



Gambling among the Chinese: A comprehensive review

Jasmine M.Y. Loo ^{a,*}, Namrata Raylu ^{a,b}, Tian Po S. Oei ^a

^a School of Psychology, The University of Queensland, Brisbane, Queensland 4072, Australia

^b Drug, Alcohol, and Gambling Service, Hornsby Hospital, Hornsby, NSW 2077, Australia

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ABSTRACT

Despite being a significant issue, there has been a lack of systematic reviews on gambling and problem gambling (PG) among the Chinese. Thus, this paper attempts to fill this theoretical gap. A literature search of social sciences databases (from 1840 to now) yielded 25 articles with a total sample of 12,848 Chinese community participants and 3397 clinical participants. The major findings were: (1) Social gambling is widespread among Chinese communities as it is a preferred form of entertainment. (2) Prevalence estimates for PG have increased over the years and currently ranged from 2.5% to 4.0%. (3) Chinese problem gamblers consistently have difficulty admitting their issue and seeking professional help for fear of losing respect. (4) Theories, assessments, and interventions developed in the West are currently used to explain and treat PG among the Chinese. There is an urgent need for theory-based interventions specifically tailored for Chinese problem gamblers. (5) Cultural differences exist in patterns of gambling when compared with Western samples; however, evidence is inconsistent. Methodological considerations in this area of research are highlighted and suggestions for further investigation are also included. (6) Much of gambling research has focused on identifying risk factors and at-risk individuals. It is essential to balance this knowledge with a focus on fundamental character strengths, which act as protective factors and motivate one to refrain from gambling.

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* Corresponding author. Tel.: +617 3346 7279; fax: +617 3365 4466.

E-mail addresses: jasminel@psy.uq.edu.au (J.M.Y. Loo), namrata@psy.uq.edu.au (N. Raylu), oei@psy.uq.edu.au (T.P.S. Oei).

1. Introduction

The word “gambling” elicits many different interpretations and meanings that are contingent on cultural and historical contexts. Generally, gambling can be defined as the act of risking a sum of money on the outcome of a game or event that is determined by chance (Bolen & Boyd, 1968). Gambling occurs in many forms, most commonly pari-mutuels (horse and dog tracks, off-track-betting parlors, Jai Alai), lotteries, casinos (slot machines, table games), bookmaking (sports books and horse books), card rooms, bingo and the stock market (Illinois Institute for Addiction Recovery, 2007). In particular, slot or poker machines have emerged as a dominant form of gambling activity in recent times (Raylu & Oei, 2002). Gambling evokes a gamut of human emotions and behaviors that are readily apparent when gamblers win or lose. In turn, they drive a vicious cycle of excessive gambling in our society. Such a cycle has been an integral part of human history and is widespread in many parts of the world today (Shaffer, Hall, & Bilt, 1997). At present, gambling is legal in many countries and readily accessible to individuals that meet the minimum requirement for age limit, which differs according to state or country.

In 1998 there were approximately 1.3 billion Chinese worldwide, and while the vast majority lived in mainland China, 37 million lived elsewhere (Parker, Gladstone, & Chee, 2001). Representing 22% of the planet’s population, Chinese people are the largest ethnic group in the world (Tseng, Lin, & Yeh, 1995). It is perhaps one of the largest groups of migrants around the world, with many individuals being of Chinese descent. The earliest documented accounts of gambling were recorded in China where “keno” was first played 3000 years ago to fund the building of the Great Wall (National Policy Toward Gambling, 1974). Gambling was very popular in ancient China and throughout Chinese history despite the fact that it was under strict legislative controls and banned. Despite being illegal in China (except in Macau where casino gambling is legalized), gambling remains popular among the Chinese around the world (i.e., Chinese Diaspora) due to the fact that it is an acceptable form of social activity throughout the community (Hobson, 1995; Lai, 2006; Raylu & Oei, 2004b). In fact, social gambling is expressed as a form of entertainment, often occurring during festive seasons (e.g., Chinese New Year), birthday gatherings, or wedding celebrations. This activity usually happens with friends, family, or colleagues, and the gambling episode lasts for a limited period of time without loss of control (Clarke, Tse et al., 2006). Social gambling can occur on a regular basis, but there are no negative consequences for the person in terms of lost time or lost finances. Nevertheless, social gambling can escalate to serious social gambling and problem gambling.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) describes pathological gambling as a destructive and reoccurring gambling behavior that interferes with personal, familial, and occupational pursuits. Thus, DSM-IV-TR conceptualizes gambling from a taxonomy standpoint. However, in gambling research, three widely used terms: “problem gambling (PG),” “compulsive gambling,” and “pathological gambling” have been utilized synonymously to illustrate the above condition (Raylu & Oei, 2002). The term “pathological” is commonly used by clinicians, while the term “compulsive” is generally used by laypersons such as members of Gamblers Anonymous. At present, the term “problem” is favored as it avoids the medical and derogatory connotations of “pathological” (Walker & Dickerson, 1996). To date, most researchers have concurred that the term “problem gambler” refers to individuals whose gambling is at an earlier stage, and who have a wide range of gambling difficulties but do not meet the diagnostic criteria (Raylu & Oei, 2002; Rosenthal, 1989). Similarly, in this review, problem gambling (PG) will be used in a broader sense to define the situation where an individual is experiencing gambling problems but does not meet the diagnostic criteria for pathological gambling (Lesieur & Blume, 1987; Victorian Casino and Gaming Authority, 2000). The term pathological gambling will be used to define individuals who meet the diagnostic criteria in the DSM-IV-TR (American Psychiatric Association, 2000). Thus, pathological gambling is more extreme or serious in comparison to PG. For the purpose of this review, gambling problems are conceptualized on a latent continuum.

There are many social costs and detrimental effects that occur due to PG. It was once published in a local Chinese newspaper that gambling is the new form of opium in China, as it is becoming an addiction that poses a serious threat to the country (Cai, 2005). Due to the social acceptance of gambling within Chinese culture, there has been an increase in the participation rates of all forms of gambling (Cai, 2005). This activity, which can potentially cause both financial and social damage, is widespread not only among the Chinese in the Greater China region but also in countries such as Thailand, Malaysia, Japan, the United States, and Australia. When gambling is regarded as a recreational activity, it does not pose a threat. However, gambling can be addictive, and can result in irresponsible gambling and eventually PG, which can lead to financial, emotional and relational stress (Lorenz & Yaffee, 1986, 1988, 1989). A diagnosis of PG has been linked with several medical disorders such as liver disease and cirrhosis, and increased medical utilization and healthcare costs (Morasco et al., 2006). The spouses of problem gamblers are often faced with severe emotional, psychological, and financial stresses (Lorenz & Shuttlesworth, 1983), and children grow up in a family environment that is typically one of parental neglect, which fosters the development of individuals who are at greater risks for addictive behaviors (Abbott, Cramer, & Sherrets, 1995).

