 Demographic Profiles

2.5.1 Age

Mills' (2001) research highlighted some demographic characteristics of hikers to measure the relative importance; they placed emphasis upon recreational experience preference items. Ages of this research' respondents were fairly evenly distributed from 17 to 77 years, with an average age of 29.7 years for the entire sample. This result showed that the majority of hikers were young and middle-aged tourists; they preferred hiking trails could have more physical activity settings.

Musa, Hall and Higham (2004) inferred that ages have a significant interrelationship with on-site health ailments experience and motivation. The findings of this study illustrated that the majority of tourists were within the 20-29-year age group (42%) and younger age groups were more likely to experience mountain sickness, diarrhea and muscle/ soft tissue injuries than older tourists.

According to NTB (2008), the ages of major target tourists were form 22 to 35 years old in Bing Zhong Luo. Most of them visited this area for viewing the natural landscape and tried to explore and hike around the Bing Zhong Luo. They also like to climb up the mountain in the study area.

2.5.2 Gender

Based on the survey of Musa *et al.* (2004), it showed that the number of males to participate in hiking were much more than the number of females; the males constituted 60.6% of the tourists visiting Sagarmatha National Park and females 39.4%. Compared with males, females as the experienced hikers were lower than

males. It also had an interrelationship with on-site health ailments experience. Another research undertaken by Mills (2001) pointed that forty- four percent of hikers were males, and fifty- six were females and it had relevance with behavioral characteristics and recreation experience preference.

2.6 Hiking Motivation

Kastenholz and Rodrigues's study (2007) on potential benefits of hiking tourism in Portugal, summarized the main motivations of tourists participating in hiking were "to appreciate beautiful landscapes" and "to breath pure air" as well as "to be close to nature". However, these motivations ignored that hiking as an adventure tourism activity, it strongly linked to risk. Before participating in an adventurous activity, people evaluated their perceived competence against the perceived risk involved (Martin & Priest, 1986; Robinson, 1992 cited in Pomfret, 2006).

Musa *et al's* study (2004) of tourism sustainability and health impact in Nepal's Sagarmatha National Park included 30 motivational variables. The variables were adapted from both general travel motivations to more specific travel motivations in adventure tourism setting. They added risk-taking motivations "to be adventurous", "to test my physical strength and endurance", "to do things which only few could do", "to learn how to cope with difficult situations", "to test against challenges of nature" and "to experience the element of risk" into questionnaire. The results of this study showed that the top five motivations among tourists to SNP were "to enjoy scenic beauty", "to hike/ climb the mountain", "to widen one's experience", "to view Sagarmatha" and "to wilderness/ untouched nature". Those risk-taking motivations

which predispose to the incidence of mountain sickness are not considered as the main motivation of visits to SNP. Musa *et al.* (2004) not only added the risk-taking motivation, but also gave a detailed illustration about six motivation components derived from motivation variables as shown in Table 2.2.

Table 2.2 Motivation Components Derived from Motivation Variables

Motivation components	Motivation variables
Risk-taking motivation	To test my physical strength and endurance To tests against challenges of nature To test my mental skill To undertake strenuous activities The element of risk involved
Cultural	To learn about local culture To learn about local religion To meet and socialize with local people
Spiritual	For spiritual reasons To be closer to God
To get away	A break from modern technology To get way from life's pressure
Sightseeing	To view local landscape To take photographs
Social	To enjoy the accompany of friends and relatives To relax and rejuvenate

Source: adapted from Musa *et al.* (2004) Tourism Sustainability and Health Impacts in High Altitude Adventure, Cultural and Ecotourism Destinations: A Case Study of Nepal's Sagarmatha National Park. *Journal of Sustainable Tourism*, 12(4): 306-331.

2.7 Specific Tourists' Hiking Behavior

2.7.1 Previous Hiking Experience

Ewert (1985) inferred that participants' past experience of mountaineering influences their motives. Experienced mountain climbers have more internally oriented motives for participation such as personal testing, challenge, locus of control, decision-making and exhilaration; less experienced individuals express more externally oriented motives such as escapism, social activities and recognition (Pomfret, 2006). So, hiking as one of mountaineering activities could also have the above attribution.

The relationship also exists between the previous experience and risk perception. More experienced adventure recreation participants view positively, as a challenge and as an element that can be controlled, rather than as a danger and an aspect that cannot be controlled (Johnston, 1992, cited in Pomfret, 2006). In addition, the person who has more previous adventure experience can perceive risk more accurately (Priest, 1999).

Mills' study (2001) showed that major tourists in Colombian National Park had previous hiking experience at other natural areas and when asked about their experience expectations of hiking, more experienced hikers could give more answers about hiking trails and they could hike far more than less experienced hikers.

Based on the Musa *et al.* (2004), respondents rated their high altitude experience in the questionnaire. The majority of tourists (51.8%) considered themselves as "novice". "Intermediate" experience tourists accounted for 35.9% while only 12.3%

rated themselves as "experienced" tourists. More experienced tourists were males and in the middle-aged group (30-39 years old), and the incidence of common travel ailments were less than in the majority.

2.7.2 Information Sources Used for Selecting the Hiking Destination

With the rapid development of information technology, the information of hiking tourism is available through the internet channel. Tourists usually use the EMAIL, MSN, and tourism forum to exchange hiking experiences. Many small tour operators do not have the financial resource to market or distribute their products through travel agencies, and therefore promote them using Internet (Pomfret, 2006). According to Kastenholz and Rodrigues (2007), the sources of information used to choose a specific hiking trail or destination were the recommendation of friends and family (47%), the tourist guide (23%), followed by the internet (11%), although some respondents did not have any previous planning before visiting a trail or destination.

2.7.3 Hiking Trail Attributes Preference

The satisfaction of the hiking activities is strongly affected by the types of natural and human-made features that occur along the trail (Robson & Eagles, 2002). Understanding the relationships between the desired experiences and associated setting attributes will be useful for experience-based recreation setting management (Manfredo, Driver & Brown, 1983) and provide opportunities for developers to optimize a strategy for long-distance trails (Robson & Eagles, 2002).

A study undertaken by Robson and Eagles (2002) evaluated the landscape preferences of trail hikers in Ontario, Canada. This research covered and investigated

three parts of trail attributes preference: "most preferred trail attributes", "least preferred trail attributes" and "most preferred trail facilities". It reflected that hikers preferred views of undisturbed natural scenery, lakes, and streams, and directional signs.

Kastenholz and Rodrigues's study (2007) considered that the preferences of hikers, destinations with mountainous and forest areas, accessible through a well-designed network of walking trails, had the most potential for attracting tourists.

2.7.4 Preferred Activities during Hiking

Kastenholz and Rodrigues (2007) revealed that the generally preferred activities were relative with appreciation of nature and landscape, outdoor activities, as well as social and cultural elements of the destination's population. In terms of their research questionnaire, respondents expressed particular interests which were "taking photos", "walking through the countryside", "tasting local food", "hiking", "visiting natural parks and forests" and "getting to know local population".

Mills (2001) did the tourism research about recreation experience preferences of hikers in a Colombian National Park and found hikers at Colombian National Park tend to define their activities according to the following preferred recreation experience outcomes: exploration, general nature experience, tranquility/ solitude, escape from daily routine and from crowds, independence, exercise/ physical fitness, and a spiritual experience. In terms of these preferred recreation experience, operators and developers could design more kinds of activities which are more attractive and suit for hikers to evaluate activity settings.

2.8 Hiking Related Tourism Product

Unlike other forms of recreation activities, hiking offers a unique opportunity in which participants become more experienced and pursues extended risks. Sung, Morrison and O'Leary (1997) argued that adventure travel was primarily associated with activities where the purpose of trip was to be engaged in experiences through participation rather than in sightseeing at traditional tourist attractions. Although unlike traditional tourism, hiking tourism certainly cannot be separated from traditional tourism product of supply side. Beside accommodation, transportation, restaurant and entertainment are common in traditional tourism forms, there are two special hiking related tourism products as follows:

2.8.1 Hiking Guided Tours

Hiking guided tours services mainly include guide service and porter service. In the practice, hiring a guide when hiking in a remote and unfamiliar area has a long tradition (Buckley, 2006). This service primarily supplies hikers for navigation, local customs and culture, language and livelihood, or safety and security. Buckley (2006) did the adventure tourism research and mentioned that the practice of using local porters to carry supplies and equipment also had a long history in international exploration and expeditions, whether climbing mountain peaks or climbing, hiking and river trips in many areas. Nepal as a famous hiking and trekking destination, it provides various packaging of guided hiking trips as tourism products, with porters to carry tents and food and cooks to prepare meals (Buckley, 2006).

Currently, with the guided hiking tours becoming more and more popular in the

international markets, the tour operators and providers created different kinds of guides and porters to meet the hikers' demand. Most recently, tour operators have successfully sold the advantages of guides and logistic support for hiking tours in developed nations (Buckley, 2006).

2.8.2 Hiking Equipment/ Gear

Hiking equipments are important to the hikers, because they can provide the basic living conditions for hikers. As hiking operations are performed usually in rural or wilderness settings and walking a long distance, in the practice, hikers often prepare specific equipments before their trip, such as hiking boots, clothing, sleeping bags and tents. In terms of Sporting Goods Manufacturers Association (SGMA) cited in Buckley (2006), for instance, sales of camping gear in USA alone, for the preceding year, totaled US\$1.7 billion, of which US\$275 million was on tents, US\$435 million on hiking boots and US\$555 million on walking shoes. The sales of the hiking equipments continue incessantly. In China, most hiking tourism operators provide the hiking equipment rental services.

Actually, hiking equipment not only provides the basic living necessities but also has a function to protect hikers' health. For example, the backpacks which have APS back system or TFX back system designed by Lowe Alpine is renowned among hikers. Because these back systems can make the backpack lighter, and the hip belt, lumbar and shoulder harness are shaped for users to effectively reduce the backache by heavy load and potential risks. Hiking boots effectively can prevent joint pain or muscle pain while they walk a long distance.

2.9 Common Hiking Associated Ailments

A high altitude destination is defined as any place at 2500 m and above (Pollard & Murdoch, 1997; Ward, Milledge & West, 1995 cited by Musa, Hall & Higham, 2004). According to the above definition, Bing Zhong Luo (the average altitude more than 3000 m) can be considered as a high altitude destination. Compared with the mountains in the Hindu Kush-Himalayan Region (the average altitude is more than 6000 m), Bing Zhong Luo area is more suitable for the tourists who plan to do mountain-based hiking tourism but lack skills or experiences. However, the health consequences of visiting this high altitude destination still exist and are relatively neglected by tourism research.

A study by Pandey (1994) cited in Musa, Hall and Higham (2004): almost half of the tourists (46.7%) reported that they had some health problems such as diarrhea, headache, altitude sickness and respiratory infections in high altitude destination Sagarmatha National Park (SNP), Nepal. Those health ailments had reduced the satisfaction level by 50% in the visitors, as surveyed by Pandey. Another study by Musa *et al.* (2004) showed that 88.9% of the tourists experienced one or more health ailments in high altitude destination SNP, Nepal.

2.9.1 Mountain Sickness

The major effect of high altitude upon human physiology is the decrease in oxygen pressure and consequently the decreased content of oxygen in the arterial blood (Hultgren, 1997). The low oxygen concentration subsequently received by the body causes symptoms of Acute Mountain Sickness (AMS). A definition of AMS was

proposed by a consensus committee that met at the International Hypoxia symposium in 1991 as 'in the setting of a recent gain in altitude, the presence of headache and at least one of the following symptoms: gastro-intestinal (anorexia, nausea, vomiting), fatigue or weakness, dizziness or light-headedness, difficulty in sleeping (insomnia)' (Hultgren, 1997, cited by Musa *et al.*, 2004). Mountain sickness and respiratory symptoms become worse with altitude. The higher the altitude, the more likely tourists are to suffer ailments (Musa *et al.*, 2004).

The study undertaken by Musa *et al.* (2004) showed that 61.0% of the tourists experienced the most common ailment--headache which is the main symptom of mountain sickness in SNP, and it also indicated that younger age groups were more likely to experience headache than older age groups.

Moreover, apart from headache, tourists to SNP experienced other mountain sickness symptoms: shortness of breath on exertion (49.1%), insomnia (36.7%), dizziness (15.3%), and vomiting (14.9%). Loss of balance and confusion was experienced by 6.1% and 2.5% respectively (Musa *et al.*, 2004).

2.9.2 Diarrhea

Most studies assumed that the most common travel-associated ailment is diarrhea. Pandey (1994) and Musa *et al.* (2004) pointed out that diarrhea is one of the most common ailments experienced by tourists in high altitude destination SNP. Musa (2002) considered that the main reasons to cause the diarrhea were improper sewage systems, unsafe water supply and lack of knowledge regarding proper hygiene and sanitation in food preparation.

Musa *et al.* (2004) investigated that diarrhea was experienced by 37.2% of the tourists, which is concomitant to the 30- 40% estimated by the World Health Organization. The incidence of diarrhea was greatest among the younger age groups: 1-20 years (46.2%); 21-30 years (42.4%); 31-40 years (38.2%); 41-50 years (18.0%); 51-60 years (26.5%); and 60 years (44.4%). Interestingly, it was also higher during the rainy season (40.8%) than during the peak (36.4%) and winter season (34.6%).

2.9.3 Muscle Strain/ Pain

Muscle strain/ pain are another most common ailments experienced by hikers. Muscle strain or muscle pull or even a muscle tear implies damage to a muscle or its attaching tendons due to putting sudden, quick and undue pressure on muscles in the course of normal daily activities, sports, or while performing work tasks. Musa *et al.* (2004) claimed that the health symptoms were activity related, since all the tourists were trekkers, a substantial number of tourists experienced symptoms like muscle pain (42.3%), joint pain (21.7%), backache (15.5%), and blisters (14.6%). The incidences of muscle strain or pain were significantly less among 'experienced' tourists in high altitude and those who used the services of porters. Moreover, soft tissue injuries (sunburn, blisters, cuts/ bruises and frostbite) were experienced by 30.6% of the tourists to SNP. The incidence of soft tissue injuries was higher among younger tourists. Tourists on mountaineering parties were more likely to suffer soft tissue injuries compared with other tourists. Those who had the service of porters were less likely to suffer soft tissue injuries compared with those who did not have (Musa *et al.*, 2004).

2.10 Empirical Studies

Mills (2001): Recreation experience preferences of hikers in a Colombian National Park

This study investigated recreation experience preferences of hikers in a Colombian National Park to measure the preferred psychological outcomes of hiking activity participation and to stimulate some debate about the merits of studying the psychological underpinnings of the activity experiences of visitors to Latin American national parks and equivalent destinations.

Regarding demographic characteristics and behavioral characteristics of hikers, such as age, gender, previous hiking experiences and motivations, the researcher has defined hikers' hiking activities in terms of preferred recreation experience outcomes. The results of this research have shown that the experience preferences could provide meaningful information. Moreover, as hiking tourism having physical attributes, opportunities for experience preferences could also be used to physical design attributes to evaluate activity setting along the hiking trails.

Robson and Eagles (2002): Hiking opportunity spectrum: landscape and facility preferences of wilderness hikers in Ontario, Canada.

This study evaluated the landscape preferences of trail hikers, who were members of the Voyageur Trail Association, their feeling and ideas towards the members of the hiking trail, and the associated natural environment. The research mainly evaluated about trail activities preferences, trail attributes preferences, trail facilities preferences and campsite preferences. In terms of data from respondents,

hikers preferred or required views of undisturbed natural scenery; views of rivers, streams, lakes or waterfalls; and directional signs at trail intersections. They disliked sounds from logging, all-terrain vehicles and motors; views of commercial development or industrial and residential development.

These findings showed that the satisfaction with the hiking and camping activities were strongly affected by the types of natural and human-made features that occur along the trail. Hikers prefer natural environments, with only basic recreation facilities required.

Musa, Hall and Higham (2004): Tourism sustainability and health impacts in high altitude adventure, cultural and ecotourism destinations: a case study of Nepal's Sagarmatha National Park

The purpose of this study was to investigate the health consequences of visiting Nepal's Sagarmatha National Park via examining the following factors: motivation, anticipation, tourist profiles, destination profiles, on-site health ailments, and satisfaction/ dissatisfaction; and it also aimed to examine the interrelationships of these factors.

The researchers distributed 750 questionnaires during three separate seasons, of which the 448 completed useable questionnaires were returned. The results showed that despite good travel preparation, the majority of tourists (89.4%) suffered some kinds of health ailments. The most common travel ailments are mountain sickness (the symptoms have vomiting, dizziness or light-headedness, difficulty in sleeping etc.), musculoskeletal pain, diarrhea and respiratory infection. In addition, this study

also proved several significant relationships between the incidence of health ailments and demographic profiles, motivation and satisfaction. The research also mentioned that the previous hiking experience had relationships with health ailments, and demographic profiles. Finally, through an analysis, this study discussed whether the tourism in Sagarmatha National Park was sustainable and proposed recommendations for solving current issues in this region.

Pomfret (2006): Mountaineering adventure tourists: a conceptual framework for research

This paper introduced a conceptual framework to evaluate mountaineer adventure tourists, key influences on their participation in mountaineering, and their actual experiences during involvement. In this paper, the researcher emphasized the following influences which encouraged tourists to participate; they are push elements (including risk and mastery), pull elements (involving natural mountain environment and conditions), personality attributes such as sensation seeking and lifestyle factors (including previous mountaineering experience).

Kastenholz and Rodrigues (2007): Discussing the potential benefits of hiking tourism in Portugal

This study aimed to discuss the relevance and potentialities of hiking as a tourist activity, looking at its particular role and potential in Portugal. Based on results of a survey on what Portuguese and foreign hikers encountered in different natural areas in Portugal, the researchers divided them into three groups of hikers which were distinguished by expenditure level (the amount of money spent per day) during their

visit on walking path to find the differences among tourists in terms of socio-demography, travel behavior and travel- and hiking-related attitudes. According to the collected data, the medium and highest-level expenditure groups seem to be relatively close in socio-demography, travel behavior and travel- and hiking-related attitudes; and considering the preferences of these two groups, they like hiking destination with mountains and forest areas, a well-designed network of walking trails.

Finally, based on medium and highest-level expenditure groups, the researchers identified them as "biggest spenders". Moreover they discussed economic, environmental, social and cultural consequences of "biggest spenders" and tried to find the ways to satisfy their needs from a perspective of sustainable tourism development.

