An Exploratory Study of Gambling Motives, Severity and Behaviour of Gamblers in Sikkim

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By

Adarsh Rai

Department of Management

School of Professional Studies

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ल, साम्दुर, तादोंग - 737102
, सिक्किम, भारत
03592-251212, 251415, 251656
क्स - 251067
ट - www.cus.ac.in

6th Mile, Samdur, Tadong-737102
Gangtok, Sikkim, India
Ph. 03592-251212, 251415, 251656
Telefax : 251067
Website : www.cus.ac.in

सिक्किम विश्वविद्यालय
SIKKIM UNIVERSITY

(भारत के संसद के अधिनियम द्वारा वर्ष 2007 में स्थापित और नैक (एनएएसी) द्वारा वर्ष 2015 में प्रत्यायित केंद्रीय विश्वविद्यालय)
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Submitted by ***Mr. Adarsh Rai*** *(17/Ph.D/MGM/01; 23.05.2018)* under the supervision of ***Dr. Krishna Murari,*** *Associate Professor & Head of the Department of Management, School of Professional Studies, Sikkim University.*

.....

Signature of the Scholar

Adarsh Rai

.....

Countersigned by Supervisor

Dr. Krishna Murari

Dr. Krishna Murari
Head, Dept. of Management
SIKKIM UNIVERSITY

.....

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I, **Adarsh Rai**, hereby declare that this thesis entitled "**An Exploratory Study of Gambling Motives, Severity and Behaviour of Gamblers in Sikkim**" submitted to **Sikkim University** for the award of the degree of Doctor of Philosophy, is my original work. This work has not been submitted for any other research degree of this University or any other University/Institutions.

Adarsh Rai
Research Scholar
Ph.D Registration No.: 17/Ph.D/MGM/01
Department of Management
School of Professional Studies
Sikkim University

ाइल, सामदुर, तादोंग - 737102
ोक, सिक्किम, भारत
-03592-251212, 251415, 251656
फैक्स - 251067
ाइट - www.cus.ac.in

6th Mile, Samdur, Tadong-737102
Gangtok, Sikkim, India
Ph. 03592-251212, 251415, 251656
Telefax : 251067
Website : www.cus.ac.in

सिक्किम विश्वविद्यालय
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CERTIFICATE

This is to certify that the thesis titled **"An Exploratory Study of Gambling Motives, Severity and Behaviour of Gamblers in Sikkim"** submitted to the Sikkim University for partial fulfillment of the degree of Doctor of Philosophy in the Department of Management, embodies the result of bonafide research work carried out by **Mr. Adarsh Rai** under my guidance and supervision. No part of the thesis has been submitted for any other Degree, Diploma, Association and Fellowship.

All the assistance and help received during the course of investigation have been duly acknowledged by him.

We recommend this thesis to be placed before the examiners for evaluation.

Dr Krishna Murari
(Supervisor)
Associate Professor & Head
Dept. of Management,
Sikkim University, Gangtok

Dr. Krishna Murari
Head, Dept. of Management
SIKKIM UNIVERSITY

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List of Abbreviation

AM	Amusement Motive
APA	American Psychiatric Association
AV	Avoidance Motive
BC	Before Christ
BPO	Business Process Outsourcing
CAGR	Compound Annual Growth Rate
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMIN	Chi-Square
CPGI	Canadian Problem Gambling Index
DF	Degrees of Freedom
DSM	Diagnostic and Statistical Manual
EFA	Exploratory Factor Analysis
EGMs	Electronic Gaming Machines
EM	Excitement Motive
FM	Financial Motive
GDP	Gross Domestic Product
GFI	Goodness of Fit
GGR	Gross Gambling Revenue
GGY	Gross Gaming Yield
GMQ	Gambling Motives Questionnaire
GMS	Gambling Motivation Scale
H2GC	H2 Gambling Capital
ICC	International Cricket Council
IPV	Intimate Partner Violence
IT	Information Technology
KMO	Kaiser Meyer Olkin

NH	National Highway
NPAR	Number of Parameters in the model
PCA	Principle Component Analysis
PGSI	Problem Gambling Severity Index
RMSEA	Root Mean Square Error of Approximation
SM	Social Motive
SOGS	South Oaks Gambling Screen

CHAPTER 1. INTRODUCTION

1.1 Gambling: Historical Evolution

Gambling has been in existence since the beginning of human civilizations (Law Commission of India, 2018). Gambling perhaps is as old as mankind (Schwartz, 2008) and remains a controversial subject even today as it used to be during the early periods (Fact Research Inc., 1974). The second oldest profession in the world, gambling, has ceased to exist in different forms with various ancient artefacts providing evidence of the existence of gambling in the early period (Schwartz, 2008).

The earliest recorded history of gambling comes from China, where the game of Circa was played around 2300 BC (Fact Research Inc., 1974). However, McMillen has pointed out the earliest recorded history of gambling in China to around 4000 BC (McMillen 1996 as cited in Chan et al., 2016). The archaeological discovery of Astragali, a dice-like object dated around 40,000 years and made from the bones of sheep or dogs, providing the earliest evidence of gambling in ancient Europe (Law Commission of India, 2018). Many archaeological surveys have unearthed primitive dices and gambling devices in the ancient Mesopotamian and Egyptian Civilizations as well (Schwartz, 2008). The ancient Indian Literature Rig Veda, written around 1500 BC, provides the earliest evidence of the existence of gambling in India (Law Commission of India, 2018).

Several early civilizations regulated gambling to generate revenue by collecting the proceeds of the profits and investing them in various state works. Lotteries were conducted in France and England to create funds for funding several state projects. The early works of the British Museum in London, England, were financed by lottery money (Fact Research Inc., 1974). Harvard and Yale universities, two of the premium

educational institutes in the world, were also initially funded by the lottery money (Cormack, 2018).

The history of casinos and gambling houses dates back to around the 17th century in Europe (Cormack, 2018). Gambling houses similar to casinos of the modern world started appearing in Europe around the 17th century, when in 1638 Ridotto was established in Venice, Italy (Cormack, 2018). The first legal land-based casino in Europe was opened in Baden, Austria during the year 1765 (Law Commission of India, 2018).

The legalised gambling industry continues to grow and flourish, resulting in an introduction and expansion of new forms of gambling. Today people can and do gamble on almost anything. However, the most common forms of gambling popular around the world include lotteries, casino games, online gaming, poker, bingo, sports betting, Electronic Gaming Machines (EGMs), and slot machines (Holtgraves, 2009b). Although the legalised gambling industry continues to grow, there still exists a debate among the critics of gambling based on their own sets of philosophical standpoints. The proponents of gambling base their argument from the point of economic development in terms of revenue generation and employment opportunities. While, opponents of gambling oppose gambling on moral grounds and focus on the negative implications of gambling, such as problem gambling and its impact upon gamblers, family members, and society.

1.2 Gambling definitions

Before going into much detail about gambling and gambling products, it is essential to understand and identify what constitutes gambling. There are several definitions of the

term gambling throughout the literature. The following paragraphs will uncover some of the ways in which gambling has been defined.

The Encyclopaedia Britannica defines gambling as,

> *"The betting or staking of something of value, with consciousness of risk and hope of gain, on the outcome of a game, a contest, or an uncertain event whose result may be determined by chance or accident or have an unexpected result by reason of the bettor's miscalculation."*

The Business Dictionary defines gambling as, *"Betting (wagering) that must result either in a gain or a loss."*

The Meghalaya Prevention of Gambling Act, 1970 defines gambling as,

> *"Gambling" or "gaming" means a play or game for money, including betting and wagering, by which a person intentionally exposes money to the risk or hazard of loss by chance; but does not include- a lottery or wagering or betting upon a horse race, when such wagering or betting takes place on the date on which the race is to be run.*

In the case of Dr. K.R. Lakshmanan vs State of Tamil Nadu and Anr, 1996, the Supreme Court of India has defined gambling as,

> "*Gambling in a nut-shell is payment of a price for a chance to win a prize. Games may be of chance, or of skill or of skill and chance combined. A game of chance is determined entirely or in part by lot or mere luck. The throw of the dice, the turning of the wheel, the shuffling of the cards, are all modes of chance. In these games the result is wholly uncertain and doubtful. No human mind knows or can know what it will be until the dice is thrown, the wheel*

stops its revolution or the dealer has dealt with the cards. A game of skill, on the other hand - although the element of chance necessarily cannot be entirely eliminated. (Dr. K.R. Lakshmanan vs State of Tamil Nadu and Anr, 1996, p.2)

From the above definitions of gambling, some characteristics of gambling can be identified. These are as follows:

- Gambling involves wagering or betting something of monetary value (which is usually money).
- Gaming games of different types can be classified into a game of skill, a game of chance, or both.
- A gambler is exposed to the highest risk and a high return.
- While gambling, a gambler either wins or loses a bet. There is no such thing called a tie in gambling.

1.3 Gambling Industry Around the World

The gambling industry is one of the major industries in the world. The global gambling market grew at a compound annual growth rate of 4.1% since 2014, and the global gambling market size was valued at nearly $449.3 billion in 2018 ("Gambling Global Market Opportunities And Strategies To 2022," 2019). The global gambling market size is expected to reach $565.4 billion by 2022 growing at a compound annual growth rate of about 5.9%. While according to the H2 Gambling Capital (H2GC), the Gross Gambling Revenue (GGR) grew at a compound annual growth rate of 2.3% from 342.6 billion euros in 2012 to 392.4 billion euros in 2018 (*Playtech plc Annual Report and Accounts*, 2018), Land-based gambling made approximately around 89% of the total GGR in 2018 in comparison to the online forms of gambling which made around 11%

of the total GGR. According to the H2 Gambling Capital (H2GC) estimates there was an increase of 4.5% of the Gross Gambling Revenue from 375.6 billion euros in 2017 to 392.4 billion euros in 2018 for casino, poker, sports betting, skill based gambling and lotteries (*Playtech plc Annual Report and Accounts*, 2018).

Figure 1.1 highlights the total gambling by the market in the year 2018. Asia, along with the Middle East, and North America dominated the overall gambling market during 2018 with a market share of 38% and 29% respectively. The significant domination in the total gambling market share of Asia, the Middle East, and North America is a result of the revenue earned from their land-based gambling. Europe also has a significant market share of 26% in the year 2018, driven by a consistent rate of growth from online gaming since 2012.

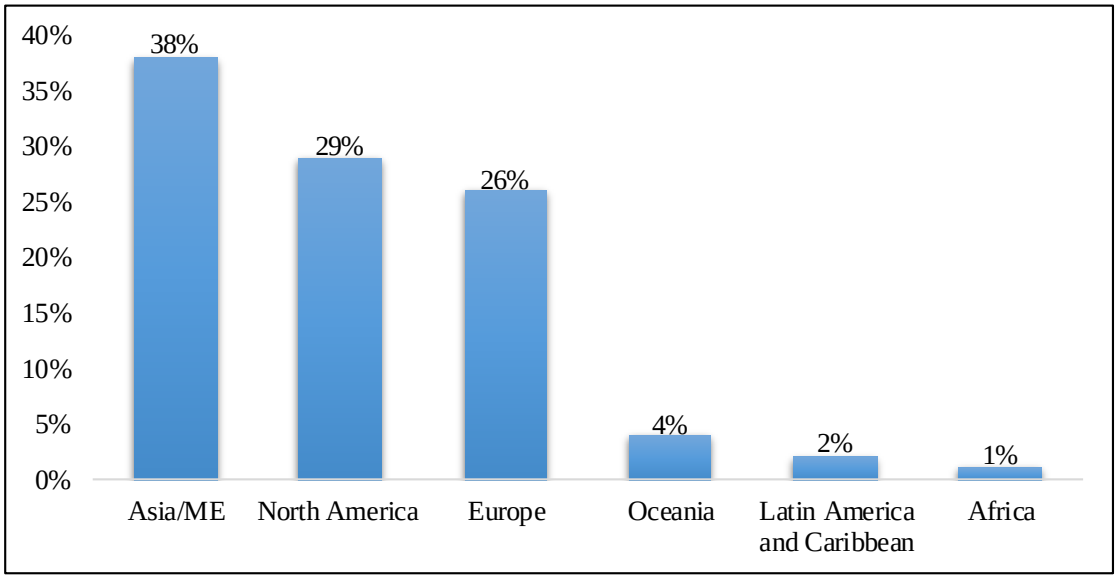

Figure 1.1Gambling by Market, 2018

Source: *Playtech plc Annual Report and Accounts*, (2018)

The Italian gambling industry, with an estimated GGR of 19 billion euros, is one of the largest gambling markets in Europe (*Playtech plc Annual Report and Accounts*, 2018). The UK gambling market also generated a significant GGR of 16.7 billion euros in

2018, with a notable revenue generated from online gaming, which generated a GGR of approximately 7.1 billion euros (*Playtech plc Annual Report and Accounts*, 2018).

As far as the Gross Gaming Revenue as a share of Gross Domestic Product (GDP) is concerned, Greece has the highest GDP share of 1.14%, followed by Italy (largest gambling market in Europe in 2018) with a GDP share of almost about 1.06% among the select European countries (Figure 1.2).

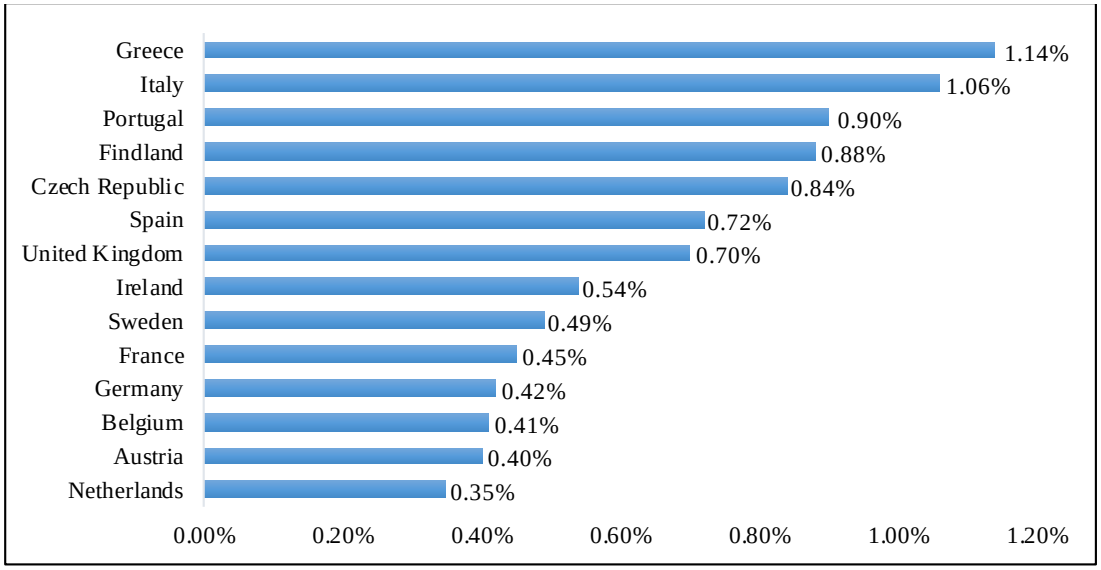

Figure 1.2 Gross Gaming Revenue (GGR) as a share of GDP in select European countries in 2018.

Source: Statista[1].

Accounting for almost 32.7% of the world's global gambling market, the Asia-Pacific was the largest gambling market in the world in 2018 ("Gambling Global Market Opportunities and Strategies to 2022," 2019). There has been a significant development in the Asia-Pacific region in terms of Casino gambling. Macau (China), Australia, and South Korea are the three largest markets of the Asia-Pacific region. In the years to come, the Asia-Pacific region with a Compound Annual Growth Rate (CAGR) of 7.9%

[1] https://www.statista.com/statistics/967875/gross-gambling-revenue-share-gdp-europe-by-country/

will be the fastest-growing gambling market in the world ("Gambling Global Market Opportunities And Strategies To 2022," 2019).

The Gross Global Revenue (GGR) generated by online gambling accounted for about 11% of the total GGR in the year 2018. Even though online gambling forms a small segment of the global gambling market, it has the highest rate of growth in the industry. The online gambling market grew from 40.5 billion euros in 2017 to 44.6 billion euros in 2018, witnessing a substantial growth rate of almost 10.2%. According to H2GC estimates, the online gambling market is expected to grow at a CAGR of 7.4% until 2021 in comparison to a 2% CAGR estimated for the land-based gambling market (*Playtech plc Annual Report and Accounts*, 2018).

Figure 1.3 highlights the overall size of the online gambling market by region for three different periods; 2012, 2015, and 2018. The online gambling market has experienced a significant growth rate in all the regions from the period between 2012 and 2018. The meaningful growth in the European gambling market is a direct result of the consistent growth from online revenues since 2012 (*Playtech plc Annual Report and Accounts*, 2018). Within the period between 2012 and 2018, the size of the online gambling market in Europe has doubled from $12.79 billion in 2012 to $24.75 billion in 2018.

In Asia and North America, the largest share of the Gross Gambling Revenue comes from its land-based gambling market (*Playtech plc Annual Report and Accounts*, 2018). However, Asian and North America are also making a significant stride in terms of the online gambling market. The size of the online gambling market in Asia has increased from $9.25 billion in 2012 to $14.12 billion in 2018. On the other hand, the size of the

online gambling market in North America has increased from $3.95 billion in 2012 to $8.66 billion in 2018[2].

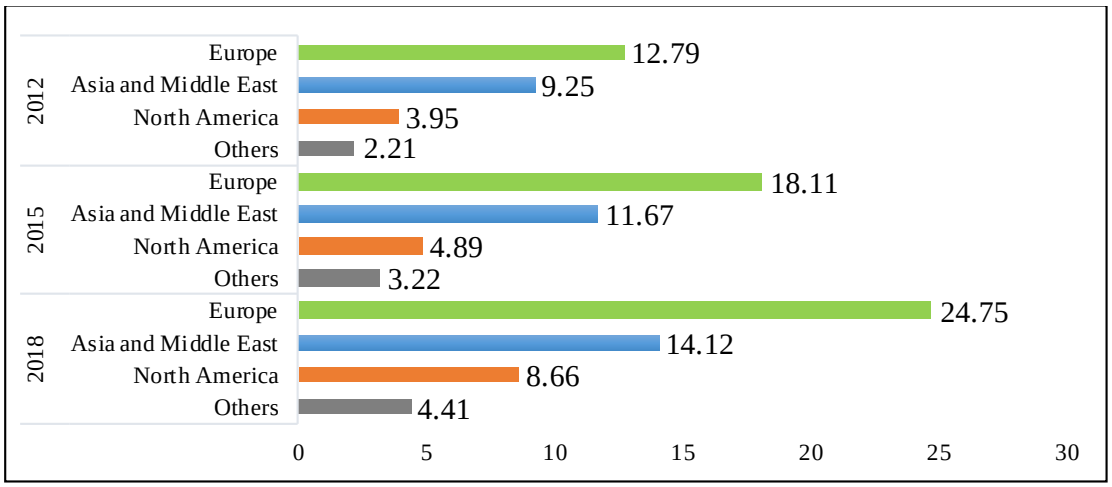

Figure 1.3 Size of the Online Gambling Market Worldwide from 2012-2018, by region (in US Billion Dollar).

Source: Statista[3]**.**

The European online gambling market was the largest online gambling market in the world, generating almost about $24.75 billion in 2018. Figure 1.4 highlights the distribution of gaming revenue in Europe in 2018.

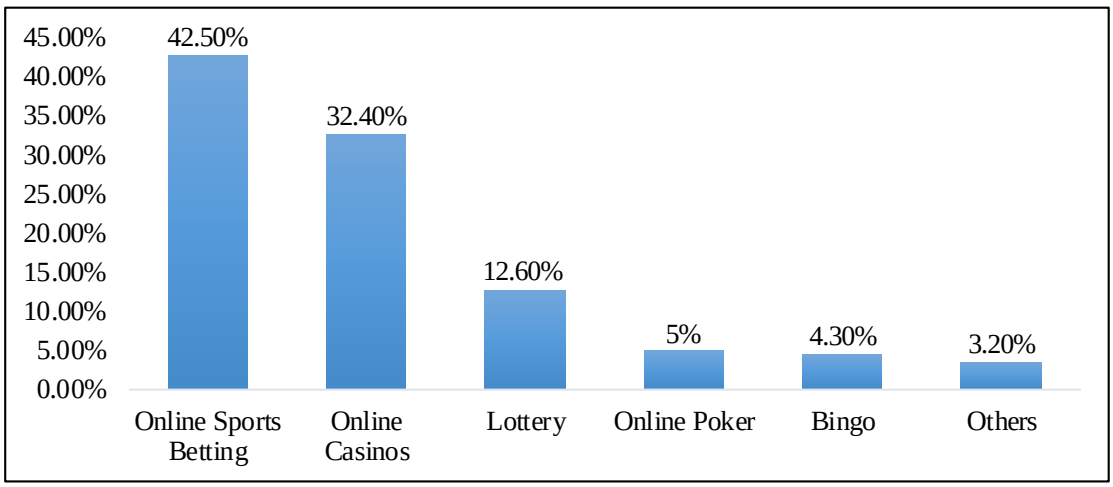

Figure 1.4 Distribution of Online Gaming Revenues in Europe in 2018, by type.

Source: Statista[4]**.**

[2] Retrieved from, https://www.statista.com/statistics/208466/interactive-gambling-market-by-region/
[3] Retrieved from, https://www.statista.com/statistics/208466/interactive-gambling-market-by-region/
[4] Retrieved from, https://www.statista.com/statistics/692541/distribution-online-gambling-by-type europe/#statisticContainer

As per the type of online gambling is concerned, online sports betting generated the highest amount of revenue with a contribution of almost 42.50% of the total online gambling revenue. Online sports betting was closely followed by online casinos, which also had a notable contribution of almost 32.40%. While the lottery contributed almost 12.60% of the total online gambling revenue, Online poker, Bingo, and others had a contribution of 5%, 4.30%, and 3.20% respectively.

1.4 Gambling in India

Prevalent across multiple cultures and societies, Gambling has been the most popular pastime activity among the Indians during the ancient period (George et al., 2017) and remains a popular pastime in the present day as well. Gambling in India is frowned upon by various cultures, societies, and the religious codes and conducts. However, the popularity of gambling in India continues to grow, even when the social and religious beliefs frown upon gambling.

1.4.1 History of Gambling in India

Gambling has long been a part of Indian culture and society. There are several references to the existence of gambling in India in ancient Indian texts and literature. *The Dyuta Sukta (Ode to the Dice)* a part of the hymn from *Rig Veda*, ancient Indian literature written between 1700 and 1000 BC, provides evidence of gambling in India (Bhide, 2007; George et al., 2017). The ancient prehistoric epic *Mahabharata* is a story about *the Pandava* brothers and their wife who had to go into exile after losing their fortunes, which was decided by a game of dice (Benegal, 2013; Palai et al., 2006).

Kautilya's *Arthashatra* has highlighted the role of gambling as a source for generating revenue for the state. The gambling industry during Kautilya's era was a state-regulated industry with a 5 percent tax on the winnings (Srinivasan, 2014). The popularity of

gambling continued in India during the medieval period between the 8th and 18th centuries (George et al., 2017). There was a structured gambling industry in India during the 15th century, and gambling and gambling houses were legal. Gambling took place legally, and part of the profit made from gambling went out to the King. From the early 16th to 18th century, the Mughal Empire ruled India. Islam forbids gambling, and yet during the Islamic rule, people still gambled in India. Babur, the founder of the Mughal Empire in India, introduced *ganjifa*,[5] which were widely popular during the Mughal period (Benegal, 2013). Even during British rule, gambling such as *Satta* or number gambling that included betting on cotton prices, opium, and gold prices were widely popular. (George et al., 2017). Gambling halls were legal in India until the British colonial authorities banned gambling in India in 1867 (Szybala, 2016). The British Empire outlawed gambling in India through the Public Gambling Act of 1867, which banned all forms of gambling in India except for Horseracing, rummy, and lotteries. The Public Gambling Act of 1867 still governs the gambling laws in India.

1.4.2 Gambling Laws in India

The origin of gambling laws in India can be traced back to the British rule in India. Gambling laws in India at its initial stage were confusing and vague. Section 290 of the Indian Penal Code of 1860, was the only provision in India that prohibited any forms of gambling activities. This initial confusion about the gambling laws in India led to the passing of the Public Gambling Act of 1867 to prevent public gambling in India. The Public Gambling Act of 1867 was derived from the British Gaming Act 1845, and the Betting Act 1853.

[5] An ancient Indian card game introduced and popularized by the Mughal Empire.

The Public Gambling Act of 1867 is a general law governing gambling in India. The act provides a provision for the punishment of public gambling, and for keeping common gaming houses. The Public Gambling Act of 1867 defined gaming houses as:

> *"...any house, walled enclosure, room or place in which cards, dice, tables or other instruments of gaming are kept or used for the profit or gain of the person owning, occupying, using or keeping such house, enclosure, room or place, whether by way of charge for the use of the instruments of gaming, or of the house, enclosure, room or place, or otherwise howsoever." (Section 1, p. 2)*

In general, the act banned all forms of gambling in India other than the lottery, horseracing, and rummy (G3 Newswire, 2014). The act banned operating gambling houses and visiting gambling houses. A fine of Rs 200 or up to three months' imprisonment is imposed if found guilty of operating a gambling house, and a fine of Rs 100 and one-month imprisonment is imposed if found guilty of visiting gambling houses.

The Public Gambling Act of 1867 is no longer applicable to the whole of India after 1935. The Indian states got exclusive power to enact their gambling laws after 1935. Although several states enacted gambling laws after independence, the Public Gambling Act of 1867 remains significant as 10 states and 4 union territories in India have adopted the act to be applicable within their territory via Article 252 of the Constitution of India. The states and Union territories that have adopted the Public Gambling Act of 1867 are:

Table 1.1 States and Union Territories adopting The Public Gambling Act, 1867

Sl No	State	Sl No	Union Territory
1	Arunachal Pradesh	1	Andaman and Nicobar Islands
2	Haryana	2	Chandigarh
3	Himachal Pradesh	3	Dadra and Nagar Haveli
4	Punjab	4	Lakshadweep
5	Madhya Pradesh		
6	Chhattisgarh		
7	Manipur		
8	Mizoram		
9	Tripura		
10	Uttarakhand		
Source: G3 Newswire (2014)			

Several other states in India have enacted their gambling laws. Some of the laws regulating gambling in different states are as follows:

Table 1.2 States in India that have enacted their own gambling laws.

Sl No	Legislations	State	Key features
1	*The Bombay Prevention of Gambling Act, 1887*	Maharashtra and Gujarat	• Wagering or betting upon horse race or dog race is exempted under Section 3. • Games of mere skill wherever played is exempted under Section 13.
2	*The Meghalaya Prevention of Gambling Act, 1970*	Meghalaya	• Games of mere skills wherever played. • Games and sports that it may by notification, exempt from the operation of the Act. • Permits the local archery game of "*teer"* under Section13 (2) and

			betting is licensed under Section 14A of the Meghalaya Amusement and Betting Tax (Amendment) Act 1982.
3	*The Rajasthan Public Gaming Ordinance, 1949*	Rajasthan	• Exempts any game of mere skill unless carried on common gaming house.
4	*The Goa, Daman and Diu Public Gambling Act, 1976*	Goa, Daman and Diu	• Permits casinos and other games of chance. • Under Section 13A allows the state government to authorize games of "electronic amusement/slot machines in Five Star Hotels" and "such table games and gaming on board in vessels offshore as may be notified".
5	*The Tamil Nadu Gaming Act, 1930*	Tamil Nadu (Excludes Madras)	• Under the Act, "gaming" does not include a lottery and only includes wagering or betting. • Under Section 11, exempts games of mere skill. • Betting on horseracing is legal.
6	*The Tamil Nadu Prize Schemes (Prohibition) Act, 1979*	Tamil Nadu	• Promotion and or conducting prize schemes is prohibited in the state on Tamil Nadu under this Act.
7	*The Sikkim Casinos (Control & Tax) Act, 2002*	Sikkim	• Under this Act, the state government can grant licenses for operating casinos in the state. • Regulates games of chance played using a machine or instrument in five star hotels.

8	*The Sikkim Online Gaming (Regulation) Act, 2008*	Sikkim	• The Act permits and regulate online gaming. • Under this Act the offering of "online games and sports games" are restricted to the physical premises of "gaming parlours".
9	*The Nagaland Prohibition of Gambling and Promotion and Regulation of Online Games of Skill Act, 2015*	Nagaland	• Section 2(3) defines "games of skill" and is the only legislation in India, which defines it.
10	*The Telangana Gaming Act, 1974*	Telangana	• Prohibits gambling (both online and offline forms of gambling) as a whole. • The act has a zero-tolerance policy towards gambling.
Source: Law Commission of India (2018)			

Although the Public Gambling Act of 1867 made gambling and betting activities illegal in India, the act itself did not define gambling and also states that it does not apply to games of mere skills wherever played. It means that wagering and betting in games of mere skill are legal in India. The supreme court of India in 1996 has defined the game of mere skill as,

> "*The competitions where success depends on substantial degree of skill are not "gambling" and despite there being an element of chance if a game is preponderantly a game of skill it would nevertheless be a game of "mere skill".*

One of the essential constituents of the legislations (be it central or state) dealing with gambling in India is that it has excluded lotteries from their purview. There were no laws related to state lotteries until 1998 when the Indian parliament enacted the Central Lotteries Act of 1998. The act, which extends to the whole of India governs lotteries in India and provides authority to the states to run lotteries, with a restriction of a maximum of one draw per week. As per The Lotteries (Regulation) Act, 1998, the state government within its territory can prohibit the sale of lottery tickets organized by every other state.

1.4.3 Gambling Industry in India

The gambling industry in India can be bifurcated into segments; legal and illegal gambling market. The estimates suggest that the gambling market in India is worth US$60 billion per year, with almost $40 billion being the value of the illegal gambling market (G3 Newswire, 2014).

The legal gambling industry only exists among a handful of states in India. While the lottery and horse racing have been in existence for a long time, casinos and online gambling have come into existence only a couple of decades ago. The state of Goa and Sikkim are the pioneers in introducing casinos and online forms of gambling in India and are the major gambling destination in India.

Another important segment of the gambling industry in India is the festival and fairs gambling. Gambling at festivals and fairs, also known as "festival gambling," is very familiar among many Indian gamblers (George et al., 2016; Jaisoorya et al., 2017). Festival gambling provides Indian gamblers an opportunity to gamble in a wide range of legal and illegal gambling (Jaisoorya et al., 2017).