Several authors have reviewed the gambling, pathological gambling, and PG literature (Allcock, 1986; Lesieur & Rosenthal, 1991; Murray, 1993; Raylu & Oei, 2002). However, only limited research has been conducted on gambling, PG, and pathological gambling among the Chinese and no systematic review on this topic has been carried out despite the fact that PG is often reported among this population. Therefore, there is a necessity for a comprehensive review on this research area in order to provide a starting point from which future research can be developed to aid better understanding of gambling and PG among the Chinese. In turn, a better understanding of this topic will be beneficial for developing preventive programs and interventions tailored to the needs of the Chinese. It will also assist in policy-making and allocation of resources. The present study aims to provide a detailed investigation of studies that have examined all aspects of gambling and PG among the Chinese, and to identify gaps in the literature. The sections of this article begin by first looking at prevalence and demographics, then discussing assessment, patterns of gambling, and factors implicated in PG. Directions and suggestions of future research will also be presented in the final section.

To complete this review, an extensive investigation of the databases PsycINFO (1840–now), Web of Science Databases, Medline (1950–present), Sociological Abstracts (1963 – in press), ProQuest Social Science Journals (1994–present), PAIS International (1972–current), and CSA Worldwide Political Science Abstracts (1975–current) was conducted. The search encompassed the use of different combinations of the following keywords: Chinese, ethnicity, culture, addiction (also addictive), and gambling (also gamble). The reference lists of articles obtained from the initial search were evaluated further for more references. The process continued until the most recent key articles were acquired and reviewed. The search yielded 25 relevant articles with a total sample of 12,848 Chinese participants from the community and 3397 Chinese clinical participants.

The studies conducted on gambling among the Chinese varied significantly in their theoretical background, research questions, and variables investigated. Both quantitative and qualitative studies conducted on gambling among the Chinese were included in this review. The quantitative research covered different aspects of gambling behavior – prevalence estimates, etiology, patterns of gambling, risk factors, and populations at risk. The data collection method in the qualitative studies varied between studies. For example, some research was derived from interviews with local community members, while others were based on literature reviews of previous studies.

2. Prevalence and demographics

2.1. Quantitative studies

Despite variations in the definition of gambling, PG, and pathological gambling in the studies reported here, the literature provided useful information about prevalence estimates and demographics (see Table 1). Social gambling was found to be the most common form of gambling as compared to other forms of gambling such as horse racing, “Mark Six,” and Casino Ships among Macao’s residents (Fong & Ozorio, 2005). Although the majority (63%) of Chinese respondents in an Australian sample believed that gambling is an acceptable activity in the community (Victorian Casino and Gaming Authority, 2000), gambling was not found to be a widely practiced activity in a similar study on an Australian Chinese speaking sample (Blaszczynski, Huynh, Dumlao, & Farrell, 1998). Blaszczynski and colleagues argued that the low percentage of participation (see Table 1) may reflect the fact that the Chinese community might not regard some activities as gambling if played during festivals or for entertainment purposes. Indeed, the large-scale community study by the Victorian Casino and Gaming Authority (VCGA, 2000) found that the more entertaining forms of gambling such as Lotto, Keno, Powerball, and poker machines at the casino (in that order) were the most common gambling activities among the Chinese. Similarly, as shown in Table 3, Oei and Raylu’s (2007b) study on gambling motivations provided evidence that Australian Caucasians were more likely than Australian Chinese to participate in betting on animals and sports, lotteries, bingo, casino gambling, games of skill for money, and gaming machines.

As shown in Table 1, the figures reported in these studies varied significantly according to the sample and sampling procedure, especially with percentages of gambling participation. The participation rates were undoubtedly higher among individuals who perceived gambling to be a form of entertainment rather than as “gambling” (Fong & Ozorio, 2005). The estimates of reported gambling participation varied from 26.6% (Lai, 2006; Sin, 1997) to 92% (Clarke, Abbott et al., 2006) in Chinese samples from Canada and New Zealand respectively. However, estimates of PG and pathological gambling closely resembled each other. The estimates of PG ranged from 2.5% (Fong & Ozorio, 2005; Sin, 1997) to 4.0% (Wong & So, 2003). Meanwhile, the estimated percentages of pathological gambling in the pool of empirical studies ranged from 1.78% in a sample of Macao residents (Fong & Ozorio, 2005), Hong Kong residents (Wong & So, 2003), and Canadian residents (Sin, 1997) to 2.9% in an Australian Chinese speaking sample (Blaszczynski et al., 1998). However, as shown in Table 1, it is important to note that there may have been an underreporting of problems among PGs (Blaszczynski et al., 1998). The lower percentage of self-reported pathological gamblers as compared to third-party estimates (i.e., participants reported friends and relatives who they know are pathological gamblers) may reflect reluctance to admit personal failure and to “save face,” which is a phenomenon highly common among the Chinese.

It has been found that rates of pathological gambling are higher among Chinese than Caucasian samples (Chen et al., 1993). When compared with the general Victorian sample and with other ethnic groups, Chinese speaking communities had the highest frequency of individuals classified as probable problematic gamblers (11%) as indicated by a score of five or more points on the South Oaks Gambling Screen or SOGS (see Table 1; VCGA, 2000). Conversely, in another study conducted in New Zealand, Asian (mainly Chinese) participants were less likely to be classified as pathological gamblers as compared to other ethnic groups, particularly the Pakeha and Maori (Clarke, Abbott et al., 2006). However, the authors stated that this might be due to the fact that the group of Asian participants was recruited from cultural and church groups. Similarly, in a study investigating motivations for gambling in an Australian sample (see Table 3), gambling behavior among the Chinese was lower than that of the general community, and Australian Chinese individuals were more likely than Australian Caucasians to report that they had never gambled (Oei & Raylu, 2007b). However, in the same study, Chinese were more likely than Caucasians to spend more than AUD100 on gambling. Chinese gamblers being more likely to spend more money than Caucasians might be an indication of the presence of gambling problems among the Chinese despite the low incidence of reporting.