Table 2.3 Summary of Empirical Studies

Author/ Year/ Research topic	Research objective	Methodology	Findings
Mills (2001) Recreation experience preferences of hikers in a Colombian National Park	<ul style="list-style-type: none"> - To measure the preferred psychological outcomes of hiking activity participation - To stimulate some debate about the merits of studying the psychological underpinnings of visitors' experiences to Latin American national parks 	Questionnaire (the number of valid questionnaires was 55)	<ul style="list-style-type: none"> -Recreational experience preferences have relationships with demographic characteristics and behavioral characteristics of hikers -Opportunities for experience preferences can be used to evaluate the activity setting along the hiking trails

..... Continued

Table 2.3 continued

Author/Year/ Research topic	Research objective	Methodology	Findings
Robson and Eagles (2002) Hiking opportunity spectrum: landscape and facility preferences of wilderness hikers in Ontario, Canada	To evaluate the landscape preferences of trail hikers, including trail activities preferences, trail attributes preferences, trail facilities preferences and campsite preferences	Questionnaire (the number of valid questionnaires was 204)	-Hikers preferred or required views of undisturbed natural scenery; views of rivers, streams, lakes or waterfalls; and directional signs at trail intersections -The satisfaction with the hiking and camping activities was strongly affected by the types of natural and human-made features that occur along the trail
Musa, Hall and Higham (2004) Tourism sustainability and health impacts in high altitude adventure, cultural and ecotourism destinations: a case study of Nepal's Sagarmatha National Park	- To investigate the health consequences of visiting Nepal's Sagarmatha National Park via examining motivation, anticipation, tourist profiles, destination profiles, on-site health ailments, and satisfaction/dissatisfaction - To examine the interrelationships of the above factors	Questionnaire (the number of valid questionnaires was 448)	-Despite good travel preparation, the majority of tourists suffered some kinds of health ailments. -The most common travel ailments were mountain sickness, musculoskeletal pain and diarrhea -Proved several significant relationships between the incidence of health ailments and demographic profiles, motivation and satisfaction

..... Continued

Table 2.3 continued

Author/Year/ Research topic	Research objective	Methodology	Findings
Pomfret (2006) Mountaineering adventure tourists: a conceptual framework for research	To introduce a conceptual framework to evaluate mountaineering adventure tourist, key influences on their participation in mountaineering and their actual experience during involvement	Academic study	Push elements, pull elements and personality attributes are key influences which encourage tourists to participate in mountaineering
Kastenholz and Rodrigues (2007) Discussing the potential benefits of hiking tourism in Portugal	To discuss the relevance and potentialities of hiking as a tourist activity, looking at its particular role and potential in Portugal	Questionnaire (the number of valid questionnaires was 200)	-Different expenditure groups have the differences among tourists with respect to socio-demography, travel behavior and travel- and hiking-related attitudes - The medium and highest-level expenditure groups have big potential benefits

All in all, the findings of these empirical studies mainly focus on analyzing hikers from different aspects, such as hikers' recreation experience preferences, landscape and facility preferences, key influences of hiking participation, and health impacts. These studies also discussed hiking tourism's potential benefits and sustainability. The findings further show that the hiking motivation, behaviors and preferences, even ailments experienced by hikers are associated with hikers' demographic and socio-demographic profiles, and hikers' lifestyle. Tourists'

satisfaction is affected by destination profiles and the feelings, attitudes, experiences and perceptions from different tourist groups.

Based on the findings about key support references, it can be concluded that demographic, socio-demographic profiles and lifestyle influence hiking behaviors and motivations; further more these elements have influenced the facilities and activities setting in the hiking trails, resulting in influence tourists' demand of hiking related tourism products, such as accommodation, restaurant and maps in a hiking destination.

Meanwhile, in a high altitude (above 2500 meters) hiking destination, tourists are more vulnerable by some kinds of ailments, such as mountain sickness, diarrhea and muscle strain/ pain. The empirical studies have shown that common travel ailments are associated with age and frequency of hiking (previous hiking experience). Understanding the most common travel associated ailments experienced by hikers will help future tourists to prepare well for hiking and feel satisfied with their hiking trips.

CHAPTER III

RESEARCH FRAMEWORK

The research framework which is discussed in this chapter includes the theoretical framework, the conceptual framework, dependent and independent variables, research hypotheses and operationalization of variables. The previous studies are used to develop the conceptual framework of this research. Then, the hypotheses are formulated to test the relationships between various variables in the framework.

3.1 Theoretical Framework

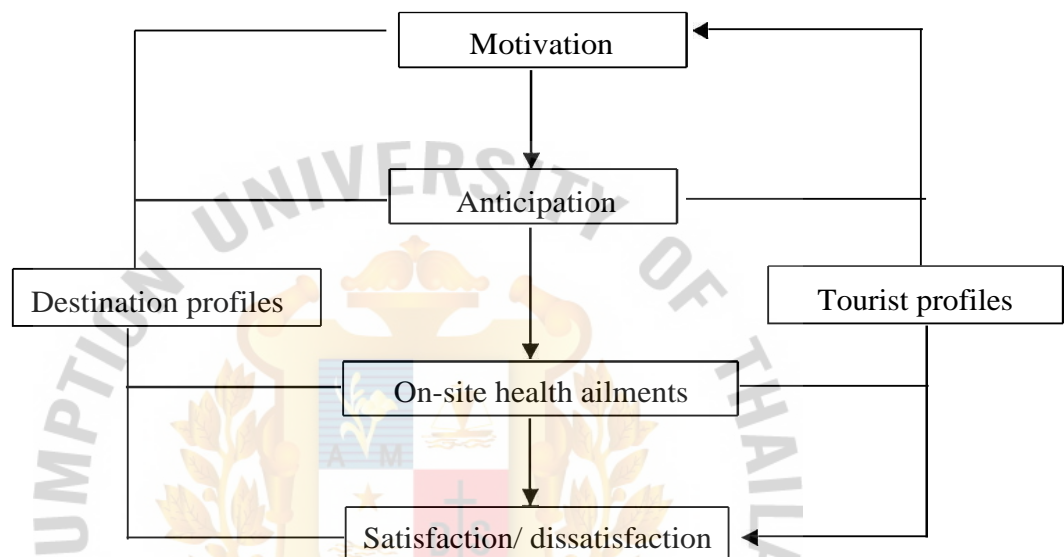
The following two literatures have been analyzed and modified to be used for establishing the conceptual framework of the present research.

The study of Musa *et al.* (2004) investigated health consequences of hiking in a high altitude destination in Nepal. It was found out that there were several significant relationships between the incidence of most common travel ailments and tourists' demographic profiles, motivation and satisfaction (see Figure 3.1). From the tourist profile, age, gender and other demographic elements contribute to forming different tourists' lifestyles affecting their hiking motivation. From destination profiles, the conditions of natural and cultural resources, trail attributes, facilities and the tourism products that are supplied by locals at the destination are considered as the pull factors that attract tourists. This research has categorized on-site common health ailments experienced by hikers under three aspects: the symptoms of mountain sickness, diarrhea and muscle strain/ pain. Most of these on-site ailments can be avoided by good pre-travel preparation, thereby, enabling tourists to get higher satisfaction.

Pomfret (2006) insisted that previous mountaineering experience as one of

elements be included in lifestyles, which could affect adventure tourism motivation, personal perception and personality characteristics of mountaineers, hikers or climbers. Moreover, it has a strong relationship with risk perceptions. Risk element is the key influence on adventure tourism participation; more experienced hikers view risk positively and control it effectively to protect health, safety and security.

Figure 3.1 Travel Health Experience

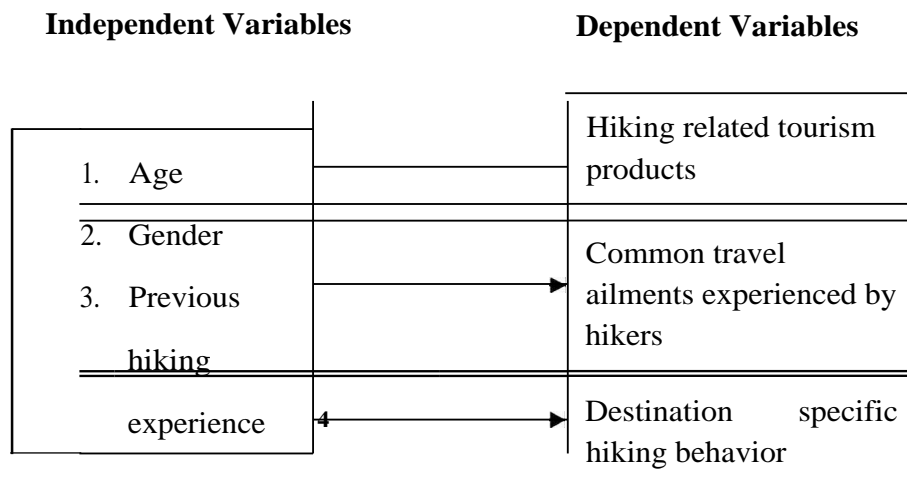


Source: Musa *et al.* (2004). Tourism sustainability and health impacts in high altitude adventure, cultural and ecotourism destinations: a case study of Nepal's Sagarmatha National Park. *Journal of Sustainable Tourism*, 12(4): 306-331.

3.2 Conceptual Framework

In this research, the age of tourists, gender and previous hiking experience are represented as independent variables while hiking related tourism products, the common travel ailments experienced by hikers and destination specific hiking behavior are dependent variables as illustrated in Figure 3.2.

Figure 3.2 Conceptual Framework of this Research



3.2.1 Independent Variables

In this study, the independent variables consist of the tourists' age, gender and previous hiking experience. Age and gender are adopted from study of Musa *et al.* (2004). Previous hiking experience comes from Pomfret' study (2006) based on mountaineering adventure tourists for research. Each part is considered as a variable that influences hiking related tourism products and the common travel ailments experienced by hikers.

Age and gender were rarely used as independent variables in the previous study on hiking. As mentioned in chapter two, the findings of the empirical studies indirectly showed that hiking behaviors, preferences of hiking trail attributes and activities are associated with hikers' demographic profiles and directly related with socio-demographic profiles, especially the level of education and the level of expenditure. This study chooses age and gender as independent variables to explore the differences for demand of hiking related tourism products and the most common travel ailments experienced by hikers. Accordingly, the developers and planners can organize or optimize the hiking related tourism products in the study area to meet

demands of different groups of tourists; and alert those who prepare to take part in hiking tourism at a high altitude destination on what kind of ailments should be prevented to lower the health risks.

Previous hiking experience as an element of lifestyle is usually used to analyze the risk-taking motivations and risk perceptions. As Pomfret (2006) mentioned that more experienced adventure recreation participants can perceive risk more accurately; it indirectly reflects that those who have more previous adventure experience view health risk more positively than others. Mills' study (2001) showed that more experienced hikers could give more suggestions about facilities and activities along the hiking trail or in a hiking destination. So this research explores the differences in demand of hiking related tourism and common travel ailment experienced by hikers with regard to previous hiking.

3.2.1 Dependent Variables

Hugo (1999) did a tourism research entitled "A comprehensive approach towards the planning, grading and auditing of hiking trails as ecotourism products". It gave some checklists to evaluate whether the hiking trails can be considered fit for natural hiking trails. Hiking related tourism products adapted some parts of accommodation facilities and trail facilities from Hugo (1999) and modified some supply side tourism products linked with hiking and usually used by hikers in order to combine practical hiking experience.

Common travel ailments experienced by hikers include three aspects adopted from Musa *et al.* (2004), which are the symptoms of mountain sickness, diarrhea and Muscle strain/ pain. These two parts (hiking related tourism products and common travel ailments experienced by hikers), as dependent variable, are discussed in chapter two.

3.3 Research Hypothesis

The hypotheses are propositions or the statements that can be tested by reference to the empirical study (Saunders, Lewis & Thornhill, 2007). In terms of the conceptual framework, the research hypotheses of this study can be formulated as follows:

Ho1: The differences in hiking related tourism products with regard to hikers' age are not significant.

Ha1: The differences in hiking related tourism products with regard to hikers' age are significant.

Ho2: The differences in hiking related tourism products with regard to hikers' gender are not significant.

Ha2: The differences in hiking related tourism products with regard to hikers' gender are significant.

Ho3: The differences in hiking related tourism products with regard to hikers' previous hiking experience are not significant.

Ha3: The differences in hiking related tourism products with regard to hikers' previous hiking experience are significant.

Ho4: The differences in common travel ailments experienced by hikers with regard to age are not significant.

Ha4: The differences in common travel ailments experienced by hikers with regard to age are significant.

Ho5: The differences in common travel ailments experienced by hikers with regard to gender are not significant.

Ha5: The differences in common travel ailments experienced by hikers with regard to gender are significant.

Ho6: The differences in common travel ailments experienced by hikers with regard to

previous hiking experience are not significant.

Ha6: The differences in common travel ailments experienced by hikers with regard to previous hiking experience are significant.

3.4 Operationalization of Variables

The operationalization of variables can help briefly illustrate the measurement on the questionnaire, and give the specific ways to research questions under research. This study has applied scales required appropriate statistical procedure for an analysis, including ordinal, interval and nominal scales. Table 3.1 and Table 3.2 show the operationalization of independent and dependent variables.

Table 3.1 Operationalization of Independent Variables

Independent Variables	Conceptual Definition	Operational Component	Scale of Measurement	Question No.
Age	The length of time that one has existed; the duration of life	<ul style="list-style-type: none"> - Under 20 years - 20- 40 years - 41- 60 years - Above 60 years 	Ordinal	Part I: Q.2
Gender	The states of being a male or a female	<ul style="list-style-type: none"> - Male - Female 	Nominal	Part 1: Q.1
Previous hiking experience	Number of times a tourist participates in a hiking activity	<ul style="list-style-type: none"> - First time - 2-3 times - 4 or more 	Ordinal	Part II: Q.6

Table 3.2 Operationalization of Dependent Variables

Dependent Variables	Conceptual Definition	Operational Component	Scale of Measurement	Question No.
Hiking related tourism products	The goods or services which have some relationships with hiking tourism are supplied by different tourism operators	<ul style="list-style-type: none"> - Accommodation - Bed and breakfast - Restaurant - Guide tours - Some source of transportation - Shops with hiking equipment - Souvenirs - Maps - Guidebooks 	Interval	Part III: Q.17- Q.25
Most common travel associated ailments experienced by hikers	The typical minor illnesses or health consequences are felt by tourists when they participate in hiking	<ul style="list-style-type: none"> - Headache - Shortness of breath on exertion - Muscle strain/ pain - Diarrhea - Insomnia - Dizziness - Loss of balance - Confusion - Vomiting 	Interval	Part IV: Q.26- Q.34

CHAPTER IV

RESEARCH METHODOLOGY

The purpose of this chapter is to provide an overview of the research methodology in this research. This chapter includes the methods of the research being used, respondents and sampling procedures, research instrument/ questionnaire, collection of data procedures, pre-test and reliability test, statistical treatment of data and statistical technique used for the data analysis.

4.1 Methods of Research Used

The method of the research used in this study is descriptive research. Zikmund (2003) pointed that descriptive research was mainly concerned with when, what, where and who questions and it could generate original data for portraying an accurate characteristic of events, persons and situations efficiently.

In this research, the information has been collected from hikers using a survey. Visitor surveys are the most complex tool in order to monitor the characteristics and behaviors of tourists who hike and visit the destination- Bing Zhong Luo (BZL). Tourists visiting BZL can provide a standard questionnaire. Questions being asked about tourists' motivations, preferences and their feelings about destination, more information can be revealed.

4.2 Respondents and Sampling Procedures

4.2.1 Target Population

In this study, the target population is the tourists who have chosen BZL as a hiking destination and visited around BZL, Yunnan, China. The target respondents of

this research are domestic and international tourists hiking in BZL or who have been there to do hiking in recent years.

4.2.2 Sample Size

According to Zikmund (2003), the sample size is the number of observations or cases specified and governed by estimated variance of the population, the magnitude of acceptable error or the confidence level. Saunders, Lewis and Thornhill (2009) mentioned that the larger the sample size, the lower the likely error in generalizing population.

The tourists' arrivals in BZL exceeded 146,640 from BZL tourism statistic in 2010 (NTB, 2010). According to Anderson and Arsenault's (1998) table of the sample size (Table 4.1), the sample size of 382 respondents should be used as representative sample in this study.

Table 4.1 Theoretical Sample Size for Different Sizes of Population and A 95% Level of Certain

Population (Sampling frame)	Required Sample for Tolerable Error			
	5%	4%	3%	2%
100	79	86	91	96
500	217	272	340	413
1,000	277	375	516	705
5,000	356	535	897	1,622
50,000	381	593	1,044	2,299
100,000	382	596	1,055	2,344
1,000,000	384	599	1,065	2,344
25,000,000	384	600	1,067	2,400

Source: Anderson and Arsenault (1998). *Fundamentals of Educational Research* (2th Ed.). (pp. 202). London: Falmer Press.

4.2.3 Sampling Procedure

There are two types of sampling procedures--probability and non-probability sampling. Probability sampling methods ensure that there is a possibility for each person in a sample population to be selected, whereas non-probability methods target specific individuals (Saunders *et al.*, 2009). This research has chosen non-probability sampling and has used a purposive sample (to purposely select respondents who have hiking experience in BZL to survey) method to collect data.

The 400 self-administered questionnaires were distributed to hiking tourists around the study area at hotels, lodges, guest houses and hiking trails by researcher. Before distributing the questionnaires, the tourists were asked whether they are hikers. However, hikers usually go to different areas around BZL, and it is difficult to access and find hikers. Therefore, another way to distribute the questionnaires was through internet, which means the research used an online survey to hikers who have had the hiking experience in BZL recently, and at the same time the URL of online survey was put in the hiking forum (check the questionnaire online address: http://www.my3q.com/go.php?url=hermit_mizhou/hikingtourism).

4.3 Research Instruments/ Questionnaire

The research instrument of this study is a self-administrated questionnaire. This questionnaire consists of four major parts:

Part I: Respondents' profiles

This part mainly asks the respondents' demographic and social-demographic information including gender, age, level of education, marital status and approximate

monthly income. A total of five category questions have been asked in this section.

Part II: Destination specific hiking behavior

In this part, eleven questions have been asked the respondents about the detailed information of tourists' specific hiking behavior in the study area. These questions include frequency of hiking, constraints on hiking, information sources used for selecting the hiking destination, accommodation used, means of transportation, travel groups, length of trail, attributes valued in a hiking trail, preferred activities, benefits sought and hiking motivation. Multiple choices questions are used in this section.

Part III: Hiking related tourism products

In the third part, the respondents have been asked about the viewpoints on the level of importance of hiking related tourism products. This section consists of nine questions. These questions have a strong linkage with practical hiking tourism. That includes accommodation products, facilities, guide service, and hiking equipments. The levels of importance range from extremely important to not important at all, measured on a five point likert scale 5 – extremely important, 4 – fairly important, 3 – neither important nor unimportant, 2 – not so important, 1 – not important at all.

Part IV: Most common travel associated ailments experienced by hikers

The last section comprises nine questions asking about the symptoms felt on the tourists' hiking expedition in the study area. The main ailments include mountain sickness, diarrhea and muscle strain/ pain. The research uses the five point likert scale ranging from 5 – all the time feel, 4 – most of the time feel, 3 – feel sometimes, 2 – rarely feel, 1 – never feel, to measure the most common travel associated ailments

experienced by hikers in BZL.

4.4 Collection of Data Procedures

4.4.1 Primary Data

The primary data of this research was collected by using self-administered questionnaires and online survey. The data collection process was carried out from February 2011 to July 2011. Around 400 questionnaires were distributed mainly at BZL, Yunnan, China and 50 questionnaires online survey to the tourists who were members of the hiking forum and had the hiking tourism experience at BZL recently. 382 usable questionnaires were received. Then, as for the assessment, the researcher used the Statistical Package of Social Science (SPSS) program to analyze the data for acquiring the accurate outputs and results.

4.4.2 Secondary Data

The sources of the secondary data in this research come from newspapers, magazines, textbook; academic tourism researches, professional journals gathered from St. Gabriel Library of Assumption University, the online database from Library; the destination information and the tourism statistical data from the website of the Nujiang government, tourism brochures and Nujiang Lisu Autonomous Prefecture Tourist Bureau.

4.5 Pre-test and Reliability Test

In this study, the questionnaires were distributed to 30 tourists around BZL at hotels, lodges, guest houses, restaurant and hiking trails from 2nd February to 6th February 2011. Raw data received from the pre-test study were decoded and

processed by the SPSS program to find validity and reliability level.

The reliability of data has been examined by using Cronbach's Coefficient Alpha Scale to test the internal consistency. Cronbach's Coefficient Alpha can range from 0 to 1, if alpha value less than 0.6, is usually regarded as unsatisfactory research (Hawkins and Tull, 1993). The research has calculated pre-test as shown in Table 4.2.

From the result of reliability analysis by using Cronbach's Alpha of 18 items, it has been found to be greater than 0.6 (see Table 4.2). So, it could be considered that the research instrument is reliable.