The following subsections highlight in detail the existing segments of the legal gambling industry in India.

1.4.3.1 Lottery Industry in India

The lottery is one of the few forms of gambling that is legal under the Public Gambling Act of 1967. The history of the lottery in India dates back to around 300 years old when it was introduced in Goa during the Portuguese rule (G3 Newswire, 2014). The Lotteries (Regulations) Act, 1998, and the Lotteries (Regulations) Rules, 2010 governs lotteries and provides the regulations for conducting state-run lotteries in India (Comptroller and Auditor General of India, 2017). As per the estimates, the lotteries in India generate an estimated revenue of about Rs 12000 crore (G3 Newswire, 2014). Today there are 12 states in which lottery is legal. The 12 states in which the lottery is legal are highlighted in Table 1.3.

Table 1.3 States in India in which Lotteries are Legal

Sl No	State	Sl No	State
1	Maharashtra	7	Manipur
2	Punjab	8	Meghalaya
3	West Bengal	9	Tripura
4	Kerala	10	Mizoram
5	Goa	11	Arunachal Pradesh
6	Sikkim	12	Nagaland

Source: Szybala (2016)

Kerala is the first state to introduce the lottery in India (G3 Newswire, 2014). The reason for introducing lottery in India was to reduce unemployment and increase state revenue (Neelakandhan D, 2007). During the initial stages of the lottery in Kerala, lotteries were private and operated by private agencies. Today, the state government operates lotteries in Kerala, and all private lotteries operated by private agencies are banned (Neelakandhan D, 2007). Kerala generates a large amount of revenue and profit from its state-run lotteries. During the year 2016-17, the state-run lotteries of Kerala recorded the highest revenue and profit of 7394.91 crores and 1691.05 crores,

respectively. Table 1.4 highlights the amount of revenue and profit generated by the state lotteries of Kerala for the period between 2007-08 and 2016-17.

Table 1.4 Revenue and Profit of Kerala State Lotteries from the period between 2007-08 and 2016-17

Year	Revenue (in Crores)	Profit (in Crores)
2007-08	333.91	48.28
2008-09	484.76	104.2
2009-10	625.74	114.7
2010-11	557.69	92.02
2011-12	1287.08	394.87
2012-13	2778.8	681.76
2013-14	3793.72	788.42
2014-15	5445.43	1168.26
2015-16	6317.73	1461.16
2016-17	7394.91	1691.05

Source: Directorate of Kerala State Lotteries.

1.4.3.2 Horseracing industry in India

As per the provision of the Public Gambling Act of 1867, horse racing is the only sport in India in which betting is allowed legally. In 1996 the Supreme Court of India, in the case of Dr. K R Lakshmanan versus State of Tamil Nadu, ruled that betting on horseracing is a mere skill. An estimated figure suggests that legal wagering on horse racing brings in a revenue of almost Rs 2 billion each year (G3 Newswire, 2014).

Horse racing has a long history in India. The earliest racecourse in India was set up in Guindy (Chennai) during the year 1777. Racing and wagering in horse racing have been in existence in Hyderabad under the rule of Nizam dating as far as 1868. Horse racing started in Mysore under the tutelage of the rulers of Mysore since 1891[6]. Today there are a total of eight horse racecourses in India which are highlighted in Table 1.5.

[6] http://www.hydraces.com/full-website.php

Table 1.5 Horse Racecourses in India

Sl No	Name of the Racecourse	Operated by
1	Bangalore Racecourse	Bangalore Turf Club
2	Hyderabad Racecourse	Hyderabad Race Club
3	Royal Calcutta Racecourse	Royal Calcutta Turf Club
4	Mumbai (Mahalakshmi) Racecourse	Royal Western India Turf Club
5	Pune Racecourse	Royal Western India Turf Club
6	Madras/Guindy Racecourse	Madras Race Club
7	Ooty Racecourse	Madras Race Club
8	Mysore Racecourse	Mysore Race Club
Source: G3 Newswire (2014)		

These racecourses organize different horse racing events during different periods of the year.

1. **Bangalore Racecourse:** The Bangalore Racecourse, founded in the year 1920, is operated by the Bangalore Turf Club (G3 Newswire, 2014). The racecourse, which is around 1,950 m in length, is famous for its oval-shaped track. The Bangalore Turf Club organizes horse racing in two seasons; summer (starts in the month of May and ends at the start of August), and Winter (Starts in the month of November and concludes during March). During the 2018-19 season, the prize stake was over Rs 18.5 crores in the Summer season and over Rs 15.5 crore in the Winter season[7].
2. **Hyderabad Racecourse:** Hyderabad Racecourse, run by the Hyderabad Race Club, began racing in 1968 at the present Malakpet Course[8]. Hyderabad racecourse organizes racing in two seasons – monsoon and winter, and has two different racecourses for two distinct seasons. The President of India Cup, the Nizam's Gold Cup, and the Deccan Derby are some of the various events

[7] https://www.bangaloreraces.com/
[8] http://www.hydraces.com/full-website.php

organized in the Hyderabad racecourse[9]. The racecourse also paved the way for the Invitation Cup, considered the premier classic of Indian racing[10].

3. **Royal Calcutta (Kolkata) Racecourse:** Royal Calcutta Turf Club owns and operates the Royal Calcutta Racecourse. The first race track was built in 1820 (G3 Newswire, 2014). The Royal Calcutta Racecourse organizes several racing events such as Invitation Cup and Sprinters Cup during the period between July to September and November to March[11].
4. **Mumbai (Mahalakshmi) Racecourse:** The Mumbai (Mahalakshmi) racecourse, operated by the Royal Western India Turf Club, was set up in 1883 (G3 Newswire, 2014). The racecourse, which spreads across an area of 225 acres, organizes multiple events such as 1000 and 2000 Guineas, Oaks, Indian Derby, and Poonawalla Multimillion[12].
5. **Pune Racecourse:** Operated by the Royal Western India Turf Club, the Pune racecourse was set up in 1830[13]. The racecourse is located in Pune cantonment in the land controlled by the Indian army (G3 Newswire, 2014). The racecourse hosts events from July to October and are known for hosting events such as Pune Derby, the Royal Western India Turf Club Gold Cup, and the Independence Cup[14].
6. **Madras Racecourse:** Madras racecourse is the oldest racecourse in India, built-in 1777 in Guindy, Chennai, and is operated by the Madras Race Club (G3

[9] https://bettingsites.co.in/horse-racing/india-race-tracks/
[10] http://www.hydraces.com/full-website.php
[11] https://bettingsites.co.in/horse-racing/india-race-tracks/
[12] https://bettingsites.co.in/horse-racing/india-race-tracks/
[13] https://bettingsites.co.in/horse-racing/india-race-tracks/
[14]https://bettingsites.co.in/horse-racing/india-race-tracks/

Newswire, 2014). The racecourse organizes Horse racing during the month of November and March[15].

7. **Ooty Racecourse:** Ooty racecourse located in the Nilgiris, Tamil Nadu is one of the smaller horse racing racetracks in India[16]. Like the Madras Racecourse, the Ooty racecourse is also operated by the Madras Race Club. Ooty racecourse organizes events during the summer period during the month of April and June.[17].
8. **The Mysore Racecourse:** The Mysore Turf Club Ltd operates the Mysore racecourse located at the foothills of the Chamundi hills. The Mysore racecourse is the most exclusive in India and only allows 250 members each year (G3 Newswire, 2014).

1.4.3.3 Casino Industry in India

Casino gambling in India is currently offered in two Indian states Goa and Sikkim, and one union territory Daman and Diu. According to Jaydev Mody, the chairman of the Delta Corp, the revenue generated from the Indian casinos accounts for approximately Rs 500 crore (Szybala, 2016).

Casinos in Goa

The state of Goa, which is the smallest in terms of area and fourth-smallest in terms of population, is the largest destination for gambling in India and accounts for almost 95% of the total Indian casino gaming revenue. The annual gross gaming revenue generated by the casinos in Goa is currently poised at $150 million and has a massive growth projection with a predicted $1 billion annual forecast (Beckett, 2018).

[15] https://bettingsites.co.in/horse-racing/india-race-tracks/
[16] https://bettingsites.co.in/horse-racing/india-race-tracks/
[17] https://bettingsites.co.in/horse-racing/india-race-tracks/

The government of Goa began promoting casino tourism to reinforce the economic growth of the state. And even though the promotion of casinos in Goa has encountered a strong protest from the residents, the casino industry has been able to enhance the economic growth of Goa's economy through an increase in government's revenue, supporting the hotel industry, employment generation, and improving the tourism industry (Botelho, 2018). As per the estimate, about 30% of the tourists who visit Goa come for a gambling experience and generates around Rs 100 crore in taxes for the state government (G3 Newswire, 2014).

Casino operation in Goa began in 2001, with the launch of the first offshore casino, Casino Caravela. Currently, Goa offers four offshore-based casinos housed in riverboats in the Mandovi River and eleven land-based casinos. The offshore casinos in Goa host large poker tournaments and cater to the needs of the high stake players (Sehrawat & Talan, 2014).

Table 1.6 Land Based and Offshore Based Casinos in Goa

Sl No	Land Based Casinos	Sl No	Off shore based Casinos
1	Deltin Suites	1	Deltin Royale
2	Casino Pearl	2	Deltin Jaqk
3	Dunes Casino	3	Casino Pride
4	Goldfinger Casino	4	Casino Pride 2
5	Chances Casino		
6	Crown Casino		
7	Casino Carnival		
8	Casino Paradise		
9	Casino Palms		
10	Grand 7 Casino		
11	Casino Dice		

Source: Szybala (2016)

1.4.3.4 Sports Betting in India

Sports betting in India is immensely popular. Under the Public Gambling Act of 1867, betting is an illegal activity (betting on horse racing is legal) and is a punishable offense under the act (Sehrawat & Talan, 2014). However, there exists a huge illegal betting market in India, and betting on the outcome of cricket matches is an extremely popular activity (George et al., 2017) and infamous in India (Jaisoorya et al., 2017). Irrespective of the continuous attempts and investment of substantial resources by the government to enforce a ban on betting in India, betting is still thriving in an illegal and underground setting (Sehrawat & Talan, 2014). The Indian betting market is estimated to be around 300,000 crores (Rohsler et al., 2013).

There are several downsides to the existence of an enormous illegal betting and gambling market in India. Studies conducted on illegal betting and gambling market in India have identified the following downsides of the existence of illegal betting and gambling market in India.

I. The illegal betting market in India generates an estimated sum of Rs 300,000 crore (G3 Newswire, 2014). It is an enormous figure which is highly detrimental to the mainstream economy. Money generated from illegal activities is usually spent on other illegal activities such as drug trafficking and terror activities.
II. Minors and children are prone to get exposed to the illegal gambling market.
III. The illegal betting market does not offer any security towards the minors or the bettors, and they often become the victim and are cheated by the brokers (Jha & Dey, 2014).
IV. The existence of the illegal betting market in India will also result in players and sports being the victim of several match-fixing scandals.

With the rising popularity of sports betting in India, there has been a call for legalising sports betting and bringing it under the purview of the law. Sir Ronnie Flanagan, ICC Chairman of the Anti-Corruption Unit and the committee headed by Justice R. M. Lodha, former Chief Justice of India, called for the legalisation of a regulated betting market to deal with the issues of sport and match-fixing (Law Commission of India, 2018). According to a survey conducted by The Federation of Indian Chambers of Commerce and Industry, 83% of the respondents feel regulating sports betting with appropriate laws is better than banning it, and 74% of the respondents agree that regulation of sports in India will minimise match-fixing issues in India.

There are several positive outcomes of regulating sports betting in India, and the government should consider reforming the sports betting laws in India. Betting is considered a vice in the Indian culture, and the legalisation of betting and gambling is a challenging and controversial topic (Rohsler et al., 2013). However, irrespective of challenges, efforts should be directed towards reforming sports betting, as betting and gambling will continue to exist within the social structure, even when a ban is enforced upon it. Some of the positive outcomes of legalising the sports betting are given below:

I. Legalisations of sports betting in India will help in generating revenue for the state by taxing the income and the earnings made by the brokers and the bettors under Section 115BB of the Income Tax Act, 1995 (Jha & Dey, 2014). The revenue generated from sports betting in India can be invested in the development of sporting facilities, thus improving and developing the growth of Indian athletes (Jha & Dey, 2014).

II. There will be an increase in employment resulting from the legalisation of sports betting in India. Legalising sports betting in India will attract a large number of bettors, thereby generating significant employment opportunities for the people.

India has the potential to become an influential destination for outsourcing sports betting, backed by the availability of a large number of skilled manpower in the field of IT and BPO (Jha & Dey, 2014).

III. Legalizing and regulating sports betting in India will provide a layer of protection to the younger and vulnerable bettors who are exposed to more risk while betting in an illegal betting market (Rohsler et al., 2013).

IV. Illegal betting and the sports market in India generate a large sum of money, further used for other illegal activities such as drug trafficking and terrorist activities. Regulating betting and sports market in India will help to curtail the growth of illegal funds and control the rise of any organized crimes.

Legalising and bringing sports betting under the ambit of law may provide a better solution for the rising illegal betting markets in India. According to Palai et al. (2006), the Indian gambling market should be reformed, and legalised through stringent regulations ensuring transparency and fair play in the gambling business. Regulating sports betting in India will ensure the accountability of large sums of money generated through the illegal betting market, thereby reducing the number of match-fixing scandals, money laundering, and other crimes (The Federation of Indian Chambers of Commerce & Industry, 2012).

1.4.4 Status of Indian Gambler

Gambling is a widely popular activity among Indians. Looking at the history of ancient India, it is evident that the Indians gambled in almost anything. Betting on bullfighting, cockfights, and goat fights, betting on rainfall, and figuring out the prices of opium, jute, and cotton were quite prevalent in India, and are still in existence in some parts of the country.

Gambling during the festival of Diwali is one of the age-old traditions of the Indians. Besides gambling at festival fairs, also known as 'festival gambling' is also very familiar among many Indian gamblers (Jaisoorya et al., 2017). Festival gambling provides Indian gamblers an opportunity to gamble on a wide range of legal and illegal gambling (Jaisoorya et al., 2017).

The legality of some forms of gambling allows many Indians to take part in legal forms of gambling in gambling venues. However, many Indian gamblers also take part in illegal forms of gambling, most notably sports betting. Jaisoorya et al. (2017), and George et al. (2016), in their study, have identified the participation rate of Indian gamblers in different gambling games. Table 1.7 highlights the participation rate in different forms of gambling by Indian gamblers. Indian gamblers spend an estimated amount of 60 billion dollars on gambling and gambling experiences annually (G3 Newswire, 2014).

Table 1.7 Gambling Participation in different forms of Gambling among the Indian Gamblers

Gambling forms	George et al. (2016)	Jaisoorya et al. (2017)
1. Lottery	570 (52.3%)	571 (41.6%)
2. Cricket/football gambling	303 (27.8%)	810 (58.9%)
3. Cards	178 (16.3%)	113 (8.2%)
4. Festival gambling	115 (10.9%)	187 (13.6%)
5. Online gambling (other than lottery)	54 (4.9%)	55 (4%)
6. Online Lottery	33 (3%)	45 (3.3%)
7. Satta	30 (2.7%)	71 (5.2%)
8. Horses	24 (2.2%)	6 (0.4%)
9. Others, not specified	174 (16%)	188 (13.7%)
Source: Compiled by the Author		

Many Indian gamblers travel to Goa and Sikkim (two premier gambling destinations in India) to participate in casinos and online gambling. However, due to the minimal availability of legal gambling avenues for gambling, many Indian gamblers are also traveling abroad to take part in gambling activities. The neighbouring countries such as Nepal and Sri Lanka are a few of the nearest gambling destinations for Indian gamblers. The Indian gamblers are also frequently visiting the two premier gambling destinations Macau and Las Vegas, and are among the top ten foreign visitors of these destinations. In a report Gambling in India, Szybala (2016) has provided data on the number of Indian visitors in Macau and Las Vegas.

Table 1.8 Total Visits of Indian Gamblers at Macau and Las Vegas

Year	Number of Visitors	
	Macau	Las Vegas
2011	169,660	25,256
2012	150,825	27,192
2013	160,019	29,089
2014	167,216	29,783
2015	167,578	32,600
2016	166,728	34,598
2017	167,950	36,596
2018	169,173*	38,593*
*Estimated figures		
Source: Szybala (2016)		

1.5 Gambling in Sikkim

Sikkim is the second smallest state in India after Goa in terms of area. It is a landlocked state nestled in the foothills of the Himalayan range. The state of Sikkim shares an international boundary with Nepal, China, and Bhutan and is connected with the rest of India through the NH 10 sharing its border with the Indian state of West Bengal. With

total inhabitants of 610,577 people as per the 2011 census, the economy of the state is dependent upon tourism and agriculture.

Sikkim holds a distinctive position of being the first state in India to offer gambling (G3 Newswire, 2014). However, gambling in the form of the lottery was prevalent in the state long before Sikkim was an independent kingdom. Over the years, Sikkim has enacted and amended its gambling laws and currently allows legal gambling in the form of lotteries, casinos, and online gambling. Table 1.9 highlights the list of Online games that are legal under the Sikkim On-line Gaming (Regulation) Rules, 2009.

Table 1.9 On-line Games Legal under the Sikkim On-line Gaming (Regulation) Rules, 2009

Sl No	Online Games	Sl No	Online Games
1	Roulette	8	Poker Dice
2	Black Jack	9	Baccarat
3	Pontoon	10	Chemin-de-for
4	Punto Banco	11	Backgammon
5	Bingo	12	Keno
6	Casino Brag	13	Super Pan 9
7	Poker		
Source: Rule 3 of the Sikkim On-line Gaming (Regulation) Rules, 2009.			

Although gambling is legal in Sikkim, the local people are banned from visiting casinos and online gaming centres. In 2018, the Government of Sikkim amended rule 13 of the Sikkim Online Gaming (Regulation) Act, 2008, and banned the entries of the local people inside the gaming zones. Rule 13 of the Act was amended to protect and safeguard the interest of the local people. As a part of rule 13(2), only those who have a photo identity card (Voter ID or Aadhaar Card), or a passport issued from outside the state of Sikkim, are allowed to enter the gaming Zones.

1.5.1 Lotteries in Sikkim

The history of the lottery in Sikkim dates back to 1972 before Sikkim became a state of India. The Sikkim government introduced the first lottery scheme in Sikkim in 1978 after its merger with India in 1975. Since then, the government has been conducting lotteries, and Sikkim is one of the 12 states conducting the lotteries in India. The government began operating lotteries to generate revenue for investment in various developmental activities and the prosperity of the retired armed personnel in the state. The overall head of the Sikkim state lottery is the Principal Secretary, Finance, Revenue, and Expenditure Department, Government of Sikkim. While the functioning of the state lotteries in Sikkim is overseen by the Director, Directorate of the Sikkim State Lotteries.

Since its inception in 1978, the government began organizing lotteries in Sikkim through the organizing agents (also referred to as marketing agents). The government organizes both the paper lottery and online lottery (introduced in 2001) and sells them through Marketing Agents. During 2010 and 2016, the government has appointed as many as three different Marketing Agents, one for the paper lottery and two for the online lottery (Comptroller and Auditor General of India, 2017). The lotteries in Sikkim are organized as per the Lotteries (Regulation) Rule, 2010. As per the Lotteries (Regulation) Rule 2010, the directorate of the Sikkim State Lotteries organizes 24 draws per day, and six bumper draws in a calendar year.

1.5.2 Casinos and Online Gambling in Sikkim

After Goa, Sikkim is the second significant hub for casino gambling in India. Casino operators are granted the license to operate gambling through The Sikkim Casino Games (Control and Tax Rules), 2002. The Sikkim Regulation of Gambling

(Amendment) Act, 2005, provides the state with the power to authorize casinos within the state.

Applicants are provided the license to operate casino gambling in Sikkim, under rule 17 of the Sikkim Casino Games (Control and Tax) Rules, 2007. A license is granted for a duration of five years. For applying for a license, the applicants must have a hotel with a standard of 5 stars and the necessary infrastructure to operate casino games. As per section 7 of the Sikkim Casinos (Control and Tax) Act, 2002, the licensee of the casinos has to pay to the government of Sikkim an annual gaming fees of Rs One crore or an amount at the rate of 10% of the Gross Gaming Yield (GGY) whichever is higher for the first year. For the remaining four years, the gaming fees are increased by 15% per year. According to the Act Gross Gaming Yield Means

> *"...the total amount of all bets or stakes made, and the price of all chances sold, less the value of all winnings and prizes due, in all the course of gaming during the period in question." (Rule 2 Sub-rule (e))*

At present, three land-based casinos are fully functional within the state of Sikkim. Those are Casino Sikkim, Casino Mahjong, and Deltin Denzong. Of the three casinos, Casino Sikkim, located at Hotel Royal Plaza in Gangtok, is the oldest casino and has been in operation since 2009 (Pramanik, 2018). Casino Sikkim houses 15 gaming machines and 5 table games.

Casino Mahjong, owned and operated by Trio Ventures and located at Mayfair Spa and Resort, started its operation in 2011. Casino Mahjong is spread across an area of about 7,000 square feet and houses 15 live gaming tables, a poker room with 7 tables, VIP Gaming rooms, and Slots[18]. The casino offers games such as Roulette, Blackjack,

[18] http://www.casinomahjongsikkim.com/

Baccarat, Flush, Texas Hold'em Poker, Kitty, Marriage, Slot Machines, and Mini Flush[19].

Deltin Denzong is the youngest among the three casinos located in Sikkim. It is owned and operated by Delta Corp and started its operation in January 2017. Deltin Denzong offers three casino packages; a regular package of Rs 2,500, a premium package of Rs 3,500, and a VIP package of Rs 7,000. (Pramanik, 2018).

In terms of online gambling, Sikkim has led the way through the legalisation of online gambling. The Sikkim Online Gaming (Regulation) Act 2008 was passed in 2008 and paved the way for online gambling in Sikkim. The first regular license to operate online gaming was provided to a subsidiary of M/s. Future Gaming Solutions Private Limited (Lemberg, 2014). Golden gaming International Pvt Ltd. today is the most prominent company in Sikkim that offers online gaming from its three gaming centres, located in MG Marg Gangtok, Zero point Gangtok, and Rangpo.

1.5.3 Gambling Laws and Acts in Sikkim

Sikkim perhaps is the most progressive state in India in terms of gambling laws are concerned. Sikkim allows lottery, casino, and online gambling, within the state governed by various acts. The Acts that govern the gambling laws in the state are:

1. The Sikkim Casinos (Control and Tax) Act, 2002.
2. The Sikkim Online Gaming (Regulation) Act, 2008.

The Sikkim Casinos (Control and Tax) Act, 2002

The Sikkim Casinos (Control and Tax) Act 2002 regulates and frames the rules for casinos in Sikkim. The act was previously referred to as The Sikkim Electronic Entertainment Games (Control and Tax) Act 2002, until 2010, when it was amended.

[19] http://www.casinomahjongsikkim.com/

The act extends to the whole of Sikkim and controls and regulates Electronic Entertainment Games or Casinos Games and imposes a tax on such in the state of Sikkim. The act defined Electronic Entertainment Centre as:

> *"Electronic Entertainment Centre" means a public place which provides or is used or is intended to be used for playing, organizing or exhibiting Electronic Entertainment Games." (Section 2 sub section (a))*

The act defined Electronic Entertainment Games as:

> *"...all or any of such games of entertainment of chance played by means of any machine or instrument, as may be prescribed from time to time." (Section 2 sub section (b))*

The Act was amended in 2005, wherein the words "Electronic Entertainment Centre" and Electronic Entertainment Games" were substituted by "Casino" and "Casino Games" respectively. The act was once again amended in 2011, wherein clause (b) of section 2 which defined Electronic Entertainment Games was substituted with a definition of Casino Games defined as

> *"....all or any such games of entertainment or chance as may be notified by the State Government from time to time and which is played by means of any machine or instrument." Section 2 (b)*

The Sikkim Online Gaming (Regulation) Act, 2008

The Sikkim Online Gaming (Regulation) Act 2008, which extends to the whole of the state of Sikkim was passed by the Sikkim Legislative Assembly on 28th June 2008 and came into force on 1st July 2009. The act regulates and controls online gaming, and

imposes a tax on such games conducted within the state of Sikkim. The act defines online games as:

> *"...all or any games of chance or a combination of skill and chance, including but not limited to Poker, Roulette, blackjack or any game, played with cards, dice or by means of any machine or instrument for money or money's worth, as may be prescribed from time to time." Section 2 (d)*

The act defines online gaming as:

> *"...any gaming, where any player enters or may enter the game or takes or may take any step in the game or acquires or may acquire or may acquire a chance in any on-line gaming or Sport Gaming, by means of a telecommunication device including the negotiating or receiving of any bet by means of a telecommunication device." Section 2 (k)*

As per the powers conferred by section 23 of the Sikkim Online Gaming (Regulation) Act, 2008, the state government of Sikkim framed The Sikkim On-line Gaming (Regulation) Rules, 2009.

1.6 Economic and Social Implications of Gambling

Gambling legalisation and regularisation have an enormous impact on the economic development of a country. The development of casinos and other forms of gambling increases the revenue in the form of taxes, creates employment opportunities for the people, and helps in economic development. The liberalisation of casinos in Macau and Las Vegas had a significant economic impact on their respective economy. Casino liberalization in 2002 has significantly influenced the GDP growth of Macau's economy. Before liberalisation, from 1999 to 2002, revenue generated from the casinos in Macao increased at a rate of 66.1% (Zheng & Hung, 2012). However, after the

liberalisation the revenue generated from casinos increased by four-fold from 2002-2009 (Zheng & Hung, 2012). Macau was also able to cope with the global financial recession due to the income generated from its casino industry (Wan et al., 2011). The Canadian government also generates substantial revenues from its numerous state-run lotteries and casino, and the revenues have been increasing year-by-year (Basham & White, 2002). Similarly, the Australian government also generated enormous revenue from lotteries, and it was one of the significant sources of revenue generation (Basham & White, 2002).

Another significant contribution of the gambling industry has been an increase in employment opportunities for the locals. The gambling industry has been a principal employer in many countries such as Canada, Macao, United Kingdom, and Australia. Jobs creation has increased at a rate of 20.6% in the casino sector alone in Macao (Zheng & Hung, 2012). An increase in the number of jobs in the casinos has increased the monthly income of the employees (Wan et al., 2011; Zheng & Hung, 2012).

However, there are a large number of opponents of the development of the gambling industry. The opponents of gambling seek to highlight the negative consequences by explaining the personal and social impacts resulted from legalised gambling. Several studies on the estimation of the social cost of gambling have identified different social costs of gambling. Some of the identified social costs of gambling are, Employment costs, Bad debts and bankruptcy, civil suits, welfare and social costs, thefts and crime, high school dropouts, traffic problems, impose constraints on small businesses.

Studies related to the estimation of the social costs of gambling have a fair share of critiques. Walker (2008) has criticized the inclusion of some of the social costs of gambling identified by Thompson & Schwer (2005). The social costs identified by

Thompson & Schwer (2005) while calculating the social cost of gambling are Employment costs, Debt, Bankruptcy and Civil suits, Thefts and Criminal system actions, treatment, and welfare services. Among these costs, Walker (2008) criticized the inclusion of employment costs, debts, bankruptcies and civil suits, thefts, and criminal systems. According to Walker (2008), these costs are either private or merely involves a transfer of ownership. Walker (2008) has thereby suggested the exclusion of these costs while estimating the social cost of gambling.

According to Walker and Sobel (2016), estimating the social cost of gambling is far more complicated than estimating the economic benefits of gambling. Studies on the estimation of the social cost of gambling have different estimated costs and results. Research on the estimation of the social cost of gambling lacks a distinctive methodology that is ideal in identifying and estimating the social cost of gambling. The disparity in the methodology applied in different studies has resulted in the differences in the estimated values of social costs of gambling. However, irrespective of the various critiques, it is quite understandable that the existence of the gambling industry in a region does have a fair share of negative impact upon society.

1.7 Problem Statement

Since the beginning of human civilizations, gambling has ceased to exist in one form or the other. Throughout history, gambling was an activity that was considered a vice and was frowned upon by different religions, yet, gambling was a popular activity and continues to remain a popular activity among the people. Gambling has grown and evolved throughout human history, and people are always finding a new way or the other to engage in gambling. Over a few decades, with the introduction of the Internet and the advancement of technology, gambling has become more available to people who wish to engage in betting and wagering.

India has a rich history of gambling. The reference of gambling in ancient Indian texts such as Mahabharata and Rigveda provides evidence of gambling in ancient India. However, despite such a rich history of gambling in India, studies related to gambling are rare and scanty.

Sikkim is the most liberal state in India when it comes to gambling. State lottery, Casino, and online gambling are legal within the state. The state also hosts several festival gambling games such as Bingo (also referred to as Tambola or Housie in Sikkim). Gambling has been present in the state for almost four decades, but when it comes to scientific study, there is only one study that has been conducted by the Comptroller and Auditor General of India (2017) to evaluate the performance of the lottery in Sikkim.

The present study will identify the motives for gambling, the prevalence rate of problem gambling, and gambling behaviour among the gamblers in Sikkim. The present study is the first empirical study conducted in India that seeks to identify gambling motives and behaviour among Indian gamblers. The present study is also the first empirical study conducted in Sikkim to find out the prevalence rate of problem gambling among the gamblers in Sikkim. The present study will also highlight the revenue generated from the legal gambling games in Sikkim.

CHAPTER 2. REVIEW OF LITERATURE

Gambling has been present in every culture and civilization and is played by people across various generations. It is one of the oldest industries in the world played in different forms, and the popularity of gambling keeps increasing (Chantal et al., 1995). Liberalization and development of gambling and gambling products have had a significant implication on economic development in several countries. Development of casinos and other forms of gambling have paved the way towards economic growth in different economies through an increase in the revenue in the form of tax, increased employment opportunities, and development of ancillary industries (Chhabra, 2007; Wan et al., 2011; Zheng & Hung, 2012).

A large number of research studies have been conducted around the world related to the gambling industry. However, the focus of this section will be the research studies conducted around the world to identify the gambling motives, prevalence of problem gambling, the impacts of problem gambling, and to identify the pattern of gambling behaviour among the gamblers. The research articles and reports that have been reviewed for the study have been identified using google scholar, Pubmed, and different open access journals. The literature review is divided into three main sections, Gambling motivation, Problem gambling/severity, and gambling behaviour.