The discrepancy between the results from the study by the VCGA (2000) and Oei and Raylu (2007b) can be attributed to differences in the criterion measured and the comparison group. The VCGA examined the percentage of participants with a SOGS score of five or more and compared the Chinese participants with the general population (including Caucasians and other ethnic groups), while the latter study analyzed the difference between the mean SOGS scores of the two groups and compared the Chinese participants with Caucasian participants only. Future research in the area of epidemiology and prevalence needs to be conducted to clarify these findings.

The epidemiology and prevalence study by Wong and So (2003) provided evidence that the most vulnerable group for PG were men with education of less than 9 years, middle range family income, and frequent participation in betting on horse racing, soccer

Table 1
Prevalence and demographic studies

Authors	Design	Participants	Findings
Blaszczynski et al. (1998)	<ul style="list-style-type: none"> ● Exploratory survey on the prevalence of pathological gambling in Chinese speaking community (South Western Sydney) ● South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) was used to identify cases of pathological gambling 	<p>N=508 (249 males, 259 females) participants from the community with a mean age of 40.3 years</p> <p>Community sample</p>	<ul style="list-style-type: none"> ● Gambling not a popular activity with approximately 60% reporting having never gambled ● High rate (2.9% as compared to 1.2% reported for the general Australian population) of pathological gambling among the Australian Chinese speaking sample ● Underreporting of problems among PGs (2.9% self-reported pathological gamblers as compared with 16.7% third-party estimate) ● Chinese communities have higher rates of pathological gambling as compared with Caucasian samples ● Chinese males have higher rates of PG than Chinese females ● Pathological gambling was the fourth most common disorder among Chinese men (ages ranging from 18 to 64 years) ● 92% of respondents do participate in gambling activities ● 38% of the gamblers met the criterion for probable pathological gambling (5 or more symptoms) ● Males were at greater risk of PG than females in the Asian ethnic group ● 67.9% of participants have participated in at least one out of fourteen forms of gambling activities in the past year ● There were 1.78% of probable pathological gamblers and 2.5% of probable PGs ● Social gambling (43.8%), "Mark Six" (38.7%), and soccer/basketball betting (20.9%) was the most popular form of gambling, respectively ● Males with income of less than MOP 8000 were vulnerable to PG when participating in casino gambling, betting, and mahjong gambling
Chen et al. (1993)	<ul style="list-style-type: none"> ● Conducted a large-scaled community survey in Shatin, Hong Kong ● A modified Self-Reporting Questionnaire was used as the screening tool and the Diagnostic Interview Schedule (version III) was used as diagnostic instrument 	<p>N=7229 Shatin residents</p> <p>Community sample</p>	<ul style="list-style-type: none"> ● Individuals from Taiwanese or Hokkien heritage participated in lottery and gambled during New Year's celebration (cultural norm) ● Males made more riskier decisions in gambling than females ● Males were more often identified as PGs or pathological gamblers as compared with females ● 26.6% of respondents reported that they gambled ● Risk factors and preventive factors were identified (details in-text)
Clarke et al. (2006)	<ul style="list-style-type: none"> ● Investigated the contributions of risk factors for pathological gambling in selected ethnic groups using a questionnaire, which consisted of the DSM-IV-TR diagnostic criteria of pathological gambling 	<p>N=345 South Auckland adults from the four main ethnic groups: Pakeha, Maori, Pacific Islands, and Asians (mainly Chinese)</p> <p>Community sample</p>	<ul style="list-style-type: none"> ● 32% of participants gambled in the previous year ● 3% problem gamblers and 1.7% probable pathological gamblers ● SOGS score positively correlated with length of residence in Canada, negatively correlated with education level, and men had higher scores as compared with women ● Prominent motivations for gambling: entertainment, curiosity, monetary gains, excitement, challenge, social activity with friends ● Help-seeking behavior (preference in that order): professional counselor, spouse, and friends
Fong and Ozorio (2005)	<ul style="list-style-type: none"> ● Gambling participation and PG among Macao residents between the ages of 15 and 64 years were analyzed through 1121 telephone interviews ● Gambling behavior measured using the Chinese DSM-IV Gambling Behavior Index (Wong & So, 2003) 	<p>N=1121 Macau residents with a response rate of 68%</p> <p>Community sample</p>	<ul style="list-style-type: none"> ● Not applicable. Author drew on previous research and archival literature.
Gray (2004)	<ul style="list-style-type: none"> ● Incorporated evolutionary and cross-cultural perspectives on gambling ● Data drawn from three sources: 60 cross-cultural societies, nationally represented studies of PG and pathological gambling from seven nation states, and demographic data on casino gambling 	<p>Not applicable. Author drew on previous research and archival literature.</p>	<ul style="list-style-type: none"> ● Health and well-being of older Chinese living in Canada were examined using a structured verbally administered questionnaire ● Four simple questions related to gambling were utilized in this study: (1) Do you gamble? If you gamble, what is the (2) frequency, (3) types, and (4) location of gambling activities
Lai (2006)	<ul style="list-style-type: none"> ● Explored gambling and PG among the Chinese community in Quebec ● Identified motivations for gambling and help-seeking attitudes 	<p>N=229 users of Chinese Family Services, 56 Chinese restaurant workers</p> <p>Non-random community sample</p>	<ul style="list-style-type: none"> ● 32% of participants gambled in the previous year ● 3% problem gamblers and 1.7% probable pathological gamblers ● SOGS score positively correlated with length of residence in Canada, negatively correlated with education level, and men had higher scores as compared with women ● Prominent motivations for gambling: entertainment, curiosity, monetary gains, excitement, challenge, social activity with friends ● Help-seeking behavior (preference in that order): professional counselor, spouse, and friends
Sin (1997)	<ul style="list-style-type: none"> ● Explored gambling and PG among the Chinese community in Quebec ● Identified motivations for gambling and help-seeking attitudes 	<p>N=229 users of Chinese Family Services, 56 Chinese restaurant workers</p> <p>Non-random community sample</p>	<ul style="list-style-type: none"> ● 32% of participants gambled in the previous year ● 3% problem gamblers and 1.7% probable pathological gamblers ● SOGS score positively correlated with length of residence in Canada, negatively correlated with education level, and men had higher scores as compared with women ● Prominent motivations for gambling: entertainment, curiosity, monetary gains, excitement, challenge, social activity with friends ● Help-seeking behavior (preference in that order): professional counselor, spouse, and friends