Table 4.2 Pretest Results

Hiking related tourism products

Case Processing Summary				Reliability Statistics	
		N	%	Cronbach's Alpha	N of Items
Cases	Valid	30	100.0	.726	9
	Excluded	0	.0		
	Total	30	100.0		

a. Listwise deletion based on all variables in the procedure.

Most common travel associated ailments experienced by hikers

Case Processing Summary				Reliability Statistics	
		N	%	Cronbach's Alpha	N of Items
Cases	Valid	30	100.0	.783	9
	Excluded	0	.0		
	Total	30	100.0		

a. Listwise deletion based on all variables in the procedure.

4.6 Statistical Treatment of Data

4.6.1 Descriptive Statistics

Descriptive statistics are usually applied for transformation of raw data into a form that will make them easy to understand and interpret in a research. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data (Saunders *et al.*, 2009).

In this study, descriptive statistics have been applied for analyzing the interrelationship occurred between destination specific hiking behaviors of tourists who visiting BZL, their perception about hiking related tourism products or on-site ailments experience and demographic profiles or previous hiking experience.

4.6.2 Inferential Statistics

Inferential statistics are the techniques used for inferring according to observation aspects concerning the entire population; the major inferential statistics include the t-test, Analysis of Variance (ANOVA), Analysis of Covariance (ANCOVA), regression analysis, and many of the multivariate methods like factor analysis, multidimensional scaling, cluster analysis, and so on (Clark, Riley, Szivas, Wikie and Wood, 2000).

Analysis of variance (ANOVA) is the statistical method to determine if statistically significant differences in means occur between two or more groups; the ANOVA is for testing the null hypothesis that the means of treatment population are equal. It is also used for dealing with an analysis of one interval scaled dependent

variable and one or more nominal scaled independent variables (Zikmund, 2003). In this study, the inferential statistics have been used for analyzing the hypothesis. The one-way ANOVA has been applied in this research to generate significance value and to indicate whether there are significant differences within the comparisons being made. The most common way to examine differences amongst groups in one-way ANOVA is the F-test. The formula of calculation of the F-ratio is shown as follow:

Formula 4.1 Formula of Calculation of the F-ratio

$$F = \frac{MS_{\text{between}}}{MS_{\text{within}}}$$

Source: Kim & Kohout (1975). Analysis of variance and covariance: subprograms ANOVA and ONEWAY. *Statistical Package for the Social Sciences*, pp.398-410.

MS_{between} The between-groups mean square (the portion of Total of Sum of Square which is accounted for by the categories of the independent variable divided the Between-groups Degrees of Freedom).

MS_{within} The within-groups mean square (the portion of Total of Sum of Square which is not accounted for by the categories of the independent variable divided the Within-groups Degrees of Freedom).

The t-test assesses whether the means of two groups are statistically different from each other (Zikmund, 2003). As this study proposes to compare the differences in hiking related tourism products and common ailments between two groups (female group and male group), therefore independent sample t-test has been also used in this study. Zikmund (2003) pointed out that an independent t-test is used to test the hypothesis where the mean scores on some interval or ratio scaled variables will be

significantly different for two independent samples or groups. The formula for the t-test is a ratio. The top part of the ratio is just the difference between the two means or averages and the bottom part is a measure of the variability. The t statistic to test whether the population means are different can be calculated as follows:

Formula 4.2 Formula of Calculation of the Independent Sample T-test

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_{\bar{X}_1 - \bar{X}_2}}$$

Source: Heiman (2010). Chapter 12: The Two-sample t-Test: the independent samples t-test. *Basic Statistics for the Behavioral Sciences*. (6th Ed, pp. 262-266). Wadsworth: Cengage Learning, Inc.

\bar{X}_1 = the mean of sample 1 or group 1.

\bar{X}_2 = the mean of sample 2 or group 2.

$S_{\bar{X}_1 - \bar{X}_2}$ = the standard error of the difference between the mean values of group 1 and group 2.

4.7 Statistics Used for Data Analysis

Table 4.3 Summary of Statistical Tests to Be Used

Hypothesis	Hypothesis Statements	Statistical tests
H ₀₁	The differences in hiking related tourism products with regard to age are not significant.	One-way ANOVA
H ₀₂	The differences in hiking related tourism products with regard to gender are not significant.	Independent sample t-test
H ₀₃	The differences in hiking related tourism products with regard to previous hiking experience are not significant.	One-way ANOVA

..... Continued

Table 4.3 continued

H ₀₄	The differences in common travel ailments experienced by hikers with regard to age are not significant.	One-way ANOVA
H ₀₅	The differences in common travel ailments experienced by hikers with regard to gender are not significant.	Independent sample t-test
H ₀₆	The differences in common travel ailments experienced by hikers with regard to previous hiking experience are not significant.	One-way ANOVA



CHAPTER V

PRESENTATION OF DATA AND CRITICAL DISCUSSION OF RESULTS

This chapter presents details of the data analysis which summarizes the data collected from 382 questionnaires. It mainly focuses on the inferential statistics analysis of hypothesis testing of variables. The six hypotheses to yield testing results are illustrated below.

5.1 Presentation, Analysis and Interpretation of Data

Descriptive statistics provide the initial summary of collected data, from 382 questionnaires, by distributing 400 questionnaires to the tourists in BZL from 17th July to 23th July 2011 along with distribution 50 by online survey from 1st July to 18th August (check the questionnaire online address: http://www.my3q.com/go.php?url=hermit_mizhou/hikingtourism). The response rate in this study is 84.8% (the rate of returned questionnaires after distribution of 400 self administered questionnaires in the study area is 90.5%. And the rate of returned questionnaires after distribution of 50 online surveys is 40%). The data have been processed by the Statistical Package for Social Science (SPSS) software, Version 19.0. The descriptive data have been analyzed by an explanation of frequency and percentage of variables. The independent variables include gender, age and previous hiking experience. The dependent variables are categorized as hiking related tourism products and the most common travel ailments experienced by hikers.

5.1.1 Frequency Distribution of Independent Variables

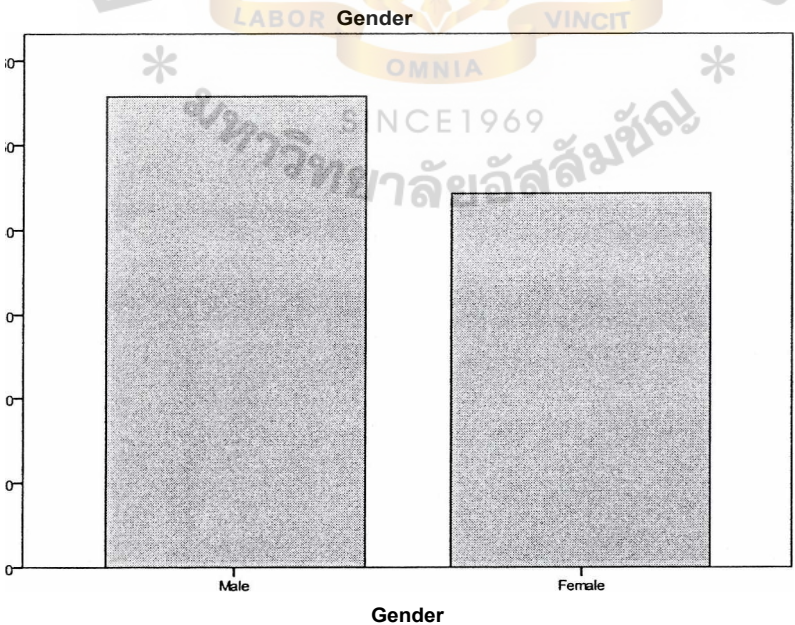
5.1.1.1 Gender

The gender of 382 respondents has been depicted in Table 5.1 and Figure 5.1. The results show that there are more males than females who have visited BZL for hiking tourism, accounting for 55.8% for males (213 respondents), while 169 respondents are females, accounting for 44.2%. It is noticeable that the number of male hikers exceeds that of females by 11.6% in this study.

Table 5.1 Gender of Respondents

		Gender			Cumulative Percent
		Frequency	Percent	Valid Percent	
Valid	Male	213	55.8	55.8	55.8
	Female	169	44.2	44.2	100.0
	Total	382	100.0	100.0	

Figure 5.1 Gender of Respondents



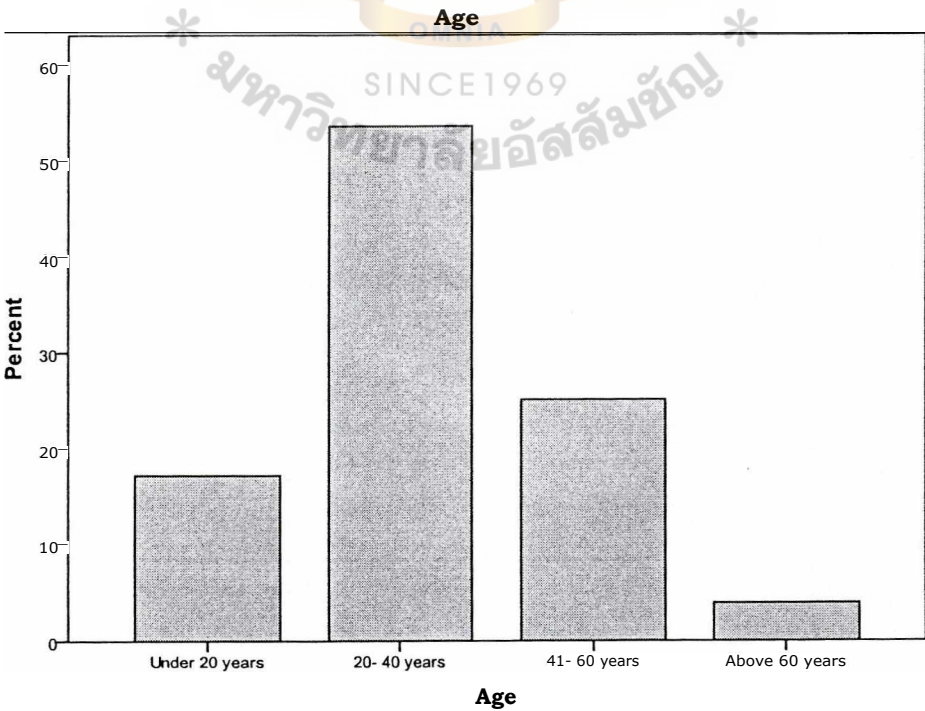
5.1.1.2 Age

Table 5.2 and Figure 5.2 below show that out of 382 respondents in this research, 15 respondents (or 3.9%) are above 60 years of age, 66 respondents (or 17.3%) are less than 20 years old, 96 respondents (or 25.1%) are in the age range of 40 and 60 years, while the age group between 20 to 40 years old is the largest in number (205 respondents), accounting for half (53.7%) of the respondents.

Table 5.2 Age Group of Respondents

		Age			Cumulative Percent
		Frequency	Percent	Valid Percent	
Valid	Under 20 years	66	17.3	17.3	17.3
	20- 40 years	205	53.7	53.7	70.9
	41- 60 years	96	25.1	25.1	96.1
	Above 60 years	15	3.9	3.9	100.0
	Total	382	100.0	100.0	

Figure 5.2 Age Group of Respondents



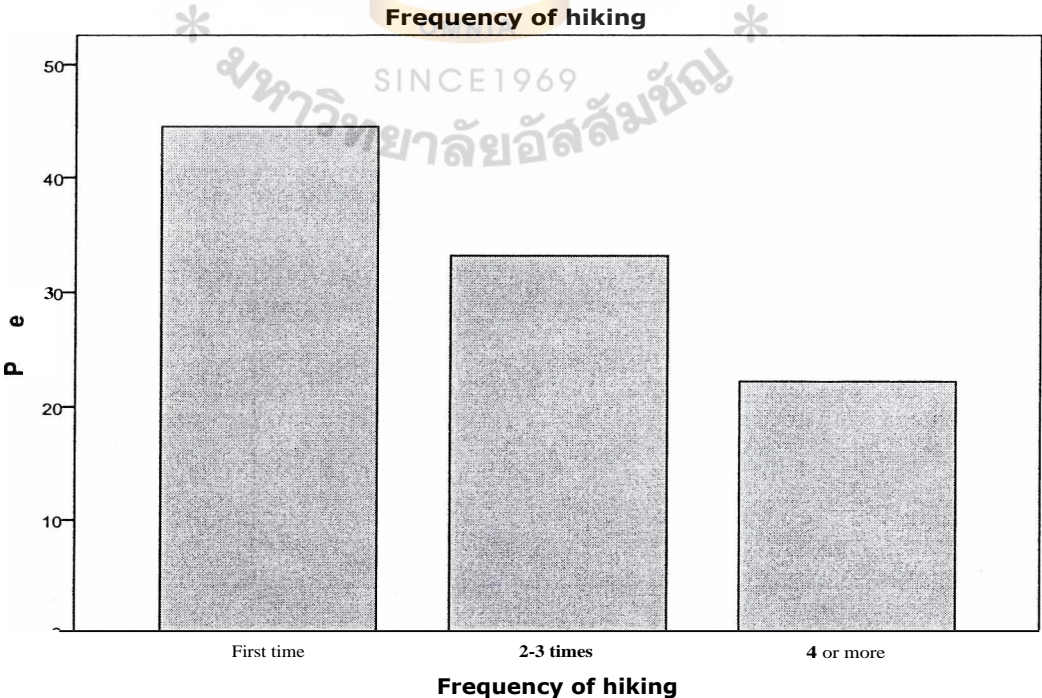
5.1.1.3 Previous Hiking Experience

It can be seen from Table 5.3 and Figure 5.3 that, with regard to the frequency of hiking among the respondents in this study, nearly half of the respondents do not have the previous hiking experience and they have participated in the hiking tourism for the first time (44.5%), followed by those who have had 2-3 times hiking experience (33.2%), while the least number (22.3%) is those who have had 4-or-more time experience.

Table 5.3 Previous Hiking Experiences of Respondents

		Frequency of hikin			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	First time	170	44.5	44.5	44.5
	2-3 times	127	33.2	33.2	77.7
	4 or more	85	22.3	22.3	100.0
	Total	382	100.0	100.0	

Figure 5.3 Previous hiking Experiences of Respondents



5.1.2 Frequency Distribution of Dependent Variables

5.1.2.1 Hiking Related Tourism Products

Table 5.4 Hiking Related Tourism Products (N = 382)

Hiking Related Tourism Products	Mean	Std. Deviation
Accommodation	3.38	.920
Bed and breakfast	3.44	1.014
Restaurant	3.42	.785
Guided tours	3.08	.803
Some source of transportation	3.62	.803
Shops with hiking equipment	2.57	.783
Souvenirs	3.21	.840
Maps	3.91	.945
Guidebooks	3.67	.882

a : A 5-level scale is used where 1 - not important at all and 5 - extremely important.

According to the results shown in Table 5.4, the items "Maps" has the highest mean score (3.91), followed by "Guidebooks" represented by 3.67. The lowest mean score 2.57 comes from "Shops with hiking equipment". It can be concluded that most of the respondents consider "Maps" and "Guidebooks" to be more important hiking related tourism products on their trips.

Table 5.5 indicates the frequency and percentage of hiking related tourism products; the respondents are instructed to rate their level of importance of hiking related tourism products. A five-point Likert Scale has been used where 1 means not important at all and 5 means extremely important.

Table 5.5 Frequency of Hiking Related Tourism Products (N = 382)

Hiking related tourism products	Extremely important (⁵)	Fairly important (4)	Neither important nor unimportant (3)	Not so important (2)	Not important at all (1)
Accommodation	9.4% n=36	39% n = 149	33.2% n=127	17.0% n=65	1.3% n=5
Bed and breakfast	14.1% n=54	38.5% n = 147	26.7% n=102	18.6% n=71	2.1% n=8
Restaurant	5.0% n=19	43.7% n = 167	41.4% n=158	8.1% n=31	1.8% n=7
Guided tours	1.6% n=6	29.3% n=112	46.9% n = 179	19.9% n=76	2.4% n=9
Some source of transportation	7.6% n= 29	57.3% n = 219	27.0% n= 103	5.8% n= 22	2.4% n= 9
Shops with hiking equipment	0.3% n=1	11.3% n= 43	40.1% n= 153	42.1% n = 161	6.3% n= 24
Souvenirs	0.3% n = 1	43.2% n = 165	37.2% n=142	15.7% n=60	3.7% n=14
Maps	28.0% n=107	45.5% n = 174	18.6% n=71	5.5% n = 21	2.4% n = 9
Guidebooks	15.2% n=58	47.9% n = 183	27.5% n=105	7.9% n=30	1.6% n=6

As seen from the Table 5.5, over half of the tourists consider that ‘Some source of transportation’ as a hiking related tourism product is fairly important to their trips, accounting for 57.3% of the respondents, followed by "Guidebooks", constituting nearly half (47.9%) of respondents feeling fairly important to it. "Maps" is considered to be fairly important constituting 45.5% of the respondents, "Restaurant" (43.7%),

"Souvenirs" (43.2%), "Accommodation" (39%), and "Bed and breakfast" (38.5%) is felt to be fairly important. However, 42.1% out of 382 respondents have chosen "Shops with hiking equipment" not to be a so important hiking related tourism product. "Guided tours" is felt to be neither important nor unimportant constituting 46.9% of the respondents. It can be concluded that a large number of respondents consider accommodation, bed and breakfast restaurant, some source of transportation, souvenirs, maps and guidebooks to be fairly important hiking related tourism products when they participate in hiking tourism.

5.1.2.1 Most Common Travel Ailments Experienced by Hikers

Table 5.6 Most Common Travel Ailments Experienced By Hikers (N = 382)

Most Common Travel Ailments Experienced by Hiker	Mean	Std. Deviation
Headache	3.28	.816
Shortness of breath on exertion	3.04	.746
Muscle strain/ pain	3.82	.687
Diarrhea	3.09	.775
Insomnia	3.13	.807
Dizziness	3.00	.853
Loss of balance	2.44	.743
Confusion	2.15	.724
Vomiting	1.92	.786

a : A 5-level scale is used where 1 equals never feel and 5 equals all the time feel

Table 5.6 records the mean score of each item under the most common travel ailments experienced by hikers when they visit the study area (BZL). According to the results shown in Table 5.6, the item "Muscle strain/ pain" has the highest mean score (3.82), followed by "Headache" as represented by 3.28. The lowest mean 1.92 comes

from "Vomiting". It can be concluded that most of the respondents experienced "Muscle strain/ pain" and "Headache" as two travel ailments when they undertake a hiking and climbing expedition up the mountain in BZL.

Table 5.7 Frequency Response of Most Common Travel Ailments Experienced by Hikers (N = 382)

Common Travel Ailments	All the time feel (5)	Most of the time feel (4)	Feel sometimes (3)	Rarely feel (2)	Never feel (1)
Headache	1.6% n = 6	45.3% n = 173	34.3% n = 131	17.5% n = 67	1.3% n = 5
Shortness of breath on exertion	0.3% n = 1	27.0% n = 103	52.1% n = 199	18.3% n = 70	2.4% n = 9
Muscle stain/ pain	11.0% n = 42	64.9% n = 248	19.9% n = 76	3.7% n = 14	0.5% n = 2
Diarrhea	0.8% n = 3	31.2% n = 119	45.5% n = 174	21.2% n = 81	1.3% n = 5
Insomnia	1.3% n = 5	32.7% n = 125	46.1% n = 176	17.0% n = 65	2.9% n = 11
Dizziness	0.5% n = 2	30.9% n = 118	40.1% n = 153	24.9% n = 95	3.7% n = 14
Loss of balance	0.0% n = 0	6.0% n = 23	41.4% n = 158	43.5% n = 166	9.2% n = 35
Confusion	0.0% n = 0	1.6% n = 6	29.8% n = 114	50.3% n = 192	18.3% n = 70
Vomiting	0.0% n = 0	2.6% n = 10	19.1% n = 73	45.5% n = 174	32.7% n = 125

Table 5.7 indicates the frequency and percentages of the most common travel ailments experienced by hikers, and the respondents are instructed to rate health

related symptoms on their hiking expedition in the region. A five point Likert Scale has been used where 1 means never feel and 5 means all the time feel.