2.1 Gambling Motivation

People have different motives for gambling. Gambling behaviour of the gamblers is majorly affected by motivation, and it is an important element of gambling involvement (Chantal et al., 1995). Gambling motivation significantly influences the intention to gamble and greater gambling involvement among the gamblers (Wu & Tang, 2011). Different gamblers have different gambling motivation, and it varies according to the social demographic factors of the gamblers (Francis et al., 2015). Motives for gambling

not only vary depending upon the social demographic factors, but it also varies according to the forms of gambling products (Lam, 2007a).

Neighbors et al. (2002) identified as many as 16 different motives for gambling. While playing the lottery, casino, and track betting, gamblers were motivated by excitement, challenge, and a chance to win, whereas, while playing games such as bingo, card room, and unlicensed gambling, social factor was the significant motivator (Lam, 2007a). On the other hand, monetary, excitement, entertainment, and social values were some of the factors motivating Baccarat[20] players to gamble in a game of Baccarat (Lam, 2007b).

Different authors have identified and developed several motivation scales to identify the factors motivating gambling among the various gamblers and types of gambling games. The Gambling Motivation Scale (GMS) identifies seven different motives among the gamblers (Chantal et al., 1994, as cited in Wu & Tang, 2011). Among these seven distinct motives for gambling, three of them are intrinsic motivation towards knowledge, accomplishment, and stimulation, three of them are extrinsic motivation resulted from identified regulation, external regulation, and introjected regulation, and the final one is amotivation. These seven factors are classified into three factors self-determined motivation, non-self-determined motivation, and amotivation. The result of the confirmatory factor analysis by Wu and Tang (2011) among the Chinese gamblers supported these classifications to simplify the seven motivation factors of the Gambling Motivation Scale into three subscales.

Tao et al. (2011) developed an indigenous Gambling Motives, Attitudes and Behaviour (GMAB) Scale to identify the factors motivating gambling among the Chinese gamblers. The result of the factor analysis revealed five different motives for gambling

[20] Baccarat is a gambling game played with cards.

viz, self-worth, Monetary gains, Sensation seeking, Boredom alleviation, and Learning. Binde (2013) developed a gambling motivational model for better understanding the gambling behaviour and problem gambling most suitable for leisure gambling. The five motivational dimensions identified in the gambling motivation model are the dream of hitting the jackpot and transforming one's life, Social rewards, Intellectual challenge, Mood change induced by playing, and the chance of winning.

Stewart and Zack (2008) developed and evaluated the Gambling Motives Questionnaire (GMQ), exhibited from the three-dimensional Drinking Motives Questionnaire. The Gambling Motives Questionnaire consists of 15 items, of which 14 were directly adapted from the Drinking Motives Questionnaire, and only one of the item "to get a high feeling" has been changed from "to get high". Stewart and Jack (2008) developed the Gambling Motives Questionnaire to assess three distinct gambling motives: Enhancement motives (internal), Coping motives (internal), and Social motives (external) in predicting gambling frequency. The three subscales viz Enhancement, Coping, and Social motives indicated a good internal consistency (Cronbach's alpha 0.80), and the three-factor structure correlated with each other. The reliability and validity of the GMQ were evaluated by Lambe et al. (2015), and their result indicated that the GMQ is a valid measure for identifying motives among emerging adults. However, one of the significant gaps in the GMQ model was the exclusion of financial motives. Including financial motives in the GMQ model and its modification into the GMQ-F model improved the internal consistency of the enhancement motives (Dechant & Ellery, 2011), and also improved the estimation of gambling frequency by the GMQ-F model (Dechant, 2014).

A five-factor gambling motivation model to determine the influence of gambling motives on gambling severity was developed by Lee et al. (2007), using a self-reported

questionnaire among college students in Korea. The five factor-gambling model identified five different motives for gambling, socialization, amusement, excitement, avoidance, and financial motives. Lee et al. (2007) found out that financial motives have a direct positive impact in explaining gambling severity, and the avoidance and excitement motives have an indirect influence on gambling severity through financial motives.

Gambling motives play a crucial role in explaining gambling behaviour and severity among gamblers (Francis et al., 2015; Lee et al., 2007; Stewart & Zack, 2008). The desire to win big influences gambling involvement and results in severity among the gamblers (Lee et al., 2007). The desire to win big is one of the primary reasons for gambling (Binde, 2013; McGrath et al., 2010). Winning big money is a primary reason for persistent gambling among the problem gamblers, and winning small amounts encourages them to chase their earlier losses (Clarke et al., 2007). The monetary motives have a direct positive influence among the gamblers and their gambling severity (Lee et al., 2007), but escape and excitement motives also play a crucial role when gambling-related problems emerge among the gamblers (Flack & Morris, 2014). Enhancement motive, along with coping motive, is also a significant predictor of problem gambling severity (Francis et al., 2015; Lambe et al., 2015). However, the influence of gambling motives on gambling severity varies across genders. A coping motive has been found to be a significant predictor of problem gambling among the female gamblers, while the enhancement motive is a significant predictor of problem gambling among the male gamblers (Stewart & Zack, 2008).

2.2 Severity / Problem Gambling

According to recent Diagnostic and Statistical Manual 5th Edition (American Psychiatric Association, 2013) problem gambling is defined as 'per*sistent and*

recurrent problematic gambling behaviour leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) symptoms in a 12-month period:

a. *Needs to gamble with increasing amounts of money in order to achieve the desired excitement.*
b. *Is restless or irritable when attempting to cut down or stop gambling.*
c. *Has made repeated unsuccessful efforts to control, cut back, or stop gambling.*
d. *Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).*
e. *Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).*
f. *After losing money gambling, often returns another day to get even ("chasing" one's losses).*
g. *Lies to conceal the extent of involvement with gambling.*
h. *Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.*
i. *Relies on others to provide money to relieve desperate financial situations caused by gambling.*

Ferris and Wynne (2001) defined the problem gambling as

> "*Gambling behaviour that creates negative consequences for the gambler, others in his or her social network, or for the community*."

2.2.1 Tools for Measuring Severity/ Problem Gambling

Multiple tools are available for identifying the level of severity among those who have ever gambled. Of all the screening tools, widely accepted and regularly used screening

tools for identifying the problem and pathological gambling include Diagnostic and Statistical Manual for Pathological Gambling (American Psychiatric Association, 2013), South Oaks Gambling Screen (Lesieur & Blume, 1987) and, Problem Gambling Severity Index (Ferris & Wynne, 2001). Each instrument has been designed in different settings and produces significantly different groups of problem gamblers (Young & Stevens, 2008). The following paragraph will highlight the origin, nature, validity, and reliability in identifying and measuring the problem and pathological gambling.

1. Diagnostic and Statistical Manual for Mental Disorder

Diagnostic and Statistical Manual for Mental Disorder or DSM, published by the American Psychological Association, is the official documentation of all the conditions for recognizing mental disorders (American Psychiatric Association, 2013). It is a primary diagnostic tool used by clinicians to identify and treat psychiatric disorders (Weinstock & Rash, 2014). The introduction of the diagnosis of pathological gambling[21] as a psychiatric disorder in DSM-III in 1980 set the foundation stone for the recognition of diagnostic criteria for gambling disorder (Stinchfield et al., 2016) (Stinchfield et al., 2016; Weinstock & Rash, 2014). Since its introduction as a psychiatric disorder in DSM III in 1980, it has been revised three times in 1987 for DSM-III-R, 1994 for DSM-IV, and recently in 2013 for DSM-V (Weinstock & Rash, 2014).

The DSM-IV consists of ten criteria for the diagnosis of pathological gambling. The ten criteria for pathological gambling diagnosis are preoccupation, increased bets, unable to control, irritability, escape, chasing, lying to family, illegal acts, negative effects, and bailed out by others. Among the ten criteria, five of them signifies the outset

[21] Pathological gambling, also known as compulsive gambling or disordered gambling, is a recognized mental disorder characterized by a pattern of continued gambling despite negative physical, psychological, and social consequences.

for the determination of pathological gambling (Zimmerman et al., 2006). Multiple studies have been conducted to study the validity and reliability of DSM-IV criteria in the diagnosis of pathological gambling. A common reoccurring theme in most of these studies was the improvement in the overall classification of the DSM-IV criteria after the reduction of the cut-off points from five to four criteria. Jiménez-Murcia et al. (2009) in there study found out that the DSM-IV instrument had a major weakness and predicted comparatively high false-negative rates. High false-negative errors indicate an error in terms of considering a person not having a disorder when they have a disorder. This weakness in the DSM-IV instrument has been resolved by reducing the cut-off points, which also improved the overall classification accuracy of the DSM-IV instrument.

The negligible contribution of illegal criteria in the accurate diagnosis of pathological gamblers was another significant conclusion drawn from several studies on the validity and reliability of the DSM-IV instrument. Illegal criteria such as fraud, theft, forgery, and embezzlement to finance gambling can be a strong predictor of the severity of pathological gambling (Weinstock & Rash, 2014), however, its inclusion in the DSM-IV instrument does not result in a proper diagnosis of pathological gambling (Zimmerman et al., 2006).

The publication of the Diagnostic and Statistical Manual for Mental Disorder (DSM-V) in 2013 brought about significant changes in the evaluation of diagnostic criteria for gambling disorder. Gambling disorder (previously known as pathological gambling in DSM-IV) which was a part of the Impulse Control Disorders category of the DSM-III and DSM-IV, was moved in the category Substance-Related and Addictive Disorders along with substance use disorders (Clark, 2014). In addition to that, some of the significant changes incorporated in the DSM-V included the elimination of criterion

related to committing illegal crimes, renaming pathological gambling as gambling disorder, reducing the threshold from five to four criteria on prevalence rates and classification accuracy and reclassification of gambling disorder as an addictive disorder from an impulse control disorder (Stinchfield et al., 2016; Weinstock & Rash, 2014). The suggestions from previous studies to reduce the cut-off points from five to four criteria and the elimination of the illegal criteria from the DSM-IV instrument was incorporated and, changes were made accordingly in the new DSM-V instrument.

Stinchfield et al. (2016) conducted a study to address the reliability and validity of the new DSM-V instrument and examined the effects of the elimination of illegal criteria and reduction of the cut-off points in the DSM-IV instrument in terms of diagnostic accuracy. Some of the significant findings from the studies are as follows:

- When comparing the validity, reliability and classification accuracy between DSM-IV and DSM-V, DSM-V exhibited better internal consistency and classification accuracy. The result of the validity test identical among both the instrument. DSM-V thus displayed satisfactory reliability, validity and, classification accuracy and yielded better results in terms of reduced false negatives as a direct result of reduction of the cutoff points.
- The elimination of the illegal acts criterion from the DSM-IV instrument only resulted in the change in the diagnosis of five gamblers out of 3247 individuals, a mere change of 0.15% of the sample. It further provided a piece of evidence upon previous studies (Weinstock & Rash, 2014; Zimmerman et al., 2006), which suggested that illegal acts criterion adds little in the diagnosis of gambling disorder.
- Another significant improvement upon the DSM-V instrument is the better results yielded by DSM-V in terms of the notable reduction in false negatives

achieved as a direct result of lowering the cutoff points. This result was similar to the study conducted by Jiménez-Murcia et al. (2009), which also found out a similar reduction in the rate false-negative rate.

2. South Oaks Gambling Screen

Lesieur and Blume (1987) developed the South Oaks Gambling Screen (SOGS) as an instrument to identify pathological gambling and help in identification, intervention, and treatment of pathological gambling. The South Oaks Gambling Screen developed from the original DSM-III diagnostic tool for pathological gambling, was constructed to identify pathological gambling in a clinical setting (Lesieur & Blume, 1987; Stinchfield, 2002). Since the origination of the South Oaks Gambling Screen, it has been used and translated to recognize pathological gambling in several countries (Lesieur & Blume, 1987). The instrument is a widely used screening tool for pathological gambling across the world and used in many prevalence studies in different contexts (Stinchfield, 2002).

The South Oaks Gambling Screen consists of 16 questions and includes 37 items out of which 20 are scoring items with equal-weighted items requiring yes or no response (Battersby et al., 2002). A point is assigned if the participant indicates yes against the scoring items and a total score is calculated, after the conclusion of the questionnaire. Participant scoring five or more is categorized as having probable pathological gambling (Lesieur & Blume, 1987).

The South Oaks Gambling Screen was designed in three stages.

- The first stage of the screen development included the collection of information from a group of 458 alcohol and drug abuse inpatients, related to the family, jobs, financial condition, behaviour, attitudes, and problem associated with

gambling (Holtgraves, 2009a; Lesieur & Blume, 1987; Young & Stevens, 2008). Following which an index consisting of seven components based on the DSM III criteria for the diagnosis of pathological gambling was designed. Those seven components consisted of family disruption, job disruption, lying about gambling results, debts default, approaching someone during a desperate financial situation resulted from gambling, borrowing from an illegal source, and committing crimes (Lesieur & Blume, 1987).

- Development of the screening tool took place during the second stage, which consisted of 60 items and included the opinions of the counselors. Counselors conducted the interviews and screened to identify the potential pathological gamblers. Result of the discriminant analysis during this stage resulted in the elimination of irrelevant items and items with lower frequency. The result of the discriminant analysis decreasedthe items in the screening tool from 60 items to 20 items (Lesieur & Blume, 1987).
- During the final stage, the SOGS tool was cross validated with the DSM-III-R, among a sample consisting of 213 Gamblers anonymous, 384 university students and, 152 hospital employees. The SOGS classified 98% of gamblers anonymous, 5% of university students and, 2% of hospital employees as pathological gamblers. The SOGS screening tool was also found to be highly correlated with the DSM-III-R diagnostic tool for pathological gambling (Lesieur & Blume, 1987). A score of 5 was found to be an optimal cutoff point for categorizing the pathological gamblers (Lesieur & Blume, 1987, 1993).

Although the South Oaks Gambling Screen is a popular screening tool for recognizing pathological gambling, it has its fair share of criticism as well. Some of the striking

issues identified in several studies about the effectiveness of the South Oaks Gambling Screen in recognizing probable pathological gambling are as follows:

One of the early setbacks of the SOGS was the use of a lifetime frame and its failure in differentiating between current gamblers and those who are in remission (Holtgraves, 2009a; Tang et al., 2010). To address this issue, Lesieur and Blume (1993) have suggested the revision of the SOGS and screen the severity of pathological gambling based on 6 months or 12 months' period.

Multiple studies have stressed on the overestimation of pathological gamblers and high false positive rates by the South Oaks Gambling Screen (Oliveira et al., 2009; Stinchfield, 2002; Tang et al., 2010). Stinchfield (2002) conducted a study to examine the classification accuracy of the South Oaks Gambling Screen among a sample of the general population and gambling treatment sample, using DSM-IV as a standard against measuring the classification accuracy. The study found out that although the classification accuracy of the SOGS was excellent among treatment samples, the instrument exhibited a high false-positive rate of about 50% among the general population. Oliveira et al. (2009) too found a significant difference in the categorization of pathological gamblers using DSM-IV and South Oaks Gambling Screen as a tool for screening pathological gambling in Brazil. The DSM-IV diagnostic tool classified 12% of the Bingo playing sample as pathological gamblers, whereas the South Oaks Gambling Screen classified 44% of the Bingo playing sample as pathological gamblers.

Another issue related to the South Oaks Gambling screen is the cut-off points for categorizing pathological gambling. The South Oaks Gambling Screen defines an individual having pathological gambling who scores five or more during screening. A cut-off point of five was determined to eliminate false-positive rates (Lesieur & Blume,

1987). However, in multiple studies, a different cut-off score has ideally lowered the false positive rate irrespective of the cut-off point determined by Lesieur and Blume (1987). In a separate study conducted in Brazil (Oliveira et al., 2009), China (Tang et al., 2010) and Turkey (Duvarci et al., 1997), a cut-off point of 8 improved the classification accuracy and a reduced percentage of false positives. Similarly, Goodie et al. (2015) also recommended a cut-off point of 8 to be used in clinical screening useful with DSM-V criteria.

3. The Canadian Problem Gambling Index

Ferris and Wynne (2001) developed a new instrument referred to as The Canadian Problem Gambling Index (CPGI), for assessing the level of problem gambling among the gamblers, intended to be used among the general population that provided a more holistic view of gambling, and incorporated indicators related to the social paradigm. The inception of the instrument began with a definition of problem gambling as defined by Ferris and Wynne (2001),

> "...*gambling behaviour that creates negative consequences for the gambler, others in his or her social network, or for the community."*

CPGI is composed of 31 items containing the items from both the Diagnostic and Statistical Manual (DSM) and South Oaks Gambling Screen (SOGS) (Ferris & Wynne, 2001). Only 9 out of all the 31 items included in the CPGI is scored and forms a subset of CPGI most commonly referred to in the literature as The Problem Gambling Severity Index (PGSI) (Holtgraves, 2009a). Of the nine items which are score able in the PGSI, five items address adverse results of gambling and the four-address problem gambling behaviour (Ferris & Wynne, 2001; Holtgraves, 2009a). PGSI uses a four-point Likert scale, quite different from both the DSM and SOGS that can produce a score ranging from 0-27 to categorize the level of problem gambling severity among the gamblers (Young & Stevens, 2008). The four-point Likert scale used in the PGSI and their

subsequent scores are, Never (0), Sometimes (1), Most of the time (2), and almost always (3) (Ferris & Wynne, 2001). The PGSI defines four categories of gamblers namely, non-problem gambler, low risk gamblers, moderate risk gamblers and problem gamblers (Currie et al., 2013). Out of the maximum of 27 points that can be scored in the PGSI, those scoring 0 are classified as non-problem gamblers, 1-2 are classified as low risk gamblers, 3-7 are classified as moderate risk gamblers and those scoring 8 and above are classified as problem gamblers (Ferris & Wynne, 2001).

The reliability levels of the CPGI scale in the past studies have ranged from 0.77 (Arthur et al., 2008) to 0.92 (Loo et al., 2011). Earlier studies on the psychometric analysis of the CPGI, SOGS, and the DSM-IV scales have highlighted that the reliability level of the CPGI scale is significantly better than the SOGS and the DSM-IV scale. In terms of the reliability of the CPGI scale, Ferris and Wayne (2001) found that the reliability levels of the PGSI scale (α=0.84) were more prominent in comparison to the reliability levels of the SOGS (α=0.81) and the DSM-IV scale (α=0.76). Orford et al. (2010) also had a similar conclusion related to the reliability levels of the CPGI scale. In their study Orford et al. (2010) found that the reliability levels of the CPGI scale (α=.90) were more prominent than the reliability of the DSM-IV scale (α=0.73). Arthur et al. (2008) reported that the CPGI Scale was the most reliable instrument for identifying problem gambling among Singapore university students. The CPGI index was found to be significant in distinguishing other issues related to gambling, such as suicide, depression, drinking, and financial problems (Arthur et al., 2008).

2.2.2 Prevalence of Problem Gambling

Studies on the prevalence of problem gambling are significant as it highlights the degree to which gambling has affected the society. These studies provide policymakers,

treatment specialists of the problem and pathological gambling, and other interested stakeholders an idea about the existence of the prevalence of problem gambling within their jurisdiction (Chan et al., 2016).

2.2.2.1 Prevalence Studies on Problem Gambling around the World

Prevalence studies on problem gambling have been conducted around the world to identify the prevalence of problem gambling using different problem gambling screening tools. Researchers have identified both the lifetime and past year problem gambling rates. Table 2.1 highlights the prevalence rates of problem gambling in different countries and jurisdictions along with the sample size, age-range and the screening tools used to identify the prevalence rates of problem gambling.

Table 2.1 Prevalence Rate of Problem Gambling around the world

Author	Location	Instrument	Sample Size	Age Range	Prevalence Rate
Abbott and Volberg (1996)	New Zealand	SOGS-R	4053	18 Years and older.	4.2%*
Ladouceur et al. (1999)	Quebec, Canada	SOGS (French version)	1002 (1989 survey) 1257 (1996 survey)	18 Years and older.	2.1%* (1989) 2.4%* (1996)
Wiebe et al. (2001)	Ontario, Canada	CPGI	5000	18 Years and older	0.70%**
Smith and Wynne (2002)	Alberta, Canada	CPGI	1804	18 Years and older	1.3%**
Wong and So (2003)	Hong Kong	DSM-IV	2004	15 - 64 years	4.0%
Cox et al. (2005)	Canada	CPGI	34770	15 Years and older	2.0%**
Wiebe and Cox (2005)	Manitoba, Canada	SOGS-R	1000	60 Years and older	1.6%**

Welte et al. (2008)	U.S	SOGS-RA	2,274	14 - 21 Years	2.1%**
Afifi et al. (2010a)	Canada	CPGI	18913 Men-8857 Women-10056	15 Years and older	4.9%**(Men) 2.7%** (Women)
Scalese et al. (2016)	Italy	PGSI	5292	15 Years and older	1.3%**
Binde et al. (2017)	Sweden	PGSI	4991	16-84 Years	1.5%**
Cavalera et al. (2018)	Italy	SOGS	4733	18-94 Years	3%*
Maas et al. (2018)	Ontario, Canada	PGSI	2187	55 Years and above	0.1%**
* Lifetime problem gambling rate. ** Past year problem gambling rate.					
Source: Compiled by the researcher					

2.1.1.1 Prevalence Studies on Problem Gambling in India

Gambling is very popular among Indians. There are multiple references to the existence of gambling in India in earlier Indian texts such as *Mahabharata* and *Rig Veda* (Benegal, 2013; Bhide, 2007). References for gambling in ancient Indian texts such as *Mahabharata*, *Rig Veda*, *Arthashashtra*, *Kathasarithsagar*, depicts the existence of gambling in ancient India and nature and the spirit for gambling among the Indians (Benegal, 2013; Bhide, 2007). Due to limited gambling opportunities in India, Indian gamblers are visiting aboard to various gambling destinations such as Nepal, Sri Lanka, Macau and Las Vegas (Szybala, 2016).

Irrespective of such a long history of gambling in India, there are only a handful of research studies that have been conducted to identify the prevalence of problem gambling in India. Although there are a handful of references on the negative impact of gambling in the ancient Indian texts and literature, scientific studies on analysing the

prevalence and the consequence of gambling among the Indian gamblers were not given due attention for a long period of time. It was only in 2013, Benegal (2013) first highlighted the prevalence of problem gambling in India. Benegal (2013) found out the rate of problem gamblers among 108 male respondents seeking treatment for substance abuse. Out of the total sample, 7.4% of the respondents were identified as problem gamblers, using the Problem Gambling Severity Index as an instrument for measuring problem gambling.

Gonmei (2016), George et al. (2016) and Jaisoorya et al. (2017) focused their attention towards identifying the prevalence of problem gambling among the adolescents in high school and colleges. In the study conducted by Gonmei (2016) among the adolescents in Imphal, Manipur, the DSM-IV-J measure identified 5.6% of the respondents at risk of problem gambling and, 1.8% of the respondents as probable pathological.

Table 2.2 Prevalence Study on Problem Gambling in India.

Authors	Sample Size	Instrument Used	Prevalence of Probable Pathological and Problem Gambling (%)
Benegal (2013)	108	Problem Gambling Severity Index	7.4
George et al. (2016)	5580	NODS-CLiP[22]	7.4
Gonmei (2016)	384	DSM-IV-J	1.8
Jaisoorya et al. (2017)	4989	NODS-CLiP	7.1
Source: Compiled by the researcher			

Jaisoorya et al. (2017) and George et al. (2016) conducted their studies among the High school and college students of Kerala. Jaisoorya et al. (2017) conducted the study

[22] NODS-CLiP is National Opinion Research Centre Diagnostic and Statistical Manual of Mental Disorders Screen for Gambling Problems

among the high school students of Kerala and found the prevalence of lifetime gambling to be 27.9% and the rate of problem gambling was 7.1%. Similarly, George et al. (2016) conducted their study among the college students in Kerala and found out the prevalence of lifetime gambling to be 19.5% and the rate of problem gambling was 7.4%. However, significantly high rates of problem gambling were found among those who have ever gambled in both these studies. Problem gambling among those who had gambled was found to be 38% and 25.2% respectively (George et al., 2016; Jaisoorya et al., 2017).

Problem gamblers in India are more likely to be male, 66.6% (George et al., 2016), 92.6% (Jaisoorya et al., 2017) and belong to the rural regions 59% (George et al., 2016), 78% (Jaisoorya et al., 2017). While the lottery (42.4%) is the most common form of gambling among college student's problem gamblers followed by cricket and football gambling (29.9%) (George et al., 2016). It is just opposite in case of high school students. High school problem gamblers are more engaged in cricket and football gambling (70.3%) followed by the lottery (43.9%) (Jaisoorya et al., 2017). However, it is necessary to understand that in the state of Kerala lottery is the only legal form of gambling, betting on cricket and football gambling resulting in problem gambling could be a direct result of the existence of illegal gambling markets.

Bhatia et al. (2019) has conducted the most recent study on the prevalence of gambling in India in a large community-based sample of adult men in the state of Goa, where state-run lotteries and privately run offshore and land-based casinos are legal. Some of the important highlights of the study were as follows:

1. The prevalence rate of lifetime gambling among the male gamblers in Goa was 49.9%, with 45.4% of the reporting gambling within the past 12 months.

2. The study also found out that work-related problems, interpersonal violence, tobacco use, and alcohol use disorders are associated with lifetime and current gambling.
3. The lottery is the most common form of gambling among the gamblers with almost 67.8% of the respondents gambling in the lottery in the past 12 months. Of these 67.8%, 93.7% of the gambles in the lottery up to once in a month, 6.1% of them gambling up to more than once a month and up to thrice a week followed by 0.2% of the gamblers gambling in the lottery more than thrice in a week.

Systematic research on gambling as a problem has not caught the attention of the researchers and enthusiasts in India. It is imperative to carry out regular and a systematic prevalence study to monitor gambling participation and the prevalence of problem gambling (Volberg, 2004). Even though there are a limited number of studies on the prevalence of problem gambling in India, the existing studies do highlight the prevailing rates of problem gambling among the Indian gamblers. Although the rate of participation among the Indian high school and college students is less in correspondence to the western equivalents, among those who participated in, the rate of problem gambling was found to be high (George et al., 2016). The rate of problem gambling has been found to be significantly higher among those who gamble in India (Jaisoorya et al., 2017).

2.2.3 Association between Problem Gambling and Forms of Gambling

The continued rise of legalised gambling has resulted in the availability of various forms of gambling resulting from different factors such as market changes, cultural, legal and, technological causes (Goodie, 2015). As the forms of gambling have evolved and expanded, it is imperative to understand its association with problem gambling.

Results of the prevalence studies suggest that problem gambling is closely linked with some forms of gambling and have comparatively higher participation rate in these forms of gambling (Binde, 2011; Phillips et al., 2013). Frequent gambling in one form of gambling is strongly associated with an increased level of problem gambling. Gambling in several forms of games is more significantly associated with a higher level of problem gambling among the gamblers (Phillips et al., 2013). Problem gamblers are more likely to gamble in multiple games and, a higher level of problem gambling is associated with higher engagement in gambling (Binde et al., 2017; Holtgraves, 2009b; Scalese et al., 2016).

An analysis of eighteen prevalence surveys (thirteen from Europe, two from the USA and one each from Australia, New Zealand and Canada) was conducted to identify, the pertinent harmfulness of different forms of gambling (Binde, 2011). Some of the major highlights of the study were as follows:

1. Interactive internet gambling, Electronic Gaming Machines, casino gambling, and high-stakes unregulated/illegal gambling are comparatively more harmful than other forms of gambling.
2. Sports betting and pools, horse betting, bingo constitute as a form of gambling that belongs to an intermediate category and reasonably linked with problem gambling. While lotteries are found to be a relatively harmless form of gambling.

Several studies have found that problem gambling is strongly associated with casino gambling and Electronic Gaming Machines (M. Abbott et al., 2016; Binde, 2011; Binde et al., 2017; Scalese et al., 2016). M. Abbott et al. (2016) carried out a study to analyse the changes in gambling participation and problem gambling among the adult population of Victoria over a period of five years (2003-2018). Data from the study

suggested that an estimated 62% of the table games participants (Casino gamblers) and 35% of the Electronic Gaming Machines participants were at a higher risk of a problem and moderate risk gambling. Currie et al. (2013) have highlight that the percentage of gamblers who plays Electronic Gaming Machines and casino games is significantly higher among the problem gamblers sub types than the moderate-risk gamblers. Casino gambling is, in fact, one of the highest contributors to problem gambling among the gamblers (Welte et al., 2009). In a meta-regression analysis of 41 cross-sectional Australian problem gambling estimates conducted by Markham et al. (2017) have found a correlation between Electronic Gaming Machines loses and problem gambling prevalence. The results from the study suggested that a 1% increase in household disposable income spent on Electronic Gaming Machines and casinos was associated with around 1.3 times greater prevalence estimates (Markham et al., 2017). The prevalence of problem gambling rises with the addition of Electronic Gaming Machines, resulting in an increase of 0.8 problem gamblers per Electronic Gaming Machines. Electronic Gaming Machines is the primary form of gambling that causes more problem among the Finnish gamblers than other forms of gambling (Salonen et al., 2018).

A few studies have highlighted that the easy availability of some forms of gambling results in an increase in the number of problem gamblers. In a study conducted by Cox et al. (2005) in Canada, reported that the provinces with permanent casinos and larger availability of Video Lottery Terminals observed higher rates of problem gamblers than other provinces. Cox et al. (2005) found out that four out of the five provinces, which had both Video Lottery Terminals and Casino gambling, had the four highest rates of problem gambling in Canada. Video Lottery Terminals inside and outside of the casinos and casino games had significant odds of problem gambling among women gamblers

in Canada (Afifi et al., 2010b). Video Lottery Terminals and Slot Machines had the strongest association between the level of problem gambling and forms of gambling among the Canadian gamblers (MacLaren, 2016).

Among various forms of gambling, the lottery is found to be associated with a lower level of problem gambling in comparison to other forms of gambling. It is one of the most popular forms of gambling (Costes et al., 2018; Welte et al., 2002; Williams et al., 2013) and is also least associated with the level of problem gambling (Costes et al., 2018; Welte et al., 2002). Participants of the lottery do not spend excessive amounts while playing the lottery, and even though it is the most regularly played forms of gambling, it is not strongly associated with the problem and pathological gambling (MacLaren, 2016). With some exceptions, the relationship between lottery participation and the level of problem gambling was found to be weakest in case of the lotteries and in no case the association between lottery participation and problem gambling was strong (Binde, 2011). In a study conducted by Subramaniam et al. (2015) comparing lottery gamblers and gamblers gambling in other forms of gambling, it has been found that lottery gamblers are less likely to be a problem and, pathological gamblers. Not only that, but it was also seen that lottery gamblers had a significantly lower probability of having depression, mental health disorders, and alcohol use disorder (Subramaniam et al., 2015). However, it is found that gamblers who have more severe gambling problems participate more in the lotteries (Castrén et al., 2013).