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Table 1 (continued)

Authors	Design	Participants	Findings
Tang et al. (2007)	<ul style="list-style-type: none"> ● Investigated psychosocial characteristics of Chinese female treatment-seeking gamblers and compared them with their male counterparts ● Collected demographic data, gambling history and activities, somatic and psychological symptoms, and gambling behaviors or problems 	<p>N=952 Chinese treatment-seeking gamblers (841 men and 111 women)</p> <p>Clinical sample</p>	<ul style="list-style-type: none"> ● Identified similarities and differences in psychosocial characteristics of gambling among males and females (details in-text) ● Female gamblers were more ready to admit the negative consequences of gambling ● Male gamblers preferred betting on horse races and soccer games, while female gamblers preferred casino and mahjong gambling ● The most common comorbid disorders were mood disorders, substance abuse, and alcohol abuse or dependence ● 10.7% of participants had a history of suicidal attempts ● 26.7% of participants had family history of gambling, while 24.7% had gambled during adolescent years ● Identified the main triggers of gambling behavior (see details in-text)
Teo, Mythily, Anantha, and Winslow (2007)	<ul style="list-style-type: none"> ● Examine+d the socio-demographic features, gambling behavior, comorbidity, and legal issues among pathological gamblers ● Semi-structured interviews were used to assess the above factors 	<p>N=150 pathological gamblers seeking treatment at a community treatment centre in Singapore (97.3% Chinese origin, M age=42.5 years, 87.3% males)</p> <p>Clinical sample</p>	<ul style="list-style-type: none"> ● Chinese individuals formed the largest group (11%) of probable problematic gamblers (i.e., a score of five points and above on the SOGS) ● Identified preferences and reasons for gambling (see in-text for details) ● Identified preventive factors (see in-text) ● Identified help-seeking behavior (see in-text) ● Identified preventive factors (see in-text)
Victorian Casino and Gaming Authority (2000)	<ul style="list-style-type: none"> ● Consulted with key informants representing Victorian cultural groups to acquire information on patterns of gambling ● Conducted telephone interviews to investigate gambling correlates and the impacts of gambling 	<p>N=664 respondents (359 females, 305 males) drawn equally from the Arabic, Chinese, Greek, and Vietnamese speaking groups</p> <p>Community sample</p>	<ul style="list-style-type: none"> ● Identified preferences and reasons for gambling (see in-text for details) ● Identified preventive factors (see in-text) ● Identified help-seeking behavior (see in-text) ● Identified preventive factors (see in-text)
Wong and So (2003)	<ul style="list-style-type: none"> ● Explored the prevalence of problem and pathological gambling in Hong Kong using a modified Chinese version of the DSM-IV ● Gambling Behavior Index (American Psychiatric Association, 2000) ● Suggested preventative and treatment services to the Government 	<p>N=2004 Hong Kong residents (50.1% females, 49.9% males) with ages ranging from 15 to 64 years</p> <p>Community sample</p>	<ul style="list-style-type: none"> ● 4.0% of respondents classified as PGs ● 1.8% of participants classified as pathological gamblers ● Predictors of PG and pathological gambling were gender, education level, family income, and three forms of gambling: horse racing, soccer games, and casino games ● Identified the most vulnerable group (see details in-text)

games, and casino games. Adults and older adults were more likely than children or adolescents to participate in gambling, obviously due to the age limit enforced in gambling venues (Fong & Ozorio, 2005). Similarly, in a study primarily investigating factors associated with gambling (see Table 3), Hong and Chiu (1988) found that participants reported higher gambling involvement as age increased and as educational level decreased. These cross-sectional developmental findings suggest that a social learning component may be implicated in the acquisition of such behaviors. Developmentally, a cognitive perception of the nature of gambling improves with age (Derevensky, Gupta, & Della Cioppa, 1996). Despite understanding that gambling is a game of chance rather than skill, adults who experience gambling problems appear to get so caught up in the excitement of gambling that all rational cognitions are sidestepped and replaced with false beliefs reinforced by intermittent wins. More translational research in the developmental progression of PG among the Chinese should be undertaken to further investigate these speculations.

Differences in gambling behavior among Chinese individuals from different residential countries were also evident (see Table 3). Although there were no differences in the average amount gambled, Taiwanese Chinese were more likely to participate in gambling than Australian Chinese (Oei & Raylu, 2007b). Australian Chinese were also more likely than Taiwanese Chinese to feel guilty about gambling and conceal their gambling. This could possibly be attributed to gambling being less socially acceptable in Australia than it is in Taiwan. Hence, when interpreting results from various studies, it is essential to identify the similarities and differences between Chinese communities from different countries as their national identities and norms may influence their degree of entrenchment in Chinese culture and practices.

Another interesting area of investigation is the research on gender differences and their role as risk factors or predictors of PG (see Table 1). In the studies reported here, it was found that males participated more in gambling than females and were at higher risk of gambling problems, a finding that appears to reflect actual gender differences rather than reporting biases (Clarke, Abbott et al., 2006; Chen et al., 1993; Fong & Ozorio, 2005; Lai, 2006; Sin, 1997). However, when compared to Chinese male gamblers, female gamblers had a higher frequency of physical ailments and suicidal thoughts, but had similar financial problems and interpersonal issues (Tang, Wu, & Tang, 2007). In the same study, the authors reported that female gamblers had an older age of onset, shorter duration of gambling, and were more ready to admit the detrimental effects of PG. Evidence suggests that gender does play a role in the development of PG and the extent to which PG affects the gambler. Reformation of larger social or political systems may not propel parallel changes in this

domain. Rather, reformations such as these (e.g., gender equality) may result in more subtle, but progressive, shifts between the genders. For instance, an increase in employment rates and equality in the workforce may reduce the need to remedy financial problems through gambling, which is sometimes viewed by Chinese problem gamblers as the only way out of a large financial debt. Hence, these similarities and differences between genders should be taken into consideration when formulating prevention strategies and planning treatments.