It can be seen from Table 5.7 that a majority of the tourists have experienced "Muscle strain/ pain" most of the time in their trips, accounting for 64.9% of the respondents, followed by "Headache" which is felt by 45.3% of the respondents. What is more, "Shortness of breath on exertion" is felt sometimes by 45.5% of respondent, "Insomnia" (46.1%), "Diarrhea" (45.5%), and "Dizziness" (40.1%) are also felt sometimes. On the contrary, 43.5% out of the total of 382 respondents rarely feel "Loss of balance" while hiking in BZL, followed by "Confusion", as represented by half (50.3%) of the respondents, and "Vomiting" has accounted for 45.5% of the respondents. It can be concluded that a large number of respondents feel muscle strain/ pain and headache most of the time; while shortness of breath on exertion, insomnia, diarrhea and dizziness are felt sometimes when respondents participate in hiking tourism in the study area.

5.2 Hypotheses Testing

One-way ANOVA is applied in this research to test the differences in hiking tourism products and the most common travel ailments experienced by hikers among different age groups and hikers' previous hiking experience groups. The independent sample t-test is also used in this study for comparing the differences in hiking related tourism products and common ailments between two groups (female group and male group).

Zikmund (2003) pointed that for judging whether the null hypothesis is to be

accepted or rejected, a significant value is used and the significance level determines the probability level of 0.05 or of 0.01. If the probability of occurrence of the observed data is smaller than the level of significance, then the data suggest the null hypothesis should be rejected. The significance level used in this research is the 95% confidence level.

5.2.1 Hypothesis 1 – Comparative Differences in Hiking Related Tourism Products by Age Group of Hikers.

H_0 1: The differences in hiking related tourism products with regard to hikers' age are not significant.

H_a 1: The differences in hiking related tourism products with regard to hikers' age are significant.

Based on the hypothesis testing result by using one-way ANOVA to explore the differences in hiking related tourism products among four age groups, it is clear from Table 5.8 that there is one item "Shops with hiking equipment" ($p = 0.69$) with a significance value of more than 0.05. Therefore, the null hypothesis fails to reject this item. This means that the differences in "Shops with hiking equipment" with regard to hikers' age are not significant.

As for the results shown in Table 5.8, the significance level of eight out of nine items is less than 0.05, so the null hypothesis is rejected these eight items. They are "Accommodation" ($p = 0.000$); "Bed and breakfast" ($p = 0.000$); "Restaurant" ($p = 0.000$); "Guided tours" ($p = 0.000$); "Some source of transportation" ($p = 0.000$); "Souvenirs" ($p = 0.000$); "Maps" ($p = 0.000$); and "Guidebooks" ($p = 0.000$). So, it

can be concluded that there are significant differences in hiking related tourism products (except "Shops with hiking equipment") among different age groups of hikers.

Table 5.8 One-way ANOVA Test for Hypothesis 1

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Accommodation	Between Groups	45.903	3	15.301	20.933	.000
	Within Groups	276.296	378	.731		
	Total	322.199	381			
Bed and breakfast	Between Groups	28.059	3	9.353	9.711	.000
	Within Groups	364.056	378	.963		
	Total	392.115	381			
Restaurant	Between Groups	25.005	3	8.335	15.005	.000
	Within Groups	209.979	378	.555		
	Total	234.984	381			
Guided tours	Between Groups	34.849	3	11.616	20.830	.000
	Within Groups	210.795	378	.558		
	Total	245.644	381			
Some source of transportation	Between Groups	20.697	3	6.899	11.577	.000
	Within Groups	225.263	378	.596		
	Total	245.961	381			
Shops with hiking equipment	Between Groups	4.339	3	1.446	2.385	.069
	Within Groups	229.253	378	.606		
	Total	233.592	381			
Souvenirs	Between Groups	18.767	3	6.256	9.463	.000
	Within Groups	249.895	378	.661		
	Total	268.662	381			
Maps	Between Groups	33.385	3	11.128	13.713	.000
	Within Groups	306.764	378	.812		
	Total	340.149	381			
Guidebooks	Between Groups	27.116	3	9.039	12.702	.000
	Within Groups	268.981	378	.712		
	Total	296.097	381			

In addition, Table 5.9 shows the mean score of each item with a significance value of less than 0.05 with regard to different age groups. In the light of these mean

scores which come from four age groups, the differences in hiking related tourism products can be clearly seen.

Table 5.9 Comparison of Mean of Hiking Related Tourism Products For Different Age Groups

Hiking related tourism product	Mean			
	Under 20 years n = 66	20- 40 years n = 205	41- 60 years n = 96	Above 60 years n = 15
Accommodation	3.18	3.16	3.89	4.13
Bed and breakfast	3.21	3.31	3.72	4.40
Restaurant	3.21	3.28	3.73	4.20
Guided tours	2.91	2.92	3.34	4.27
Some source of transportation	3.39	3.51	3.92	4.27
Souvenirs	2.92	3.12	3.51	3.67
Maps	4.14	4.03	3.71	2.67
Guidebooks	3.67	3.81	3.56	2.47

a : A 5-level scale is used where 1 - not important at all and 5 - extremely important.

As it can be seen from Table 5.9, respondents "above 60 years" have the highest mean score than other ages in terms of "Accommodation", "Bed and breakfast", "Restaurant", "Guided tours", "Some source of transportation" and "Souvenirs". It means people with this age group consider that these products are fairly important to their hiking trips. For "Maps", hikers "Under 20 years" feel that it is more important than hikers with age groups of "41-60 years" and "Above 60 years". Finally, "20-40 years" has highest mean score among other age groups in the items of the "Guidebooks", especially a lot more than "Above 60 years".

Likewise, similar results come from the post-hoc multiple comparisons of age groups showing the more detailed difference information about each hiking related tourism product. In the equal variances assumed condition, the Least Significant Difference (LSD) test has been employed in this research. The findings can be

summarized in Table 5.10 below.

Table 5.10 Comparison of Differences among Age Groups

Hiking related tourism products	F-value/ P-value	Comparison I > J	Mean difference (I - J)
Accommodation	F = 20.933 P = 0.000	41-60 years > Under 20 years > 20-40 years Above 60 years > Under 20 years > 20-40 years	0.704* 0.729* 0.952* 0.977*
Bed and breakfast	F = 9.711 P = 0.000	41-60 years > Under 20 years > 20-40 years Above 60 years > Under 20 years > 20-40 years > 41-60 years	0.507* 0.407* 1.188* 1.088* 0.681*
Restaurant	F = 15.005 P = 0.000	41-60 years > Under 20 years > 20-40 years Above 60 years > Under 20 years > 20-40 years > 41-60 years	0.517* 0.446* 0.988* 0.917* 0.471*
Guide tours	F = 20.830 P = 0.000	41-60 years > Under 20 years > 20-40 years Above 60 years > Under 20 years > 20-40 years > 41-60 years	0.435* 0.422* 1.358* 1.345* 0.923*
Some source of transportation	F = 11.577 P = 0.000	41-60 years > Under 20 years > 20-40 years Above 60 years > Under 20 years > 20-40 years	0.523* 0.409* 0.873* 0.759*
Souvenirs	F = 9.463 P = 0.000	41-60 years > Under 20 years > 20-40 years Above 60 years > Under 20 years > 20-40 years	0.586* 0.388* 0.742* 0.545*
Maps	F = 13.713 P = 0.000	Under 20 years > 41-60 years > Above 60 years 20-40 years > 41-60 years > Above 60 years	0.428* 1.470* 0.321* 1.363*
Guidebooks	F = 12.702 P = 0.000	Under 20 years > Above 60 years 20-40 years > 41-60 years > Above 60 years	1.200* 0.252* 1.348*

* The mean difference is significant at the 0.05 level.

In Table 5.10, Post Hoc test has been used to identify the differences in eight

items out of nine hiking related tourism products where significance values are less than 0.05 in the light of different age groups.

- Accommodation

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.704^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.729^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.952^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.977^*$. This implies that tourists "Under 20 years" and "20-40 years" as compared to the tourists between 41 and 60 years and above 60 years feel accommodation while the hiking trip is more important.

- Bed and breakfast

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.507^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.407^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 1.188^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 1.088^*$; $I(\text{Above } 60 \text{ years}) - J(41-60 \text{ years}) = 0.681^*$. This implies that after comparison with tourists "Under 20 years", "20-40 years", and "41-60 years", the tourists above 60 years feel that "bed and breakfast" while hiking trip is more important. As can be seen from the Post Hoc test results, the growing demand of availability of bed and breakfast is increasing with age.

- Restaurant

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.517^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.446^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.988^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.917^*$; $I(\text{Above } 60 \text{ years}) - J(41-60 \text{ years}) = 0.471^*$. It indicates that the tourists above 60 years feel that the hiking related

product – restaurant is more important than those in "Under 20 years", "20-40 years", and "41-60 years" categories. Meanwhile, after comparison with those "Under 20 years" and "20-40 years", the 41-60 year- old also consider restaurant to be more important.

- Guide tours

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.435^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.422^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 1.358^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 1.345^*$; $I(\text{Above } 60 \text{ years}) - J(41-60 \text{ years}) = 0.923^*$. This indicates that the tourists above 60 years feel that "guide tours" is more important than those "Under 20 years", "20-40 years", and "41-60 years" categories. Meanwhile, comparing with "Under 20 years" and "20-40 years", "41-60 years" also consider guide tours to be more important.

- Some source of transportation

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.523^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.409^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.873^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.759^*$. It implies that comparing with tourists "Under 20 years" and "20-40 years", the tourists between 41 and 60 years and above 60 years feel some source of transportation while hiking trip is more important.

- Souvenirs

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.586^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.388^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.742^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.545^*$. It has been revealed that the

tourists between 41 and 60 years old and above 60 years old feel that at a hiking destination, availability of souvenirs are more vital comparing with tourists "Under 20 years" and "20-40 years".

- Maps

Post Hoc test demonstrates $I(\text{Under 20 years}) - J(41-60 \text{ years}) = 0.428^*$; $I(\text{Under 20 years}) - J(\text{Above 60 years}) = 1.470^*$; $I(20-40 \text{ years}) - J(41-60 \text{ years}) = 0.321^*$; $I(20-40 \text{ years}) - J(\text{Above 60 years}) = 1.348^*$. These indicates that respondents' who are under 20 years old and between 20 and 40 years old think that maps as useful tools to find ways on their hiking trips are more important. And "41-60 years" consider maps to be more important than those "Above 60 years".

- Guidebooks

Post Hoc test demonstrates $I(\text{Under 20 years}) - J(\text{Above 60 years}) = 1.200^*$; $I(20-40 \text{ years}) - J(41-60 \text{ years}) = 0.252^*$; $I(20-40 \text{ years}) - J(\text{Above 60 years}) = 1.348^*$. As can be seen from these results, the group "Under 20 years" think guidebooks are more important on hiking trips than respondents "above 60 years" group. Simultaneously, tourists between "20-40 years" group also feel guidebook more helpful than "41-60 years" and "above 60 years". It indicates that most of the young and middle aged tourists who still new to hiking in the study area consider that guidebooks are indispensable tourism product.

5.2.2 Hypothesis 2 – Comparative Differences in Hiking Related Tourism

Products by Gender of Hikers.

H_0 2: The differences in hiking related tourism products with regard to gender are not significant.

H_a 2: The differences in hiking related tourism products with regard to gender are significant.

According to the results which has been calculated by independent sample t-test to find the differences in hiking related tourism products between the male group and the female group, it can be seen from the Table 5.11 that there are five items "Bed and breakfast" ($p = 0.458$), "Guide tours" ($p = 0.727$), "Some source of transportation" ($p = 0.315$), "Shops with hiking equipment" ($p = 0.737$) and "Guidebooks" ($p = 0.462$) with a significance value of more than 0.05. Therefore, the null hypothesis fails to reject these items. This means that the differences in these items with regard to gender are not significant.

Conversely, four items in Table 5.11 have a significance value of lower than 0.05. They are "Accommodation" ($p = 0.030$), "Restaurant" ($p = 0.046$), "Souvenir" ($p = 0.036$), and "Maps" ($p = 0.019$). So, the null hypothesis rejects these four items. It can be concluded that there are significant differences existing between male and female groups with regard to "Accommodation", "Restaurant", "Souvenir" and "Maps".

Table 5.11 Independent T-Test for Hypothesis 2**Independent Sample Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Accommodation	Equal variances assumed	.408	.523	-2.185	380	.030
	Equal variances not assumed			-2.192	364.773	.029
Bed and breakfast	Equal variances assumed	.031	.861	.743	380	.458
	Equal variances not assumed			.743	359.404	.458
Restaurant	Equal variances assumed	.142	.707	-2.004	380	.046
	Equal variances not assumed			-2.001	358.494	.046
Guided tours	Equal variances assumed	.001	.978	-.350	380	.727
	Equal variances not assumed			-.352	367.805	.725
Some source of transportation	Equal variances assumed	1.708	.192	1.007	380	.315
	Equal variances not assumed			1.000	350.851	.318
Shops with hiking equipment	Equal variances assumed	.054	.817	-.336	380	.737
	Equal variances not assumed			-.336	360.828	.737
Souvenirs	Equal variances assumed	.011	.917	-2.101	380	.036
	Equal variances not assumed			-2.111	366.612	.035
Maps	Equal variances assumed	.272	.603	2.347	380	.019
	Equal variances not assumed			2.373	373.212	.018
Guidebooks	Equal variances assumed	.000	.986	-.736	380	.462
	Equal variances not assumed			-.731	351.114	.465

In Table 5.12, four statements have been selected out of the nine hiking related tourism products because their p value is lower than 0.05 by using independent t-test, to reveal the differences based on gender.

Table 5.12 Comparison of Mean of Hiking Related Tourism Products for Gender

Gender Hiking related tourism product	Mean	
	Male n = 213	Female n = 169
Accommodation	3.29	3.50
Restaurant	3.35	3.51
Souvenirs	3.13	3.31
Maps	4.01	3.79

a : A 5-level scale is used where 1 - not important at all and 5 - extremely important

Regarding the products "Accommodation", "Restaurant", and "Souvenirs", females have the higher mean score than males. It indicates that on a hiking trip, females feel these three hiking related tourism products more important than males. Whereas, as for "Maps", the level of importance in males' opinion is higher than females as the mean score of males is greater than females.

5.2.3 Hypothesis 3 – Comparative Differences in Hiking Related Tourism Products by Previous Hiking Experience of Hikers.

Ho 3: The differences in hiking related tourism products with regard to previous hiking experience are not significant.

Ha 3: The differences in hiking related tourism products with regard to previous hiking experience are significant.

The One-way ANOVA analysis in Table 5.13 reveals that three items "Shops with hiking equipment" ($p = 0.181$), "Maps" ($p = 0.131$) and "Guidebooks" ($p = 0.076$) have a significance value of more than 0.05. Therefore, the null hypothesis fails to reject these three items. This means that the differences in "Shops with hiking equipment", "Maps" and "Guidebooks" with regard to previous hiking experience are

not significant.

Table 5.13 One-way ANOVA Test for Hypothesis 3

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Accommodation	Between Groups	33.652	2	16.826	22.101	.000
	Within Groups	288.547	379	.761		
	Total	322.199	381			
Bed and breakfast	Between Groups	10.792	2	5.396	5.363	.005
	Within Groups	381.324	379	1.006		
	Total	392.115	381			
Restaurant	Between Groups	11.382	2	5.691	9.646	.000
	Within Groups	223.602	379	.590		
	Total	234.984	381			
Guided tours	Between Groups	13.438	2	6.719	10.967	.000
	Within Groups	232.206	379	.613		
	Total	245.644	381			
Some source of transportation	Between Groups	7.066	2	3.533	5.605	.004
	Within Groups	238.894	379	.630		
	Total	245.961	381			
Shops with hiking equipment	Between Groups	2.097	2	1.049	1.717	.181
	Within Groups	231.495	379	.611		
	Total	233.592	381			
Souvenirs	Between Groups	4.782	2	2.391	3.434	.033
	Within Groups	263.880	379	.696		
	Total	268.662	381			
Maps	Between Groups	3.634	2	1.817	2.046	.131
	Within Groups	336.516	379	.888		
	Total	340.149	381			
Guidebooks	Between Groups	3.995	2	1.998	2.592	.076
	Within Groups	292.101	379	.771		
	Total	296.097	381			

Conversely, the other six statements reveals a significance value of less than 0.05; they are "Accommodation" ($p = 0.000$), "Bed and breakfast" ($p = 0.005$), "Restaurant" ($p = 0.000$), "Guided tours" ($p = 0.000$), "Some source of transportation" ($p = 0.004$) and "Souvenirs" ($p = 0.033$). For this reason, the null hypothesis rejects these six

items. This means that there are differences in hiking related tourism products classified in terms of previous hiking experience.

In addition, Table 5.14 shows the mean score of each item with a significance value of lower than 0.05 with regard to different previous hiking experiences as "First time", "2-3 times" and "4 or more times", the differences in hiking related tourism products can be clearly seen.

Table 5.14 Comparison of Mean of Hiking Related Tourism Products for Different Previous Hiking Experience Groups

Hiking frequency Hiking related tourism product	Mean		
	First time n = 170	2-3 times n = 127	4 or more n = 85
Accommodation	3.64	3.38	2.87
Bed and breakfast	3.58	3.46	3.14
Restaurant	3.58	3.40	3.13
Guided tours	3.26	3.02	2.79
Some source of transportation	3.74	3.61	3.39
Souvenirs	3.28	3.24	3.00

a : A 5-level scale is used where 1 - not important at all and 5 - extremely important

As seen from Table 5.14, the tourists who do not have the previous hiking experience (First time) have the highest mean score among other groups in terms of "Accommodation", "Bed and breakfast", "Restaurant", "Guided tours", "Some source of transportation" and "Souvenirs". It means this group of tourists considers these statements in hiking tourism products to be more important on their hiking trips than others who have more hiking experience. Likewise, the post-hoc multiple comparisons of each previous hiking experience has given similar results showing the more detailed information. The findings can be summarized in Table 5.15.

Table 5.15 Comparison of Differences among the Previous Hiking Experience

Groups

Hiking related tourism products	F-value/ P-value	Comparison I > J		Mean difference (I - J)
Accommodation	F = 22.101 P = 0.000	First time	> 2-3 times	0.263*
			> 4 or more	0.771*
		2-3 times	> 4 or more	0.507*
Bed and breakfast	F = 5.363 P = 0.005	First time	> 4 or more	0.435*
		2-3 times	> 4 or more	0.316*
Restaurant	F = 9.646 P = 0.000	First time	> 4 or more	0.447*
		2-3 times	> 4 or more	0.272*
Guide tours	F = 10.967 P = 0.000	First time	> 2-3 times	0.241*
			> 4 or more	0.476*
		2-3 times	> 4 or more	0.235*
Some source of transportation	F = 5.605 P = 0.004	First time	> 4 or more	0.353*
		2-3 times	> 4 or more	0.226*
Souvenirs	F = 3.434 P = 0.033	First time	> 4 or more	0.282*
		2-3 times	> 4 or more	0.244*

* The mean difference is significant at the 0.05 level.

In Table 5.15, Post Hoc test has been used to identify the differences in six items out of nine hiking related tourism products where significance values are less than 0.05 based on different previous hiking experience groups.

- Accommodation

Post Hoc test demonstrates I (First time) – J (2-3 times) = 0.263*; I (First time) – J (4 or more) = 0.771*; I (2-3 times) – J (4 or more) = 0.507*. These imply that as comparison with tourists who have 2-3 times or 4 or more previous hiking experiences, the no hiking experience tourists feel the need of accommodation while hiking more important. It indicates that importance of availability of accommodation in tourists' mind increase with well versed previous hiking experience to little hiking experience.