From the related literature on the association between forms of gambling and problem gambling, it is quite evident that some forms of gambling have a stronger association with the problem and pathological gambling than other forms of gambling. Gambling forms such as the casinos, Electronic Gaming Machines, and internet gambling poses a higher probability of developing problem gambling among the participants, whereas

even though the lottery is the most popular form of gambling, it had the least association with the level of problem gambling. However, gamblers gambling in casinos and Electronic Gaming Machines are few in numbers their overall societal impact is confined.

Increasing the availability of some forms of gambling results in an increased rate of participation in those forms of gambling among the gamblers (Welte et al., 2002) resulting in an increased rate of problem gambling in the region (Cox et al., 2005). However, the availability of gambling is not the only factor affecting the association between different forms of gambling and problem gambling. Any alteration or changes in the features of the games, such as rewards can simply alter its association with the level of problem gambling (Binde et al., 2017). Marketability and the attitude towards the game among the gamblers also influence the general strength of the association between forms of gambling and problem gambling (Binde et al., 2017).

2.2.4 Problem Gambling among the Internet Gamblers

The advent and the rise of Internet gambling has provided an easy access to gambling for the gamblers. Easier access to online gambling develops a substantial risk of developing problem gambling among the online gamblers (Hopley et al., 2012; Olason et al., 2011). The considerable improvement in the quality of online gambling and better connectivity has made it much easier for young adults and students to have an easy access to gambling, resulting in an increase in the number of online gamblers (Olason et al., 2011) and problem gambling among young adults and students (Griffiths & Barnes, 2008). The rate of gambling, the amount of money wagered, the amount of time spent while gambling, and the number of gambling played over the internet is on the higher side among the internet gamblers (Hopley et al., 2012; Kim et al., 2017; Petry & Gonzalez-Ibanez, 2013). Easier access and 24-hour availability of internet gambling

represent an enormous concern among young adults and students (Mcbride & Derevensky, 2012).

Problem gamblers gambling over the internet have cited several features such as 24-hour availability and convenience, privacy, and better game experiences for choosing internet gambling and also highlighted the internet gambling as too convenient, more addictive than land-based gambling and much easier to spend more money (Gainsbury et al., 2015; Wood & Williams, 2009). Companies offering internet gambling provides an opportunity for online gamblers to gamble online without wagering any real money through numerous practices set and involve themselves in gambling, which establishes a sense of false confidence among the gamblers (Mcbride & Derevensky, 2012; McBride & Derevensky, 2009). McBride and Dervensky (2009) in their study found that almost 77% percent of the online gamblers engaging in such free practice sessions.

Several studies on the prevalence of problem gambling among the internet gamblers have highlighted that internet gamblers are more likely to be problem gamblers in comparison to non-internet gamblers (Canale et al., 2016; Chóliz et al., 2019; Griffiths & Barnes, 2008; Olason et al., 2011; Petry & Gonzalez-Ibanez, 2013). The percentage of prevalence of problem gambling among the internet gamblers is approximately 6 times higher than the percentage of problem gambling among the non-internet gamblers (Mcbride & Derevensky, 2012; Valleur, 2015). While some studies, have reported the rate of problem gambling among internet gamblers to be 10 times higher than the non-internet gamblers (Chóliz et al., 2019; Wood & Williams, 2009). Participation in online gambling is more prevalent among adolescents (Olason et al., 2011) and younger gamblers (Chóliz et al., 2019; McBride & Derevensky, 2009; Welte et al., 2009; Wood & Williams, 2009), who are more prone and vulnerable to problem gambling severity than elder gamblers (Chóliz et al., 2019). Evidence from a study among the adolescent

internet gamblers in Iceland suggests that more and more adolescents are adopting internet gambling due to free access and weak age restriction over the internet, which is a primary concern in terms of adolescent gambling, is concerned (Olason et al., 2011). Adolescents gambling over the internet has a higher association between their gambling behaviour and problem gambling, and the rate of problem gambling among them is twice in comparison to the non-internet adolescent gamblers (Canale et al., 2016).

Online poker, a game of poker played over the internet is one of the popular and fastest growing forms of online gambling (Griffiths et al., 2010; McCormack & Griffiths, 2012; Wood & Williams, 2009). The increasing popularity of online poker throughout the world have resulted in an increase in the number of professional poker players (McCormack & Griffiths, 2012). A large amount of money is involved while playing poker with a high prevalence rate of problem gambling (Dufour et al., 2018; Griffiths., 2010). The relative amount of time spent on playing multiple session predicted the rate of problem gambling among online poker players (Griffiths et al., 2010; Hopley et al., 2012).

There are several ill effects of gambling over the internet. There is often a risk factor associated with the development of problem gambling among the internet gamblers, due to the lack of social control of their gambling behaviour (Molde et al., 2017). The significant development of problem gambling influenced by gambling on the internet results in a direct health cost of up to 27.24 million euros per year (Effertz et al., 2018). Some of the most significant adverse consequences of internet gambling include financial loses, prolonged gambling, usage of drugs. Problem gamblers gambling over the internet have upheld that the use of the electronic payment system for gambling has increased their expenditures (Gainsbury et al., 2015). In addition to that, gamblers

suffering from stress, anxiety, and depression is a rather common sight among internet gamblers (Barrault et al., 2017; Hopley et al., 2012). In a study conducted by Barrault et al. (2017) among the regular online poker player, problem gamblers experienced a significantly higher level of anxiety and depression problems than non-problem gamblers. In another study by Hopley et al. (2012), stress was found to be a significant predictor of problem gambling among online poker players.

Substance abuse and usage of other illicit drugs, consumption of alcohol, cannabis, and tobacco are very prevalent among the internet gamblers (Kairouz et al., 2012; McBride & Derevensky, 2009; Wood & Williams, 2009). Kairouz et al. (2012) in their study have found that online gamblers are more predisposed with risky behaviour and alcohol and cannabis usage in contrast to offline gamblers. Internet gamblers have mentioned the freedom to smoke while gambling in solitude as a motivating factor for gambling over the internet (Wood & Williams, 2009).

Even though several studies suggest that internet gamblers are more likely to be problem gamblers than the non-internet gamblers, some studies have highlighted that those internet problem gamblers also often spend in other land-based forms of gambling (Olason et al., 2011). Although internet gambling does contribute towards problem gambling, it is not the main patron among most of the problem gamblers (Wood & Williams, 2009). The impact on the severity of problem gambling is a result of the engagement in multiple forms of gambling rather than specifically engaging in online forms of gambling (Gainsbury et al., 2015). Most of the research study have used the cross-sectional study to derive the conclusion on the impact of internet gambling and its effect on the severity of problem gambling. The cross-sectional study only provides information related to a particular period and as such may not reflect the actual influence of internet gambling among the gamblers. Longitudinal research was

suggested to better provide a complete picture of the negative impact of internet gambling among online and offline gamblers (Kairouz et al., 2012).

2.2.5 Impacts of Problem Gambling

Many countries around the world have been dealing with a high rate of prevalence of problem gambling resulting in recognizing problem gambling as a significant public health issue (Delfabbro, 2013; Stucki & Rihs-Middel, 2007). Concerns arising from excessive gambling behaviour can have a notable impact on the life of the individual gambler and their family members who live in closer proximity with the problem gamblers resulting in severe adverse consequences for both the individual and their family members (George et al., 2017; Griffiths, 2004; Smith & Wynne, 2002). Even the whole society is affected by the existence of problem gambling and has to bear the consequences of problem gambling (Smith & Wynne, 2002; Thompson et al., 1997b, 1997a; Thompson & Schwer, 2005; Walker, 2008; Walker & Barnett, 1999).

The following subsection will highlight the findings of different studies conducted to identify the effects of problem gambling on gamblers, their family members, and society.

2.1.1.2 Impact of Problem Gambling on Gamblers

Gamblers experiencing severe problem gambling tends to experience a wide range of problem in their day-to-day life because of their gambling behaviour. Problems encountered by a problem gambler because of their gambling behaviour include loss of income and an increase in debts (J. Wiebe et al., 2001), bankruptcies (Thompson & Schwer, 2005), relationship problems (J. Wiebe et al., 2001; Williams et al., 2013), isolation (J. Wiebe et al., 2001), and health problem (including depression, anxiety, and stress) (Sagoe et al., 2017; Smith & Wynne, 2002; J. Wiebe et al., 2001; Williams et

al., 2013), and a loss of control (J. Wiebe et al., 2001). Among different subtypes of gambling severity, problem gamblers are significantly more likely to indicate that their gambling behaviour is causing them health problems (stress and anxiety), difficulty in sleeping, restlessness, financial difficulty, and relationship problems (Smith & Wynne, 2002). In some cases, gamblers with a severe gambling problem have also been found engaging themselves in illegal activities to fund their gambling activities (J. Wiebe et al., 2001; Williams et al., 2013). J. Wiebe et al. (2001) have found that as the severity of gambling increases, the probability of experiencing a wide range of problem also increases because of the gambling behaviour of the gamblers.

Mental health problems among gamblers are significantly associated with an increased level of gambling severity among the gamblers. Problem gamblers are likely to be more depressed than the non-problem gamblers (Clarke, 2004). In a study conducted by Barrault et al. (2017) to analyse the degree of depression and anxiety among regular poker players, the levels of severity of anxiety and depression were significantly higher among those with severe gambling problems. Sagoe et al. (2017) in their study, have highlighted the existence of a higher level of symptoms of anxiety and depression among adolescents with severe problem gambling symptoms.

Thompson and Schwer (2005) estimated the volume of money losses, debts and sources of fund among 99 Gambler Anonymous members in Southern Nevada. They found that gambling losses among the respondents averaged about $112400, which is a very significant amount. In the same study, it was found that 45.4% of the respondents had to apply for bankruptcy and had an average debt of $121,646.

Relationship between the use of drugs and alcohol and gambling demonstrate a significant association between substance use and abuse and problem gambling severity

(Smith & Wynne, 2002). Substance use and abuse are likely to be higher among those with an increased level of severity of gambling problems (Smith & Wynne, 2002). Consumption of alcohol and drugs affects the health of gamblers, but at the same time, it also affects their gambling behaviour making them more involved in gambling and increase their betting limits (Bussu & Detotto, 2015).

The professional work-life of problem gamblers are also significantly affected by their gambling behaviour (Downs & Woolrych, 2010). Problem gamblers are often distracted from their workplace and remain absent for a prolonged period, which often results in problem gamblers losing their jobs (Downs & Woolrych, 2010). Thompson and Schwer (2005) have reported the incidents of quitting up of a job by a gambler because of their gambling behaviour. Gambling severity also results in problem gamblers distancing themselves from family lives with mostly being preoccupied with their gambling activities (Downs & Woolrych, 2010). Such preoccupation with gambling has affected the personal lives of problem gamblers, often resulting in separation and divorce.

2.1.1.3 Impact of Problem Gambling on Family Members

Gambling behaviour of a problem gambler not only affects his/her health and wellbeing but their behaviour also significantly affects the life of the people living around him. Gambling behaviour of an individual can be problematic for their family members and can impose immense challenges in their lives as well (Kalischuk et al., 2006). Gambling behaviour of the problem gambler primarily affects the lives of those family members who live in closer proximity and are dependent upon them, both financially and emotionally (Goodwin et al., 2017). Goodwin et al. (2017) have identified that a problem gambler can typically affect 4 to 6 persons. The negative impact of problem gambling behaviour of an individual often results in family members experiencing a

wide range of impact, such as financial impact (Banks et al., 2018; Dickson-Swift et al., 2005; Holdsworth et al., 2013; McComb et al., 2009); emotional well-being (Banks et al., 2018; Dickson-Swift et al., 2005; Holdsworth et al., 2013; McComb et al., 2009); mental and physical health (Banks et al., 2018; Dickson-Swift et al., 2005; Holdsworth et al., 2013; McComb et al., 2009); impact in a relationship (Banks et al., 2018; Dickson-Swift et al., 2005; Downs & Woolrych, 2010; Holdsworth et al., 2013; McComb et al., 2009); family violence (Banks et al., 2018; Palmer du Preez et al., 2018; Roberts et al., 2016); feeling of shame, and engaging in petty theft and dishonesty (Banks et al., 2018).

Family members are more likely to encounter the issues related to financial distress caused by the gambling behaviour of a gambler. A problem gambler can cause a substantial financial impact within minutes, which can be a life-altering experience for the members of a family (McComb et al., 2009). A substance abuser can take several weeks or even years to create the same level of financial impact, which a problem gambler can cause within minutes (McComb et al., 2009). Problem gamblers often spend their savings and pensions in gambling activities requiring the assistance of the family members in paying off their gambling debts and bail them out of their financial problems (Anderson et al., 2018). The financial instability caused by the gambling behaviour of a problem gambler resulted in an increased pressure among the partners of a problem gambler to provide financial support in terms of paying off debts and incurring household expenses (Holdsworth et al., 2013). The financial burden created by a problem gambler often results in spouses looking for employment and working extra hours and shifts to meet the financial needs of their family (Holdsworth et al., 2013; Mathews & Volberg, 2013). The financial impact caused by a problem gambler results in family members having to deal with paying off the gambling debts using their

savings, selling properties and houses to generate money for either paying off gambling debts or raising cash to meet their daily ends, working extra shifts, borrowing from their friends and families, and altering their lifestyle (Holdsworth et al., 2013; Mathews & Volberg, 2013). Members of a family of a problem gambler experience financial distress caused by the problem gambler for many years or even for a lifetime, highlighting the negative consequences of problem gambling (McComb et al., 2009).

Banks et al. (2018) conducted a study to investigate the adverse consequence of problem gambling among the family members. The study found out that members of a family living with a problem gambler are significantly affected by their gambling behaviours. Some of the significant findings from the study in terms of the negative consequence of problem gambling on the family members are highlighted as follows:

1. Problem gambling behaviour of a family member had a significant impact on financial security, with almost 64% of the respondents highlighting the influence to be a significant one. The effect of financial security resulted in members of the family, losing their assets such as cars, house, and business. 12% of the respondents even highlighted being bankrupt because of the gambling behaviour of their family members.
2. The work-life of the family members were also significantly affected by problem gambling, with 37% of the respondents stating the effect to be significant.
3. 83% of the respondents reported having a significant emotional and psychological impact with most of them experiencing distress, anger, shame, hopelessness, and insecurity.
4. Relationship between problem gambler and their family members were also majorly affected, with 67% of the respondents highlighting the impact to be

significant. Problem gambling resulted in 33% of the respondents being separated and ending the relationship with the problem gambler.

5. 21% of the respondents also highlighted the incidence of violence because of problem gambling.

In several studies conducted to identify the negative impact of problem gambling, partners are found to be most affected and vulnerable to problem gambling (Holdsworth et al., 2013). Partners of a problem gambler are most likely to experience financial loss, emotional anguish, mental and physical impact, and impact on their relationship (Holdsworth et al., 2013; McComb et al., 2009).

The significant negative impact of problem gambling on partners is the financial impact caused by the gambling of a problem gambler (Dickson-Swift et al., 2005; Holdsworth et al., 2013; McComb et al., 2009). Partners often get entangled in the financial distress caused by the problem gambling behaviour of their significant others and have to bear the burden of providing financial support to problem gamblers and their family (Holdsworth et al., 2013). Such a scenario often results in partners taking up extra shifts or looking for new jobs to find out solutions for the financial distress caused by a problem gambler (Holdsworth et al., 2013; Mathews & Volberg, 2013). Problem gambling also generates increased pressure among partners to meet the daily expenses and purchase food for themselves, resulting from the gambling losses (Dickson-Swift et al., 2005).

Partners of problem gamblers also experience a wide range of mental and physical health problem as a direct result of their partner's problem gambling behaviour. Few studies have found out that partners of problem gamblers generate a wide range of mental and emotional stress after the discovery of their partner's problem gambling

behaviour (Holdsworth et al., 2013). Stress resulting from the partner's problem gambling behaviour have caused partners suffering a wide range of physical health issues such as insomnia, headaches, and stomach upsets (Dickson-Swift et al., 2005). In a study conducted by Holdsworth et al. (2013), partners of problem gamblers have reported encountering a multitude of mental health problems such as stress, anxiety, and depression, further triggering anger, panic, shock, fear, guilt, and embarrassment among the partners of a problem gambler (Holdsworth et al., 2013). To cope up with mental and physical stress partners are likely to indulge themselves in self-harming activities such as overeating, drinking, and smoking (Dickson-Swift et al., 2005).

Few studies have also taken into consideration the impact of problem gambling on the relationship among the partners. Problem gamblers often hide their gambling losses and the extent of their gambling debts with their partners (Downs & Woolrych, 2010). As a consequence of which partners of a problem gambler feels cheated, and this results in a loss of trust among the partners of a problem gambler (Dickson-Swift et al., 2005; Downs & Woolrych, 2010). Problem gamblers are often preoccupied with their gambling activity resulting in lesser communication and intimacy with their partners (Downs & Woolrych, 2010). All these factors often result in breaking up a relationship between the partners either through separation or divorce (Dickson-Swift et al., 2005; Downs & Woolrych, 2010; Holdsworth et al., 2013). Holdsworth et al. (2013) in their study, have found that partners continue to suffer from mental and physical health problems even after separation with their problem gambler partners.

Children of problem gamblers are also equally likely to suffer from the gambling behaviour of their parents. A positive attitude of parents towards gambling can play a significant role in the acquisition and maintenance of gambling behaviour among children (Gupta & Derevensky, 1997; Kalischuk et al., 2006). Research has shown that

individuals whose parents have a history with gambling tends to be associated more with problem gambling than those with non-gambling parents (Cavalera et al., 2018). Adolescents having family members gambling tend to develop favourable attitudes towards gambling (Hanss et al., 2014). Children of problem gamblers often learn about gambling from their parents are four times more likely to gamble themselves (Kalischuk et al., 2006). Besides engaging in gambling at a very young age, children of problem gambler also feel abandoned, neglected, anxious, and deprived, resulting in poor coping skills, illness, and deteriorating academic performance (Kalischuk et al., 2006).

Violence among family members is another significant negative impact of problem gambling (Banks et al., 2018; Griffiths, 2004; Palmer du Preez et al., 2018; Roberts et al., 2016). The occurrence of family violence resulting from a high level of conflict between gamblers and their family members is a very familiar sight in the lives of a problem gambler (Palmer du Preez et al., 2018). Problem gamblers are likely to commit crimes such as domestic violence and child abuse as a direct result of their gambling behaviour (Griffiths, 2004). However, it is essential to discuss that a gambler can be both; a perpetrator and a victim, and perpetrating violence is prevalent among both the gambler and affected others. In a study conducted by Palmer du Preez et al. (2018) 41.2% of the gamblers and 57.1% of the affected others have reported committing violence in the past 12 months, while 46.8% of the gamblers and 65.5% of affected others have reported being a victim of violence (Palmer du Preez et al., 2018). Roberts et al. (2016) have reported 6.3% of the problem gamblers hitting a child while 4.1% of problem gamblers committing Intimate Partner Violence (IPV). In a study conducted by Korman et al. (2008) among problem gamblers, 62.9% of the respondents reported being either perpetrator or a victim of IPV during the past year. Some of the common

forms of violence committed by both the perpetrator and victim include verbal abuse, emotional abuse, physical violence, and sexual violence (Palmer du Preez et al., 2018).

2.1.1.4 Impact of Problem Gambling on Society

Problem gamblers also exert a significant impact on society. Several studies have been carried out to identify the social cost of gambling to contemplate in the discussion for the cost and benefits of legalised gambling (Walker, 2008). Several authors have identified several social costs of problem gambling, which a problem gambler incurs on society. Some of the social cost of gambling includes employment costs, bad debts, civil court procedures, thefts and criminal actions, welfare, and therapy costs (Grinols, 2011; Thompson et al., 1997b, 1997a; Thompson & Schwer, 2005); direct regulatory costs, family costs and abused dollars (Grinols, 2011); high school dropouts, traffic problems, and impose constraints to small business (Wan et al., 2011). Upon identifying the social cost of problem gambling, authors have tried to estimate the social cost of gambling, which a problem gambler incurs on society. Table 2.3 highlights the estimated social cost per problem gambler calculated by different authors.

Table 2.3 Estimated Social Cost of Gambling (Amount in U.S. Dollars)

Types of Social cost	Thompson et al. (1997a)	Thompson et al. (1997b)	Thompson et al. (1997b)	Thompson and Schwer (2005)	Grinols (2011)
Employment Cost					2882
- Lost work hours	1328	1770	1329	-	
- Unemployment compensation	214	448	448	87	
- Lost productivity / Unemployment	1398	1666	1666	-	
- Missed work	-	-	-	2364	
- Quitting jobs	-	-	-	1092	
- Fired Jobs	-	-	-	1582	

Bad debts Bankruptcy	1487	2300	1487	9494	307
Civil court	848	536		777	
Criminal justice					1156
- Thefts	1733	7219	1733	3379	
- Arrests	48	71	38	95	
- Trials	369	458	179	85	
- Probation	186	333	152	170	
- Incarceration	1162	556	534		
- Jail time				80	
Illness					945
Therapy / Treatment	361	114	377	372	156
Welfare				84	351
- Aid to Dependent Children	233	345	56		
- Food Stamps	101	178	61	50	
Family Cost					
- Divorce / Separation					76
Abused Dollars	-	-	-	-	3520
Total	**9469**	**15,994**	**8,681**	**19,711**	**9,393**

Source: Compiled by the researcher

However, there are multiple issues related to the estimation of the social cost of gambling. Authors have estimated the social cost of gambling based on their judgment and have failed to define what constitutes as a part of the social cost of gambling. As such, most of the social cost estimated is arbitrary, and there exists a huge difference in the estimated social cost of gambling (Walker & Barnett, 1999).

Walker (2008) in his study argued for the inclusion of several costs in the estimation of the social cost of gambling conducted by Thompson & Schwer (2005). Thompson & Schwer (2005) had included employment costs, debts, bankruptcies and civil suits, thefts, and criminal system actions, treatment and welfare services in the estimation of the social cost of gambling and determined the overall social cost to range between

$314 to $545 million per year. However, Walker (2008) raised questions over the inclusion of employment cost, debts, bankruptcies and civil suits, thefts and criminal system in the estimation of the social cost of gambling. He argued that these costs should not be included in the estimation of the social cost of gambling as these costs were private or merely represented a transfer of ownership (Walker, 2008).

Studies related to the estimation of the social cost of gambling is subject to issues such as failure to define the social cost of gambling (Walker & Barnett, 1999), and the inclusion of some forms of cost in the social cost estimate (Walker, 2008). However, problem gamblers do incur a cost on society. A problem gambler can incur a cost on the society ranging from $9,393 (Grinols, 2011) to $19,711 (Thompson & Schwer, 2005).

2.3 Gambling Behaviour

Throughout the literature on gambling, very little focus has been diverted towards understanding the behavioural pattern of the gamblers and identify the behavioural factors that help promote and sustain gambling among the gamblers. Gamblers exhibit different customs and behavioural patterns while gambling. The gambling behaviour is largely influenced by the presence and absence of gambling peers, gambling motivation, and also the types of gambling. Gamblers with a high motivation to win take higher risks while gambling, and place excessive bets usually higher than the minimum bet table and seek excitement from such gambling behaviour (Lam, 2007a). Lam (2007b), found out that Chinese baccarat players had certain rituals such as shouting and peeling their cards, with the hope of controlling the outcome of the gambling events. Casino gamblers normally have weaker control on their gambling behaviour and have a heavier gambling involvement.

The behaviour of the gamblers is significantly affected by the presence and absence of peers while gambling. When gambling alone, gamblers are more likely to place their bets faster than those gamblers who gamble in an unfamiliar (gamblers participating in gambling with other unfamiliar gamblers) or familiar (gamblers participating with other familiar gamblers) condition. Khazaal et al. (2017) conducted a study to find out the patterns of gambling behaviour among internet gamblers. Based on latent class analysis gamblers were divided into three groups, lonely indebted, not lonely no indebted, and not lonely indebted. Among the three groups, gamblers belonging to lonely indebted and not lonely indebted had a significantly higher score for financial and coping motives and were more frequently associated with problem gambling.

Tao et al. (2011) analysed the behavioural pattern among the Chinese gamblers gambling in Hong Kong and identified six key behavioural traits that a gambler exhibits while gambling. The six behavioural traits identified by Tao et al. (2011) are:

1. *Impaired control* explained behavioural traits such as loss of control, higher wagering, increasing debts, and an indication of different problems related to deteriorating relationships.
2. *Gambling involvement* described the behavioural traits related to gambling often and regularly, playing different games and the amount of money spent on gambling.
3. *Arousal reaction* explained behavioural traits related to the level of excitement and frustrations when winning or losing.
4. *Superstitious behaviour* explained the behavioural traits associated with rituals and customs followed by gamblers for winning the bets.

5. *Controlled gambling* described the behavioural traits of a gambler that is associated with the control over their bet size and the amount of time spent on gambling.
6. *Casino exploration* described gamblers' behaviours related to taking a break and wandering around the casinos.

2.4 Research Gap

Gambling in India has been in existence since ancient ages, and the practice of gambling is profoundly followed in the Indian cultures even today. Gambling has a rich history in India, and although gambling is frowned upon and is culturally opposed, it still ceases to exist in Indian society. However, despite such a rich history of gambling in India, the research on gambling in India remains relatively unexplored.

Much of the studies on gambling in India focus on the illegal gambling market and its impact. While few studies have also addressed the issue of the existence of the level of gambling severity, most notably among a sample of adolescent gamblers. Sikkim is one of the premier gambling destinations in India. However, there has not been any effort put forward to identify the level of gambling severity among the gamblers in Sikkim. And also, studies have shown that gambling motivation plays an important role in explaining the level of gambling severity among gamblers. However, there exists a major gap in identifying gambling motives among the gamblers in India and its role in explaining the levels of gambling severity. The research study will also provide an insight on the gambling behaviour among the gamblers in Sikkim and identify the factors related to gambling severity among the gamblers.

2.5 Conceptual Model Framework

Peoples may have different motives for gambling. Neighbors et al. (2002) identified 16 different motives for gambling, which are money, enjoyment/fun, excitement, social,

occupy time/boredom, winning, competition, conformity, risk, skill, interest, coping, challenge, drinking, luck, and chasing. The GMQ model evaluated the motives for gambling into three different factors Enhancement Motive, Social Motive, and Coping Motive. GMQ model was validated among emerging adulthood (18 – 25 years) in a study conducted by Lambe et al. (2015).

Lambe et al. (2015), in their work, found out that the Enhancement Motive was a significant predictor of gambling than social and coping motives. Lambe et al. (2015) also found that the Enhancement Motive was crucial in predicting problem gambling, while the Social Motive, and the Coping Motive was a significant measure for time, and money spent on gambling.

However, the factors motivating gambling are not limited to enhancement motive, social motive, and coping motive. Financial incentive is also important in predicting frequent gambling behaviour among the gamblers (Dechant, 2014). In addition to Financial Motive, McGrath et al. (2010) identified two additional motives for gambling viz, Charitable, and Recreation Motive. The two new motives for gambling also have an impact on gambling motivations.

The following research will implement The Five-Factor Gambling Motivation Model designed by Lee et al. (2007). The five factors that were identified by Lee et al. (2007) are Socialization, Amusement, Avoidance, Excitement, and Monetary Motives. A comparison between the "Monetary motive version" and "Parallel version" found out that the monetary motive was a better model in explaining the influence of gambling motivations. According to the 'Monetary Motive Version', Amusement, Excitement, and Avoidance motives facilitated by the Financial incentives induces gambling among the gamblers.

Gambling motivation plays a pivotal role in influencing gambling behaviour and an intention to keep gambling (Chantal et al., 1995; Wu & Tang, 2011) and, as such, it often has an association between gambling involvement and the development of gambling-related problems. Thus, identifying motives for gambling among the gamblers becomes significant in defining the level of gambling severity. The following research will try to identify the gambling motivations among the gamblers of Sikkim using the Five-Factor Gambling Motivation Model developed by Lee et al. (2007). The Problem Gambling Severity Index developed by Ferris and Wynne (2001) to identify problem gambling among the general population, will be used to evaluate the severity of problem gambling among the gamblers in Sikkim. The items of gambling behaviour classified by Tao et al. (2011), will be adapted to assess the behavioural pattern among gamblers in Sikkim. *Figure 2.1* highlights the evaluation of the motivation factors responsible for problem gambling severity and the behavioural traits of the gamblers.

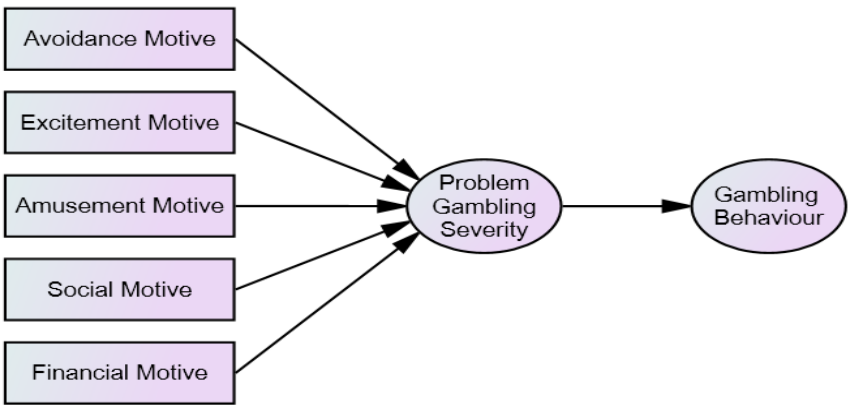

Figure 2.1 Conceptual Model

Source: Designed by Researcher

2.6 Objectives of the Study

Based upon the introduction to the tile and literature reviewed and subsequently the research gap identified, we framed the following objectives for the study.

1. To explore the factors that motivate the gamblers for engaging in gambling activities.
2. To portray the levels of problem gambling severity among gamblers.
3. To find out the relationship between gambling motivation and problem gambling severity.
4. To find out whether financial motives or non-financial motives plays a significant role in explaining problem gambling severity.
5. To confirm the gambling motives and their relationship with problem gambling severity and gambling behaviour.
6. To find out the different types of gambling behaviour caused due to problem gambling severity.
7. To highlight the status of revenue generated from gambling business in the state of Sikkim.
8. To highlight the social, economic, political and legal issues related to gambling business in India.