Recent evidence has revealed that pathological gambling overlaps with other psychiatric disorders (e.g., Chen et al., 1993; Tang et al., 2007; Teo, Mythily, Anantha, & Winslow, 2007). The most common psychiatric comorbidities were mood disorders, substance abuse, and alcohol abuse or dependence (Chen et al., 1993; Teo et al., 2007). In fact, approximately 10% of participants in that study reported that they had made suicidal attempts precipitated by gambling problems in the past. Moreover Tang et al. (2007) examined Chinese treatment-seeking gamblers, finding similar results: participants experienced high frequencies of suicidal thoughts, financial problems, interpersonal issues, and physical ailments. While a recent review of the Western literature by Kim, Grant, Eckert, Faris and Hartman (2006) concluded that there is a strong link between mood disorders and pathological gambling, research in the area of psychiatric comorbidity among Chinese gamblers is still in its infancy. More research is required to examine the underlying reasons for comorbidity, and the similarities and differences between risk factors, etiology, and treatment effectiveness of the comorbid disorders.

Several issues need to be considered when evaluating the literature. The first limitation relates to the definition of PG and pathological gambling. These classifications are often used interchangeably and cause confusion in understanding the exact estimate of PG. Although it has been strongly argued that the prevalence of PG refers to the number of cases of PG that exist at any one time in a particular community (Walker & Dickerson, 1996), many authors have not adhered to this boundary. Some studies have obtained prevalence estimates by investigating participants' past behavior instead of current gambling behavior. Another limitation in prevalence studies is that they lack consideration for cultural variables and influences such as beliefs, cognitions, and habits specific to certain cultural groups (Betancourt & Lopez, 1993). The third criticism relates to the reliability and validity of the measurement scales, which were developed using Western samples but used to assess Chinese gamblers in the studies reported here. As the SOGS and the Chinese DSM-IV Gambling Behavior Index have not been validated in Chinese populations, the utilization of these instruments among the Chinese community is questionable. The semantic integrity and consistency of words should be confirmed through back-translation into the original language (Kinzie & Manson, 1987). Suggestions for future research will be discussed in the final section.

2.2. Qualitative studies

As summarized in Tables 1 and 4, the studies have consistently reported that gambling is a popular social activity among the Chinese and reflects a pastime of leisure that is commonly practiced during Chinese celebrations (Basu, 1991; Binde, 2005; Chan, 2000; Gray, 2004). All forms of gambling (card games, lotteries, racetrack, and betting on outcomes) and in particular mahjong have been found to be part and parcel of the social life of the Calcutta Chinese (Basu, 1991). Furthermore, males appear to be more often identified as gamblers, and make riskier decisions in comparison to females (Gray, 2004; Scull & Woolcock, 2005). In the study by Chan (2000), women of Chinese origin who have migrated into the United Kingdom reported that many of their husbands enjoyed gambling in their free time. Furthermore, Scull and Woolcock (2005) summarized the Australian evidence suggesting that gambling was more prevalent among men, especially married men with families, and individuals with more spare time (e.g., restaurant workers; see Table 4).

2.3. Summary

The common themes across the studies reported here include males being at more risk of developing gambling problems, females experiencing worse outcomes from PG, the inevitable detrimental effects of PG on gamblers, and the high prevalence of gambling participation within Chinese communities. While the prevalence studies reported here are commendable for their groundbreaking endeavors, the variations in gambling and PG classifications across these studies mean that future research must be conducted to address the gaps in our knowledge.

3. Assessment of PG and PG correlates among the Chinese

The variability in PG prevalence estimates reflects the enormous variation in the measurement of PG, PG correlates, and the types of samples used. To date, there are few studies that have attempted to test the psychometric properties of instruments on Chinese populations. As shown in Table 2, Oei, Lin and Raylu (2007a) validated the Chinese translation of the Gambling Related Cognitions Scale (GRCS-C) with Chinese participants. Although originally developed for the general population, the results reported in their study confirmed the psychometric structures, reliability, and validity of the scale, establishing it as a suitable measurement tool for measuring gambling cognitions among the Chinese. Similarly, gambling urges, which is an important factor related to the maintenance of gambling problems and relapses, lacked research in the area of non-Western populations. Thus, another study assessed the validity of the Chinese version of the Gambling Urges Scale (GUS-C), confirming through analyses that the scale is a suitable tool for measuring gambling urges among the Chinese population (Oei, Lin, & Raylu, 2007b). The availability of such measures to assess these gambling correlates will assist in detecting high risk individuals and those who are currently experiencing PG. Consequently, preventive measures and programs can be tailored to meet the needs of at-risk groups.

Table 2

Validation studies on assessment of PG correlates among the Chinese

Authors	Design	Participants	Findings
Oei, Lin, and Raylu (2007a)	● Inspected the psychometric properties of the GRSC (Chinese version; GRSC-C) using a Chinese sample	N=422 Chinese participants from Brisbane (N=221) and Taipei, Taiwan (N=201) Community sample	<ul style="list-style-type: none"> ● Reliability and validity analyses demonstrated that the GRSC-C is a suitable tool for assessing gambling cognitions among non-clinical Chinese individuals ● GRSC total score and subscales were significant predictors of gambling behavior ● GRSC total score and subscales have the ability to discriminate between non-PGs and PGs ● Significant positive correlations between the GRSC-C and other gambling-related variable such as gambling behavior, gambling urges, depression, anxiety, and stress ● Males had higher GRSC-C scores than females
Oei, Lin, and Raylu (2007b)	● Investigated the psychometric properties of the Chinese version of the Gambling Urges Scale (GUS-C)	N=422 Chinese participants from Brisbane (N=221) and Taipei, Taiwan (N=201) Community sample	<ul style="list-style-type: none"> ● Reliability and validity analyses revealed that the GUS-C was a suitable tool for measuring gambling urges among non-clinical Chinese samples ● GUS-C significantly predicted gambling behavior ● Significant positive correlations between the GUS-C and other instruments assessing gambling-related variables ● The GUS-C discriminated between PGs and possible problematic gamblers ● Males reported higher GUS-C scores than females

There is a need for more studies with Chinese samples to validate existing instruments assessing gambling correlates, as most measures are based predominantly on Western samples. These efforts are commendable; nevertheless, there have been no studies that have developed measures specifically for Chinese populations. Therefore, it would be sensible for researchers to develop such scales, as this would be the best way to resolve issues with cultural differences (Oei & Raylu, 2007a). In the literature, there are studies that have designed scales for the general population and translated them into Chinese; however, these scales were administered without first validating them in a Chinese sample. These studies report reliability but do not often report psychometric properties such as validation data. Ideally, researchers need to thoroughly validate a translated measure before administering it.