- Bed and breakfast

Post Hoc test demonstrates I (First time) – J (4 or more) = 0.435*; I (2-3 times) – J (4 or more) = 0.316*. These indicate that first time hiking experience tourists as well those with two to three times hiking experience feel the availability of bed and breakfast important more than hikers with four or more times hiking experience.

- Restaurant

Post Hoc test demonstrates I (First time) – J (4 or more) = 0.447*; I (2-3 times) – J (4 or more) = 0.272*. These indicate that first time hiking experience tourists as well those with two to three times hiking experience feel the availability of restaurant important more than hikers with four or more times hiking experience

- Guide tours

Post Hoc test demonstrates I (First time) – J (2-3 times) = 0.241*; I (First time) – J (4 or more) = 0.476*; I (2-3 times) – J (4 or more) = 0.235*. These imply that comparing with tourists who have 2-3 times or 4 or more times previous hiking experience, the no hiking experience tourists feel availability of guide tours while hiking more important. It indicates that importance level of guide tours in tourists' mind decrease with well versed previous hiking experience.

- Some source of transportation

Post Hoc test demonstrates I (First time) – J (4 or more) = 0.353*; I (2-3 times) – J (4 or more) = 0.226*. These indicate that tourists who have 4 or more times hiking experience think some sources of transportation while hiking more important than "First time" and "2-3 times" groups. It may be because "4 or more" times hiking

experience possess enough confidence to access remote place without much dependence on some source of transportation as compared to hikes with fewer hiking experience.

- Souvenirs

Post Hoc test demonstrates I (First time) – J (4 or more) = 0.282*; I (2-3 times) – J (4 or more) = 0.244*. These indicate that tourists who have no hiking experience and two to three times hiking experience think souvenirs while hiking more important than "4 or more" group. It may be caused by the fact that "First time" and "2-3 times" groups having in the habit of participating in mass tourism. Actually, like most hiking destination in China, the study area is a remote village rich in natural and cultural resources but impoverished and lacking of plants and shops for producing and selling souvenirs.

5.2.4 Hypothesis 4 – Comparative Differences in Most Common Travel Ailments by Age Group of Hikers

H₀ 4: The differences in most common travel ailments experienced by hikers with regard to age are not significant.

H_a 4: The differences in most common travel ailments with regard to age are significant.

The One-way ANOVA analysis in Table 5.16 reveals that all statements in common travel ailments "Headache" ($p = 0.004$), "Shortness of breath on exertion" ($p = 0.000$), "Muscle strain/ pain" ($p = 0.033$), "Diarrhea" ($p = 0.000$), "Insomnia" ($p = 0.001$), "Dizziness" ($p = 0.000$), "Loss of balance" ($p = 0.000$), "Confusion" ($p =$

0.000) and "Vomiting" ($p = 0.000$) have a significance value of less than 0.05.

Therefore, the null hypothesis four is rejected. It means that the differences in most common travel ailments experienced by hikers with regard to age are significant.

Table 5.16 One-way ANOVA Test for Hypothesis 4

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Headache	Between Groups	8.698	3	2.899	4.477	.004
	Within Groups	244.768	378	.648		
	Total	253.466	381			
Shortness of breath on exertion	Between Groups	10.350	3	3.450	6.459	.000
	Within Groups	201.894	378	.534		
	Total	212.243	381			
Muscle strain/ pain	Between Groups	4.092	3	1.364	2.933	.033
	Within Groups	175.803	378	.465		
	Total	179.895	381			
Diarrhea	Between Groups	12.304	3	4.101	7.155	.000
	Within Groups	216.670	378	.573		
	Total	228.974	381			
Insomnia	Between Groups	11.022	3	3.674	5.861	.001
	Within Groups	236.946	378	.627		
	Total	247.969	381			
Dizziness	Between Groups	25.996	3	8.665	13.050	.000
	Within Groups	251.001	378	.664		
	Total	276.997	381			
Loss of balance	Between Groups	40.059	3	13.353	29.661	.000
	Within Groups	170.174	378	.450		
	Total	210.233	381			
Confusion	Between Groups	21.461	3	7.154	15.163	.000
	Within Groups	178.330	378	.472		
	Total	199.791	381			
Vomiting	Between Groups	20.617	3	6.872	12.099	.000
	Within Groups	214.702	378	.568		
	Total	235.319	381			

Table 5.17 shows the comparison of mean in most common travel ailments experienced by hikers for different age groups. As shown in Table 5.17, the mean

score of respondents with age group of "Above 60 years" are higher than other age groups'; it means chances of ailments in "Above 60 years" are higher than others'. As for "20-40 years", they have a mean score of lower than other groups; it means the incidence of ailments in "20-40 years" is lower than others. According to Table 5.17, "Loss of balance", "Confusion" and "Vomiting" have the small mean score (> 3.00), it can be concluded that these ailments are rarely experienced by hikers while hiking in BZL.

Table 5.17 Comparison of Mean of Most Common Travel Ailments Experienced By Hikers for Different Age Groups

Travel ailments	Age			
	Mean			
	Under 20 years n = 66	20- 40 years n = 205	41- 60 years n = 96	Above 60 years n= 15
Headache	3.24	3.19	3.42	3.87
Shortness of breath on exertion	2.98	2.93	3.28	3.40
Muscle strain/ pain	3.94	3.75	3.83	4.20
Diarrhea	3.18	2.95	3.22	3.73
Insomnia	3.23	2.98	3.29	3.60
Dizziness	3.15	2.77	3.27	3.67
Loss of balance	2.77	2.17	2.65	3.40
Confusion	2.41	1.93	2.39	2.47
Vomiting	2.17	1.73	2.02	2.67

a: A 5-level scale is used where 1 - never feel and 5 - all the time feel

Likewise, the post-hoc multiple comparisons of each age group provide similar results showing the more detailed information. The findings are summarized in Table 5.18. In Table 5.18, for each item in travel ailments, the "Above 60 years" groups are more vulnerable to common travel ailments than other groups, especially "20-40 years" group. It seems to some extent the same as group "Under 20 years", in items "Diarrhea", "Insomnia" and "Dizziness", the "Under 20 years" group is more

vulnerable than the "20-40 years" group.

Table 5.18 Comparison Differences in Most Common Travel Ailments among the Age Groups

Most common travel ailments	F-value/ P-value	Comparison I > J	Mean difference (I - J)
Headache	F = 4.477 P = 0.004	41-60 years > 20-40 years Above 60 years > Under 20 years > 20-40 years > 41-60 years	0.226* 0.624* 0.676* 0.450*
Shortness of breath on exertion	F = 6.459 P = 0.000	41-60 years > Under 20 years > 20-40 years Above 60 years > Under 20 years > 20-40 years	0.296* 0.354* 0.415* 0.473*
Muscle strain/ pain	F = 2.933 P = 0.033	Above 60 years > 20-40 years	0.449*
Diarrhea	F = 7.155 P = 0.000	Under 20 years > 20-40 years 41-60 years > 20-40 years Above 60 years > Under 20 years > 20-40 years > 41-60 years	0.231* 0.268* 0.552* 0.782* 0.515*
Insomnia	F = 5.861 P = 0.001	Under 20 years > 20-40 years 41-60 years > 20-40 years Above 60 years > 20-40 years	0.247* 0.311* 0.620*
Dizziness	F = 13.050 P = 0.000	Under 20 years > 20-40 years 41-60 years > 20-40 years Above 60 years > Under 20 years > 20-40 years	0.381* 0.500* 0.515* 0.896*
Loss of balance	F = 29.661 P = 0.000	41-60 years > 20-40 years Above 60 years > Under 20 years > 20-40 years > 41-60 years	0.475* 0.627* 1.229* 0.754*
Confusion	F = 15.163 P = 0.000	41-60 years > 20-40 years Above 60 years > 20-40 years	0.459* 0.540*
Vomiting	F = 12.009 P = 0.000	41-60 years > 20-40 years Above 60 years > Under 20 years > 20-40 years > 41-60 years	0.289* 0.500* 0.935* 0.646*

* The mean difference is significant at the 0.05 level.

- Headache

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.226^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.624^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.676^*$; $I(\text{Above } 60 \text{ years}) - J(41-60 \text{ years}) = 0.450^*$. This implies that the tourists between 41 and 60 years and above 60 years feel headache more often while in the hiking trip after comparison with tourists who were in "Under 20 years" and "20-40 years". Meanwhile, "above 60 years" are also more vulnerable to headache than "41 and 60 years".

- Shortness of breath on exertion

Post Hoc test demonstrates $I(41-60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.297^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.354^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.415^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.437^*$. This implies that tourists between "41-60 years" and "above 60 years" are more vulnerable to shortness of breath on exertion as compared with tourists who are in "Under 20 years" and "20-40 years".

- Muscle strain/ pain

Post Hoc test demonstrates $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.449^*$. It indicates that the tourists above 60 years feel muscle strain/ pain more frequently than tourists in the age group of "20-40 years" when tourists participate in hiking in BZL.

- Diarrhea

Post Hoc test demonstrates $I(\text{Under } 20 \text{ years}) - J(20-40 \text{ years}) = 0.231^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.268^*$; $I(\text{Above } 60 \text{ years}) - J(\text{Under } 20 \text{ years}) = 0.552^*$; $I(\text{Above } 60 \text{ years}) - J(20-40 \text{ years}) = 0.782^*$; $I(\text{Above } 60 \text{ years}) - J(41-60$

years) = 0.515*. These indicate that the tourists above 60 years feel diarrhea more frequently than those "Under 20 years", "20-40 years", and "41-60 years". Meanwhile, compared with "Under 20 years" and "41-60 years", the incidences of diarrhea among tourist in the age group between "20-40 years" are lower.

- Insomnia

Post Hoc test demonstrates $I(\text{Under 20 years}) - J(20-40 \text{ years}) = 0.247^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.311^*$; $I(\text{Above 60 years}) - J(20-40 \text{ years}) = 0.620^*$. It implies that the occurrence of insomnia among tourists "Under 20 years" and "41-60 years" and "above 60 years" are higher than the tourists between 20 and 40 years.

- Dizziness

Post Hoc test demonstrates $I(\text{Under 20 years}) - J(20-40 \text{ years}) = 0.381^*$; $I(41-60 \text{ years}) - J(20-40 \text{ years}) = 0.500^*$; $I(\text{Above 60 years}) - J(\text{Under 20 years}) = 0.515^*$; $I(\text{Above 60 years}) - J(20-40 \text{ years}) = 0.896^*$. These indicate that the tourists "Above 60 years" feel dizziness seizes them more frequently than the young and middle aged. Meanwhile, compared with "Under 20 years" and "41-60 years", the incidence of dizziness in "20-40 years" is lower.

Although the items – "Loss of balance" "Confusion" and "Vomiting" have been identified as having significant differences (growing incidence of these three ailments is coming with increasing age) in terms of age by Post Hoc test, as mentioned before in Table 5.17, the mean score of these items is around 2.00, it means these ailments are rarely experienced by hikers while hiking in BZL.

5.2.5 Hypothesis 5 – Comparative Differences in Most Common Travel Ailments by Gender of Hikers

Ho 5: The differences in most common travel ailments experienced by hikers with regard to gender are not significant.

Ha 5: The differences in most common travel ailments experienced by hikers with regard to gender are significant.

Table 5.19 Independent Sample T-Test for Hypothesis 5

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Headache	Equal variances assumed	.311	.577	-3.620	380	.000
	Equal variances not assumed			-3.650	370.338	.000
Shortness of breath on exertion	Equal variances assumed	4.092	.044	-3.426	380	.001
	Equal variances not assumed			-3.520	379.987	.000
Muscle strain/ pain	Equal variances assumed	3.676	.056	-1.514	380	.131
	Equal variances not assumed			-1.533	374.270	.126
Diarrhea	Equal variances assumed	.449	.503	-2.401	380	.017
	Equal variances not assumed			-2.440	376.757	.015
Insomnia	Equal variances assumed	.785	.376	-3.200	380	.001
	Equal variances not assumed			-3.242	374.701	.001
Dizziness	Equal variances assumed	2.091	.149	-1.872	380	.062
	Equal variances not assumed			-1.901	376.325	.058
Loss of balance	Equal variances assumed	.001	.971	-5.502	380	.000
	Equal variances not assumed			-5.520	364.671	.000
Confusion	Equal variances assumed	5.257	.022	-3.946	380	.000
	Equal variances not assumed			-3.950	361.908	.000
Vomiting	Equal variances assumed	1.920	.167	-4.736	380	.000
	Equal variances not assumed			-4.639	325.828	.000

Based on independent sample t-test to find the differences in most common travel ailments experienced by hikers between male and female groups, it can be seen from Table 5.19 that significance values of two items "Muscle strain/ pain" ($p = 0.131$), "Dizziness" ($p = 0.062$) are more than 0.05. Therefore, the null hypothesis fails to reject these two items. This means that the differences in "Muscle strain/ pain" and "Dizziness" with regard to gender are not significant.

Conversely, seven items in Table 5.19 with a significance value of lower than 0.05 are "Headache" ($p = 0.000$), "Shortness of breath on exertion" ($p = 0.001$), "Diarrhea" ($p = 0.017$), "Insomnia" ($p = 0.001$), "Loss of Balance" ($p = 0.000$), "Confusion" ($p = 0.000$) and "Vomiting" ($p = 0.000$). So, the null hypothesis rejects these seven items. It can be concluded that there are significant differences existing in "Headache", "Shortness of breath on exertion", "Diarrhea", "Insomnia", "Loss of Balance", "Confusion", and "Vomiting" between male and female groups.

Table 5.20 **Comparison of Mean of Most Common Travel Ailments for Different Gender Groups**

Travel ailments	Mean ^a	
	Male n = 213	Female n = 169
Headache	3.15	3.45
Shortness of breath on exertion	2.93	3.19
Diarrhea	3.00	3.20
Insomnia	3.01	3.27
Loss of balance	2.26	2.67
Confusion	2.02	2.02
Vomiting	1.75	1.75

a: A 5-level scale is used where 1 - never feel and 5 - all the time feel

From Table 5.20, it can be seen that the mean scores of "Loss of Balance", "Confusion", and "Vomiting" are less than 3, meaning both "Male" and "Female" groups rarely feel these symptoms when visiting BZL. Regarding "Headache", "Shortness of breath on exertion", "Diarrhea", "Insomnia", the mean scores of "Female" are higher than "Male", indicating that females are more vulnerable to these travel ailments than males.

5.2.6 Hypothesis 6 – Comparative Differences in Most Common Travel Ailments by Different Previous Hiking Experience

Ho 6: The differences in most common travel ailments experienced by hikers with regard to previous hiking experience are not significant.

Ha 6: The differences in most common travel ailments experienced by hikers with regard to previous hiking experience are significant.

The One-way ANOVA analysis in Table 5.21 reveals that all statements in common travel ailments, "Headache" ($p = 0.000$), "Shortness of breath on exertion" ($p = 0.000$), "Muscle strain/ pain" ($p = 0.027$), "Diarrhea" ($p = 0.011$), "Insomnia" ($p = 0.001$), "Dizziness" ($p = 0.000$), "Loss of balance" ($p = 0.000$), "Confusion" ($p = 0.000$) and "Vomiting" ($p = 0.001$) have significance values of less than 0.05. Therefore, the **null** hypothesis six is rejected. This means that the differences in most common travel ailments experienced by hikers with regard to previous hiking experience are significant.

Table 5.21 One-way ANOVA test for hypothesis 6

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Headache	Between Groups	15.618	2	7.809	12.444	.000
	Within Groups	237.847	379	.628		
	Total	253.466	381			
Shortness of breath on exertion	Between Groups	12.874	2	6.437	12.237	.000
	Within Groups	199.369	379	.526		
	Total	212.243	381			
Muscle strain/ pain	Between Groups	3.388	2	1.694	3.637	.027
	Within Groups	176.508	379	.466		
	Total	179.895	381			
Diarrhea	Between Groups	5.365	2	2.682	4.546	.011
	Within Groups	223.609	379	.590		
	Total	228.974	381			
Insomnia	Between Groups	12.822	2	6.411	10.333	.000
	Within Groups	235.146	379	.620		
	Total	247.969	381			
Dizziness	Between Groups	16.281	2	8.140	11.834	.000
	Within Groups	260.717	379	.688		
	Total	276.997	381			
Loss of balance	Between Groups	20.918	2	10.459	20.939	.000
	Within Groups	189.315	379	.500		
	Total	210.233	381			
Confusion	Between Groups	20.156	2	10.078	21.263	.000
	Within Groups	179.634	379	.474		
	Total	199.791	381			
Vomiting	Between Groups	8.816	2	4.408	7.376	.001
	Within Groups	226.503	379	.598		
	Total	235.319	381			

From Table 5.22, it can be seen that the mean scores of "Loss of Balance", "Confusion", and "Vomiting" are less than 3, meaning respondents with hiking experiences "First time", "2-3 times" and "4 or more" groups rarely feel these symptoms when visiting BZL. In addition, the mean scores of the "4 or more" group in each item are less than others, and at the same time, beside "Muscle stain/ pain",

the mean scores of other items are also lower than 3; it can be concluded that the hikers who have more previous hiking experience would have low risk of developing the diseases. Conversely, "First time" is more vulnerable to these travel ailments than others.

Table 5.22 Comparison of Mean of Most Common Travel Ailments for Different Previous Hiking Experience Groups

Travel ailments	Mean		
	First time n= 170	2-3 times n= 127	4 or more n = 85
Headache	3.41	3.37	2.91
Shortness of breath on exertion	3.17	3.10	2.71
Muscle strain/ pain	3.88	3.86	3.65
Diarrhea	3.20	3.07	2.89
Insomnia	3.25	3.18	2.79
Dizziness	3.10	3.12	2.61
Loss of balance	2.61	2.51	2.01
Confusion	2.36	2.12	1.76
Vomiting	2.08	1.84	1.71

a: A 5-level scale is used where 1 - never feel and 5 - all the time feel

Likewise, the post-hoc multiple comparisons of each different previous hiking experience groups have provided similar results showing the more detailed information. The findings can be summarized in Table 5.23. In Table 5.23, for each item in travel ailments, the "First time" group is more vulnerable to common travel ailments than other groups, especially the "4 or more times" group. It seems to some extent the same as group "2-3 times", in items "Headache", "Shortness of breath on exertion", "Muscle strain/ pain", "Insomnia", "Loss of balance" and "Confusions", the tourists who have 2-3 times previous hiking experiences are also more vulnerable

than the "4 or more times" group.

Table 5.23 Comparison of Differences in Most Common Travel Ailments among the Previous Hiking Experience Groups

Most common travel ailments	F-value/ P-value	Comparison I > J		Mean difference (I - J)
Headache	F = 12.444 P = 0.000	First time	> 4 or more	0.500*
		2-3 times	> 4 or more	0.464*
Shortness of breath on exertion	F = 12.237 P = 0.000	First time	> 4 or more	0.465*
		2-3 times	> 4 or more	0.396*
Muscle strain/ pain	F = 3.637 P = 0.027	First time	> 4 or more	0.235*
		2-3 times	> 4 or more	0.221*
Diarrhea	F = 4.546 P = 0.011	First time	> 4 or more	0.306*
Insomnia	F = 10.333 P = 0.000	First time	> 4 or more	0.465*
		2-3 times	> 4 or more	0.393*
Dizziness	F = 11.834 P = 0.000	First time	> 4 or more	0.488*
		2-3 times	> 4 or more	0.506*
Loss of balance	F = 20.939 P = 0.000	First time	> 4 or more	0.594*
		2-3 times	> 4 or more	0.500*
Confusion	F = 21.263 P = 0.000	First time	> 2-3 times	0.241*
			> 4 or more	0.594*
		2-3 times	> 4 or more	0.353*
Vomiting	F = 7.376 P = 0.001	First time	> 2-3 times	0.234*
			> 4 or more	0.371*

* The mean difference is significant at the 0.05 level.