2.7 Hypothesis of the Study

Given the literature reviewed above and streamlined objectives, we hypothesize the following:

1. H_{0a}: There is no factor defining the gambling motives other than those mentioned in the conceptual framework.
2. H_{0b}: Gambling motives are independent of the levels of income.
3. H_{0c}: There is no significant association of problem gambling severity with the demographic variables.
4. H_{0d}: There is no significant relationship of the Non-financial motives and the Financial motives with the problem gambling severity.
5. H_{0e}: All the identified financial and non-financial gambling motives are not significant in explaining the problem gambling severity.
6. H_{0f}: There is no significant relationship between problem gambling severity and gambling behaviour.

2.8 Scope of the Study

The scope of the study is to understand the motives for gambling, the level of problem gambling severity, and the gambling behaviour among the gamblers gambling in legal gambling games in Sikkim. The study also tries to highlight the revenue generated from all the legal gambling games operating in Sikkim.

Three different districts, East, West, and South Sikkim, have been covered for the study. North Sikkim has been excluded from the study due to non-accessibility and also due to limited gambling venues in the region.

2.9 Significance of the study

Concerning research in the field of gambling in the state of Sikkim, it is the first empirical study that tries to identify the motives, the prevalence rate of problem gambling, and the gambling behaviour among the gamblers in Sikkim, along with highlighting the revenue generated from the legal gambling games. As such, the findings of the study will be of immense significance in understanding the social issues and the economic benefits derived from legalised gambling. The results will provide an update and a timely reminder for all the stakeholders, the policymakers, and the government to analyse the impact of legalised gambling.

The findings of the research study will also be beneficial to those states in India that are trying to emulate the legal policies adopted by the government of Sikkim with respect to gambling. The findings of the study will help the policymakers of the state that wish to adopt the policies and practices related to gambling similar to Sikkim, and will give them an idea about the nature of impact of legalised gambling.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 Research Design

The research design for the study is exploratory and descriptive. Exploratory research involves investigating a problem or a phenomenon that is yet to be studied. The Exploratory research design has been used to identify the factors motivating gamblers to engage themselves in gambling activities, to find out the level of gambling severity, and to identify gambling behaviour caused due to gambling severity in the context of Indian gamblers with special reference to Sikkim. The descriptive research design has been used to highlight the revenue-generated from the legal gambling business in Sikkim.

3.1.1 Population of the Study

The universe of the study comprises gamblers gambling in gambling venues, which is legal under the gambling laws in Sikkim. Gamblers gambling in the fair during the Hindu festival of *Maghe Sankranti* has also been included in the universe of the study because the gambling games conducted during the fair are legal, and licenses are issued for carrying out different forms of gambling games. No gamblers gambling in games that are not under the purview of the law have not been included in the study.

3.1.2 Sample Size and Sampling Approach

The sample for the study consisted of gamblers gambling in the three districts of Sikkim. The three districts chosen for the study are East, West, and South Sikkim. The universe for the study comprised of all the gamblers gambling in legal gambling venues, and gamblers gambling at fairs organized during *Maghe Sankranti*.

The sample size has been calculated at a 95% level of confidence, a confidence interval of 5% for estimating the population proportion from unknown population of gamblers

in Sikkim. The sample has been calculated with help of the following formula (Zikmund et al., 2016).

$$n = \frac{Z_{c.l.}^2 pq}{E^2}$$

Where n= number of sample items

$Z_{c.l.}^2$= square of the confidence level

p = estimated proportion of gamblers in Sikkim

q = estimated proportion of non-gamblers in Sikkim

E^2 = confidence interval

The calculation of the sample size for the study is as follows:

$$n = \frac{Z_{c.l.}^2 pq}{E^2}$$

$$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2}$$

$$n = \frac{(3.8416)(0.25)}{0.0025}$$

$$n = 384.16$$

Based on the result of the calculation of the sample size, 385 samples were collected for the study. A purposive sampling method has been used to select the sample of the gamblers from the three districts in Sikkim East, South, and West Sikkim. The composition of the gamblers collected from the three districts is highlighted in Table 3.1.

Table 3.1 Plan of data collection from Gamblers in Sikkim

Region	East	South	West
No of Respondents*	185	125	75
Total sample size	385		
Source: Author's Calculations *No. of respondents is allocated based on the population in the respective districts			

3.1.3 Data Collection Approach

3.1.3.1 Source of Data

Both primary and secondary data were collected for achieving the objectives and hypothesis of the study. Both primary and secondary data are quantitative in nature. Primary data for the study has been collected with a help of a structured questionnaire. The secondary data for the study has been collected from the Directorate of State Lotteries Finance, Revenue & Expenditure Department Government of Sikkim.

3.1.3.2 Method of Data Collection

A structured questionnaire was designed for the collection of primary data. Primary data for the study was collected by visiting the gamblers gambling in legal gambling venues in Sikkim. Before filling up the questionnaire, prior consent was taken from the respondents, withholding and respecting their opinions on whether to fill up the questions or not.

Primary data has been collected using both a questionnaire and a scheduling technique of data collection. Because of the inability of a few respondents in understanding the questions included in the questionnaire, both questionnaire and scheduling technique has been used for the collection of data. A few of the respondents were not able to read and understand the questions included in the questionnaire. Those respondents required the need and assistance of the researcher in filling up the questionnaire. This resulted

in a need to adopt a scheduling technique of data collection to collect data from those respondents who faced difficulty in understanding and filling up the questionnaire.

The secondary data for the study was collected from the Directorate of State Lotteries Finance, Revenue & Expenditure Department Government of Sikkim. The Sikkim state lotteries, casino gaming, and online and sports gaming are all under the administrative control of the Directorate of State Lotteries Finance, Revenue & Expenditure Department.

3.1.3.3 Period of Data Collection

Primary data for the study were collected during the period between September 2019 till March 2020.

For collecting the data related to the amount of revenue generated from the legal gambling games in Sikkim, an approach was made in September 2018 to the Directorate of State Lotteries Finance, Revenue & Expenditure Department Government of Sikkim. The concerned department provided all the requested data in a print form to the researcher in February 2019.

3.1.4 Survey Instrument - Questionnaire

A structured questionnaire was designed and pre-tested by conducting a pilot study. The survey instrument consists of the following questions:

Section A of the questionnaire consisted of questions concerning the demographic variables of the respondents. The demographic variables considered for the study included age, hometown, gender, marital status, educational qualification, employment status, source of gambling money, and monthly income.

Section B consisted of questions related to the frequency of visitation and gambling plays, participation in different types of gambling, reasons behind gambling, and how often they win while gambling.

Section C consisted of questions related to the Five-Factor Gambling Motivation Model. All the 35 items of the Five-Factor Gambling Motivation Model has been adopted, and the same five-point Likert scale (Strongly disagree=1, Disagree=2, Neutral= 3, Agree=4, and Strongly agree=5), as in the instrument designed by Lee et al. (2007) has been used.

One of the glaring issues in The Five-Factor Gambling Motivation Model is that Lee et al. (2007) have wrongly defined the Social motives and the Financial motives. Factor 2 of The Five-Factor Gambling Motivation Model contains items such as, *win big money with small money, make money easily, win big money immediately, need big money, heard that they won the jackpot, have a financial difficulty and no money, can't change my life without gambling,* and *may win big money*. However, Lee et al. (2007) defined these items as Social motives. Similarly, Factor 4 contains items such as s*ocialize with others, make the atmosphere comfortable for meeting people, makes it easy to meet new people, join with gathering in spite of no intention of gambling, friends insisted gambling* and g*et along with others favourably.* However, Lee et al. (2007) defined these items as Financial motives. Looking at the loadings of the items in Factor 2 and Factor 4, it is apparent that Factor 2 consists of variables related to Financial motive, and Factor 4 consists of variables associated with Social motive.

Section D consists of questions related to the Problem Gambling Severity Index. For the assessment of the problem gambling severity among the gamblers in Sikkim, the Problem Gambling Severity Index designed by Ferris and Wynne (2001) has been

adopted for this study. The PGSI measure is a 9-item scale used for assessing the level of gambling severity. The Problem Gambling Severity Index identifies four different categories of gamblers viz., non-problem gambler, low-risk gambler, moderate-risk gambler, and problem gamblers. The items in the PGSI measure are measured on a four-point Likert scale ranging from never (0) to almost always (3). The categorization of the gamblers based on the score that they score are as follows:

1. A Gambler scoring 0 - Non-problem gamblers.
2. A Gambler scoring between 1 and 2 - Low-risk gamblers.
3. A Gambler scoring between 3 and 7 - Moderate-risk gamblers.
4. A Gambler scoring eight or more - Problem gamblers.

Section E consisted of questions related to gambling behaviour with all the 20 items of the gambling behaviour identified by Tao et al. (2011) adopted for the study. All the 20 items are measured on a four-point Likert scale (Never=1, Rarely=2, Often=3, and Always=4).

3.1.5 Statistical Tools Used for Analysis

The various statistical tools used for the purpose of the study includes Descriptive statistics (frequency, mean, standard deviation), Chi-Square analysis, Correlation, Factor analysis, and Confirmatory Factor Analysis.

3.1.6 Construct Reliability

A pilot study was conducted to evaluate the reliability of the constructs. The pilot study was conducted by collecting responses from 80 respondents. Table 3.2 highlights the Cronbach's alpha value of the constructs Gambling Motivation, Problem Gambling Severity Index and Gambling Behaviour. The results of the pilot study highlighted a good measure of internal consistency (α>0.70) for all the constructs under study.

Table 3.2 Reliability of Constructs

Sl No.	Constructs	No of Items	Cronbach's Alpha
1	Gambling Motivation	35	0.925
2	Problem Gambling Severity Index	09	0.764
3	Gambling Behaviour	20	0.904
Source: Author's Calculations			

3.2 Profile of the Respondents

3.2.1 Demographic Profile

The demographic variable collected for the study included information related to age, hometown, gender, marital status, employment status, educational qualification, source of gambling money, and monthly income of the respondents. The following paragraphs highlight the detailed information related to the demographic variables of the respondents collected for the study.

3.2.1.1 Age of the Respondents

Table 3.3 highlights the demographic profile concerning the age of the respondents. Respondents for the study are categorized into five different age groups. Among the five distinct age groups, 49.87% of the respondents belonged to the age group of 25-34 years and has the highest representation in the study among the five different age groups. The age group of 35 to 44 years had the second highest representation, with 26.75% of the respondents belonging to the age category. 12.73% of the respondents belonged within the age group of 18 to 24 years. The respondent with a higher age group had a lower representation, with 9.61% of respondents belonging to the age group of 45-54 years, and only 1.04% of respondents belonging to the age category of 55 and above.

Table 3.3 Age of the Respondents

Age of the Respondents	Frequency	Percent
18 to 24 years	49	12.73%
25 to 34 years	192	49.87%
35 to 44 years	103	26.75%
45 to 54 years	37	9.61%
55 years and above	4	1.04%
Source: Author's Calculations		

3.2.1.2 Hometown of the Respondents

Table 3.4 highlights the demographic profile concerning the hometown of the respondents. Among the respondents covered in the survey, 49.35% of the respondents belonged from various places in the East District of Sikkim. 27.01% of the respondents belonged from the South District, 18.44% of the respondents belonged from West District, and mere 1.82% of the respondents belonged from the North District in Sikkim. 3.38% of the respondents covered in the study belonged from outside Sikkim.

Table 3.4 Hometown of the Respondents

Hometown of the Respondents	Frequency	Percent
North	7	1.82%
East	190	49.35%
South	104	27.01%
West	71	18.44%
Outside Sikkim	13	3.38%
Source: Author's Calculations		

3.2.1.3 Gender of the Respondents

Table 3.5 highlights the demographic profile concerning the gender of the respondents. In terms of gender, it is the male gamblers who are most prominently found gambling in gambling venues in Sikkim. Of the total sample collected in the study, 94.29% of the

respondents were male gamblers, while the female gamblers only constituted 5.71% of the total sample size.

Table 3.5 Gender of the Respondents

Gender of the Respondents	Frequency	Percent
Male	363	94.29%
Female	22	5.71%
Source: Author's Calculations		

3.2.1.4 Marital Status of the Respondents

Table 3.6 highlights the demographic profile concerning the marital status of the respondents. The majority of the sample comprised of Single and Married gamblers. Among the sample collected for the study, 50.65% of the respondents were married, and 45.97% of the respondents were single. While Divorced and Widow/Widower respondents comprised of a mere 2.34% and 1.04% of the total respondents covered during the survey.

Table 3.6 Marital Status of the Respondents

Marital Status of the Respondents	Frequency	Percent
Single	177	45.97%
Married	195	50.65%
Divorced	9	2.34%
Widower/Widow	4	1.04%
Source: Author's Calculations		

3.2.1.5 Educational Qualification of the Respondents

Table 3.7 highlights the demographic profile related to the educational qualification of the respondents. Concerning the educational qualification of the respondents covered during the survey, 40.78% of the respondents had a graduate degree. 33.77% of the respondents had an educational qualification of 12th or below, while 23.38% of the

respondents had a master's degree. A mere 2.08% of the respondents indicated others in their educational qualification.

Table 3.7 Educational Qualification of the Respondents

Educational Qualification of the Respondents	Frequency	Percent
12th or below	130	33.77 %
Graduate	157	40.78 %
Masters	90	23.38 %
Others	8	2.08 %
Source: Author's Calculations		

3.2.1.6 Employment Status of the Respondents

Table 3.8 highlights the demographic profile concerning the employment status of the respondents. In terms of employment status, 17.92% of the respondents covered during the survey were unemployed and were actively seeking jobs. 36.62% of the respondents had a job and were employed, and a further 37.66% of the respondents were self-employed. Among the sample collected for the study, 6.75% of the respondents were daily wage earners. 1.15% of the respondents covered in the survey were pensioners, whose representation is the least among the total sample.

Table 3.8 Employment Status of the Respondents

Employment Status of the Respondents	Frequency	Percent
Employed	141	36.62%
Job Seeker	69	17.92%
Self Employed	145	37.66%
Pensioner	4	1.04%
Daily Wage Earner	26	6.75%
Source: Author's Calculations		

3.2.1.7 Respondents' Source of Money for Gambling Activities

Respondents covered in the survey were asked about their source of money for their gambling activities. Table 3.9 highlights the information related to the source of

gambling money for the respondents taking part in various gambling games. Of the total respondents covered in the study, 36.62% uses their income earned as a salary for taking part in various gambling activities. For 23.38% of the respondents, their source for gambling money is the daily wages that they earn. Another 19.74% of the respondents use their pocket money to take part in gambling activities, and the business income was the source of gambling money for 19.22% of the respondents covered in the survey. A mere 1.04% of the respondents use pension money for taking part in various gambling games.

Table 3.9 Source of Gambling Money for the Respondents

Source of Gambling Money	Frequency	Percent
Pocket Money	76	19.74%
Salary	141	36.62%
Daily Wages	90	23.38%
Business Income	74	19.22%
Pension	4	1.04%
Source: Author's Calculations		

3.2.1.8 Monthly Income of the Respondents

Table 3.10 highlights the profile of the respondents concerning the monthly income that they earn. A majority of the respondents covered in the survey had monthly earnings of less than Rs 19,999. 32.47% and 31.43% of the respondents covered in the study had a monthly income of Rs 10,000 to Rs19,999 and below Rs 10,000 respectively. 24.42% of the respondents had monthly earnings of Rs 20,000-29,999 followed by 6.75% of the respondent who had a monthly income of Rs30,000-Rs39,999. Only 4.94% of the respondents covered in the survey had monthly earnings of above Rs 40,000.

Table 3.10 Monthly Income of the Respondents

Monthly Income of the Respondent	Frequency	Percent
Below Rs 10,000	121	31.43%
Rs 10,000 - Rs 19,999	125	32.47%
Rs 20,000 - Rs 29,999	94	24.42%
Rs 30,000 - Rs 39,999	26	6.75%
Above Rs 40,000	19	4.94%
Source: Author's Calculations		

3.2.2 Leading Reasons Behind Starting Gambling Among the Respondents

Multiple response questions were framed to ask the respondents their reason behind engaging in gambling activities. Table 3.11 highlights the respondents' response towards starting gambling.

Among the five different options, 47.79% of the respondents indicated gambling being fun as a reason behind starting gambling. 46.49% of the respondents began gambling because of their friends or family members. For 15.84% of the respondents, the reason behind gambling was the need for money. 7.01% of the respondents indicated that the reason behind starting gambling is a result of the influence of advertisements. 8.30% of the respondents selected others as a reason behind gambling.

Table 3.11 Respondents response to what lead them to starting gambling

Reasons for Starting Gambling	Frequency	Percent
Advertisement	27	7.01%
In need of Money	61	15.84%
It is fun	184	47.79%
Friends/Family	179	46.49%
Others	32	8.30%
Source: Author's Calculations		

3.2.3 Participation Rate in Different Forms of Gambling

Multiple response questions were framed to identify gamblers' participation in various forms of gambling games in Sikkim. Respondents were given five different options of gambling games, which can be played legally within the state of Sikkim. Including those five options, an open-ended option was also given to the respondent to know if they engaged in any other gambling games other than those given as an option. Table 3.12 highlights the respondents' response to which form of gambling games they frequently participated in and have participated in during the last 12 months.

Table 3.12 Respondents response to which form of gambling they frequently play

Forms of Gambling	Frequency	Percent
Sikkim State Lottery	148	38.44%
Tambola (Bingo)	282	73.25%
Casinos	8	2.08%
Online Gaming	213	55.32%
Sports Betting	18	4.68%
Cards	18	4.68%
Source: Author's Calculations		

Among the various forms of gambling, Tambola (Bingo) appears to be the most popular gambling game in which gamblers in Sikkim like to participate in, followed by Online gaming, and Sikkim State Lotteries. 73.25% of the respondents covered in the survey indicated that they played Tambola (Bingo) at least once during the last 12 months. While 55.32% of the respondents indicated playing online gaming at least once in the past 12 months. Sikkim state lottery is the third most-played gambling game with 38.44% of the respondents having bought a lottery ticket at least once in the past 12 months. 4.68% of the respondent had played sports betting, and 2.08% of the respondent had played casino gaming at least once in the past 12 months. Other than

these legal forms of gambling, 4.68% of the respondent also indicated gambling in the game of cards, which is not a legal form of gambling.

3.2.4 Rate of Winnings Among the Respondents

Respondents covered in the study were also asked about how often they win while gambling. Table 3.13 highlights the response of the respondents on how often they win while gambling.

Table 3.13 Respondents Response for how often do they win while gambling

Frequency of Gambling wins	Frequency	Percent
Never	74	19.22%
Sometimes	254	65.97%
Often	51	13.25%
Almost always	6	1.56%
Source: Author's Calculations		

Almost 65.97% of the respondents covered in the survey responded that they win sometimes while engaging in gambling activities. Among the respondents, 19.22% of the respondents who have gambled once in the past 12 months have never won while gambling. 13.25% of the respondents indicated that they win often while gambling and only 1.56% of the respondents indicated that they win almost always while engaging in gambling activities.

CHAPTER 4. DATA ANALYSIS AND INTERPRETATION

4.1 Exploring the Gambling Motives

Studies have found that gambling motives play a significant role in gambling involvement and engagement in different gambling activities. According to Lambe et al. (2015), gambling motive is often associated with gambling involvement and the development of gambling-related problems among gamblers. Identifying gambling motives is essential as the motives play a significant role in influencing gamblers to continue gambling and explains the behaviour and severity of problem gambling (Chantal et al., 1995; Wu & Tang, 2011).

4.1.1 Confirmatory Factor Analysis of the Five Factor Gambling Motivation Model

The item scale of the Five-Factor Gambling Motivation Model by Lee et al. (2007) was adopted to identify the gambling motives among the gamblers in Sikkim. The Five-Factor Gambling Motivation Model by Lee et al. (2007) identifies five different motives for gambling. They are Excitement motives, Social motives, Amusement motives, Avoidance motives, and Financial motives. A Confirmatory Factor Analysis was performed on all the original 35 items of the Five-Factor Gambling Motivation Model to test the model fit. Table 4.1 highlights the result of the fit indices for the 35 items Five-Factor Gambling Motivation Model.

The results derived from the Model Fit Indices for the 35-item Five-Factor Gambling Motivation Model for the study revealed a poor fit to the data. The CMIN/DF value of 5.56, Comparative Fit Index (CFI) value of 0.74, Goodness of Fit (GFI) value of 0.67, and Root Mean Square Error of Approximation (RMSEA) value of .11, all represents a poor fit to the data.

Table 4.1 Model Fit Indices for the 35-Item Five Factor Gambling Motivation Model

Model	NPAR	CMIN	DF	P	CMIN /DF	CFI	GFI	RMSEA
Default model	80	3060.73	550	.000	5.56	0.74	0.67	0.11
Saturated model	630	0.000	0			1.00	1.00	
Independence model	35	10161.73	595	.000	17.08	0.00	0.26	0.25
Source: Author's Calculations								

The result of the poor fit indices highlights the need for carrying out an Exploratory Factor Analysis (EFA) to identify the gambling motivation factors among the gamblers gambling in Sikkim. An Exploratory Factor Analysis (EFA) has been conducted on all the original items of the Five-Factor Gambling Motivation Model. The result of the EFA is discussed in detail in the following sections.

4.1.2 Exploratory Factor Analysis

An Exploratory Factor Analysis has been performed to develop the gambling motives scale to identify the gambling motives among the gamblers in Sikkim. The factor analysis has been performed by adopting all the original 35 items of the Five-Factor Gambling Motivation Model by Lee et al. (2007). Each item is ranked on a five-point Likert scale with the categories ranging from Strongly Disagree (1) to neutral (3) to Strongly Agree (5). The study by Lee et al. (2007) employed Principal Axes Factoring with Varimax to develop the gambling motivation scale. The present study also follows the same methodological approach, followed by Lee et al. (2007), and employs Principal Axes Factoring with Varimax to develop the gambling motivation scale. For developing the gambling motivation scale, all the items with communalities of less than 0.40 have been eliminated. Similarly, all the items with a factor loading of less than 0.40 have also been eliminated. The sample size for the study 385 is more than the

expected sample size of 350 for considering factor loading of 0.40 for the statistical significance (Hair et al., 2015, pp. 115–116).

Table 4.2 highlights the Kaiser Meyer Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. The KMO measure of .853 verified the sampling adequacy for performing the PCA. The KMO values of all the individual items are higher than .634, which is well above the acceptable limit of .50 (Field, 2009, pp. 627-681). The Bartlett's test of Sphericity x2 (190) = 6544.933, $p < .001$, specified that the correlations between the items were high enough for performing the PCA.

Table 4.2 KMO and Bartlett's Test - Gambling Motivation

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.853
Bartlett's Test of Sphericity	Approx. Chi-Square	6544.933
	df	190
	Sig.	0.000
Source: Author's Calculations		

Table 4.3 highlights the factor loadings, eigenvalues, % of the variance, and Cronbach alpha for each factor after rotation for the items with which the PCA was performed. Five different factors were identified, with all the factors having eigenvalues that are greater than one, which is above the Kaiser criterion of 1 (Field, 2009, pp. 627-681), and the five factors together explained 74.59% of the variance. The identified factors are similar to the ones recognized by Lee et al. (2007) in their study. The only difference between the results of Lee et al. (2007) and the present study is the number of item loadings under each factor. Concerning Cronbach's alpha, all five factors relatively had a higher reliability scale.

Table 4.3 Summary of Exploratory Factor Analysis Results for the 20-Items Five-Factor Gambling Motivation Model

	Rotated Factor Matrix				
	1	2	3	4	5
Factor 1: Avoidance Motive					
1. Feel angry/upset	.892				
2. Feel pain/troubled	.871				
3. Feel depressed/sad	.871				
4. Feel pressured/things don't go well	.849				
5. Feel lonely/escape from loneliness	.816				
6. Feel tense/anxious	.811				
Factor 2: Social Motive					
1. Makes it easy for me to meet new people		.912			
2. Makes the atmosphere comfortable for me for meeting people		.886			
3. Join with gathering in spite of no intention of gambling		.798			
4. Socialize with others		.793			
5. Helps to get along with others favourably		.733			
Factor 3: Amusement Motive					
1. Allows to escape from burdensome routines			.757		
2. Helps to change moods			.757		
3. Helps to Energize life			.743		
4. Helps to relieve stress			.650		
Factor 4: Financial Motive					
1. Want to make money easily				.867	
2. Want to win big money immediately				.865	
3. Want to win big money with small money				.838	
Factor 5: Excitement Motive					
1. Have fun in risk taking					.955
2. Enjoy thrilling experience in risk					.867
Variance	**32.17**	**18.31**	**11.61**	**7.43**	**5.07**
Eigen Value	**4.48**	**3.84**	**2.57**	**2.26**	**1.78**
Cronbach Alpha	**0.943**	**0.942**	**0.870**	**0.895**	**0.940**
Source: Author's Calculations					

The items of the first factor defined the motives related to avoidance and consisted of six items explaining the avoidance motive. The avoidance motive factor explained 32.17% of the variance and had a Cronbach's alpha of 0.943.

The items in the second factor consisted of five variables that defined the properties of a social motive for gambling. The social motive factor explained 18.31% of the variance and had a measure of internal consistency of 0.942.

The third factor consisted of four items that defined the motives related to amusement. The amusement motive factor explained 11.61% of the variance and had a measure of internal consistency of 0.870.

The fourth factor consisted of three items and explained the financial motives for gambling. The measure of internal consistency for the financial motive factor was 0.895, and the factor explained 7.43 % of the variance.

The final and the fifth factor consisted of only two items for explaining the gambling motives and explained 5.07% of the variance and had an internal measure of consistency of 0.940.

4.1.1.1 Testing of Hypothesis for Factors Defining the Gambling Motives

The following null hypothesis related to the factors defining the gambling motives had been tested using the Principle Component Analysis (PCA).

H_{0a}: There is no factor defining the gambling motives other than those mentioned in the conceptual framework.

The result of the PCA highlighted the five factors defining gambling motives among the gamblers in Sikkim, and it is identical to the factors identified by Lee et al. (2007). Therefore, based on the results of the PCA, we fail to reject the null hypothesis and conclude that there are no other factors defining gambling motives among the gamblers in Sikkim other than those mentioned in the conceptual framework of the study.

4.1.3 Confirmatory Factor Analysis of the 20-items Five Factor Gambling Motivation Model.

A Confirmatory Factor Analysis (CFA) was performed with the reduced factor structure containing 20 subscales of the Five-Factor Gambling Motivation Model. The model fit indices for the 20 items Five-Factor Gambling Motivation Model is highlighted in Table 4.4, and the factor structure model is shown in *Figure 4.1*.

Table 4.4 Model Fit Indices for the 20 Item Five-Factor Gambling Motivation Model

Model	NPAR	CMIN	DF	P	CMIN/ DF	GFI	CFI	RMSEA
Default model	50	583.18	160	.000	3.645	0.866	0.935	0.083
Saturated model	210	0	0			1.000	1.000	
Independence model	20	6675.31	190	.000	35.133	0.277	0.000	0.298
Source: Author's Calculations								

The result of the CFA of the 35 items Five-Factor Gambling Motivation Model did not yield a good fit to the data. However, the fit indices of the 20 items Five-Factor Gambling Motivation Model was better than the fit indices of the 35 items Five-Factor Gambling Motivation Model. The results of the CFA on 20 items showed a high covariance between two of the Avoidance motive items, *feel pain/troubled (AV_2),* and *feel lonely/escape from loneliness (AV_5).*

As a result of a high covariance between the two items, three different CFA models was tested under three different settings to test the fit indices of the model. The CFA models tested under three different settings are:

Model 1. By adding a covariance between the two items, *feel pain/troubled (AV_2),* and *feel lonely/escape from loneliness (AV_5).*

Model 2. By removing the item, *feel pain/troubled (AV_2)* and performing the CFA with 19 items.

Model 3. By removing the item, *feel lonely/escape from loneliness (AV_5)* and performing the CFA with 19 items.

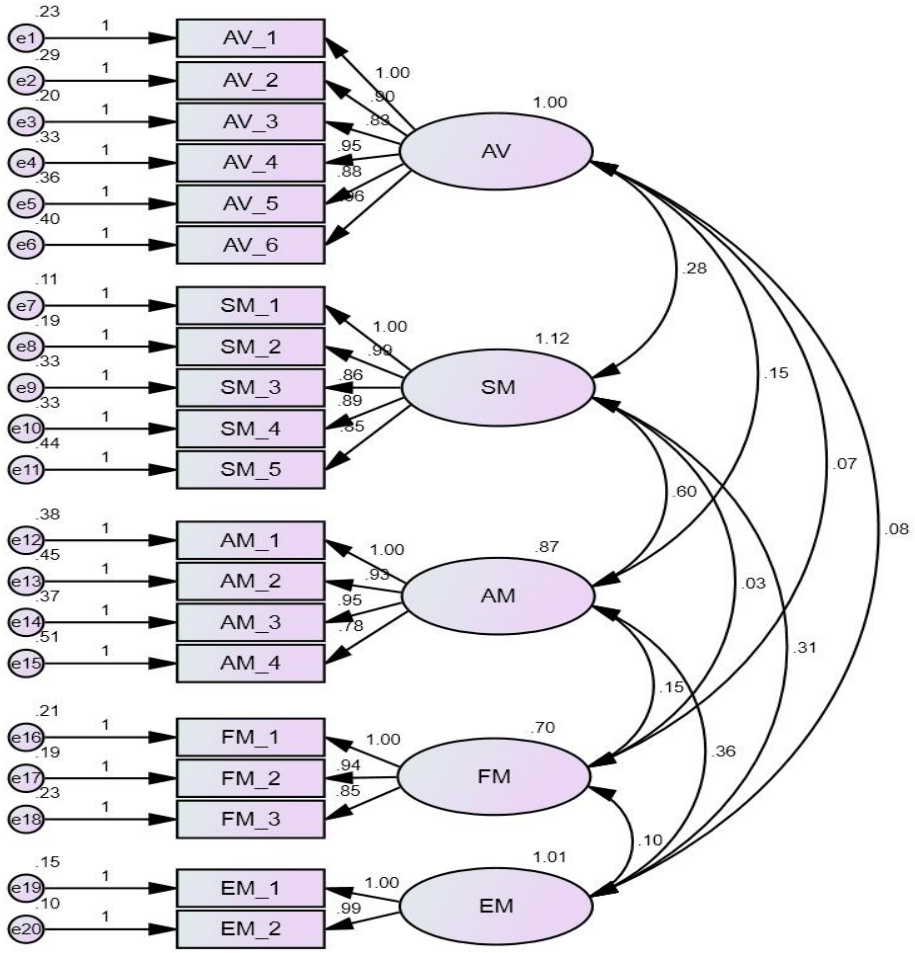

Figure 4.1 Factorial Structure Model of the 20-Item Five Factor Gambling Motivation Model

CFA after adding a Covariance between feel pain/troubled and feel lonely/escape from loneliness

A CFA was performed on all the 20 items after adding a covariance between the two avoidance motive factor *items feel pain/troubled* and *feel lonely/escape from loneliness*. *Figure 4.2* highlights the factorial structure model of the 20 item Five-Factor

Gambling Motivation Model after adding a Covariance between items AV_2 and AV_5.