4. Factors implicated in the development and maintenance of PG

4.1. Quantitative studies

Most of the quantitative studies detailed here focused on understanding the factors associated with gambling among the Chinese population (see Table 3). The identified risk factors for gambling participation were stronger connections with peers in the community, more barriers to service access, and higher identification with the Chinese ethnic identity (Lai, 2006). Meanwhile, the preventive factors were having a tertiary or higher level of education, higher level of life satisfaction, involvement in other activities, and a genuine concern that gambling causes problems (Lai, 2006; VCGA, 2000).

Teo et al. (2007) reported based on their sample that the main triggers of gambling behavior were to redeem losses, peer influence, thrill, emotional problems, stress or frustration, and boredom (arranged according to frequency reported). Similarly, the VCGA (2000) found that the main reasons for gambling were to “test their luck” (45%) and “to win money quickly” (18%). Lottery playing could also be predicted by people's affective attitude towards gambling, which are emotions that originate from the prospect of performing this particular behavior (French et al., 2005). As shown in Table 3, other predictors include social norm, controllability over behavior, and the intention to play (Walker, Courneya, & Deng, 2006). Gambling behavior and motivation have also been linked to stimulating and instrumental risk taking (Vong, 2007) and lower probabilistic thinking leading to riskier gambling decisions (Lau & Ranyard, 2005). In other words, Chinese gamblers may be predisposed to seek both exciting sensations and the opportunity to attain wealth from gambling (Vong, 2007). As found in the study by Oei and Raylu (2007b; see Table 3), intrinsic motivation toward stimulation was higher among Caucasians than Chinese individuals, whereas extrinsic motivation toward identification (i.e., social standing and importance in the community) was higher among Chinese than Caucasian participants.

Another interesting finding, as shown in Table 3, was that risk-taking predispositions among gamblers were congruent in both the casino context and economic investments (Ozorio & Fong, 2004). Both gamblers and investors were consistent in their risk-taking predispositions. These findings are interesting because we can infer that the patterns of gambling may indeed surpass more than the behaviors observed in the context of betting and encompass decisions made in daily life or the workplace. In other words, gamblers who take more risks in a casino context may also have a higher frequency of risk-taking behavior in their work and business decisions. The identification of risk and preventive factors and the predictors of gambling will aid in theorizing and developing interventions.

Consistent with Western gamblers (refer to Table 3), cognitive errors and psychological states have been found to influence PG among Chinese gamblers (Hong & Chiu, 1988; Oei, Lin, & Raylu, in press; Oei & Raylu, 2007a). Chinese participants were found to be

Table 3
Quantitative studies on patterns of gambling and factors associated with PG

Authors	Design	Participants	Findings
GAMECS Project (1999)	<ul style="list-style-type: none"> ● Investigated gambling activities of self-identified regular gamblers (i.e., participation in gambling at least once a week) among nine ethnic groups in Sydney through structured interviews Aimed to develop a training and resource kit to assist ethnic communities on establishing a PG support service 	<p>N=976 self-identified gamblers in Sydney Clinical sample</p>	<ul style="list-style-type: none"> ● Casino gambling was most popular among Chinese, Vietnamese, Korean, and Croatian respondents ● Gaming machines were least popular among Chinese, Arabic, Vietnamese, and Greek participants as compared with the general community ● PG support services reported that Chinese individuals were less likely to seek professional help ● The Chinese respondents identified the individual, family, or community as responsible for providing opportunities for gambling and to offer support to PGs
Hong and Chiu (1988)	<ul style="list-style-type: none"> ● A pure chance gambling activity ("Mark Six") was used as the gambling task ● Chinese version of Levenson's (1974) IPC (Internal-Powerful Others-Chance) scale was used as a measure of locus of control ● A 12-item self-administered questionnaire as a measure of illusory control 	<p>N=208 (123 males, 85 females) participants from Hong Kong Community sample</p>	<ul style="list-style-type: none"> ● Higher gambling involvement as age increases and as educational level decreases ● For men, the relationship between locus of control and gambling participation was mediated by gamblers' illusion of control (mediating hypothesis) ● For women, gambling involvement and external locus of control were correlated and not mediated by illusory control, which is in line with the self-confirmation hypothesis ● Women are motivated to gamble by the intention to confirm their expectations of external control ● Societal expectations influence a gambler's decision to confirm his or her expectancy of control or to regain a sense of (illusory) control
Lau and Ranyard (2005)	<ul style="list-style-type: none"> ● Examined cultural differences in risk taking (measured with a hypothetical Horse Racing Task) and probabilistic thinking (measured with a View of Uncertainty Questionnaire, VUQ) 	<p>N=120 male gamblers and non-gamblers (English individuals from the United Kingdom and Chinese individuals from Hong Kong) aged between 20 and 60 years Both community and clinical sample</p>	<ul style="list-style-type: none"> ● The Chinese exhibited significantly less probabilistic thinking and riskier gambling decisions as compared to the English ● Gamblers showed less probabilistic thinking in the VUQ than non-gamblers ● Probabilistic thinking and culture accounted for variance in risk taking
Oei, Lin, and Raylu (in press)	<ul style="list-style-type: none"> ● Investigated gambling cognitions and psychological states among the Chinese ● Cross cultural comparison with Caucasians living in Australia ● Examined gender differences in cognitions and psychological states between the two ethnic groups 	<p>N=501 non-clinical participants with ages ranging from 16 to 78 years ($M=25.43$ years), including 195 Chinese participants Community sample</p>	<ul style="list-style-type: none"> ● Gambling-related cognitions and mood significantly predicted the range of gambling problems (i.e., SOGS scores) among the Chinese ● Caucasian and Chinese ethnicities had no significant relationship with problem gambling ● Some cultural differences (e.g., illusion of control) in gambling cognitions between the ethnic groups
Oei and Raylu (2007b)	<ul style="list-style-type: none"> ● Compared gambling behaviors and motivations toward gambling between Chinese and Caucasian Australian residents ● Compared gambling behaviors between Australian Chinese and Taiwanese Chinese 	<p>N=199 Chinese and 306 Caucasian Australian residents. N=201 Taiwanese Chinese Community sample</p>	<ul style="list-style-type: none"> ● Compared gambling frequency and preferences between Australian Chinese and Caucasians (see in-text for details) ● Compared gambling frequency and preferences between Australian Chinese and Taiwanese Chinese (see in-text for details) ● Identified motivations for gambling among Australian Chinese and Caucasians (see in-text for details) ● Chinese males were more likely than females to report extrinsic motivation toward knowledge and identification
Ozorio and Fong (2004)	<ul style="list-style-type: none"> ● Surveyed Chinese gambling behavior and its relationship with investments decision making 	<p>N=302 casino gamblers in Macau who were between the ages of 18 and 64 (62% from 18 to 34 years)</p>	<ul style="list-style-type: none"> ● Gamblers were taking high risks during gambling participation ● Significant positive correlation between risk-taking behavior in casino gambling and investment contexts (see in-text for details)