According to Table 5.23, among most common travel ailments, items "Headache", "Shortness of breath on exertion", "Muscle strain/ pain", "Insomnia" and "Dizziness", the column of "Comparison I > J" implies that tourists who have two to three times or no previous hiking experience feel these ailments more frequently in the hiking trip than those with four or more times hiking experience. It indicates that the incidence of these travel ailments is decreasing with well versed tourists' previous hiking experience. From Table 5.23, it can be seen from "First time" tourists are more vulnerable to diarrhea than "4 or more". The items – "Loss of balance" "Confusion"

and "Vomiting" have been identified as having significant differences (growing incidence of these three ailments is coming with decreasing previous hiking experience) in terms of previous hiking experience by Post Hoc test, as mentioned before in Table 5.22, the mean score of these three items is around 2.00, meaning that these ailments are rarely experienced by hikers when they participate hiking tourism in BZL.

5.3 Cross-tabulation of Destination Specific Hiking Behavior and Independent Variables

The Crosstabs in SPSS usually are used to describe the frequency distribution of data from ordinal variables or nominal variables and at the same time to do some simple statistical inference. It mainly includes Chi-square and Correlations methods. This research applies Chi-square to test whether the significant correlativity existing between destination specific hiking behavior and independent variables. If the value of sig. is lower than 0.05, it means the significant correlation exist.

According to the Chi-square results, the summary of the Cross-tabulation about destination specific hiking behavior and gender is shown in Table 5.24. As it can be seen from Table 5.24, the values of significance in "Constraints on hiking", "Information sources used for selecting the hiking destination", "Means of transportation", "Attributes valued in a hiking trail" and "Benefits sought" were more than 0.05, it can be concluded that there is no significant correlation between these specific hiking behaviors and gender. However, the values of significance in "Accommodation used", "Travel group", "Length of trail", "Preferred activities" and

"Hiking motivation" were less than 0.05; it means the significant correlativity existing between these items and gender.

Table 5.24 Summary of Destination Specific Hiking Behavior * Gender
Cross-tabulation (Chi-Square Test)

Destination Specific Hiking Behavior	Asymp. Sig. (2-sided)		
	Pearson Chi-Square	Likelihood Ratio	Linear-by-Linear Association
Constraints on hiking	0.212	0.210	0.113
Information sources used for selecting the hiking destination	0.079	0.080	0.284
Accommodation used	0.012	0.011	0.004
Means of transportation	0.077	0.076	0.071
Travel group	0.002	0.002	0.000
Length of trail	0.009	0.008	0.003
Attributes valued in a hiking trail	0.322	0.322	0.214
Preferred activities	0.000	0.000	0.000
Benefits sought	0.210	0.210	0.112
Hiking motivation	0.003	0.003	0.007

According to the Chi-square results, the summary of the Cross-tabulation about destination specific hiking behavior and age is shown in Table 5.25.

As it can be seen from Table 5.25, besides "Attributes valued in a hiking trail" and "Benefits sought", the values of significance in "Constraints on hiking", "Information sources used for selecting the hiking destination", "Accommodation used", "Means of transportation", "Length of trail", "Preferred activities" and "Hiking motivation" were less than 0.05, it can be concluded that there is significant correlativity between specific hiking behaviors and age.

Table 5.25 Summary of Destination Specific Hiking Behavior * Age
Cross-tabulation (Chi-Square Test)

Destination Specific Hiking Behavior	Asymp. Sig. (2-sided)		
	Pearson Chi-Square	Likelihood Ratio	Linear-by-Linear Association
Constraints on hiking	0.000	0.000	0.000
Information sources used for selecting the hiking destination	0.000	0.000	0.000
Accommodation used	0.000	0.000	0.000
Means of transportation	0.000	0.000	0.000
Travel group	0.000	0.000	0.705
Length of trail	0.000	0.000	0.000
Attributes valued in a hiking trail	0.322	0.322	0.214
Preferred activities	0.000	0.000	0.000
Benefits sought	0.210	0.210	0.112
Hiking motivation	0.013	0.012	0.007

According to the results, the summary of the Cross-tabulation about destination specific hiking behavior and previous hiking experience is shown in Table 5.26.

Table 5.26 Summary of Destination Specific Hiking Behavior * Previous Hiking Experience Cross-tabulation (Chi-Square Test)

Destination Specific Hiking Behavior	Asymp. Sig. (2-sided)		
	Pearson Chi-Square	Likelihood Ratio	Linear-by-Linear Association
Constraints on hiking	0.000	0.000	0.040
Information sources used for selecting the hiking destination	0.000	0.000	0.000
Accommodation used	0.000	0.000	0.000
Means of transportation	0.000	0.000	0.000
Travel group	0.000	0.000	0.000
Length of trail	0.000	0.000	0.000
Attributes valued in a hiking trail	0.432	0.422	0.314
Preferred activities	0.113	0.113	0.113
Benefits sought	0.210	0.210	0.112
Hiking motivation	0.047	0.046	0.027

It can be seen from Table 5.26, except "Attributes valued in a hiking trail", "Preferred activities" and "Benefits sought", the values of significance in "Constraints for hiking", "Information sources used for selecting the hiking destination", "Accommodation used", "Means of transportation", "Travel group", "Length of trail", and "Hiking motivation" are less than 0.05, it can be concluded that there is significant correlation between specific hiking behaviors and previous hiking experience.

Based on the above results, it can be concluded that the correlativity exists between destination specific hiking behavior and independent variables. Gender, age and previous hiking experience to some extent have influenced the hiking behavior. So, discussing hiking tourists' motivation and behavior on their visit to BZL from the data can help tourism planners to better understand the importance of investing in hiking tourism.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Chapter six includes a summary of findings, discussions and conclusions of the outcomes along with recommendations and suggestions of further studies.

6.1 Summary of Findings

This part consists of a summary of respondents' profile, hiking behaviors and motivations, and summary of hypotheses testing results from 382 respondents.

6.1.1 Respondents' Profile

Table 6.1 Summary of Respondents' Sample Profile

Respondents' sample profile	Findings (%)
Gender	Male: 55.8% Female: 44.2%
Age	Under 20 years: 17.3% 20-40 years: 53.7% 41-60 years: 25.1% Above 60 years: 3.9%
Level of education	High school or lower: 23.6% Bachelor' s degree: 52.4% Master' s degree or higher: 24.1%
Marital status	Single: 62.6% Married: 37.4%
Approximate monthly income	Under US\$ 500: 21.5% US\$ 501- US\$ 1,000: 42.4% US\$ 1,001- US\$ 2,000: 10.2% US\$ 2,001- US\$ 3,000: 2.9% No income: 22%

In the light of Table 6.1, over half (55.8%) of the tourists are males; the ages are mainly between 20 and 40 years (53.7%); 52.4% have got a bachelor's degree; the majority of respondents (62.6%) visiting BZL are single; and the approximate monthly income of 42.2% of the respondents range from US\$ 501- US\$ 1,000. The

results demonstrate that the tourists hiking in BZL are young and middle-aged tourists with a high level of education and are single.

6.1.2 Respondents' Hiking Behaviors and Motivation

It can be seen from Table 6.2 that, with regard to the frequency of hiking among the respondents, nearly half of the respondents (44.5%) do not have the previous hiking experience before; 37.7% of the respondents feel the hiking environment is the main constraint on hiking, followed by length of vacation (24.6%), Budget (19.9%), with the least number Physical condition (17.8%). For Information sources used for selecting the hiking destination, the way of recommendation of friends and family accounted for 30.1%, and 33.5% of the respondents acquired the information of hiking destination though the Internet; almost half of the respondents (51.8%) choose the lodges as their accommodation upon visiting BZL. Regarding means of transportation, 36.1% of the respondents arrive in BZL by coach and followed by self-driving by 35.6%. It can be concluded that coach and self-driving are major means of transportation accessing the study area; a majority of respondents (58.9%) travel BZL mainly with friends and families; during the hiking trip in the study area, 46.6% of the tourists select the length of trail between 6Km and 10Km, followed by 42.9% out of respondents who hiked more than 10Km.

Table 6.2 Summary of Respondents' Hiking Behaviors and Motivation

Hiking Behaviors and Motivations	Findings (%)
Frequency of hiking	First time (44.5%) ; 2-3 times (33.2%); 4 or more (22.3%).
Constraints on hiking	Length of vacation (24.6%); Physical condition (17.8%); Budget (19.9%); Hiking environment (37.7%) .
Information sources used for selecting the hiking destination	Recommendation of friends and family (30.1%); The tourist guide (12.0%); Internet (33.5%) ; Books and magazines (24.3%).
Accommodation used	Camp/tent (33.8%); Lodges (51.8%) ; Stay with friend & relatives (14.4%).
Means of transportation	Airplane (12.8%); Train (15.4%); Coach (36.1%) ; Self-driving (35.6%).
Travel group	Travel mainly with friends& families (58.9%) ; Spouse (21.2%); Individual (19.9%).
Length of trail	Under 5 Km (10.5%); 6Km- 10Km (46.6%) ; More than 10Km (42.9%).
Attributes valued in a hiking trail	Views of undisturbed natural scenery (12.8%); Views of streams, lakes, waterfalls and rivers (18.4%) ; Access to unique landscape features (13.7%); Views of gorges (20.1%) ; Good place to stop and rest (4.7%); Views of rock cliff (10.4%); Large variety of plants (9.2%); Large variety of environments (10.7%).
Preferred activities	Taking photos (16.0%); Hiking up the mountain (19.7%) ; Tasting local food (16.9%); Possibility of finding varied fauna and flora (9.7%); Viewing natural scenery (23.3%) Sling crossing (14.4%).
Benefits sought	Serenity (17.6%); Nature (26.3%) ; Isolation (7.9%); Getting to know a rural way of life (18.5%) ; Unpolluted environment (12.9%) Challenging myself (16.8%).
Hiking motivation	To appreciate beautiful landscape (28.8%) ; To breathe pure air (21.9%); To be close to nature (27.6%) ; To test my physical strength and endurance (7.8%); To experience the element of risk (13.9%).

As seen from Table 6.2, regarding attributes valued in a hiking trail, 20.1% of the respondents feel views of gorges are very important attributes of hiking trail in BZL, followed by views of streams, lakes, waterfalls and rivers (18.4%), and then access to unique landscape features (13.7%), views of undisturbed natural scenery (12.8%). It indicates that tourists who hiking in BZL consider the views of gorges and views of streams, lakes, waterfalls and rivers to be attractive attributes in BZL's hiking trails. Regarding preferred activities, "Viewing natural scenery" and "Hiking up the mountain" are the two most popular activities which accounted for 23.3%, 19.7% respectively. From benefits sought aspect, 26.3% of the tourists consider the item — "Nature" to be the most momentous benefit they are seeking from the hiking tourism. Through this type of tourism, tourists can see the attractive and beautiful scenery in remote mountainous areas, and then followed by "getting to know a rural way of life" (18.5%), "serenity" (17.6%) and "challenging myself" (16.8%). The two major hiking motivations of the tourists who participate in hiking tourism in BZL are "to appreciate beautiful landscape" (28.8%) and "to be close to nature" (27.6%), followed by "to breathe pure air" (21.9%). It can be concluded that hikers who visiting on BZL were attracted by beautiful local landscapes, meanwhile, to be close to nature and to breathe pure air are also the motives to hiking in the study area.

6.1.3 Hypothesis Testing Results

The research obtains the primary data by collecting 382 questionnaires from respondents by applying One-way ANOVA and Independent sample t-test to test the hypothesis. The results are showed in Table 6.3.

Table 6.3 Summary of Hypothesis Testing Results

Number	Hypothesis statements	Statistical test	Result
H ₀ 1	The differences in hiking related tourism products with regard to hikers' age are not significant.	One-way ANOVA	Reject H ₀ 1 eight items
H ₀ 2	The differences in hiking related tourism products with regard to gender are not significant.	Independent sample t-test	Reject H ₀ 2 four items
H ₀ 3	The differences in hiking related tourism products with regard to previous hiking experience are not significant.	One-way ANOVA	Reject H ₀ 3 six items
H ₀ 4	The differences in most common travel ailments experienced by hikers with regard to age are not significant.	One-way ANOVA	Reject H ₀ 4
H ₀ 5	The differences in most common travel ailments experienced by hikers with regard to gender are not significant.	Independent sample t-test	Reject H ₀ 5 seven items
H ₀ 6	The differences in most common travel ailments experienced by hikers with regard to previous hiking experience are not significant.	One-way ANOVA	Reject H ₀ 6

6.2 Conclusions of Research Study

6.2.1 Discussion of Hypothesis 1

It can be seen from the Post Hoc testing results in Chapter 5 Table 5.10, that the level of importance among hikers "41-60 years" and "Above 60 years" about hiking related tourism products – "Accommodation", "Bed and breakfast", "Restaurant", "Guide tours", "Some source of transportation", "Souvenirs" are higher than those who are under 20 years old and between 20 and 40 years old. These results reflect that all above forty years feel hiking related products are important to them. While participating in hiking tourism, they pay close attention to the hiking related products

along the destination or hiking trails; for another aspect, it can be seen that these groups of people expect hiking related products to be available in enough quality and quantity. This phenomenon may be caused by tourists in "41-60 years" and "Above 60 years" groups who like a more stable life (when taking part in hiking tourism, tourists expect that there is just little differences with their ordinary life, such as BZL having the similar quality accommodation, transportation and shopping condition as their daily life) than the young and the middle aged to avoid the unexpected risks.

However, tourists below forty years have more positive attitude to "Maps" and "Guidebooks" as they consider that these products to be absolutely necessary for their hiking trips. Usually, people with these groups go to different areas around study area for hiking, some might like climbing up the snow mountain, some might like to explore and find varied fauna and flora. Maps and guidebooks are important to guide and find the right way. So the level of importance in these two products is higher than other groups.

6.2.2 Discussion of Hypothesis 2

As it can be seen from the independent sample t-test results (see Appendix D), as for hiking related tourism products "Accommodation", "Restaurant", and "Souvenirs", females feel these three products are more important than males do. The results of "Accommodation used" in destination specific hiking behaviors can also reflect females regard as "accommodation" more important than males. Actually 56.2% of females choose lodges and 26.0% of females chose camp/ tent as their accommodation. But 48.8% of males select lodges and meanwhile 39.9% of males

select camp/ tent as their accommodation. Most lodges in the study area have attached a bathroom and a canteen; and the living conditions of lodges are better than camp/ tent. It can be concluded that females prefer accommodation in good conditions. Thereby, "Accommodation" to females is more important. In addition, 34.6% of the females choose "to taste local food" as their preferred activity. For these female tourists, there should be restaurants to meet their demands. What is more, females feel "Souvenirs" more important than males. Conversely, as for "Maps", the level of importance in males' opinions is higher than females'.

6.2.3 Discussion of Hypothesis 3

It can be seen from the Post Hoc testing results in Chapter 5, Table 5.15 that the tourists who have no or just two to three times of previous hiking experience feel the level of importance of hiking related tourism products – "Accommodation", "Bed and breakfast", "Restaurant", "Guide tours", "Some source of transportation" and "Souvenirs" is higher than those who have four or more times of previous hiking experience. Based on the cross-tabulation outcomes, people with "4 or more" group like to participate in hiking individually, accounting for 50.6%. The majority (62.4%) of the tourists in a group of four or more hiking experiences choose camp/ tent as their accommodation; and 88.2% of this group of tourist hike in the study area of more than 10 Km. It indirectly indicates that the "4 or more" group prefer hiking long distance individually and living in camp/ tent, and they do not pay much attention on other types of accommodation, guide tours, and some source of transportation because they have confidence to enter remote areas by hiking. So, this group' demands of hiking

related tourism products are less than tourists with "First time" and "2-3 times".

6.2.4 Discussion of Hypothesis 4

It can be seen from the Post Hoc testing results that the hikers above forty years feel the most common travel ailments – "Headache", "Shortness of breath on exertion", "Muscle strain/ pain", "Diarrhea", "Insomnia", "Dizziness", "Loss of balance", "Confusion" and "Vomiting" more frequently than those under 40 years. These results reflect that respondents above 40 years are more vulnerable to common travel ailments. These results are different from Musa *et al.* (2004) which pointed that younger age groups were more likely to experience mountain sickness and diarrhea than older age groups in high altitude destination SNP. This phenomenon may be caused by the decrease of cardio-pulmonary and gastrointestinal function with increasing age, especially in high altitudes region.

6.2.5 Discussion of Hypothesis 5

As it can be seen from the independent sample t-test results (see appendix G), females are more likely to experience "Headache", "Shortness of breath on exertion", "Diarrhea", "Insomnia", "Loss of balance", "Confusion" and "Vomiting" than males. It may have occurred because some females rarely do physical exercise in their daily life, when they take part in the extraneous activities such as hiking such a long distance and activities that require enormous physical effort in high altitude hiking destination, they might experience some health ailments. These results are different from those of Musa *et al.* (2004), which pointed that there was no differences in common travel ailments between females and males in high altitude destination SNP.

6.2.5 Discussion of Hypothesis 6

According to the Post Hoc testing results in Chapter 5 Table 5.23, it implies that tourists who have had "4 or more" times the hiking experience felt fine against tourists who have had 2-3 times or no previous hiking experience feel travel ailments – "Headache", "Shortness of breath on exertion", "Muscle strain/ pain", "Diarrhea", "Insomnia" and "Dizziness", "Loss of balance", "Confusion" and "Vomiting" while hiking. It indicates that the chances of these ailments are decreasing with well versed previous hiking experience. The result of "Muscle strain/ pain" is different from that of Musa *et al.* (2004), which pointed that tourist who have more hiking experience were more likely to experience muscle strain/ pain than those who had less hiking experience in high altitude destination SNP.

6.3 Recommendations

6.3.1 Recommendations for Organizing and Optimizing Hiking Related Tourism

Products

In recent years, BZL has become a new and popular hiking destination in China. But there is still lack of professional organizations to provide the professional hiking guide tours in BZL. Although, according to the results are shown in the chapter five, nearly half (46.9%) of the respondents considered "Guide tours" neither important nor unimportant, actually most of the tourists who visited the study area did not have previous hiking experience and enough knowledge about hiking and expedition in such a remote mountainous area and they were not aware of the importance of guide tours. At present, hiking guide tours in China are usually organized by outdoor sports

clubs just to serve their members; some of travel agencies provide hiking guide tours for tourists but these agencies lack hiking and expedition experiences. Some professional hiking skill and the methods for preventing the risks should be provided to travel agencies. Some hiking tourism service organization can be offered in the study area to provide such hiking trails consulting service, weather forecasts, hiking equipments supplement or replacement, and so on.

In addition, accommodation should also be taken into account by developers and planners. In fact, the total numbers of beds in and around Bing Zhong Luo is 420 (NTB, 2008), but the number of tourists in high season can be over 420. According to the results that are shown in Table 6.2, 51.8% of the respondents lived in lodges; it indicated that the demand of accommodations is increasing. To solve accommodation shortages, the local government could encourage the residents to make a few alterations in their houses to be guest houses for providing shelter to tourists in the high season.

According to the results from Table 6.2, it can be concluded that coach and self-driving are major means of transportation to access the study area and 57.3% of the tourists felt some source of transportation is fairly important to them. However, due to annual rainfall of 1400 mm, the roads entering into Bing Zhong Luo are usually blocked or destroyed by mountain torrents and mud-rock flows. The information platform for transportation should be set for early warnings and exchanging information of traffic along the roads to tourists.