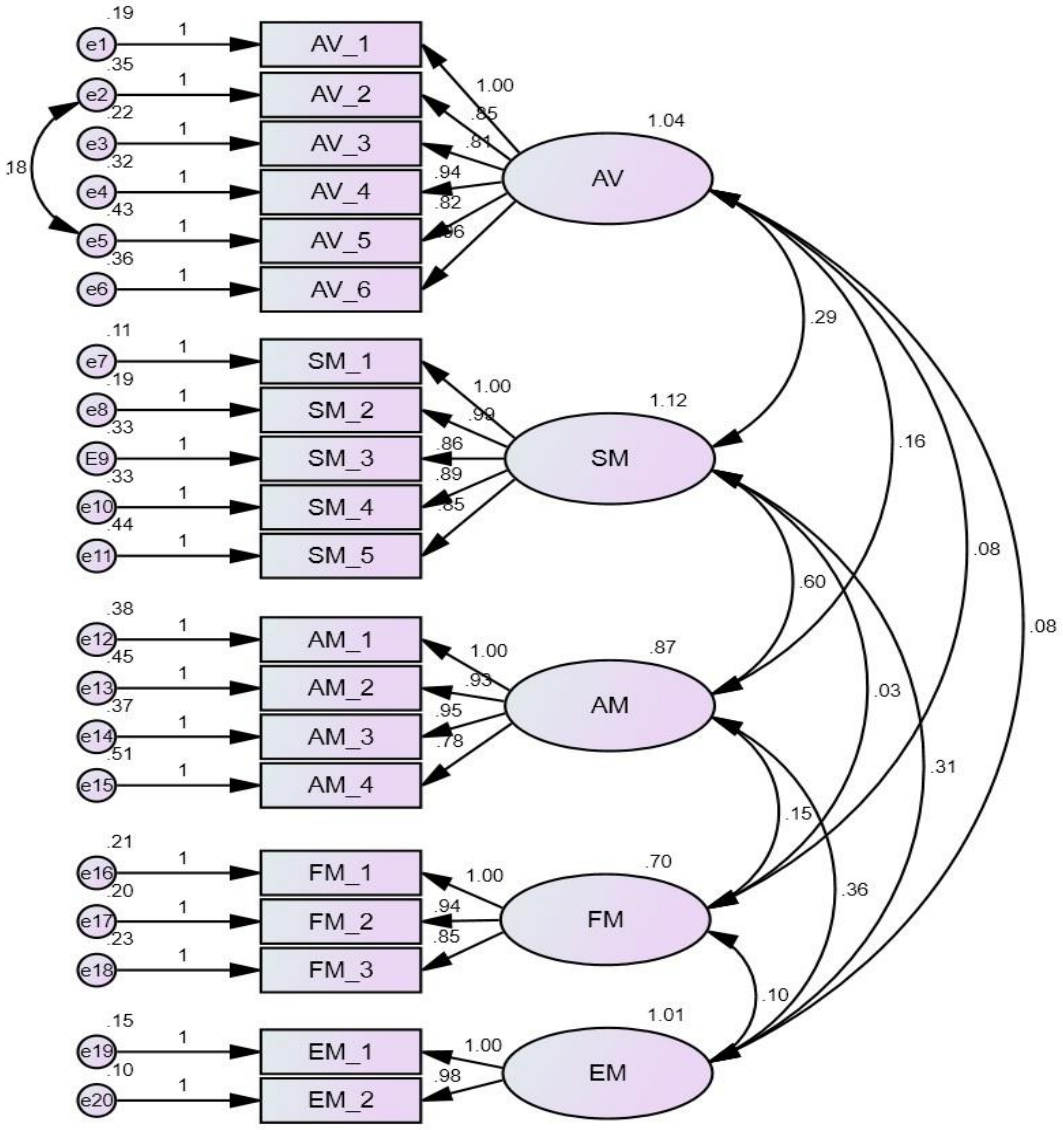

Figure 4.2 Model 1: Factorial Model Structure After Adding a Covariance between items AV_2 and AV_5

CFA after removing the item *feel pain/troubled (AV_2)*

CFA was also performed under other settings after removing the item *feel pain/troubled (AV_2)*. *Figure 4.3* highlights the factorial structure model of the 19 items Five-Factor Gambling Motivation Model after removing the item *feel pain/troubled (AV_2)*.

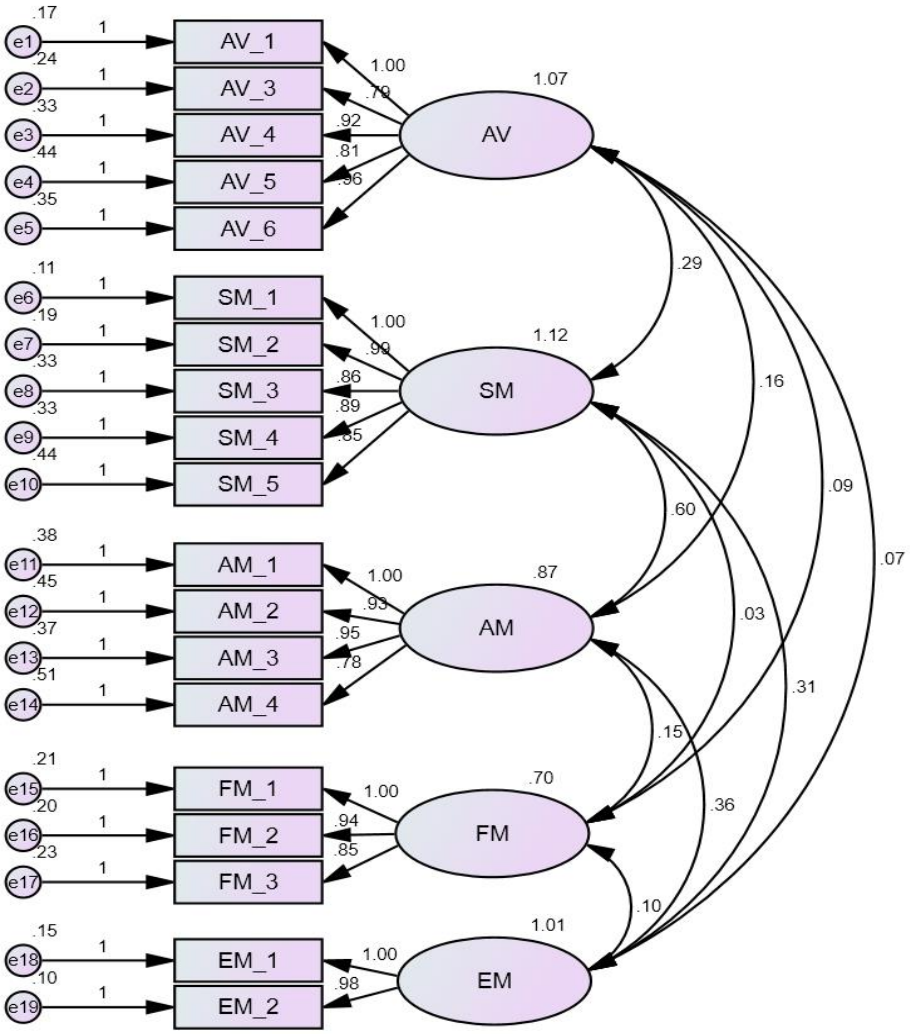

Figure 4.3 Model 2: Factorial Model Structure After Removing the item AV_2

CFA after removing the item *feel lonely/escape from loneliness (AV_5)*

A final CFA was also performed after only removing the item *feel lonely/escape from loneliness (AV_5). Figure 4.4* highlights the factorial structure model of the 19 items Five-Factor Gambling Motivation Model after removing the item *feel lonely/escape from loneliness (AV_5).*

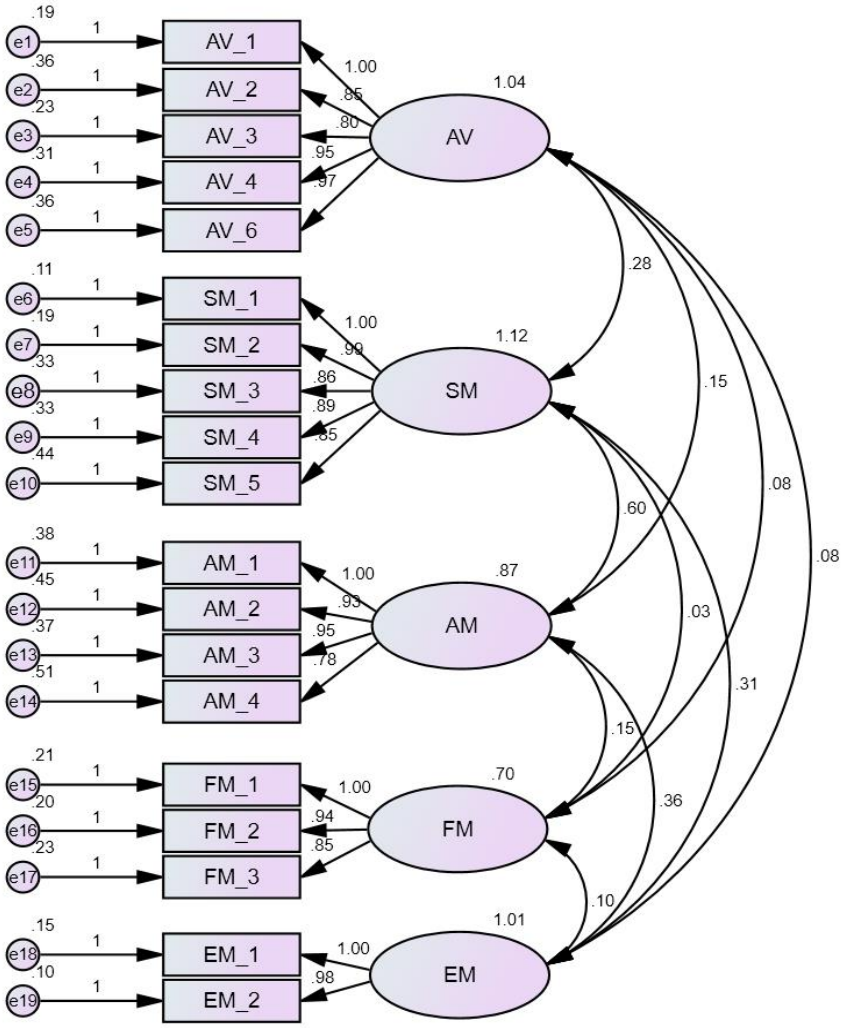

Figure 4.4Model 3: Factorial Model Structure After Removing the item AV_5

Comparison of the Fit Indices for the model tested under three different settings:

After performing the CFA in three different settings, the results of the model fit indices for each model that were tested in three different settings were compared to identify which CFA model yields better results. The result of the fit indices for the CFA's performed under three settings are highlighted in Table 4.5.

There was a slight improvement in the model fit indices for the three models tested under different settings when comparing with the results of the model fit indices of the initial CFA model. Among the three models, Model 2, the model in which the item *feel*

pain/troubled (AV_2), has been removed, and a CFA Model is tested with 19 items yielded a better fit to the data.

The CMIN/DF value of Model 2 (3.054) is the lowest amongst the three models. Also, the Comparative Fit Index (CFI) value of 0.951 is the highest only in the second model and is the only model among the three models whose CFI is >.95. Similarly, although the Root Mean Square Error of Approximation (RMSEA) of all the three models are <.08, the RMSEA value of Model 2 (0.073) is the least among the three models. However, The Goodness of Fit Index (GFI) for the three models are below the expected level of >.95. In that regard also, the GFI of Model 2 (0.895) is much closer than Model 1 and Model 3.

Table 4.5 Fit Indices for the Model Performed Under Three Different Settings

Model	NPAR	CMIN	DF	P	CMIN/DF	GFI	CFI	RMSEA
1-CFA after adding covariance between Item AV_2 and AV_5	51	512.673	159	0	3.224	0.885	0.945	0.076
2-CFA after Removing Item AV_2	48	433.735	142	0	3.054	0.895	0.951	0.073
3-CFA after Removing Item AV_5	48	458.739	142	0	3.231	0.891	0.947	0.076
Source: Author's Calculations								

The result of the CFA revealed a 19-item factorial model structure for the Five-Factor Gambling Motivation Model with a good fit to the data. The result of the CFA suggests that Model 2 with 19 items is suitable in explaining the gambling motives among the gamblers in Sikkim.

4.1.1.2 Testing of Hypothesis for Gambling Motives and the Level of Income

The following null hypothesis is related to gambling motives and the level of income, and is tested using the Chi-square test of independence. The following null hypothesis is tested following the results of the CFA which identified Model 2 as the better model in explaining the gambling motives among the gamblers gambling in Sikkim.

H_{0b}: Gambling motives are independent of the levels of income.

Table 4.6 highlights the Chi-square test of independence between five different gambling motives and the level of income among the gamblers in Sikkim. The result of the Chi-square analysis shows that all five identified gambling motives are related to the level of income ($p\text{-}value < 0.01$). All five gambling motives factors are significantly associated to the level of gambling at 1% level of significance.

Table 4.6 Chi Square Test of Independence Between Different Gambling Motives and Level of Income

Gambling Motives	Value	Pearson Chi Square	
		df	Asymptotic Significance
Avoidance Motive	151.742	72	0.000**
Social Motive	164.365	80	0.000**
Amusement Motive	111.409	60	0.000**
Excitement Motive	73.592	44	0.003**
Financial Motive	83.877	32	0.000**
Source: Author's Calculations			

Further, a Chi-square test of independence was conducted by taking the mean score of all five gambling motives factor and the level of income of the respondents to test the above-stated hypothesis. Table 4.7 highlights the result of the test of Chi-square analysis. The result of the Chi-square test of independence shows that gambling motives are not independent of the level of income, and the gambling motives are related to the level of income at a 1% level of significance. As the p-value of the Chi-square test of

independence between the gambling motives and the level of income is <0.01, therefore, we reject the null hypothesis and conclude that the gambling motives are related to the level of income at a 1% level of significance.

Table 4.7 Chi Square Test of Independence Between Gambling Motives Mean Score and the Level of Income

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1008.004[a]	700	0 .000**
Likelihood Ratio	758.359	700	0.062
Linear-by-Linear Association	14.017	1	0.000
N of Valid Cases	385		
Source: Author's Calculations			

4.2 Problem Gambling among the Gamblers in Sikkim

The prevalence of problem gambling among the gamblers in Sikkim has been identified using the Problem Gambling Severity Index (PGSI) developed by Ferris and Wynne (2001). Table 4.8 highlights the prevalence rate of problem gambling among the gamblers in Sikkim.

Table 4.8 Prevalence Rates of Problem Gambling Among the Gamblers in Sikkim

Category of problem gambling	Frequency	Percent
Non-Problem Gamblers	62	16.10%
Low Risk Gamblers	101	26.23%
Moderate Risk Gamblers	166	43.12%
Problem Gamblers	56	14.55%
Total	**385**	**100%**
Source: Author's Calculations		

Among the 385 respondents included in the study, 14.55% of the respondents are categorized as problem gamblers (having scored seven or more in the PGSI index). A

further 43.12% of the respondents are categorized as moderate-risk gamblers. The prevalence rate of problem gambling of 14.55% is much higher than the prevalence rates of 7.4% identified by Benegal (2013) and George et al. (2016), 7.1% identified by Jaisoorya et al. (2017), and 1.8% identified by Gonmei (2016) in India. However, these prevalence studies were conducted in the state of Kerala and Manipur, where the lottery is the only legal form of gambling. As opposed to these two states, gambling avenues in Sikkim is available in plentiful, and the gamblers have easy access to gambling venues.

However, a higher prevalence rate of problem gambling is a source of significant concern for society. Even though Sikkim is reaping in the benefits of legalised gambling from an economic standpoint, the higher prevalence rate of problem gambling does raise a serious question related to the societal cost of gambling.

4.3 Problem Gambling Severity across Demographic Variables

The following analysis highlights the prevalence rate of problem gambling across the demographic variables related to the study. The several demographic variables associated with the study are age, hometown, gender, marital status, educational qualification, employment status, and monthly income. The prevalence rate of problem gambling is calculated for all the demographic variables. A chi-square statistic is also calculated to identify the demographic variables that are significantly associated with the prevalence rate of problem gambling among the gamblers in Sikkim.

4.3.1 Age of the Respondents and PGSI Category

Table 4.9 highlights prevalence rate of problem gambling among the different age categories of the gamblers in Sikkim. The prevalence rate is the highest among the gamblers between the age group of 35 and 44 years, with 24.27% of the respondents

within the age group categorized as problem gamblers. The gamblers within the age group of 25 and 34 years have the 2nd highest prevalence rate of problem gambling among the gamblers in Sikkim. 13.54% of the respondents within the age group between 25 and 34 years are categorized as problem gamblers. A further 6.12% of the respondents belonging to the age group of 18-24 and 5.4% of the respondents belonging to the age group of 45-54 years are categorized as problem gamblers. Although there are no problem gamblers within the age group of 55 years and above, the rate of moderate-risk gambling is the highest within this group of respondents. 75% of the respondents with the age of 55 years and above are categorized as moderate-risk gamblers.

Table 4.9 Age of the Respondents and Gambling Behaviour by Risk Categories

Age of the Respondents	Non-Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers
18-24 years	9	19	18	3
	18.37%	38.78%	36.73%	6.12%
25-34 years	36	53	77	26
	18.75%	27.60%	40.10%	13.54%
35-44 years	8	20	50	25
	7.77%	19.42%	48.54%	24.27%
45-54 years	8	9	18	2
	21.6%	24.3%	48.6%	5.4%
55 years and Above	1	0	3	0
	25.00%	0.00%	75.00%	0.00%
Total	**62**	**101**	**166**	**56**
	16.10%	**26.23%**	**43.12%**	**14.55%**
Source: Author's Calculations				

4.3.2 Hometown of the Respondents and PGSI Category

Table 4.10 highlights the prevalence rate of problem gambling concerning the hometown of the respondents. The prevalence rate of problem gambling is the highest

among the gamblers belonging to West Sikkim, with 25.35% categorized as problem gamblers. Gamblers belonging from South Sikkim and outside Sikkim have an equal prevalence rate of problem gambling of 15.38%. The lowest rate was identified among gamblers belonging to East Sikkim, with a prevalence rate of 10%.

Table 4.10 Hometown of the Respondents and Gambling Behaviour by Risk Categories

Hometown	Non Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers
North	1	1	4	1
	14.29%	14.29%	57.14%	14.29%
East	37	56	78	19
	19.47%	29.47%	41.05%	10.00%
South	14	24	50	16
	13.46%	23.08%	48.08%	15.38%
West	9	16	28	18
	12.68%	22.54%	39.44%	25.35%
Outside Sikkim	1	4	6	2
	7.69%	30.77%	46.15%	15.38%
Total	**62**	**101**	**166**	**56**
	16.10%	**26.23%**	**43.12%**	**14.55%**
Source: Author's Calculations				

4.3.3 Gender of the respondent and the PGSI Category:

The prevalence rate of problem gambling among the gender demographics is highlighted in Table 4.11. The majority of the respondents covered in the survey were male gamblers. Concerning the prevalence rate of problem gambling among the male and female gamblers in Sikkim, only male gamblers were found to be problem gamblers, with 15.43% of the male gamblers categorized as problem gamblers. The percentage is even higher concerning moderate-risk gambling, with 44.63% of the male

gamblers categorized as moderate-risk gamblers. In comparison, only 18.18% of the female gamblers are categorized as moderate-risk gamblers.

Table 4.11 Gender of the Respondents and Gambling Behaviour by Risk Categories

Gender of the Respondent	Non Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers
Male	51	94	162	56
	14.05%	25.90%	44.63%	15.43%
Female	11	7	4	0
	50.00%	31.82%	18.18%	0.00%
Total	**62**	**101**	**166**	**56**
	16.10%	**26.23%**	**43.12%**	**14.55%**
Source: Author's Calculations				

4.3.4 Marital Status of the respondent and the PGSI Category:

Table 4.12 highlights the prevalence rate of problem gambling concerning the marital status of the respondents. The prevalence rate of problem gambling is identified only among the single and married gamblers in Sikkim. Out of the gamblers who were married, 18.97% of them were problem gamblers. The prevalence rate of problem gambling among the unmarried gamblers is 10.73%. Although there are no problem gamblers among the divorced and widower/widow gamblers, the prevalence of moderate-risk gambling is the highest among the divorced and widower/widow gamblers. 75% of the respondents who are widows/widower and 66.67% of the respondents who are divorced are categorized as moderate-risk gamblers. On the other hand, 45.13% of the married gamblers are categorized as moderate-risk gamblers, while 38.98% of the unmarried single gamblers are categorized as moderate-risk gamblers.

Table 4.12 Marital Status of the Respondents and Gambling Behaviour by Risk Categories

Marital Status	Non Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers
Single	37	52	69	19
	20.90%	29.38%	38.98%	10.73%
Married	22	48	88	37
	11.28%	24.62%	45.13%	18.97%
Divorced	3	0	6	0
	33.33%	0.00%	66.67%	0.00%
Widower/Widow	0	1	3	0
	0.00%	25.00%	75.00%	0.00%
Total	**62**	**101**	**166**	**56**
	16.10%	**26.23%**	**43.12%**	**14.55%**
Source: Author's Calculations				

4.3.5 Educational Qualification of the respondent and the PGSI Category:

Table 4.13 highlights the educational qualification of the respondents and the levels of problem gambling severity among the gamblers in Sikkim. With respect to the educational qualification and the prevalence rate of problem gambling, it is found that the lower the level of education of the respondents, the higher the level of problem gambling severity among the gamblers in Sikkim. Among the gamblers with an educational qualification of class 12th or below, 23.08% of the respondents are categorized as problem gamblers. While 10.83% of the gamblers who had a graduate degree are categorized as problem gamblers, and 8.89% of the respondents with a master's degree are categorized as problem gamblers. Among the respondents who had selected others as an option, 12.50% of them are categorized as problem gamblers.

The trend is quite similar in the case of the moderate-risk category as well. 46.15% of the respondents with an educational qualification of 12th or below are categorized as

moderate-risk gamblers. 45.22% of the respondents with a graduate degree are categorized as problem gamblers, and a much lower percentage of 32.22% of the respondents with a master's degree are categorized as moderate-risk gamblers. In terms of moderate-risk gamblers, the highest percentage was within the other educational qualification category, with 75% of the respondents within that category categorized as moderate-risk gamblers.

Table 4.13 Educational Qualification of the Respondents and Gambling Behaviour by Risk Categories

Educational Qualification	Non Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers
12th or below	16	24	60	30
	12.31%	18.46%	46.15%	23.08%
Graduate	23	46	71	17
	14.65%	29.30%	45.22%	10.83%
Masters	23	30	29	8
	25.56%	33.33%	32.22%	8.89%
Others	0	1	6	1
	0.00%	12.50%	75.00%	12.50%
Total	**62**	**101**	**166**	**56**
	16.10%	**26.23%**	**43.12%**	**14.55%**
Source: Author's Calculations				

4.3.6 Employment Status of the respondent and the PGSI Category:

Table 4.14 highlights the prevalence rate of problem gambling among the employed, job seeker, self-employed, pensioner, and daily wage earners. Among the different categories, the self-employed respondents have a higher prevalence rate of problem gambling. Among the self-employed respondents, 22.76% of them are categorized as problem gamblers. 10.14% of the respondents who are job seekers are categorized as problem gamblers, while 11.54% of the respondents who are daily wage earners are

categorized as problem gamblers. The prevalence rate of problem gambling among the employed respondents is 9.22%. Although none of the respondents who were pensioners are categorized as problem gamblers, their percentage is the highest among the moderate-risk gamblers, with 75% of the respondents with pensions categorized as moderate-risk gamblers.

Table 4.14 Employment Status of the Respondents and Gambling Behaviour by Risk Categories

Employment Status	Non Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers
Employed	34	46	48	13
	24.11%	32.62%	34.04%	9.22%
Job Seeker	15	26	21	7
	21.74%	37.68%	30.43%	10.14%
Self Employed	11	24	77	33
	7.59%	16.55%	53.10%	22.76%
Pensioner	0	1	3	0
	0.00%	25.00%	75.00%	0.00%
Daily Wage Earner	2	4	17	3
	7.69%	15.38%	65.38%	11.54%
Total	**62**	**101**	**166**	**56**
	16.10%	**26.23%**	**43.12%**	**14.55%**
Source: Author's Calculations				

4.3.7 Monthly Income of the respondent and the PGSI Category:

The severity of problem gambling concerning the income of the respondent is highlighted in Table 4.15. The highest prevalence rate of problem gambling is identified among the respondents with a monthly income of above Rs 40000, with 21.05% of the respondents with a monthly income of above Rs 40,000 categorized as problem gamblers. The prevalence rate of problem gambling is almost identical among the respondents with a monthly income of below Rs 10000 and between Rs 10000-19999.

16.53% of the respondents with a monthly income of Below Rs 10000 are categorized as problem gamblers, whereas 16% of the respondents with a monthly income of Rs 10000-19999 are categorized as problem gamblers. 11.54% of the respondents with a monthly income of Rs 30000-39999 are categorized as problem gamblers. The lowest prevalence rate of problem gambling of 9.57% is identified among the respondents with a monthly income of Rs 20,000-29,999.

Table 4.15 Monthly Income of the respondent and the PGSI Category

Monthly Income	Non Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers
Below 10,000	19	35	47	20
	15.70%	28.93%	38.84%	16.53%
10,000-19,999	18	28	59	20
	14.40%	22.40%	47.20%	16.00%
20,000-29,999	18	27	40	9
	19.15%	28.72%	42.55%	9.57%
30,000-39,999	5	6	12	3
	19.23%	23.08%	46.15%	11.54%
Above 40,000	2	5	8	4
	10.53%	26.32%	42.11%	21.05%
Total	**62**	**101**	**166**	**56**
	16.10%	**26.23%**	**43.12%**	**14.55%**
Source: Author's Calculations				

4.3.8 Test of Hypothesis for Association Between Problem Gambling Severity and the Demographic Variables

The following null hypothesis is tested using a Chi-square statistic to test the significant association between different demographic variables and problem gambling severity among the gamblers in Sikkim:

H_{0c}: There is no significant association of problem gambling severity with the demographic variables.

Table 4.16 highlights the results of the Chi-square analysis for all the demographic variables associated with the study.

Table 4.16 Test of Association Between Different Demographic Variables and the Levels of Problem Gambling Severity

Demographic Variables	Value	Pearson Chi – Square	
		df	Asymptotic Significance
Age	27.038	12	0.008*
Gender	23.683	3	0.000*
Marital Status	20.149	9	0.017*
Educational Qualification	28.314	9	0.001*
Employment Status	50.978	12	0.000*
Monthly Income	6.543	12	0.886
Source: Author's Calculations			

The result of the Chi-square statistics revealed that among the various demographic variable, only the monthly income (0.886) is not significantly associated with problem gambling severity. Age (0.008), Gender (0.000), Educational Qualification (0.001), and Employment Status (0.000) are significantly associated with the problem gambling severity at a 1% level of significance *(p-value < 0.01)*, and the marital status (0.017) is significantly associated with problem gambling severity at a 5% level of significance *(p-value < 0.05)*.

As such, we reject the null hypothesis for testing the association of problem gambling severity with the age, gender, educational qualification, employment status and marital status and conclude that there is an association of problem gambling severity with the age, gender, educational qualification, employment status and marital status of the gamblers.

On the other hand, we failed to reject the null hypothesis for testing the association of problem gambling severity with the categories of the monthly income (*p-value* > 0.05).

Hence we conclude that there is no association of problem gambling severity with the monthly income of the gamblers.

4.4 Gambling Forms and the Problem Gambling

Gamblers gambling in Sikkim has a plethora of options when it comes to gambling, unlike in many other states in India apart from Goa. From state lotteries to online gaming and casinos, gamblers gambling in Sikkim have an option to gamble in any form of gambling. Because of this wide array of legal gambling games that are available at the disposal of gamblers gambling in Sikkim, it is of paramount importance to look into which forms of gambling games are more harmful, and have a significant prevalence rate of problem gambling in Sikkim. Table 4.17 highlights the prevalence rate of problem gambling among the gamblers gambling in different forms of gambling games.

Among the several forms of gambling, the highest prevalence rate of problem gambling is found among the gamblers gambling in Sports betting (50.00%), and casino gambling (50.00%). Among the 213 respondents who participated in online gaming, 20.66% of them are categorized as problem gamblers. Concerning the state lottery, 16.89% of the respondents who had played the state lottery during the past 12 months are categorized as problem gamblers. Tambola (Bingo) had the highest participation in terms of gambling, with 282 respondents having played Tambola(Bingo) within the past 12 months during the time of data collection. However, the prevalence rate of problem gambling is the lowest among the gamblers who had played Tambola (Bingo), with 11.70% of the Tambola gamblers categorized as problem gamblers. Even though playing cards is not a legal form of gambling within the state of Sikkim, a few respondents covered in the survey did mention playing cards as well. Among those

respondents who mentioned about playing the game of cards, 27.78% of them are categorized as problem gamblers.

Table 4.17 Gambling Forms and the level of Problem Gambling Severity

Forms of Gambling	Non-Problem Gamblers	Low Risk Gamblers	Moderate Risk Gamblers	Problem Gamblers	Total
Sikkim State Lottery	11	40	72	25	**148**
	7.43%	27.03%	48.65%	16.89%	**100%**
Tambola (Bingo)	49	89	111	33	**282**
	17.38%	31.56%	39.36%	11.70%	**100%**
Casinos	0	0	4	4	**8**
	0.00%	0.00%	50.00%	50.00%	**100%**
Online Gaming	17	35	117	44	**213**
	7.98%	16.43%	54.93%	20.66%	**100%**
Sports Betting	1	2	6	9	**18**
	5.56%	11.11%	33.33%	50.00%	**100%**
Cards	0	6	7	5	**18**
	0.00%	33.33%	38.89%	27.78%	**100%**
Source: Author's Calculations					

4.4.1 Association Between Gambling Forms and Problem Gambling Severity

A Chi-square statistic has been calculated to test the significance between different forms of gambling and problem gambling severity. Table 4.18 highlights the test of significance between the forms of gambling and problem gambling severity.