(continued on next page)

Table 3 (continued)

Authors	Design	Participants	Findings
Ozorio and Fong (2004)	<ul style="list-style-type: none"> ● Bet-to-income ratio was used to determine participant's risk-taking behavior in gambling ● Risk-taking tendencies in investments were assessed using the questionnaire by MacCrimmon and Wehrung (1988) 	Clinical sample	<ul style="list-style-type: none"> ● Unclear as to whether the respondents participated in gambling and investments for achieving some instrumental goals or for satisfying some stimulating motives
Vong (2007)	<ul style="list-style-type: none"> ● Replication of Zaleskiewicz's duality of risk taking using the Stimulating-Instrumental Risk Inventory (SIRI; Zaleskiewicz, 2001) ● Examined if risk-taking predisposition among Chinese gamblers are associated with their gambling attitude, motivation, and behavior 	N=481 (48.4% male, 51.6% female) with ages ranging from 15 to above 60 years Community sample	<ul style="list-style-type: none"> ● Stimulating risk-taking disposition (i.e., taking risks for stimulating sensation) was related to gambling expenditure and motivations pertinent to money, excitement, competition, challenge, and preference for risks ● Chinese gamblers sought out both exciting sensations and opportunity to attain wealth from gambling
Walker, Courneya, and Deng (2006)	<ul style="list-style-type: none"> ● Used the Theory of Planned Behavior (TPB), which generally assumes reasoned processes underlying attitudes and actions, to explain the etiology of lottery playing and how it differs due to gender and ethnicity 	N=450. 208 Chinese/Canadians (97 males, 111 females) and 220 British/Canadians (112 males, 108 females) Community sample	<ul style="list-style-type: none"> ● Affective attitude was a significant predictor of lottery playing regardless of gender and ethnicity ● Injunctive (social) norm and controllability of gambling behavior were important predictors for Canadian Chinese males; however, affective attitude explained a higher proportion of variance in lottery playing than injunctive norm ● Intention to play the lottery was an important predictor of self-reported lottery playing regardless of ethnicity and gender

more likely than Caucasians to claim that they were winning even when they were losing a lot of money (Oei & Raylu, 2007b). Furthermore, research has shown that Chinese gamblers tend to have more profound beliefs regarding illusion of control, which are linked to specific Chinese cultural beliefs, values, and societal expectations (Oei et al., *in press*). As shown in Table 3, this phenomenon is particularly prominent among male gamblers as compared to females (Hong & Chiu, 1988). This illusion of control arises from linking superstitions with gambling outcomes, which also lead on to faulty beliefs about winning. Such superstitions include associating chances of a lottery win with inanimate object formations (e.g., teardrop formation), the purchase of a new car, or the deceased. These superstitious beliefs are influenced by environmental factors such as friends' and family members' lottery play or the media, which in turn fuels their hopes of winning. Clinically, the illusion of control and superstitious beliefs should be identified earlier on, as it may result in a more effective treatment plan if these cognitive biases are dealt with first.

The impact of family influence on gambling behavior was exemplified in the study by Teo et al. (2007) where almost a third of the pathological gamblers reported having a family history of gambling (see Table 1). Support for this finding was also evident in the study by Oei and Raylu (2007b) where although no significant difference was found between Caucasians and Chinese in the rate of PG, the Chinese participants were more likely than their Caucasian counterparts to report excessive parental gambling, especially among their fathers. Furthermore, it was documented that none of the Victorian Chinese residents would consult healthcare professionals when faced with gambling problems but a majority would seek help from family members (57%) and other community members (18%) who spoke Chinese (Victorian Casino and Gaming Authority, 2000). Cultural influences passed on through familial socialization have also been found to impact Chinese gamblers' familiarity with and preference for certain forms of gambling. Approval of and familiarity with certain gambling activities (e.g., dice and cards, which have been a part of the Chinese culture for centuries) could be maintained within the culture by passing these values and beliefs about gambling from one generation to another (GAMECS Project, 1999). This familiarity may attract Chinese gamblers to the casino tables. Clearly, the discussion above suggests that family and societal influences could play a major role in instilling cognitions and perceptions about gambling that could deter individuals from being addicted to gambling.

The recovering gambler that has been through an individual treatment also faces challenges within the family context when he or she returns (e.g., resentment and unforgiveness due to past abuse, which leads to a communication barrier) (Franklin & Thoms, 1989). Steps must be taken at this juncture by referring the couple or family to local community seminars, courses, workshops, or community services. This crucial step will benefit the family by having a third party available to assist them as they begin the initial and critical recovery phase. Our understanding of the familial role will undoubtedly help us improve the effectiveness of interventions by including the family as part of the treatment plan.

The role of familial influences on gambling behavior has been discussed in the literature from two perspectives – genetics and a social learning paradigm. Specific alleles of genes (Blanco, Ibanez, Saiz-Ruiz, Blanco-Jerez, & Nunes, 2000) and dysfunctional neurotransmitters such as serotonin and noradrenalin have been associated with PG (Comings et al., 1996; Ibanez, Blanco, de Castro, Fernandez-Piqueras, & Saiz-Ruiz, 2003). Results from a study on familial influences and gambling cognitions by Oei and Raylu (2004) showed that offspring gambling behaviors and cognitions were significantly related to parents' (especially fathers') gambling cognitions and gambling behaviors. The findings from this study provided evidence that the influence of parental gambling cognitions on offspring gambling behavior is channeled indirectly via offspring cognitions. Although these familial

studies have not been conducted specifically on Chinese samples, the results propose possible mechanisms of transmission of gambling behavior in the family from one generation to the next. It would be worthwhile to focus on evidence obtained to date in this area and conduct future studies on Chinese participants.