What is more, maps and guidebooks as the important giving directions tools can

guide tourists to find the right way to the location they want to arrive. The information of these two products should be more accurate and up-to-date. To take the maps and guidebooks obtained from the entrance of BZL national park as the example, the map of BZL is a freehand sketch and some hiking trails are not accurately in accordance with practical situation by the researcher using the compass for measurement. These mistakes should be corrected immediately.

6.3.2 Recommendations for Prevention of Most Common Travel Ailments and Health Risks

It can be seen from the chapter five Table 5.3 that nearly half (44.5%) of the tourists did not have previous hiking experience. These people lacked the necessary survival skills for outdoor living and they did not have enough knowledge to avoid some travel ailments and health risks rationally, with the result that it is difficult to make an effective response when they face unexpected situations in hiking tourism. Therefore, the local tourism authorities can create some necessary outdoor survival skills training manual and relevant manual on first aid to distribute to tourists who visit BZL. This way, tourists who interested and planning to participate in hiking learn the necessary expertise to improve emergency response capabilities and abilities to protect themselves. Secondly, some relevant knowledge and course about first aid should be taught to local guides and porters along with necessary practical skills.

In addition, the better hygienic conditions and better medical care are significant for prevention and cure of travel ailments experienced by hikers. There is only one small hospital with poor hygienic conditions and medical care and only one chemist's

shop in center town of BZL. The travel ailments such as "Headache", "Muscle strain/ pain" "Shortness of breath on exertion", "Dizziness", "Loss of balance", "Confusion" and "Insomnia" can easily be overcome with medicine, oxygen uptake and a good rest, but as for "Diarrhea" and "Vomiting", require better medical treatment such as the intravenous drip to prevent degeneration. So, the local government could set up small medical stations along the hiking trails with oxygen uptake service and medicine. It was indicated that most of the respondents experienced "Muscle strain/ pain" and "Headache" more frequently when they undertook hiking and climbing expedition up the mountain in BZL. So, tourists can prepare some medicine to cure these ailments before hiking.

6.3.3 Recommendations about Age

Post Hoc test indicates that different age group hikers do not have the same feelings towards hiking related tourism products in BZL. Therefore, in order to attract young-aged groups and old-aged groups, local tourism authorities and relevant tourism industries need to implement different tourism strategies.

For old aged groups who are more vulnerable to travel ailments, tourists should not only prepare some medicine but should also avoid the activities requiring enormous physical effort such as long distance hiking and climbing up the mountain. The hiking activities of which purpose is to appreciate beautiful landscape and scenery and walk through the ethnic groups' village are more suited with old age groups. And because the old aged groups feel the availability of hiking related tourism products is more important than young aged groups, the products provided by tourism

industry should be of good quality to meet the expectations of tourists.

On the other hand, young aged groups are more likely to take part in some activities which could experience the element of risks. The promoting strategies need to focus on "adventure" to attract the young aged groups.

6.3.4 Recommendations about Gender

Independent sample t-test indicates that males and females differ towards "Accommodation", "Restaurant", "Souvenirs" and "Maps" in BZL. BZL does not have the folk crafts plant for producing and selling the souvenir. Being located at remote mountain area, there are many impoverished people in BZL. The local government could encourage female tourists to purchase handmade folk crafts to support local development. Females are more vulnerable to travel ailments than males. So, females should make adequate preparation before hiking.

6.3.5 Recommendations about Previous Hiking Experience

Post Hoc tests confirms that hiking related tourism products are regarded as important by most of the tourists with no hiking experience. The products should be of good quality to meet their expectations. Once the tourists are satisfied with hiking related tourism, they are more likely to participate in hiking tourism again. However, because tourists with no hiking experience are more likely to experience common travel ailments than those who have more experience, it may make tourists feel unsatisfied with their hiking trip in BZL because of uncomfortable health issue. To solve this problem, some necessary hiking skills and first aid manuals or advertising leaflets should be distributed to the tourists who are interested and are planning to

participate in hiking in BZL for the first time to teaching them hiking capabilities and ability to avoid travel ailments and other health risks.

6.3.6 Recommendations for Future Study

This research has identified the importance of hiking related tourism products and the most common travel ailments experienced by hikers in a high altitude hiking destination. In addition, it was revealed that different ages, gender and previous hiking experiences lead to different feelings toward hiking related tourism products and common travel ailments experienced by hikers in BZL. However, there is still room to extend the study to include such other aspects as tourists attitude and perception of the study area as a high altitude hiking destination; satisfaction of the hiking related tourism products; the research could focus on to explore the relationship between hiking motivation and behavior.

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APPENDIXES



Appendix A: Questionnaire (English version)

Questionnaire

NUMBER 14.



No.

Dear Respondents:

This questionnaire is a part of a Master of Business Administration (MBA)'s thesis in Tourism Management, Graduate School of Business, Assumption University, Thailand. The purpose of this survey is to seek first-hand information for analysis purposes in a thesis entitled Visitors' Hiking Behaviors, Importance of Hiking Related Tourism Products and High Altitude Travel Ailments Experienced in Bing Zhong Luo, Yunnan, China.

Your feedback is valuable and your information will be treated as confidential and strictly used for academic purposes only. Your cooperation and precious time spent in answering this questionnaire is highly appreciated.

Questionnaire:

Instructions: Please tick (✓) the one that matches best with your opinion

Part I: Respondents' profiles

1. Gender

☐ Male

☐ Female

2. Age

Under 20 years

☐ ☐ 20- 40 years

☐ ☐ 41- 60 years

☒ ☐ Above 60 years

3. Level of education

High school or lower

☐ ☐ Bachelor's degree

Master's degree or higher

4. Marital status

☒ ☐ Single

☐ Married

5. Approximate monthly income

- ☐ Under US\$ 500
- ☐ ☐ US\$ 501- US\$ 1,000
- ☐ ☐ US\$ 1,001- US\$ 2,000
- ☐ ☐ US\$ 2,001- US\$ 3,000
- ☐ ☐ No answer

Part II: Destination Specific Hiking Behavior

6. Frequency of hiking

- ☐ ☐ First time ☐ ☐ 2-3 times ☐ ☐ 4 or more

7. Constraints on hiking

- ☐ ☐ Length of vacation ☐ ☐ Physical condition ☐ ☐ Budget
- ☐ ☐ Hiking environment

8. Information sources used for selecting the hiking destination

- ☐ ☐ Recommendation of friends and family
- ☐ ☐ The tourist guide
- ☐ ☐ Internet
- ☐ ☐ Books and magazines

9. Accommodation used

- ☐ ☐ Camp/tent ☐ ☐ Lodges ☐ ☐ Stay with friends & relatives

10. Means of transportation

- ☐ ☐ Airplane ☐ ☐ Train
- ☐ ☐ Coach ☐ ☐ Self-driving

11. Travel group

- ☐ ☐ Travel mainly with friends& family ☐ ☐ Spouse
- ☐ Individual

12. Length of trail

- ☐ ☐ Under 5 Km ☐ ☐ 6-10 Km ☐ ☐ More than 10Km

13. Attributes valued in a hiking trail (multiple-choice permitted)

- ☐ Views of undisturbed natural scenery

- ② ☐ Views of streams, lakes, waterfalls and rivers
- ③ ☐ Access to unique landscape features
- ④ ☐ Views of gorges
- ⑤ ☐ Good place to stop by and rest
- ⑥ ☐ Views of rock cliffs
- ⑦ ☐ Large variety of plants
- ⑧ ☐ Large variety of environments

14. Preferred activities (multiple-choice permitted)

- ① ☐ Taking photos
- ② ☐ Hiking up the mountain
- ③ ☐ Tasting local food
- ④ ☐ Possibility of finding varied fauna and flora
- ⑤ ☐ Viewing natural scenery
- ⑥ ☐ Sling crossing

15. Benefits sought (multiple-choice permitted)

- ☐ Serenity
- ☐ Nature
- ☐ Isolation
- © ☐ Getting to know a rural way of life
- ☐ Unpolluted environment
- ® ☐ Challenging myself

16. Hiking motivations (multiple-choice permitted)

- ☐ To appreciate beautiful landscape
- ☐ To breathe pure air
- ☐ To be close to nature
- ④ ☐ To test my physical strength and endurance
- ⑤ ☐ To experience the elements of risks

Part III: Hiking related tourism products

Please tick ✓ ONE best that indicates your level of importance in the following

statements, where 5 – extremely important, 4 – fairly important, 3 – neither important nor unimportant, 2 – not so important, 1 – not important at all

No.	Statements	5	4	3	2	1
17	Accommodation					
18	Bed and breakfast					
19	Restaurant					
20	Guided tours					
21	Some source of transportation					
22	Shops with hiking equipment					
23	Souvenirs					
24	Maps					
25	Guidebooks					

Part IV: Most common travel associated ailments experienced by hikers

Please tick ✓ ONE best that indicates symptoms felt on your hiking expedition in the region for the following statements, where 5 – all the time feel, 4 – most of the time feel, 3 – feel sometimes, 2 – rarely feel, 1 – never feel

No.	Statement	5	4	3	2	1
26	Headache					
27	Shortness of breath on exertion					
28	Muscle strain/ pain					
29	Diarrhea					
30	Insomnia					
31	Dizziness					
32	Loss of balance					
33	Confusion					
34	Vomiting					

Appendix B: Questionnaire (Chinese version)
问卷调查



No.

这份问卷是泰国易三仓大学研究生部MBA旅游管理系研究生设计的 一个组成部分。此次调查的目的是为分析国内洛徒步旅游者旅游动机， 和 收集的 一手数据信息。

您的反馈是非常有价值的。 个人信息将只用于严谨的学术研究，不做他用。非常感谢您 时间填写这份问

说明：选择最优项
Part I: 受访者信息

1. 性别

2. 年龄

- ☐ 20 岁以下 ☐ 20- 40
☐ 41-60 ☐ 60

3. 教育程度

- ① ☐ 高中或以下 ② ☐ 本科
③ ☐ 硕士 ④ ☐ 博士

4. 婚姻

5. 月收入

- ① ☐ 3000 元以下
• ☐ 3001 元- 6,000 元
② ☐ 6,001 元- 9,000 元
• ☐ 9,001 元- 12,000 元

Part II: 目的地徒步旅游行

6.

- ① ☐ 1 次 ② ☐ 2-3 次 ③ ☐ 4 次或更多

7. 徒步旅行的制约条件 (多选)

- ① ☐ 时间长短 ☐ 身体条件
② ☐ 经济条件 ☐ 徒步旅行的环境

8. 选择徒步旅游目的地信息来源

- ① ☐ 家人或朋友的推荐
② ☐ 导游
• ☐ 因特网
③ ☐ 书籍和杂志

9. 住宿选择

- ① ☐ 野营地或帐篷 ② ☐ 旅馆
③ ☐ 住宿于朋友或亲戚家

10. 交通工具种类

- ① ☐ 飞机 O ☐ 火
③ ☐ 长途汽车 @ ☐ 自驾

11. 旅行参与人的种类

- ① ☐ 主要和朋友一起旅游 ② ☐ 夫 ③ ☐ 独自一人

12. 徒步路线的长度

- ① □ 5 Km 以下 0 0 51(m- 10Km 10Km 以上

13. 徒步旅行线路有

- ☐ 沿途有保护良好的植被
- ☐ 沿途有溪流，河流或者湖泊
- ◎ ☐ 拥有独特的地理地势特点
- ☐ 能看到峡谷景观
- ☐ 沿途有不错的休息和停留地点
- ◎ ☐ 沿途能看到岩石峭壁景观
- ☐ 的植
- ☐ 样的环境条件

14. 喜爱的活动 (选)

- 0 LI 照
- 0 ☐ _____ 小的村庄
- 0 ☐ 品尝 地食品
- @ ☐ _____ 找不同的动植物
- ⑤ ☐ 观看美丽的自然 _____
- ® _____ 体验溜索

15. 徒步旅游的优点()

- ① ☐ 获得安静和平的气氛
- O ☐ 追求自然
- ☐ 求孤独感
- @ ☐ 了解偏远山区的生活
- ® ☐ 探访不受污染的环境
- ☐ 挑战自我

16. 徒步旅行的动机(三选)

- ① ☐ 为了观赏美丽的风景
○ ☐ 为了呼吸纯净的空气
● ☐ 为了接近自然
● ☐ 为了测试自己的身体极限
○ ☐ 为了体验徒步旅行中各种风险所带来的刺激

Part III: 徒步旅游相关旅游产品

你觉得以下的各项在徒步旅行中的重要程度各是什么？请在分数下打钩，5 非常重要, 4 分-比较重要, 3 分-中等, 2 分-比较不重要, 1 分-

No.	Statements	5	4	3	2	1
17	住宿					
18	和早餐					
19	餐馆					
20	向导					
21	交通工具和相关设施					
22	出售徒步旅游装备的商店					
23	旅游纪念品					
24	地图					
25	A 导书					

Part IV: 徒步旅游者在旅行过程中最易感到的病痛

哪些病痛困扰着你？请在下列各项中打钩，5 - 都能感觉到, 4 - 大部分的时间能感觉到, 3 - 偶尔感觉到, 2 - 很少感觉到, 1 - 从来不会感觉到

No.	Statement	5	4	3	2	1
26						
27	徒步过程中呼吸困难					
28	肌肉酸痛					
29	腹泻					
30	失眠					
31	头晕					
32	丧失平衡感					
33	神志不清					
34	呕吐					

Appendix C: Post Hoc test of age * hiking related tourism products

Multiple Comparisons

LSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (kJ)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Accommodation	Under 20 years	20- 40 years	.026	.121	.832	-.21	.26
		41- 60 years	-.704 [*]	.137	.000	-.97	-.43
		Above 60 years	-.952 [*]	.245	.000	-1.43	-.47
	20- 40 years	Under 20 years	-.026	.121	.832	-.26	.21
		41- 60 years	-.729 [*]	.106	.000	-.94	-.52
		Above 60 years	-.977 [*]	.229	.000	-1.43	-.53
	41-60 years	Under 20 years	.704 [*]	.137	.000	.43	.97
		20- 40 years	.729 [*]	.106	.000	.52	.94
		Above 60 years	-.248	.237	.297	-.71	.22
Bed and breakfast	Above 60 years	Under 20 years	.952 [*]	.245	.000	.47	1.43
		20- 40 years	.977 [*]	.229	.000	.53	1.43
		41- 60 years	.248	.237	.297	-.22	.71
	Under 20 years	20- 40 years	-.100	.139	.472	-.37	.17
		41- 60 years	-.507 [*]	.157	.001	-.82	-.20
		Above 60 years	-1.188 [*]	.281	.000	-1.74	-.64
	20- 40 years	Under 20 years	.100	.139	.472	-.17	.37
		41- 60 years	-.407 [*]	.121	.001	-.65	-.17
		Above 60 years	-1.088	.262	.000	-1.60	-.57
Restaurant	41- 60 years	Under 20 years	.507 [*]	.157	.001	.20	.82
		20- 40 years	.407 [*]	.121	.001	.17	.65
		Above 60 years	-.681 [*]	.272	.013	-1.22	-.15
	Above 60 years	Under 20 years	1.188 [*]	.281	.000	.64	1.74
		20- 40 years	1.088 [*]	.262	.000	.57	1.60
		41- 60 years	.681 [*]	.272	.013	.15	1.22
	Under 20 years	20- 40 years	-.071	.105	.502	-.28	.14
		41- 60 years	-.517 [*]	.119	.000	-.75	-.28
		Above 60 years	-.988 [*]	.213	.000	-1.41	-.57
	20- 40 years	Under 20 years	.071	.105	.502	-.14	.28
		41- 60 years	-.446 [*]	.092	.000	-.63	-.27

		Above 60 years	-.917'	.199	.000	-1.31	-.53
	41- 60 years	Under 20 years	.517'	.119	.000	.28	.75
		20- 40 years	.446'	.092	.000	.27	.63
		Above 60 years	-.471'	.207	.023	-.88	-.06
	Above 60 years	Under 20 years	.988'	.213	.000	.57	1.41
		20- 40 years	.917'	.199	.000	.53	1.31
		41- 60 years	.471'	.207	.023	.06	.88
Guided tours	Under 20 years	20- 40 years	-.013	.106	.903	-.22	.19
		41- 60 years	-.435'	.119	.000	-.67	-.20
		Above 60 years	-1.358'	.214	.000	-1.78	-.94
	20- 40 years	Under 20 years	.013	.106	.903	-.19	.22
		41- 60 years	-.422'	.092	.000	-.60	-.24
		Above 60 years	-1.345	.200	.000	-1.74	-.95
	41- 60 years	Under 20 years	.435'	.119	.000	.20	.67
		20- 40 years	.422'	.092	.000	.24	.60
		Above 60 years	-.923*	.207	.000	-1.33	-.52
	Above 60 years	Under 20 years	1.358'	.214	.000	.94	1.78
		20- 40 years	1.345'	.200	.000	.95	1.74
		41- 60 years	.923'	.207	.000	.52	1.33
Some source of transportation	Under 20 years	20- 40 years	-.113	.109	.300	-.33	.10
		41- 60 years	-.523'	.123	.000	-.77	-.28
		Above 60 years	-.873'	.221	.000	-1.31	-.44
	20- 40 years	Under 20 years	.113	.109	.300	-.10	.33
		41- 60 years	-.409'	.095	.000	-.60	-.22
		Above 60 years	-.759'	.206	.000	-1.17	-.35
	41- 60 years	Under 20 years	.523'	.123	.000	.28	.77
		20- 40 years	.409'	.095	.000	.22	.60
		Above 60 years	-.350	.214	.103	-.77	.07
	Above 60 years	Under 20 years	.873'	.221	.000	.44	1.31
		20- 40 years	.759'	.206	.000	.35	1.17
		41- 60 years	.350	.214	.103	-.07	.77
Shops with hiking equipment	Under 20 years	20- 40 years	.132	.110	.231	-.08	.35
		41- 60 years	.269'	.125	.031	.02	.51
		Above 60 years	.461'	.223	.039	.02	.90

	20- 40 years	Under 20 years	-.132	.110	.231	-.35	.08
		41- 60 years	.137	.096	.156	-.05	.33
		Above 60 years	.328	.208	.116	-.08	.74
	41- 60 years	Under 20 years	-.269*	.125	.031	-.51	-.02
		20- 40 years	-.137	.096	.156	-.33	.05
		Above 60 years	.192	.216	.376	-.23	.62
	Above 60 years	Under 20 years	-.461*	.223	.039	-.90	-.02
		20- 40 years	-.328	.208	.116	-.74	.08
		41- 60 years	-.192	.216	.376	-.62	.23
Souvenirs	Under 20 years	20- 40 years	-.198	.115	.087	-.42	.03
		41- 60 years	-.586*	.130	.000	-.84	-.33
		Above 60 years	-.742*	.233	.002	-1.20	-.29
	20- 40 years	Under 20 years	.198	.115	.087	-.03	.42
		41- 60 years	-.388*	.101	.000	-.59	-.19
		Above 60 years	-.545*	.217	.013	-.97	-.12
	41- 60 years	Under 20 years	.586*	.130	.000	.33	.84
		20-40 years	.388*	.101	.000	.19	.59
		Above 60 years	-.156	.226	.489	-.60	.29
	Above 60 years	Under 20 years	.742	.233	.002	.29	1.20
		20- 40 years	.545*	.217	.013	.12	.97
		41- 60 years	.156	.226	.489	-.29	.60
Maps	Under 20 years	20- 40 years	.107	.127	.401	-.14	.36
		41- 60 years	.428*	.144	.003	.14	.71
		Above 60 years	1.470	.258	.000	.96	1.98
	20- 40 years	Under 20 years	-.107	.127	.401	-.36	.14
		41-60 years	.321*	.111	.004	.10	.54
		Above 60 years	1.363*	.241	.000	.89	1.84
	41- 60 years	Under 20 years	-.428*	.144	.003	-.71	-.14
		20- 40 years	-.321*	.111	.004	-.54	-.10
		Above 60 years	1.042	.250	.000	.55	1.53
	Above 60 years	Under 20 years	-1.470	.258	.000	-1.98	-.96
		20- 40 years	-1.363*	.241	.000	-1.84	-.89
		41- 60 years	-1.04f	.250	.000	-1.53	-.55
Guidebooks	Under 20 years	20- 40 years	-.148	.119	.216	-.38	.09
		41- 60 years	.104	.135	.440	-.16	.37
		Above 60 years	1.200*	.241	.000	.73	1.67

20- 40 years	Under 20 years	.148	.119	.216	-.09	.38
	41- 60 years	.252*	.104	.016	.05	.46
	Above 60 years	1.348*	.226	.000	.90	L79
41- 60 years	Under 20 years	-.104	.135	.440	-.37	.16
	20- 40 years	-.252*	.104	.016	-.46	-.05
	Above 60 years	1.096	.234	.000	.64	1.56
Above 60 years	Under 20 years	-1.200*	.241	.000	-1.67	-.73
	20- 40 years	-1.348	.226	.000	-1.79	-.90
	41- 60 years	-1.096*	.234	.000	-1.56	-.64

*. The mean difference is significant at the 0.05 level.