The result of the Chi-square statistic indicates all the forms of gambling covered under the study are significantly associated with problem gambling severity. Tambola (0.000), Online gaming (0.000), Sports betting (0.000), and the Sikkim state lottery (0.003) are all significantly associated with problem gambling severity at a 1% level of significance ($p\text{-}value<0.01$). Casino gaming (0.014) is also significantly associated with problem gambling severity, but at a 5% level of significance ($p\text{-}value<0.05$).

Table 4.18 Test of Significance between different gambling forms and the level of problem gambling severity

Forms of Gambling	Value	Pearson Chi – Square	
		df	Asymptotic Significance (2-sided)
Sikkim State Lottery	13.900a	3	.003**
Tambola (Bingo)	21.765a	3	.000**
Casinos	10.609a	3	.014*
Online Gaming	64.668a	3	.000**
Sports Betting	19.689a	3	.000**
Source: Author's Calculations			

4.5 Frequency of Visitation to Gambling Houses and the Prevalence Rate of Problem Gambling Severity

Table 4.19 highlights the frequency of gambling engagement among the gamblers in Sikkim.

Table 4.19 Frequency of Gambling Engagement Among the Gamblers in Sikkim

Frequency of Gambling	Frequency	Percent	Valid Percent	Cumulative Percent
Once in a month	68	17.66%	17.66%	17.66%
2-4 times a month	98	25.45%	25.45%	43.12%
More than 4 times a month	73	18.96%	18.96%	62.08%
Occasionally	146	37.92%	37.92%	100%
Total	**385**	**100%**	**100%**	
Source: Author's Calculations				

Among the respondents covered in the survey, 37.92% of the respondents are engaged in gambling activities occasionally. 25.45% of the respondents covered in the survey are gamblers who often participate in gambling activities at least 2 to 4 times in a month. Among the respondents covered in the survey, 18.96% of the respondents are regular gamblers who engage in gambling activities more than four times a month. A further

17.66% of the respondents covered in the survey engage in gambling activities at least once a month.

A prevalence rate of problem gambling is identified among the gamblers with respect to their frequency of gambling behaviour. Table 4.20 highlights the prevalence rate of problem gambling for the frequency of gambling plays among the gamblers gambling in Sikkim.

Table 4.20 Gambling Frequency Among the Gamblers in Sikkim and the Levels of Problem Gambling Severity

Frequency of Gambling	Non-Problem Gambler		Low Risk Gambler		Moderate Risk Gambler		Problem Gambler	
	N	%	N	%	N	%	N	%
Once in a Month	6	8.82%	20	29.41%	33	48.53%	9	13.24%
2-4 times a month	12	12.24%	23	23.47%	58	59.18%	5	5.10%
More than 4 times a month	6	8.22%	2	2.74%	29	39.73%	36	49.32%
Occasionally	38	26.03%	56	38.36%	46	31.51%	6	4.11%
Source: Author's Calculations								

Gamblers gambling more than four times a month have the highest prevalence rate of problem gambling among gamblers in Sikkim. The prevalence rate among those gambling more than four times in a month is 49.32%. On the other hand, those gamblers who only gamble occasionally have the lowest prevalence rate of problem gambling, with only 4.11% of the occasional gamblers categorized as problem gamblers. Gamblers gambling only once a month have a prevalence rate of 13.24%. The prevalence rate of problem gambling among the gamblers who were gambling 2-4 times in a month is 5.10%.

Concerning the moderate-risk problem gambling category, gamblers gambling 2-4 times a month have the highest prevalence rate moderate-risk gambling, with 59.18%

of the respondents categorized as moderate-risk gamblers. 48.53% of the respondents who participated in gambling once a month are categorized as moderate-risk gamblers. Among the respondents who gambled more than four times a month, 39.73% of them are categorized as moderate-risk gamblers. Similar to the problem gambling category, those gamblers who were gambling occasionally have the lowest prevalence rate of moderate-gambling, with 31.51% of the occasional gamblers categorized as moderate-risk gamblers.

4.6 Gambling Motives and the Problem Gambling Severity

Gambling motive plays a significant role in predicting the levels of problem gambling severity among the gamblers. As such, it becomes prominent to identify the gambling motives that are significant in predicting the level of problem gambling severity.

The result of the factor analysis revealed five different motives for gambling among the gamblers in Sikkim. The five distinct motives extracted through factor analysis are avoidance motive, social motive, amusement motive, excitement motive, and financial motive. Among the five different motives for gambling, avoidance, social, amusement and excitement are grouped to form the non-financial motives for gambling.

A hypothesis has been framed to identify the significant relationship between the gambling motives and problem gambling severity. The following paragraph will discuss in detail the test of the hypothesis and identify the significant relationship between gambling motives and problem gambling severity among the gamblers in Sikkim.

4.6.1 Testing of Hypothesis for identifying the relationship between the Non-Financial Motives and Financial Motives in Explaining Problem Gambling Severity

The following null hypothesis to identify the significant relationship between the non-financial motives and financial motives in explaining problem gambling severity has been tested using the Karl Pearson's coefficient of correlation.

H_{0d}: There is no significant relationship of the Non-financial motives and the Financial motives with the problem gambling severity.

Pearson coefficient has been calculated by taking the mean score of all the five gambling motives and the mean score of the problem gambling severity. Table 4.21 highlights the result of the Pearson coefficient between the five gambling motives and the problem gambling severity.

All five factors individually have a significant relationship with problem gambling severity. Pearson coefficient of the non-financial gambling motives i.e., avoidance motive (r = 0.390), social motive (r = 0.240), amusement motive (r = 0.208), and excitement motive (r = 0.161) are significant with problem gambling severity at a 1% level of significance (p-*value* < 0.01). On the other hand, the Pearson coefficient between financial motive (r = 0.117) and problem gambling severity is significant at a 5% level of significance (p-*value* < 0.05).

Table 4.21 Correlation Between Five Gambling Motivation Factors and Problem Gambling Severity

		PGSI Mean Score
Avoidance Motive Mean Score	Pearson Correlation	.390***
	Sig. (2-tailed)	.000
	N	385
Social Motive Mean Score	Pearson Correlation	.240***
	Sig. (2-tailed)	.000
	N	385
Amusement Motive Mean Score	Pearson Correlation	.208**
	Sig. (2-tailed)	.000
	N	385
Financial Motive Mean Score	Pearson Correlation	.117**
	Sig. (2-tailed)	.021
	N	385
Excitement Motive Mean Score	Pearson Correlation	.161***
	Sig. (2-tailed)	.002
	N	385
***. Correlation is significant at the 0.01 level (2-tailed).		
**. Correlation is significant at the 0.05 level (2-tailed).		
Source: Author's Calculations		

The result of the correlations between five individual gambling motive factors and the problem gambling severity highlighted that all the five factors individually have a significant relationship with the problem gambling severity. Another Pearson coefficient is calculated between the non-financial gambling motives and problem gambling severity to identify if the non-financial gambling together has a significant relationship with problem gambling severity. The Pearson coefficient is calculated by taking the mean score of non-financial gambling motives problem gambling severity.

Table 4.22 Correlation Between the Non-Financial Gambling Motives and the Financial Gambling Motives and Problem Gambling Severity

		PGSI Mean Score
Non-Financial Mean Score	Pearson Correlation	.365***
	Sig. (2-tailed)	.000
	N	385
Financial Mean Score	Pearson Correlation	.117**
	Sig. (2-tailed)	0.021
	N	385
***. Correlation is significant at the 0.01 level (2-tailed). **. Correlation is significant at the 0.05 level (2-tailed).		
Source: Author's Calculations		

Table 4.22 highlights the result of the Pearson coefficient between the non-financial gambling motives and financial gambling motives and problem gambling severity. Pearson's coefficient between non-financial gambling motives ($r = 0.365$) and problem gambling severity is significant at a 1% level of significance ($p\text{-}value < 0.01$). Whereas, the Pearson's coefficient between financial gambling motives ($r = 0.117$) and problem gambling severity is significant at a 5% level of significance ($p\text{-}value < 0.05$) The result indicates that both the non-financial gambling motives and the financial gambling motives have a significant relationship with problem gambling severity among the gamblers in Sikkim.

Based upon the results of the Pearson coefficient of correlation, both the non-financial motive and the financial motive has a significant relationship with problem gambling severity. Therefore, we reject the null hypothesis and conclude that there is a significant relationship of the non-financial gambling motives and financial gambling motives with problem gambling severity among the gamblers in Sikkim.

4.6.2 Testing of Hypothesis Between Gambling Motives and the Level of Problem Gambling Severity

The following null hypothesis to identify the significant relationship between gambling motives and gambling severity has been tested using the Karl Pearson coefficient correlation.

H_{0e}: All the identified financial and non-financial gambling motives are not significant in explaining the problem gambling severity.

Table 4.23 highlights the result of Pearson correlation between gambling motives and problem gambling severity among the gamblers in Sikkim. Pearson coefficient is calculated by taking the mean score of the gambling motives and problem gambling severity among the gamblers in Sikkim. Pearson correlation (r = 0.369) between the gambling motives and problem gambling severity is significant at a 1% level of significance (p-*value* < 0.01). The result of the Pearson correlation coefficient indicates that there exists a significant relationship between gambling motives and problem gambling severity. As such, we reject the null hypothesis and conclude that there is a significant relationship between gambling motives and problem gambling severity.

Table 4.23 Correlation Between Gambling Motives and Problem Gambling Severity

		Gambling Motives Mean Score	PGSI Mean
Gambling Motives Mean Score	Pearson Correlation	1	.369***
	Sig. (2-tailed)		.000
	N	385	385
PGSI Mean Score	Pearson Correlation	.369***	1
	Sig. (2-tailed)	.000	
	N	385	385
***. Correlation is significant at the 0.01 level (2-tailed).			
Source: Author's Calculations			

4.7 Exploring Gambling Behaviour

The behavioural traits among the gamblers in Sikkim have been identified using the item scale by Tao et al. (2011). Tao et al. (2011) identified six different gambling behaviour traits. They are Impaired Control, Gambling Involvement, Arousal Reaction, Superstitious Behaviour (for winning), Controlled Gambling, and Casino Exploration.

4.7.1 Confirmatory Factor Analysis of the 20 Item Gambling Behaviour Scale

A Confirmatory Factor Analysis was performed on all the original 20 items of the gambling behaviour item scale by Tao et al. (2011) to test the model fit. Table 4.24 highlights the result of the model fit indices of the gambling behaviour item scale by Tao et al. (2011) among the gamblers in Sikkim.

The results derived from the Model Fit Indices for the 20 item gambling behaviour scale revealed a poor fit to the data. The CMIN/DF value of 6.641, Comparative Fit Index (CFI) value of 0.775, Goodness of Fit (GFI) value of 0.768, and Root Mean Square Error of Approximation (RMSEA) value of 0.121, all represents a poor fit to the data.

Table 4.24 Model Fit Indices for the 20-Item Gambling Behaviour Scale

Model	NPAR	CMIN	DF	P	CMIN /DF	CFI	GFI	RMSEA
Default model	55	1029.410	155	.000	6.641	0.775	0.768	0.121
Saturated model	210	.000	0			1.000	1.000	
Independence model	20	4073.632	190	.000	21.440	.000	0.343	0.231
Source: Author's Calculations								

The result of the poor fit indices highlights the need for carrying out an Exploratory Factor Analysis (EFA) to identify the gambling behaviour traits among the gamblers gambling in Sikkim. An Exploratory Factor Analysis (EFA) has been conducted on all

the original items of the gambling behaviour item scale by Tao et al. (2011). The result of the EFA is discussed in detail in the following sections.

4.7.2 Exploratory Factor Analysis

An Exploratory Factor Analysis was performed with 20 items of the Gambling Behaviour Scale adapted from the scale developed by Tao et al. (2011) to identify the behavioural trends among the gamblers in Sikkim. The factor analysis has been performed by adopting all the original 20 gambling behaviour items by Tao et al. (2011). Each item is ranked on a four-point Likert scale with the categories ranging from never (1) to always (4). Principal Component Analysis with Varimax has been used to identify the behavioural factors. All the items with communalities of less than 0.40 and the items with a factor loading of less than 0.40 have been eliminated for constructing the factor structure for gambling behaviour.

Table 4.25 highlights the KMO measure for sampling adequacy and Bartlett's Test of Sphericity. The KMO measure of 0.747 verified the sampling adequacy for performing the PCA. Additionally, the KMO values of all the individual items were higher than 0.513, which is above the acceptable limit of 0.50 (Field, 2009, pp. 627-681). The Bartlett's test of Sphericity $x^2(105) = 2768.307$, $p < 0.000$, specified that the correlations between the 13 items were high enough for performing the PCA.

Table 4.25 KMO and Bartlett's Test of Sphericity for Gambling Behaviour Scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.747
Bartlett's Test of Sphericity	Approx. Chi-Square	2768.307
	df	105
	Sig.	.000
Source: Author's Calculations		

Table 4.26 highlights the factor loadings, eigenvalues, % of the variance, and Cronbach alpha for each factor after rotation for the items of gambling behaviour. The result of

the factor analysis resulted in the extraction of five factors, with all the factors having eigenvalues of more than 1, which is above the Kaiser criterion of 1 (Field, 2009, pp. 627-681). All the five factors together explained a cumulative variance of 78.21%, and had an internal measure of consistency of 0.718.

Table 4.26 Summary of Exploratory Factor Analysis Results for Gambling Behaviour

	Rotated Factor Loadings				
	1	2	3	4	5
Factor 1: Impaired Control					
1. Borrow money for gambling	.902				
2. Deteriorating relationship with family	.896				
3. Gamble till last rupee is gone	.814				
4. Gamble regularly	.593				
5. Gamble always	.509				
Factor 2: Arousal Reaction					
1. Gamble when happy		.844			
2. Vigorous reaction when winning		.806			
Factor 3: Exploration					
1. Gamble while resting / eating / shopping			.945		
2. Gamble wandering around			.857		
Factor 4: Superstitious Behaviour					
1. Special behavioural ritual				.943	
2. Collect charms				.873	
Factor 5: Controlled Gambling					
1. Control over bet size and time spent					-.917
2. Place small size bet					-.914
Variance	**25.49**	**14.40**	**13.19**	**13.00**	**12.16**
Eigen Value	**3.31**	**1.87**	**1.72**	**1.69**	**1.58**
Source: Author's Calculations					

The first factor included five items and explained behavioural traits related to impaired control and explained 25.49% of the total variance. The remaining four factors all had two items each that explained the behavioural traits among the gamblers in Sikkim. The second factor explained the behavioural trait related to arousal reaction and explained

14.40% of the total variance. The third factor explained the behavioural trait related to exploration and explained 13.19% of the total variance. The fourth factor explained the behavioural trait related to superstitious behaviour and explained 13% of the total variance. Finally, the fifth factor which had both the items with a negative factor loading, explained the behavioural trait related to controlled gambling and explained 12.16% of the total variance.

4.7.3 Confirmatory Factor Analysis of the 13 Item Gambling Behaviour Scale

A Confirmatory Factor Analysis (CFA) was performed with the reduced factor structure containing 13 subscales and five gambling behaviour factors identified through Exploratory Factor Analysis. The factor structure model is shown in *Figure 4.5* and the model fit indices for the 13 items gambling behaviour scale is highlighted in Table 4.27.

Table 4.27 Model Fit Indices of the 13-Item Gambling Behaviour Scale

Model	NPAR	CMIN	DF	P	CMIN /DF	CFI	GFI	RMSEA
Default model	36	423.246	55	.000	7.695	.845	.848	.132
Saturated model	91	.000	0			1.000	1.000	
Independence model	13	2458.648	78	.000	31.521	.000	.470	.282
Source: Author's Calculations								

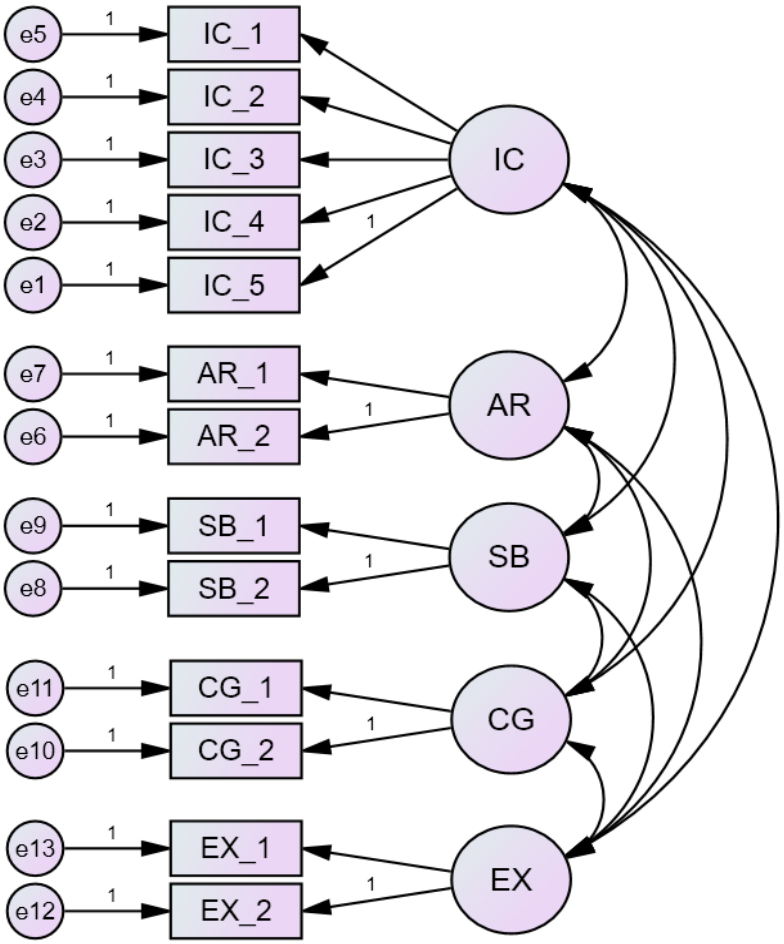

Figure 4.5 Factorial Structure Model of the 13-Item Gambling Behaviour Scale

The result of the model fit indices of the 13 item gambling behaviour scale resulted in a poor fit to the data. It was observed that items 4 and 5 of the impaired control factor had a high covariance. As such the model was tested again by adding a covariance between item 4 and item 5. *Figure 4.6* shows the factor structure model after adding a covariance between items 4 and 5 of the impaired control factor.

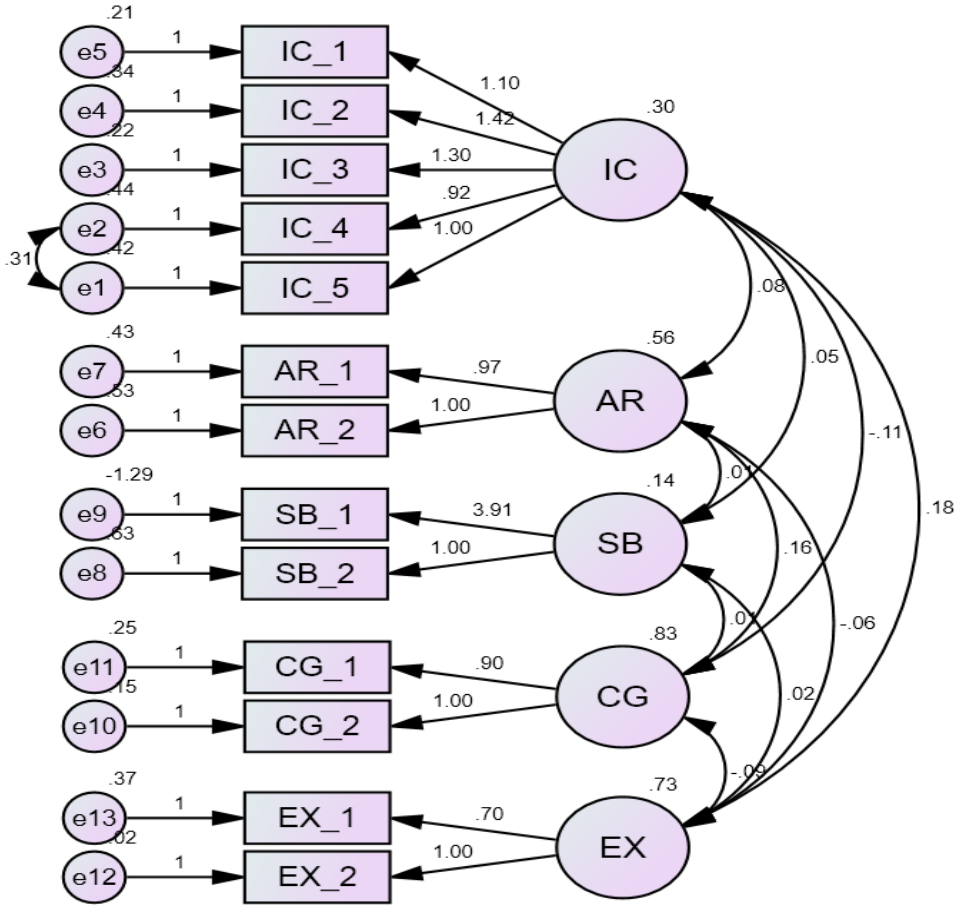

Figure 4.6 Factorial Structure Model of the 13-Item Gambling Behaviour Scale After Adding Covariance Between IC_4 and IC_5

Table 4.28 highlights the result of the model fit indices of the 13 item gambling behaviour scale after adding a covariance between item IC_4 and IC_5 of the impaired control. The result after adding the covariance between IC_4 and IC_5 hugely improved the model fit indices for the 13 item gambling behaviour scale.

The Goodness of Fit (GFI) value of 0.932 is above the acceptable limit of .90. While, the Comparative Fit Index (CFI) value of 0.945 is close to the acceptable value of .95 and Root Mean Square Error of Approximation (RMSEA) value of .079 is also < 0.08. Based on the result of the model fit indices it can be concluded that the model fit indices of the 13 item gambling behaviour scale represents a better fit to the data.

Table 4.28 Model Fit Indices of the 13 Item Gambling Behaviour Scale After Adding Covariance

Model	NPAR	CMIN	DF	P	CMIN /DF	CFI	GFI	RMSEA
Default model	37	184.740	54	.000	3.421	.945	.932	.079
Saturated model	91	.000	0			1.000	1.000	
Independence model	13	2458.648	78	.000	31.521	.000	.470	.282
Source: Author's Calculations								

4.8 Problem Gambling Severity and Gambling Behaviour

The result of the Exploratory Factor Analysis resulted in the identification of the five gambling behaviour traits among the gamblers in Sikkim. In the present study, it has been found that gambling motives have a significant relation with the problem gambling severity. So it is also significant to identify the relationship between the problem gambling severity and gambling behaviour.

A hypothesis has been framed to test the relationship between problem gambling severity and gambling behaviour. Based on the result of the significant relationship between the problem gambling severity and gambling behaviour, a regression analysis will also be conducted to identify among the five identified gambling behaviour traits the behavioural trait significantly predicted by problem gambling severity.

4.8.1 Testing of Hypothesis for Identifying Significant Relationship Between Problem Gambling Severity and Gambling Behaviour

The following null hypothesis to identify the significant relationship between problem gambling severity and gambling behaviour has been tested using the Karl Pearson's coefficient of correlation.

H_{0f}: There is no significant relationship between problem gambling severity and gambling behaviour.

Before identifying the significant relationship between problem gambling severity and gambling behaviour among the gamblers in Sikkim, a Pearson coefficient correlation is calculated between the five identified gambling behaviour traits and problem gambling severity. Pearson coefficient is calculated by taking the mean score of all the five gambling behaviour traits and the mean score of the problem gambling severity. Table 4.29 highlights the result of the Pearson coefficient correlation between gambling behaviour trait and problem gambling severity.

Table 4.29 Correlation Between Five Gambling Behaviour Traits and Problem Gambling Severity

		PGSI Mean Score
Impaired Control Mean	Pearson Correlation	.563***
	Sig. (2-tailed)	.000
	N	385
Arousal Reaction Mean	Pearson Correlation	.049
	Sig. (2-tailed)	.339
	N	385
Superstitious Behaviour Mean	Pearson Correlation	.255***
	Sig. (2-tailed)	.000
	N	385
Controlled Gambling Mean	Pearson Correlation	-.295***
	Sig. (2-tailed)	.000
	N	385
Exploration Mean	Pearson Correlation	.287***
	Sig. (2-tailed)	.000
	N	385
***Correlation is significant at the 0.01 level (2-tailed).		
Source: Author's Calculations		

Among the five identified gambling behaviour traits among the gamblers in Sikkim, Impaired Control, Controlled Gambling, Superstitious Behaviour and Exploration have a significant relationship with problem gambling severity. Pearson coefficient between Impaired Control (r = .563), Superstitious Behaviour (r = .255), Controlled Gambling (r = -.295), and Exploration (r = .287) are significant with problem gambling severity at a 1% level of significance (p-*value* < 0.01). Only the gambling behaviour trait Arousal Reaction (r = .049) is not significant with problem gambling severity among the gamblers in Sikkim.

The result of the Pearson coefficient correlation between the five gambling behaviour traits and problem gambling severity found that among the five behaviour traits, Impaired Control, Controlled Gambling, Superstitious Behaviour and Exploration have a significant relationship with problem gambling severity. Another Pearson coefficient correlation is calculated to test the significant relationship between the gambling behaviour and problem gambling severity by taking the mean score of the gambling behaviour traits and the mean score of problem gambling severity. The result of the Pearson coefficient correlation between gambling behaviour traits and problem gambling severity is highlighted in Table 4.30.

Table 4.30 Correlation Between Gambling Behaviour and Problem Gambling Severity

		Gambling Behaviour Mean	PGSI Mean Score
Gambling Behaviour Mean	Pearson Correlation	1	.284***
	Sig. (2-tailed)		.000
	N	385	385
PGSI Mean Score	Pearson Correlation	.284***	1
	Sig. (2-tailed)	.000	
	N	385	385
***. Correlation is significant at the 0.01 level (2-tailed).			
Source: Author's Calculations			

The result of the Pearson coefficient highlights that there is a significant relationship between gambling behaviour and problem gambling severity among the gamblers in Sikkim. Pearson correlation (r = .284) between gambling behaviour and problem gambling severity is significant at a 1% level of significance ($p\text{-}value < 0.01$). Therefore, based on the result of the Pearson coefficient, we reject the null hypothesis and conclude that there is a significant relationship between problem gambling severity and gambling behaviour.

4.9 Conceptual Model Test

In the present study, the relationship between the gambling motives, problem gambling severity, and gambling behaviour among the gamblers have been studied. Previous studies have found that gambling motives significantly predicts the level of problem gambling severity among the gamblers. Based on that premise, the present study tries to identify the significant relationship between gambling motives and problem gambling severity and between problem gambling severity and gambling behaviour among the gamblers in Sikkim. *Figure 4.7* highlights the conceptual model tested for identifying the relationship between the identified gambling motives, problem gambling severity and gambling behaviour among the gamblers in Sikkim. The model was tested using the item scale of the 19-item Five-Factor Gambling Motivation Model identified through the EFA and CFA, the mean score of the problem gambling severity and the item scale of the 13-item Gambling Behaviour Scale identified through the EFA and CFA.

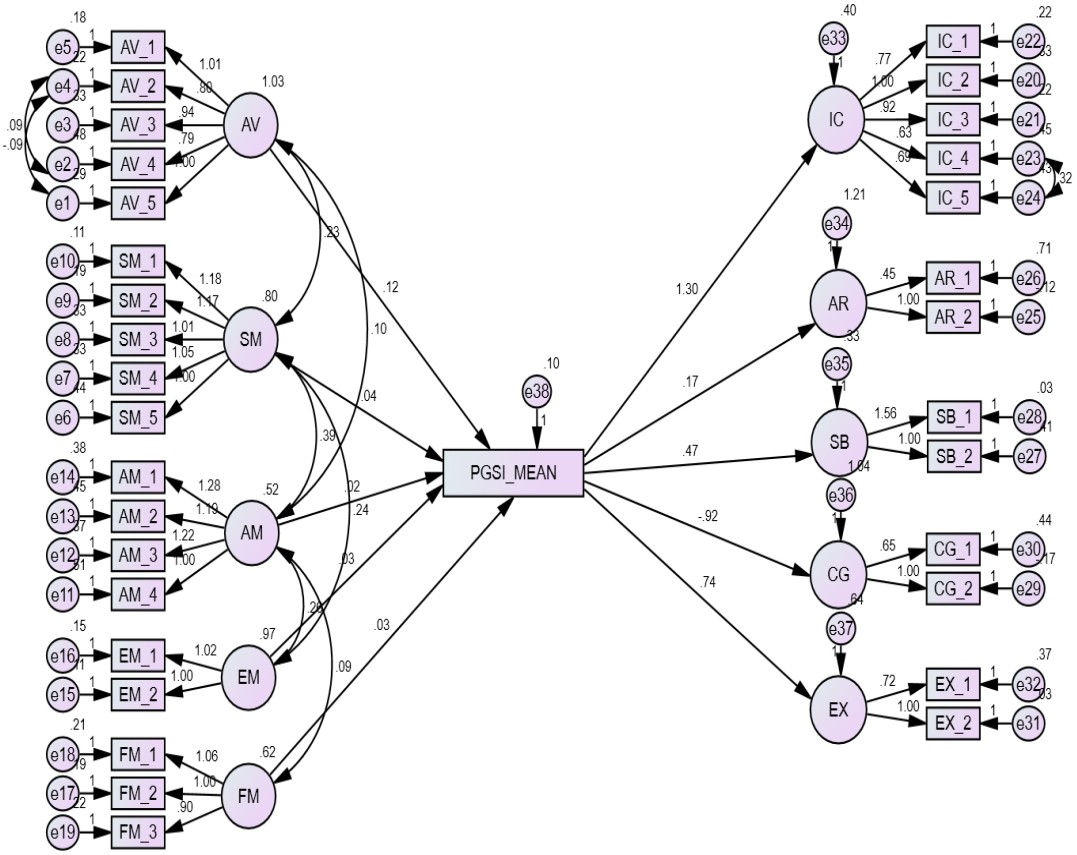

Figure 4.7Testing Conceptual Model

Past studies on gambling motives and severity have indicated that gambling motives play a significant role in predicting the level of problem gambling severity. The present study also found that the gambling motive does have a significant role in predicting problem gambling severity among the gamblers. Among the identified gambling motives, the avoidance and the excitement motives significantly predicted problem gambling severity among the gamblers in Sikkim. The avoidance motive significantly predicted problem gambling severity among the at gamblers in Sikkim at 1% level of significance (*p-value* < 0.01), and the excitement motive significantly predicted problem gambling severity among the at gamblers in Sikkim at 10% level of significance (*p-value* < 0.10).