Appendix D: Independent sample t-test of gender * hiking related tourism products

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Accommodation	Equal variances assumed	.408	.523	-2.185	380	.030	-.206	.094	-.391	-.021
	Equal variances not assumed			-2.192	364.773	.029	-.206	.094	-.391	-.021
Bed and breakfast	Equal variances assumed	.031	.861	.743	380	.458	.078	.105	-.128	.283
	Equal variances not assumed			.743	359.404	.458	.078	.105	-.128	.284
Restaurant	Equal variances assumed	.142	.707	-2.004	380	.046	-.161	.081	-.320	-.003
	Equal variances not assumed			-2.001	358.494	.046	-.161	.081	-.320	-.003
Guided tours	Equal variances assumed	.001	.978	-.350	380	.727	-.029	.083	-.192	.134

	Equal variance s not assumed			-.352	367.80 5	.725	-.029	.082	-.191	.133
Some source of transportation	Equal variance s assumed	1.70 8	.19 2	1.007	380	.315	.083	.083	-.079	.246
	Equal variance s not assumed			1.000	350.85 1	.318	.083	.083	-.081	.247
Shops with hiking equipment	Equal variance s assumed	.054	.81 7	-.336	380	.737	-.027	.081	-.186	.132
	Equal variance s not assumed			-.336	360.82 8	.737	-.027	.081	-.186	.132
Souvenirs	Equal variance s assumed	.011	.91 7	-2.10 1	380	.036	-.181	.086	-.350	-.012
	Equal variance s not assumed			-2.11 1	366.61 2	.035	-.181	.086	-.349	-.012
Maps	Equal variance s assumed	.272	.60 3	2.347	380	.019	.227	.097	.037	.417
	Equal variance s not assumed			2.373	373.21 2	.018	.227	.096	.039	.415
Guidebooks	Equal variance s assumed	.000	.98 6	-.736	380	.462	-.067	.091	-.246	.112

Equal variance s not assumed			-.731	351.114	.465	-.067	.091	-.247	.113
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Appendix E: Post Hoc test of previous hiking experience * hiking related tourism products

Multiple Comparisons

LSD

Dependent Variable	(I) Frequency of hiking	(J) Frequency of hiking	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Accommodation	First time	2-3 times	.263'	.102	.010	.06	.46
		4 or more	.771'	.116	.000	.54	1.00
	2-3 times	First time	-.263'	.102	.010	-.46	-.06
		4 or more	.507'	.122	.000	.27	.75
	4 or more	First time	-.771	.116	.000	-1.00	-.54
		2-3 times	-.507'	.122	.000	-.75	-.27
Bed and breakfast	First time	2-3 times	.120	.118	.309	-.11	.35
		4 or more	.435'	.133	.001	.17	.70
	2-3 times	First time	-.120	.118	.309	-.35	.11
		4 or more	.316'	.141	.025	.04	.59
	4 or more	First time	-.435'	.133	.001	-.70	-.17
		2-3 times	-.316'	.141	.025	-.59	-.04
Restaurant	First time	2-3 times	.175	.090	.053	.00	.35
		4 or more	.447'	.102	.000	.25	.65
	2-3 times	First time	-.175	.090	.053	-.35	.00
		4 or more	.272'	.108	.012	.06	.48
	4 or more	First time	-.447'	.102	.000	-.65	-.25
		2-3 times	-.272'	.108	.012	-.48	-.06
Guided tours	First time	2-3 times	.241'	.092	.009	.06	.42
		4 or more	.476'	.104	.000	.27	.68
	2-3 times	First time	-.241'	.092	.009	-.42	-.06
		4 or more	.235'	.110	.033	.02	.45
	4 or more	First time	-.476'	.104	.000	-.68	-.27
		2-3 times	-.235'	.110	.033	-.45	-.02
Some source of transportation	First time	2-3 times	.127	.093	.173	-.06	.31
		4 or more	.353'	.105	.001	.15	.56
	2-3 times	First time	-.127	.093	.173	-.31	.06
		4 or more	.226'	.111	.043	.01	.44
	4 or more	First time	-.353'	.105	.001	-.56	-.15
		2-3 times	-.226'	.111	.043	-.44	-.01
Shops with hiking equipment	First time	2-3 times	-.142	.092	.123	-.32	.04
		4 or more	-.159	.104	.127	-.36	.05
	2-3 times	First time	.142	.092	.123	-.04	.32

		4 or more		-.017	.110	.876	-.23	.20
	4 or more	First time		.159	.104	.127	-.05	.36
		2-3 times		.017	.110	.876	-.20	.23
Souvenirs	First time	2-3 times		.038	.098	.696	-.15	.23
		4 or more		.282'	.111	.011	.06	.50
	2-3 times	First time		-.038	.098	.696	-.23	.15
		4 or more		.244	.117	.038	.01	.47
	4 or more	First time		-.282'	.111	.011	-.50	-.06
		2-3 times		-.244	.117	.038	-.47	-.01
Maps	First time	2-3 times		-.178	.111	.107	-.40	.04
		4 or more		-.218	.125	.083	-.46	.03
	2-3 times	First time		.178	.111	.107	-.04	.40
		4 or more		-.039	.132	.766	-.30	.22
	4 or more	First time		.218	.125	.083	-.03	.46
		2-3 times		.039	.132	.766	-.22	.30
Guidebooks	First time	2-3 times		-.213	.103	.039	-.42	-.01
		4 or more		-.194	.117	.097	-.42	.04
	2-3 times	First time		.213'	.103	.039	.01	.42
		4 or more		.019	.123	.879	-.22	.26
	4 or more	First time		.194	.117	.097	-.04	.42
		2-3 times		-.019	.123	.879	-.26	.22

*, The mean difference is significant at the 0.05 level.

Appendix F: Post Hoc test of age * common travel ailments experienced by

hikers

Multiple Comparisons

LSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Headache	Under 20 years	20- 40 years	.052	.114	.647	-.17	.28
		41- 60 years	-.174	.129	.176	-.43	.08
		Above 60 years	-.624	.230	.007	-1.08	-.17
	20- 40 years	Under 20 years	-.052	.114	.647	-.28	.17
		41- 60 years	-.226*	.100	.023	-.42	-.03
		Above 60 years	-.676*	.215	.002	-1.10	-.25
	41- 60 years	Under 20 years	.174	.129	.176	-.08	.43
		20-40 years	.226*	.100	.023	.03	.42
		Above 60 years	-.450*	.223	.045	-.89	-.01
	Above 60 years	Under 20 years	.624*	.230	.007	.17	1.08
		20- 40 years	.676*	.215	.002	.25	1.10
		41- 60 years	.450*	.223	.045	.01	.89
Shortness of breath on exertion	Under 20 years	20- 40 years	.058	.103	.575	-.15	.26
		41- 60 years	-.296*	.117	.012	-.53	-.07
		Above 60 years	-.415*	.209	.048	-.83	.00
	20- 40 years	Under 20 years	-.058	.103	.575	-.26	.15
		41- 60 years	-.354*	.090	.000	-.53	-.18
		Above 60 years	-.473*	.195	.016	-.86	-.09
	41-60 years	Under 20 years	.296*	.117	.012	.07	.53
		20- 40 years	.354*	.090	.000	.18	.53

		Above 60 years	-.119	.203	.559	-.52	.28
	Above 60 years	Under 20 years	.415	.209	.048	.00	.83
		20- 40 years	.473	.195	.016	.09	.86
		41- 60 years	.119	.203	.559	-.28	.52
Muscle strain/ pain	Under 20 years	20- 40 years	.188	.097	.052	.00	.38
		41- 60 years	.106	.109	.331	-.11	.32
		Above 60 years	-.261	.195	.182	-.64	.12
	20- 40 years	Under 20 years	-.188	.097	.052	-.38	.00
		41- 60 years	-.082	.084	.331	-.25	.08
		Above 60 years	-.449	.182	.014	-.81	-.09
	41- 60 years	Under 20 years	-.106	.109	.331	-.32	.11
		20- 40 years	.082	.084	.331	-.08	.25
		Above 60 years	-.367	.189	.054	-.74	.01
	Above 60 years	Under 20 years	.261	.195	.182	-.12	.64
		20-40 years	.449	.182	.014	.09	.81
		41- 60 years	.367	.189	.054	-.01	.74
Diarrhea	Under 20 years	20- 40 years	.231	.107	.032	.02	.44
		41- 60 years	-.037	.121	.760	-.27	.20
		Above 60 years	-.552	.217	.011	-.98	-.13
	20- 40 years	Under 20 years	-.231 *	.107	.032	-.44	-.02
		41- 60 years	-.268	.094	.005	-.45	-.08
		Above 60 years	-.782 *	.203	.000	-1.18	-.38
	41- 60 years	Under 20 years	.037	.121	.760	-.20	.27
		20- 40 years	.268	.094	.005	.08	.45
		Above 60 years	-.515	.210	.015	-.93	-.10

	Above 60 years	Under 20 years	.552*	.217	.011	.13	.98
		20- 40 years	.782*	.203	.000	.38	1.18
		41- 60 years	.515	.210	.015	.10	.93
Insomnia	Under 20 years	20- 40 years	.247	.112	.028	.03	.47
		41- 60 years	-.064	.127	.611	-.31	.18
		Above 60 years	-.373	.226	.101	-.82	.07
	20- 40 years	Under 20 years	-.247	.112	.028	-.47	-.03
		41- 60 years	-.311*	.098	.002	-.50	-.12
		Above 60 years	-.620*	.212	.004	-1.04	-.20
	41- 60 years	Under 20 years	.064	.127	.611	-.18	.31
		20- 40 years	.311*	.098	.002	.12	.50
		Above 60 years	-.308	.220	.162	-.74	.12
	Above 60 years	Under 20 years	.373	.226	.101	-.07	.82
		20- 40 years	.620*	.212	.004	.20	1.04
		41- 60 years	.308	.220	.162	-.12	.74
Dizziness	Under 20 years	20- 40 years	.381*	.115	.001	.15	.61
		41- 60 years	-.119	.130	.360	-.38	.14
		Above 60 years	-.515*	.233	.028	-.97	-.06
	20- 40 years	Under 20 years	-.381*	.115	.001	-.61	-.15
		41- 60 years	-.500*	.101	.000	-.70	-.30
		Above 60 years	-.896*	.218	.000	-1.32	-.47
	41- 60 years	Under 20 years	.119	.130	.360	-.14	.38
		20- 40 years	.500*	.101	.000	.30	.70
		Above 60 years	-.396	.226	.081	-.84	.05
	Above 60 years	Under 20 years	.515*	.233	.028	.06	.97
		20- 40 years	.896*	.218	.000	.47	1.32
		41- 60 years	.396	.226	.081	-.05	.84

Loss of balance	Under 20 years	20- 40 years	.602*	.095	.000	.42	.79
		41- 60 years	.127	.107	.238	-.08	.34
		Above 60 years	-.627*	.192	.001	-1.00	-.25
	20- 40 years	Under 20 years	-.602*	.095	.000	-.79	-.42
		41- 60 years	-.475*	.083	.000	-.64	-.31
		Above 60 years	-1.229*	.179	.000	-1.58	-.88
	41- 60 years	Under 20 years	-.127	.107	.238	-.34	.08
		20- 40 years	.475*	.083	.000	.31	.64
		Above 60 years	-.754*	.186	.000	-1.12	-.39
	Above 60 years	Under 20 years	.627*	.192	.001	.25	1.00
		20- 40 years	1.229*	.179	.000	.88	1.58
		41- 60 years	.754*	.186	.000	.39	1.12
Confusion	Under 20 years	20- 40 years	.482*	.097	.000	.29	.67
		41- 60 years	.024	.110	.829	-.19	.24
		Above 60 years	-.058	.196	.770	-.44	.33
	20- 40 years	Under 20 years	-.482*	.097	.000	-.67	-.29
		41- 60 years	-.459*	.085	.000	-.63	-.29
		Above 60 years	-.540*	.184	.004	-.90	-.18
	41- 60 years	Under 20 years	-.024	.110	.829	-.24	.19
		20- 40 years	.459*	.085	.000	.29	.63
		Above 60 years	-.081	.191	.670	-.46	.29
	Above 60 years	Under 20 years	.058	.196	.770	-.33	.44
		20- 40 years	.540*	.184	.004	.18	.90
		41- 60 years	.081	.191	.670	-.29	.46
Vomiting	Under 20 years	20- 40 years	.435*	.107	.000	.23	.64
		41- 60 years	.146	.121	.227	-.09	.38
		Above 60 years	-.500*	.216	.021	-.92	-.08

20- 40 years	Under 20 years	-.435*	.107	.000	-.64	-.23
	41- 60 years	-.289*	.093	.002	-.47	-.11
	Above 60 years	-.935*	.202	.000	-1.33	-.54
41- 60 years	Under 20 years	-.146	.121	.227	-.38	.09
	20-40 years	.289*	.093	.002	.11	.47
	Above 60 years	-.646*	.209	.002	-1.06	-.23
Above 60 years	Under 20 years	.500*	.216	.021	.08	.92
	20- 40 years	.935*	.202	.000	.54	1.33
	41-60 years	.646*	.209	.002	.23	1.06

*, The mean difference is significant at the 0.05 level.



Appendix G: Independent sample t-test of gender * common travel ailments experienced by hikers

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Headache	Equal variances assumed	.311	.577	-3.620	380	.000	-.299	.083	-.462	-.137
	Equal variances not assumed			-3.650	370.338	.000	-.299	.082	-.461	-.138
Shortness of breath on exertion	Equal variances assumed	4.092	.044	-3.426	380	.001	-.260	.076	-.409	-.111
	Equal variances not assumed			-3.520	379.987	.000	-.260	.074	-.405	-.115
Muscle strain/ pain	Equal variances assumed	3.676	.056	-1.514	380	.131	-.107	.071	-.246	.032
	Equal variances not assumed			-1.533	374.270	.126	-.107	.070	-.244	.030
Diarrhea	Equal variances assumed	.449	.503	-2.401	380	.017	-.191	.079	-.347	-.035

	Equal variances not assumed			-2.440	376.757	.015	-.191	.078	-.344	-.037
Insomnia	Equal variances assumed	.785	.376	-3.200	380	.001	-.263	.082	-.424	-.101
	Equal variances not assumed			-3.242	374.701	.001	-.263	.081	-.422	-.103
Dizziness	Equal variances assumed	2.091	.149	-1.872	380	.062	-.164	.088	-.336	.008
	Equal variances not assumed			-1.901	376.325	.058	-.164	.086	-.333	.006
Loss of balance	Equal variances assumed	.001	.971	-5.502	380	.000	-.406	.074	-.551	-.261
	Equal variances not assumed			-5.520	364.671	.000	-.406	.074	-.550	-.261
Confusion	Equal variances assumed	5.257	.022	-3.946	380	.000	-.289	.073	-.433	-.145
	Equal variances not assumed			-3.950	361.908	.000	-.289	.073	-.433	-.145
Vomiting	Equal variances assumed	1.920	.167	-4.736	380	.000	-.373	.079	-.528	-.218
	Equal variances not assumed			-4.639	325.828	.000	-.373	.080	-.531	-.215

Appendix H: Post Hoc test of previous hiking experience * common travel ailments experienced by hikers

Multiple Comparisons

Dependent Variable	(I) Frequency of hiking	(J) Frequency of hiking	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Headache	First time	2-3 times	.036	.093	.700	-.15	.22
		4 or more	.500	.105	.000	.29	.71
	2-3 times	First time	-.036	.093	.700	-.22	.15
		4 or more	.464	.111	.000	.25	.68
	4 or more	First time	-.500	.105	.000	-.71	-.29
		2-3 times	.464	.111	.000	-.68	-.25
Shortness of breath on exertion	First time	2-3 times	.068	.085	.423	-.10	.24
		4 or more	.465	.096	.000	.28	.65
	2-3 times	First time	-.068	.085	.423	-.24	.10
		4 or more	.396	.102	.000	.20	.60
	4 or more	First time	-.465	.096	.000	-.65	-.28
		2-3 times	.396	.102	.000	-.60	-.20
Muscle strain/ pain	First time	2-3 times	.024	.080	.764	-.13	.18
		4 or more	.235	.091	.010	.06	.41
	2-3 times	First time	-.024	.080	.764	-.18	.13
		4 or more	.211	.096	.028	.02	.40
	4 or more	First time	-.235	.091	.010	-.41	-.06
		2-3 times	.211	.096	.028	-.40	-.02

Diarrhea	First time	2-3 times	.129	.090	.153	-.05	.31
		4 or more	.306	.102	.003	.11	.51
	2-3 times	First time	-.129	.090	.153	-.31	.05
		4 or more	.177	.108	.101	-.03	.39
	4 or more	First time	-.306*	.102	.003	-.51	-.11
		2-3 times	-.177	.108	.101	-.39	.03
Insomnia	First time	2-3 times	.072	.092	.437	-.11	.25
		4 or more	.465*	.105	.000	.26	.67
	2-3 times	First time	-.072	.092	.437	-.25	.11
		4 or more	.393	.110	.000	.18	.61
	4 or more	First time	-.465*	.105	.000	-.67	-.26
		2-3 times	-.393	.110	.000	-.61	-.18
Dizziness	First time	2-3 times	-.018	.097	.852	-.21	.17
		4 or more	.488*	.110	.000	.27	.70
	2-3 times	First time	.018	.097	.852	-.17	.21
		4 or more	.506*	.116	.000	.28	.73
	4 or more	First time	-.488*	.110	.000	-.70	-.27
		2-3 times	-.506	.116	.000	-.73	-.28
Loss of balance	First time	2-3 times	.094	.083	.257	-.07	.26
		4 or more	.594*	.094	.000	.41	.78
	2-3 times	First time	-.094	.083	.257	-.26	.07
		4 or more	.500	.099	.000	.31	.69
	4 or more	First time	-.594*	.094	.000	-.78	-.41
		2-3 times	-.500	.099	.000	-.69	-.31
Confusion	First time	2-3 times	.241	.081	.003	.08	.40
		4 or more	.594*	.091	.000	.41	.77
	2-3 times	First time	-.241	.081	.003	-.40	-.08
		4 or more	.353*	.096	.000	.16	.54
	4 or more	First time	-.594*	.091	.000	-.77	-.41
		2-3 times	-.353*	.096	.000	-.54	-.16
Vomiting	First time	2-3 times	.234*	.091	.010	.06	.41
		4 or more	.371	.103	.000	.17	.57
	2-3 times	First time	-.234*	.091	.010	-.41	-.06
		4 or more	.137	.108	.208	-.08	.35
	4 or more	First time	-.371	.103	.000	-.57	-.17
		2-3 times	-.137	.108	.208	-.35	.08

*. The mean difference is significant at the 0.05 level.