Table 4.31Regression Weights Between Gambling Motives and PGSI and Between PGSI and Gambling Behaviour

	Estimate	S.E.	C.R.	P
PGSI Mean ← Avoidance Motive	.123	.018	7.005	.000***
PGSI Mean ← Social Motive	.041	.026	1.611	.107
PGSI Mean ← Amusement Motive	.024	.034	.719	.472
PGSI Mean← Excitement Motive	.031	.019	1.662	.097*
PGSI Mean ← Financial Motive	.030	.023	1.346	.178
Impaired Control ← PGSI Mean	1.296	.111	11.695	.000***
Arousal Reaction ← PGSI Mean	.167	.150	1.113	.266
Superstitious Behaviour ← PGSI Mean	.465	.124	3.764	.000***
Controlled Gambling ← PGSI Mean	-.919	.134	-6.867	.000***
Exploration ← PGSI Mean	.737	.118	6.260	.000***
Source: Author's Calculations				

Concerning the gambling behaviour predicted by problem gambling severity among the gamblers in Sikkim, problem gambling severity significantly predicted the Impaired control, superstitious behaviour, controlled gambling and exploration behaviour traits. problem gambling severity significantly predicted the Impaired control, superstitious behaviour, controlled gambling and exploration behaviour traits at a 1% level of significance ($p\text{-}value < 0.01$).

4.2 Revenue Generated from the Legalised Gambling in Sikkim

The government of Sikkim reformed the gambling laws within the state to generate and raise revenues for promoting various developmental activities in Sikkim. As a result of such gambling reforms, the government of Sikkim has been able to earn a substantial amount of revenue over the years from the gambling industry. The significant gambling reforms that legalised and regulated the casino and online gambling along with state lottery in Sikkim has helped the government of Sikkim in earning substantial revenue from its legalised gambling.

The data related to the amount of revenue generated from Sikkim state Lotteries, Casino and Online gaming has been collected from the Directorate of Sikkim State Lotteries, Finance, Revenue, and Expenditure Department, Government of Sikkim. The following section will present a detailed analysis of the amount of revenue generated from Sikkim State Lotteries, Casino, and Online gaming.

4.2.1 Amount of Revenue Generated from Sikkim State Lotteries

Since the first lottery scheme was introduced in Sikkim in 1978 by the government of Sikkim, the government has been organizing the lottery to generate and raise revenue for investment in various developmental activities within the state. Sikkim state lotteries are organized for a total of 24 draws per day, and a total of 6 bumper draws in a calendar year, adhering to the rules outlined in the Lottery Regulation Rule, 2010. Sikkim state lotteries are organized in both paper-based and online forms. Table 4.32 highlights the total amount of revenue generated from the Sikkim state lotteries during the period between 2011-12 and 2017-18.

The legal lottery in Sikkim is generating a large sum of revenue for the state government. During the period of analysis (between 2011-12 and 2017-18), the government of Sikkim generated total revenue of Rs 2,274 million. Revenue generated from the Sikkim state lottery has increased from Rs 286.3 million in 2011-12 to Rs 419.8 million in 2017-18. Only during the years 2014-15 (Rs 313.7 Million) and 2015-16 (Rs 248.1 Million), the revenue generated from Sikkim state lottery has declined from the previous year, with a sharp decline in revenue observed during 2015-16. Paper lottery in Sikkim was suspended from July 2015 till June 2016, due to which the revenue generated during 2015-16 witnessed a sharp decline in comparison to the previous year. The revenue generated from the lotteries once again started to increase following the period of suspension of the paper lotteries in Sikkim.

Table 4.32 Amount of Revenue Generated from Sikkim State Lotteries during the period between 2011-12 and 2017-18 (Figures in Rs Million)

Sl No	Period	Funds Generated
1	2011-12	286.3
2	2012-13	317.5
3	2013-14	328.2
4	2014-15	313.7
5	2015-16	248.1
6	2016-17	360.4
7	2017-18	419.8
	Total	**2,274**
Source: Directorate of Sikkim State Lotteries, Finance, Revenue & Expenditure Department, Government of Sikkim		

4.2.2 Amount of Revenue Generated from Casinos in Sikkim

Sikkim is only the second state in India after Goa, which promotes and regulates casino gaming in India. Presently three casinos are operational in Sikkim, Casino Sikkim, Casino Mahjong, and Delta Crop. Table 4.33 highlights the amount of revenue generated from the casinos in Sikkim during the period between 2011-12 and 2018-19.

During the period between 2011-12 and 2018-19, the government of Sikkim has raised total revenue of Rs 417.02 Million from the three casinos that are operational in Sikkim. Of the three casinos, the government of Sikkim has raised a maximum amount of revenue from Casino Mahjong (Rs 216.26 Million). Although Delta crop started its casino operation in Sikkim much later than Casino Sikkim, Delta crop has contributed the second-highest amount of revenue towards the state government (Rs 102.69 Million). The contribution of the Delta crop is very significant because the amount generated by Delta crop towards the state government has come during its three years of operation (between 2016-17 and 2018-19. Casino Sikkim made the least contribution

among the three casinos (Rs 98.07 Million) towards the state government during the period of its operation between 2011-12 and 2018-19.

Table 4.33 Amount of Revenue Generated from the Casinos in Sikkim During the Period between 2011-12 and 2018-19 (Figures in Rs Million)

Sl No	Period	Casino Mahjong	Royal Sikkim	Deltin Denzong	Total
1	2011-12	53.35	4.25	-	57.60
2	2012-13	8.80	4.25	-	13.05
3	2013-14	12.70	23.99	-	36.69
4	2014-15	25.15	7.35	-	32.50
5	2015-16	41.15	11.30	-	52.45
6	2016-17	28.07	15.81	52.86	96.74
7	2017-18	26.78	14.16	20.50	61.44
8	2018-19	20.27	16.96	29.33	66.56
Total		**216.26**	**98.07**	**102.69**	**417.02**

Source: Directorate of Sikkim State Lotteries, Finance, Revenue & Expenditure Department, Government of Sikkim.

The yearly contribution of the three casinos towards the state government has grown from Rs 57.60 Million in 2011-12 to Rs 66.56 Million in 2018-19. However, Rs 57.60 Million contributed in 2011-12 came from two casinos, whereas Rs 66.56 Million contributed in 2018-19 originated from three casinos. The government of Sikkim generated the highest revenue from the casinos in 2016-17 (Rs, 96.74 Million), whereas, the lowest revenue was generated during 2012-13 (Rs 13.05 Million).

4.2.3 Amount of Revenue Generated from Online Gaming in Sikkim

Sikkim holds the distinction of being the first state in India to legalise online gaming. The enactment of The Sikkim Online Gaming (Regulation) Act 2008 paved the way for the introduction of Online gaming in Sikkim. In addition to the revenue generated from lottery and casino gambling, the government of Sikkim began generating revenue

through Online gaming from 2015-16. Table 4.34 highlights the amount of revenue generated from Sikkim from the period between 2015-16 and 2018-19.

The data related to the revenue generated from online gaming in Sikkim is available from 2015-16, the year during which the government of Sikkim introduced Online gaming. Golden Gaming and EGT Entertainment are the two ventures which operate online gaming in Sikkim. During four years (2015-16 and 2018-19), the government of Sikkim has been able to generate a total revenue of 260.72 Million. Although the revenue generated from online gaming almost tripled from 2015-16 (Rs 34.84 Million) to 2016-17 (Rs 99.90 Million), the revenue generated has witnessed a downfall over the next two years.

Table 4.34 Amount of Revenue Generated from Online Gaming in Sikkim from 2015-16 to 2018-19 (Rs in Million)

Sl No	Period	Golden Gaming International	EGT Entertainment	Total
1	2015-16	15.56	19.28	34.84
2	2016-17	50.00	49.90	99.90
3	2017-18	50.00	23.42	73.42
4	2018-19	41.67	10.89	52.56
	Total	**157.23**	**103.49**	**260.72**

Source: Directorate of Sikkim State Lotteries, Finance, Revenue & Expenditure Department, Government of Sikkim.

Of the two ventures, the government of Sikkim has generated higher revenue from Golden Gaming (Rs 157.23 Million) than EGT Entertainment (Rs 103.49 Million) during the period of analysis. EGT entertainment has witnessed a sharp decline in the amount of revenue during 2017-18 (Rs 23.42 Million) and 2018-19 (Rs 10.89 Million).

Gambling is one of the most popular forms of leisure activity that people in almost every society engages in one form or the other. Regarded as the second oldest

profession in the world, the archaeological findings across different civilizations around the globe suggest that gambling has been in existence throughout the centuries.

However, the engagement in gambling activities among the people has many different adverse social and economic impacts. The social and economic effects of excessive gambling not only affect the individual gamblers but also affects the people and the family members living close to them and the society at large. As such, gambling impact studies are pivotal, as it helps in identifying and evaluating the gambling reforms existing within society and help to find out both the negative impact and the benefits derived from gambling.

The present study is the first empirical study conducted in the state of Sikkim to identify the gambling motives, prevalence rate of problem gambling and the gambling behaviour among the gamblers in Sikkim. Sikkim being only the second state in India after Goa, where almost every forms of gambling is legal, is an ideal state for performing such studies.

Among the few studies that are conducted to identify the prevalence rate of problem gambling in India, *the prevalence rate of problem gambling is the highest among the gamblers gambling in Sikkim. The prevalence rate of 14.55% is the highest recorded prevalence rate of problem gambling that has ever been recorded in India*. This could be due to the easy accessibility of the gambling games among the gamblers gambling in Sikkim. But it is important to note that in the present study, the sample consists of gamblers who had participated in at least one form of gambling in the past 12 months during the period of data collection.

Concerning the demographic profile of the problem gamblers in Sikkim, *the prevalence rate of problem gambling is found high among the male gamblers*. *Problem gamblers*

are more likely to be within the age group of 35-44 years, followed by 25-34 years. They are more likely to be married and single rather than divorced or widower/widow. Among the gamblers in Sikkim, *problem gambling is more likely to be among the gamblers who are self-employed and those gamblers who have an educational qualification of 12th or below.*

Concerning the economic returns of the legalised gambling in Sikkim, the government of Sikkim has been generating a large sum of revenue from its gambling industry. In a state like Sikkim, where the key sectors are agriculture and tourism, the development of the gambling industry has helped the government of Sikkim to boost its economy. The government of Sikkim during the period between 2011-12 and 2017-18 have generated Rs 2,274 Million from its legalised state lottery. During the period between 2011-12 and 2018-19, the government of Sikkim generated a sum of Rs 417.02 Million from its Casino industry. While online gaming in Sikkim stated from 2015-16, the government of Sikkim generated a sum of Rs 260.72 Million during the period between 2015-16 and 2018-19 from online gaming. Looking at the amount of revenue generated from the legalised gambling in Sikkim, the economic returns to the state has been immense.

The result of this study confirms the presence of problem gambling among the gamblers in Sikkim. As such the government should play its role in intervening and controlling the growth of prevalence rate of problem gambling in the state. The government should intervene and come up with a public health approach that will help reduce gambling-related harm.

To prevent gambling-related harms, George et al. (2017) have proposed a three-level prevention strategy consisting of primary, secondary, and tertiary levels of prevention. The approach proposed by George et al. (2017) are as follows:

1. **Primary prevention measure:** In this level, the main aim is to target all the gamblers and non-gamblers together and help prevent gambling from becoming a problem. Gambling can be prevented from becoming a problem by raising awareness about gambling-related harms, limiting the availability of gambling opportunities, restricting and limiting promotions and advertisement of gambling products, and through legislative and regulatory frameworks, where risk factors including low-income groups, unemployment, age, and mental health problems are identified and addressed.
2. **Secondary Prevention Measure:** the secondary prevention measure includes the identification of the at-risk and problem gamblers who are reluctant to speak out about their gambling problems. According to George et al. (2017), reducing the size of the prize money and attractiveness of gambling machines can help gamblers to reduce their gambling habits. Also, giving training to the staff working in gambling houses and the health care workers can assist in identifying early signs of problem gambling among the gamblers.
3. **Tertiary Prevention Measure:** Tertiary prevention measure is for those gamblers and the family members and close ones who are experiencing harm from gambling habits of the gamblers. Providing psychological and cognitive behaviour therapy can help prevent gambling-related harms among the gamblers and their family members.

An approach similar to the one provided by George et al. (2017) can be adopted by the government of Sikkim in dealing with the issues of problem gambling. However,

designing such an approach towards dealing with the issue of problem gambling and gambling-related harms is a challenge and requires further studies and planning on the matters related to identifying problem gambling and gambling-related harms.

In retrospect, the government of Sikkim, through the amendment of Sikkim Online Gaming (Regulation) Rules 2009, has already prohibited the entry of the local Sikkimese people inside of the Gaming zones in Sikkim in 2018. The prohibition of the local people inside the gaming zones will help in minimizing the problem of gambling among the gamblers in Sikkim. However, the local people in Sikkim still have access to online forms of gambling, notably through small online gaming houses, purchase of lottery tickets, and gambling during the festive fairs organized in Sikkim. As such, easy accessibility to gambling does pose a threat to an increase in the prevalence rate of problem gambling in Sikkim and a subsequent rise in gambling-related harms among the gamblers. As such, constituting and developing an approach to deal with the increase in the prevalence of problem gambling is a challenge in Sikkim and needs attention before the problem manifests and reaches beyond everyone's control.

CHAPTER 5. FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 Findings of the Study

Some of the findings of the present study are as follows:

1. The result of the Confirmatory Factor Analysis identified five different gambling motives among the gamblers gambling in Sikkim, which is similar to gambling motives identified by Lee et al. (2007). The five identified gambling motives are Avoidance, Social, Amusement, Financial and Excitement Motives.
2. The 19 items five factor model was more appropriate in capturing the gambling motives of gamblers in Sikkim than the 35-items as proposed by Lee et al. (2007).
3. The prevalence rate of problem gambling of 14.55% identified among the gamblers gambling in Sikkim is the highest prevalence rate of problem gambling ever recorded in India. A higher prevalence of problem gambling may be because the sample consisted of only the gamblers who were actively participating in some forms of gambling, and many of the gamblers do have easy accessibility to legal gambling in Sikkim. However, the prevalence rate of 14.55% is still high, and efforts are required to control the further growth of problem gambling in Sikkim.
4. One of the worrying statistics regarding the problem gambling severity among the gamblers gambling in Sikkim is the prevalence rate of moderate-risk gamblers, with as many as 43.12% of the respondents covered in the survey categorized as moderate-risk gamblers. The percentage of moderate-risk gamblers is very high and requires immediate attention to the problem. In the

due passage of time, if these gamblers continue with their same gambling habit, may become a problem gambler, and start experiencing gambling-related harms to himself and his family members and the society.

5. In the present study, the prevalence of problem gambling was found only among the male gamblers. The findings of the study are similar to the study by George et al. (2016) and Jaisoorya et al. (2017). In their study, George et al. (2016) and Jaisoorya et al. (2017) found that problem gambling among Indian gamblers to be more likely among male gamblers than female gamblers.
6. Every legal form of gambling covered in the study was significantly associated with problem gambling severity among the gamblers gambling in Sikkim. Tambola, Online gaming, Sports betting, and the Sikkim state lottery was significantly associated with problem gambling severity at a 1% level of significance ($p\text{-}value<0.01$), and Casino gaming was significantly associated with problem gambling severity at a 5% level of significance ($p\text{-}value<0.05$).
7. Concerning the frequency of gambling among the gamblers gambling in Sikkim, the highest prevalence rate of problem gambling was identified among the gamblers gambling more than four times a month (49.32%). The lowest prevalence rate of problem gambling was identified among gamblers gambling occasionally (4.11%).
8. Among the five identified gambling motives, only avoidance and excitement motive significantly predicted the prevalence of problem gambling severity among the gamblers in Sikkim. The avoidance motive significantly predicted the prevalence of problem gambling severity at a 1% level of significance and the excitement motive significantly predicted the prevalence of problem gambling severity at a 10% level of significance.

9. As opposed to the six gambling behaviour traits identified by Tao et al. (2011), the present study identified five gambling behaviour traits among the gamblers gambling in Sikkim. The five identified behaviour traits are Impaired control, Gambling involvement, Controlled gambling, Superstitious behaviour, and exploration.
10. Problem gambling severity significantly predicted the four behavioural traits among the gamblers in Sikkim. Impaired Control, Superstitious Behaviour, and exploration were significantly predicted by problem gambling severity at a 1% level of significance ($p\text{-}value<0.01$). Gambling Involvement behaviour was also significantly predicted ($p\text{-}value<0.05$) by problem gambling severity at a 5% level of significance.
11. Concerning the amount of revenue generated from legalised gambling in Sikkim the government of Sikkim generated a sum of:
    I. Rs 2,274 Million during the period between 2011-12 and 2017-18 generated from its legalised state lottery.
    II. Rs 417.02 Million during the period between 2011-12 and 2018-19 from its Casino industry.
    III. Rs 260.72 Million during the period between 2015-16 and 2018-19 from online gaming.

5.1.1 Summary of Testing of Hypothesis

The test of a hypothesis performed in the present study are highlighted in Table 5.1. Among all the hypothesis that was tested, the Null hypothesis H_{0a}*: There is no factor defining the gambling motives other than those mentioned in the conceptual framework* was the only null hypothesis that was not rejected.

Table 5.1 Summary of Hypothesis Testing.

Sl No	Null Hypothesis	Decision
1	*H_{0a}: There is no factor defining the gambling motives other than those mentioned in the conceptual framework.*	Failed to reject the H_0
2	*H_{0b}: Gambling motives are independent of the levels of income.*	Reject H_0
3	*H_{0c}: There is no significant association of gambling severity with the demographic variables.*	
	Significant association of gambling severity with age, gender, educational qualification, employment status and marital status.	Reject H_0
	Significant association of gambling severity with the categories of the monthly income.	Failed to reject the H_0
4	*H_{0d}: There is no significant relationship of the Non-financial motives and the Financial motives with the problem gambling severity.*	Reject H_0
5	*H_{0e}: All the identified financial and non-financial gambling motives are not significant in explaining the problem gambling severity.*	Reject H_0
6	*H_{0f}: There is no significant relationship between problem gambling severity and gambling behaviour.*	Reject H_0
Source: Author's compilation based on the results of testing hypothesis		

5.2 Suggestions

Based on the findings of the study, the following suggestion can be made:

1. The result of the study identified a higher prevalence rate of the problem and moderate-risk gamblers in Sikkim. A high prevalence rate of the problem and moderate-risk gambling in Sikkim requires immediate intervention from the government to protect and safeguard the interest of the people in Sikkim. To

minimise the issue related to a higher prevalence rate of problem gambling, the government can adopt the following strategies:

I. Organize awareness campaign on the impact of excessive gambling on the mental, emotional and physical well-being of the gamblers and its influence on their family members and the society.

II. Make it mandatory for all the gambling houses in Sikkim to have posters and frame that describes and discuss about the harmful effects of excessive gambling.

III. Minimise access to gambling and gambling products. Small online gaming houses and the sale of lottery tickets should be closed during the dry days, state and national holidays, which will minimise the opportunity for gambling for the local people from Sikkim. However, casinos can be exempted from being closed down during the dry day, state, and national holidays, as the locals from Sikkim are not allowed to visit the casinos for gaming purposes.

2. During the period of data collection, it was observed that the adolescents[23] had access to gambling in the fairs organized during the festival of Maghe Sankranti. There is a need for strong vigilance during such fairs to restrict access to gambling to the adolescents.

3. Problem gambling is a public health issue and is prevalent among gamblers in India. However, George & Jaisoorya (2016), in their study on Indian psychiatrists, identified that many psychiatrists in India do not possess the requisite knowledge and skills to handle the issues of problem gambling.

[23] Any person who falls between the age group of 10 and 19 years as defined by the World Health Organisation.

George & Jaisoorya (2016) found out that only 19.1% of the psychiatrist in India had the requisite knowledge and skill to deal with the issue of problem gambling. It is a source of primary concern, and as such, efforts should be made towards providing training and knowledge to the psychiatrist to deal with the issue of problem gambling.

4. The legalisation of gambling and gambling products has a significant impact on the vulnerable sections of society. As such, there is a need for further research in this field to identify the people who are most affected by legalised gambling and ensure safety measures to safeguard and protect the interest of the people belonging to the vulnerable sections of society.

5.3 Policy Implications

Gambling is a sensitive topic that will continue being a matter of discussion and debate among the proponents and opponents of gambling. Even if gambling continues to divide the opinions of people living in a society, it will cease to exist in one form or the other. In many Indian societies, cultures, and religions, gambling is considered an immoral activity and frowned upon, and yet, gambling has been a part of the Indian culture since ancient ages. The ever-presence of gambling and gambling products warrants a need for identifying the various social and economic issues related to gambling and framing policies to subdue the negative impact of gambling within a society.

Sikkim is one of the most liberal states in India when it comes to gambling and gambling products. Sikkim, along with the state of Goa, has become a premier destination for gambling in India. Through the liberal reforms of gambling laws and the development of Casinos and online gaming, the state of Sikkim has gone on to serve and cater to the needs and demands of the gamblers in India.

The findings of the study highlight the most significant issue concerning the prevalence of problem gambling. Problem gambling is a public health issue and requires the immediate attention of the policymakers, shareholders, and all the stakeholders associated with the gambling industry. A high rate of prevalence of problem gambling and even a higher rate of moderate-risk gambling in Sikkim is a matter of great concern for the state.

To address the issue of the prevalence of problem gambling among the gamblers gambling in Sikkim, the government should come with an approach to reform the existing laws within the state. The government's role in prohibiting the entry of local Sikkimese people into Casinos and the gaming parlour in Sikkim through the amendment of Sikkim Online Gaming (Regulation) Rules, 2009 deserves immense appreciation. But still, people in Sikkim do have access to other forms of gambling. As such government should ensure that they limit the opportunity for gambling and gambling products limit the frequency of gambling plays among the gamblers in Sikkim.

5.4 Conclusion

Gambling is a sensitive issue and evokes plenty of debate when it comes to the question of whether to legalise it or not. In a country like India, where gambling has been a part of its culture throughout history, banning gambling entirely may not be a viable solution to the problem. Irrespective of bans on gambling and gambling products in many different states in India, one can see that the illegal gambling and betting industry has been flourishing in India, which is a much bigger problem.

Sikkim, as a state, has been very progressive towards gambling and gambling products. Along with the state of Goa, Sikkim is the premier destination for gambling in India.

The gambling reforms and the legalisation of casino and online gaming has helped the government of Sikkim to generate a large sum of revenue for the state. The development of Casinos and online gaming parlours and the sale of lottery tickets in Sikkim has also helped the government to create employment opportunities for the people. These are some of the economic benefits which every state derives from having a legal gambling avenue within the state.

However, identification of social issues related to the legalisation of gambling and gambling products is essential to judge the overall impact legal gambling is having on society. Gambling has been present in Sikkim, even before Sikkim became the 22nd state of India in 1975. But there has not been a study in Sikkim that sought to identify the prevalence rate of problem gambling among the gamblers in Sikkim. With such liberal laws and the availability of legal gambling avenues in Sikkim, gambling impact studies are essential to understand the social and economic impact of legalised gambling in Sikkim. Such studies will help the government in identifying issues related to gambling and its adverse consequence on gamblers, their families, and society. Identifying the problem will help the government and the policymakers in formulating laws and practices that will help prevent the adverse effect of gambling.

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Appendix

Questionnaire

Respected Sir/Madam, my name is Adarsh Rai and I am a PhD Research scholar from the Department of Management, Sikkim University. I am conducting a research study for my PhD thesis and as such, I request you to kindly spare your precious time and fill the questionnaire. You are requested to feel free and be frank in your responses. The information you are going to give will be kept strictly confidential and will be used for academic purpose only. Once again, I request you to kindly fill the questionnaire and co-operate in my research work.

A. General Information

I. Age:

II. Hometown:

III. Gender

a. Male ☐ b. Female ☐

IV. Marital Status

a. Single ☐ b. Married ☐

c. Divorced ☐ d. Widower/Widow ☐

V. Educational Qualification

a. 12th or below ☐ b. Graduate ☐

c. Masters ☐ d. Others ☐

VI. Employment status

a. Employed ☐ b. Job seeker ☐ c. Self employed ☐

d. Pensioner ☐ e. Daily wage earner ☐

VI. A. Source of money for gambling activities

a. Pocket money ☐ b. Salary ☐

c. Daily wages ☐ d. Business income ☐

e. any other_____

VII. Monthly Income

a. Below 10,000 ☐ b. 10,000 – 19,999 ☐ c. 20,000 – 29,999 ☐

d. 30,000 – 39,000 ☐ e. Above 40,000 ☐

B. Based on your gambling please tick against one of the options for the next set of questions.

1. **How frequently do you visit a gambling house in a month?**
   a. Once in a month ☐ b. 2 – 4 times a month ☐
   c. More than 4 times a month ☐ d. Occasionally ☐

2. **How often your weekly visitation results in gambling.**
   a. Once in a month ☐ b. 2 – 4 times a month ☐
   c. More than 4 times a month d. Occasionally

3. **What made you start gambling? (tick as many as applicable)**
   a. Advertisement ☐ b. In need of money ☐
   c. It is fun ☐ d. Friends/Family ☐
   e. Others ☐

4. **What form(s) of gambling do you usually or frequently play? (Tick as many as applicable)**
   Sikkim state lottery ☐
   Tambola (Bingo) ☐
   Casinos ☐
   Online Gaming ☐
   Sports Betting ☐
   Others _____

5. **How often do you win while gambling?**
   a. Never ☐ b. Sometimes ☐
   c. Often ☐ d. Almost always ☐

C. Based on your gambling experience of the past 12 months please tick against any of the option for each of the statements.

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I enjoy thrilling experience in risk	SD	D	N	A	SA
2. I have fun in risk taking	SD	D	N	A	SA
3. I have fun competing with others	SD	D	N	A	SA
4. I enjoy intense feelings while gambling	SD	D	N	A	SA
5. I want to enjoy uncertainty	SD	D	N	A	SA

6. I have fun in guessing the results	SD	D	N	A	SA
7. I want to experience excitement and pleasure	SD	D	N	A	SA
8. I want to feel triumph when winning	SD	D	N	A	SA
9. I am easily absorbed in gambling	SD	D	N	A	SA
10. I want to win big money with small money	SD	D	N	A	SA
11. I want to make money easily	SD	D	N	A	SA
12. I want to win big money immediately	SD	D	N	A	SA
13. I need big money	SD	D	N	A	SA
14. I have heard that they won jackpot	SD	D	N	A	SA
15. I have a financial difficulty and no money	SD	D	N	A	SA
16. I can't change my life without gambling	SD	D	N	A	SA
17. I may win big money	SD	D	N	A	SA
18. I feel pain/troubled	SD	D	N	A	SA
19. I feel lonely/escape from loneliness	SD	D	N	A	SA
20. I feel depressed/sad	SD	D	N	A	SA
21. I feel angry/upset	SD	D	N	A	SA
22. I feel tense/anxious	SD	D	N	A	SA
23. I feel pressured/things don't go well	SD	D	N	A	SA
24. Gambling makes me forget about stressful reality	SD	D	N	A	SA
25. Through gambling I socialize with others	SD	D	N	A	SA
26. Gambling makes the atmosphere comfortable for me for meeting people	SD	D	N	A	SA
27. Gambling makes it easy for me to meet new people	SD	D	N	A	SA
28. It helps me to join with gathering in spite of no intention of gambling	SD	D	N	A	SA
29. My friends insisted gambling	SD	D	N	A	SA

30. Gambling helps me to get along with others favorably	SD	D	N	A	SA
31. Gambling helps me to change moods	SD	D	N	A	SA
32. Gambling allows me to escape from burdensome routines	SD	D	N	A	SA
33. Gambling helps me to Energize life	SD	D	N	A	SA
34. I gamble to enjoy leisure time and activity	SD	D	N	A	SA
35. Gambling helps me to relieve stress	SD	D	N	A	SA

D. Thinking about the last 12 months' tick against the options.

1. Have you bet more than you could really afford to lose?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

2. Still thinking about the last 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

3. When you gambled, did you go back another day to try to win back the money you lost?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

4. Have you borrowed money or sold anything to get money to gamble?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

5. Have you felt that you might have a problem with gambling?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

6. Has gambling caused you any health problems, including stress or anxiety?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

7. Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

8. Has your gambling caused any financial problems for you or your household?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐
9. Have you felt guilty about the way you gamble or what happens when you gamble?
   A. Never ☐ B. Sometimes ☐
   C. Most of the time ☐ D. Almost always ☐

E. Gambling Behaviour

Statements	Never	Rarely	Often	Always
1. I am having deteriorating relationship with family	Never	Rarely	Often	Always
2. I gamble till the last rupees is gone	Never	Rarely	Often	Always
3. I borrow money for gambling	Never	Rarely	Often	Always
4. I chase money when I lose	Never	Rarely	Often	Always
5. I persist after winning	Never	Rarely	Often	Always
6. I gamble always	Never	Rarely	Often	Always
7. I gamble regularly	Never	Rarely	Often	Always
8. I gamble with a great deal of money	Never	Rarely	Often	Always
9. I gamble when I am happy	Never	Rarely	Often	Always
10. I play various games	Never	Rarely	Often	Always
11. I am spending less time with my friends	Never	Rarely	Often	Always
12. My reaction is vigorous when winning	Never	Rarely	Often	Always
13. My reaction is vigorous when losing	Never	Rarely	Often	Always
14. I collect charms	Never	Rarely	Often	Always
15. I have a special behavioural rituals	Never	Rarely	Often	Always
16. I investigate for winning	Never	Rarely	Often	Always
17. I place small bet size	Never	Rarely	Often	Always
18. I have control over bet size ad time spent	Never	Rarely	Often	Always
19. I gamble while resting/eating/shopping	Never	Rarely	Often	Always
20. I gamble wandering around	Never	Rarely	Often	Always

Thank you for your kind support.