As outlined in [Tables 1 and 3](#), Chinese gamblers were less likely to seek professional help than other cultural groups despite having higher unpaid debts and financial problems ([GAMECS Project, 1999](#); [Victorian Casino and Gaming Authority, 2000](#)). The effect of culture extends beyond that of help-seeking behavior into riskier gambling behavior ([Lau & Ranyard, 2005](#)). Demonstrations of such behaviors among the Chinese may stem from the cultural belief that it is the individual, family, or community's responsibility to provide support to PGs, not the government or organizations ([GAMECS Project, 1999](#)). Reluctance in admitting the issue is further reflected in the underreporting of problems among PGs in comparison to third-party estimates ([Blaszczynski et al., 1998](#)). In other words, the percentage of known problem gamblers reported by significant others was higher than the percentage of participants who identified as being a problem gambler.

4.1.1. Summary

Research on factors associated with the development and maintenance of PG and gambling behavior in Chinese samples has been highly exploratory. Numerous risk factors such as barriers to service access and preventive factors such as involvement in other activities have been identified. One of the more interesting findings was that risk-taking behavior can generalize from casino gambling to business investments ([Ozorio & Fong, 2004](#)). Chinese gamblers are also more inclined to have erroneous beliefs and cognitive errors than other samples, which in turn perpetuates the gambling problem ([Hong & Chiu, 1988](#); [Oei et al., in press](#)). The collated results of the studies reported here lacked coherence with regards to the underlying theory, methods utilized, and the patterns of findings. Therefore, it is reasonable to argue that more work is needed in this area so that researchers and clinicians are able to develop interventions based on stable and consistent frameworks.

As it can be seen from the tables, most studies have examined the role of risk factors but none have investigated the role of protective factors in the development of PG among the Chinese. This trend in research is consistent with the existing literature in addictive behaviors and in particular the gambling literature ([Leshner, 1999](#)). This area of research will benefit from the inclusion of a focus on the role of protective factors, as it can potentially provide an additional dimension from which clinicians and researchers can develop intervention strategies. These issues and suggestions for future research will be elaborated on in the Discussion section.

4.2. Qualitative studies

In line with the quantitative studies (i.e., [Teo et al., 2007](#); [VCGA, 2000](#)), analyses of interviews with PGs and significant others showed that the main motivations for gambling were social reasons (primary), desire or need for more money, boredom, and isolation ([Scull & Woolcock, 2005](#)). PGs may also be motivated due to a lack of other involvements, thus using gambling as a coping strategy and an opportunity to “try their luck” during financial hardship. As outlined in [Table 4](#), [Scull and Woolcock \(2005\)](#) identified the predisposing, precipitating, and perpetuating factors of PG. Understanding these factors will undoubtedly aid in dealing with and treating PGs.

Consistent with the quantitative studies reported here, the qualitative studies (refer to [Table 4](#)) also found that Chinese problem gamblers had difficulty admitting they had a problem for fear of losing pride and honor among community members ([Papineau, 2001](#); [Scull & Woolcock, 2005](#)). In line with this finding, most Chinese PGs exhibited reluctance to seek professional help outside the Chinese community network. Barriers to help-seeking behaviors were language difficulties, cultural differences, false beliefs in betting (e.g., that a stroke of bad luck was an indicator of the future occurrence of good luck in betting), and denial of the problem ([Basu, 1991](#); [Papineau, 2001](#); [Scull & Woolcock, 2005](#)). Among the documented detrimental effects of PG were bankruptcy, financial struggles, domestic violence, and health problems such as anxiety, mental stress, and constant obsession ([Chan, 2000](#); [Scull & Woolcock, 2005](#)). In sum, despite differences in research questions and aims, these studies reported certain findings that overlapped and there were threads of consistency in the data collected.

In the earlier mentioned study by [Chan \(2000\)](#), women of Chinese origin who had migrated into the United Kingdom reported that many of their husbands enjoyed gambling in their free time. Migration into a foreign country can be related to increased stress, poor social support, cultural barriers, and hardship — all of which perpetuates the intention to gamble and the eventual perception of it as a leisure activity ([Chan, 2000](#)). As outlined in [Table 4](#), the author argued that the availability and convenience of casinos in the Chinatown districts of most Western countries contributes to the temptation to gamble and the destructive lifestyle of community members. In their study on individuals from non-English speaking backgrounds (NESB), [Scull and Woolcock \(2005\)](#) argued that migrants such as restaurant workers and overseas students (particularly from Taiwan) were highly vulnerable to developing gambling habits as a result of too much spare time and lack of other social activities.

Another common theme among the studies was the lack of knowledge and understanding with regards to problem gambling and the difficulties in communicating the issue to someone outside the local community ([Papineau, 2001](#); [Scull & Woolcock, 2005](#)). Consistent with the findings from the quantitative studies, Chinese gamblers from Montreal also reported that they believed in the concept of fate, luck, the power of numbers, and honoring the Gods with wins from gambling ([Papineau, 2001](#)). This finding reinforces the results obtained through empirical analyses and is similar to the previously mentioned concept of cognitive errors based on Chinese superstitions and cultural beliefs (i.e., [Hong & Chiu, 1988](#); [Oei et al., in press](#)).

4.2.1. Summary

The qualitative studies presented here provide a diverse and vastly informational overview of gambling and PG among Chinese communities. Furthermore, the results have common characteristics when compared with findings from quantitative studies. The

Table 4
Qualitative studies conducted in relation to gambling among the Chinese community

Author	Design	Participants	Findings
Basu (1991)	<ul style="list-style-type: none"> ● Discussion of the historical and cultural context of gambling ● Reviewed the role of gambling in China ● Investigated the associations between culture and gambling in the Hakka Chinese community of Calcutta through ethnographic studies 	Interviews (conducted in Mandarin) and observations of the Calcutta Chinese Number of participants not stated Community sample	<ul style="list-style-type: none"> ● The Calcutta Chinese viewed gambling as an avenue of re-enacting the complex interaction between intention and fate, which signifies their ability to affect economic outcomes ● Heavy gambling is condemned within the community and heavy gamblers are deemed lazy
Chan (2000)	<ul style="list-style-type: none"> ● Aimed to explore the quality of life of women from Chinese origin ● Content analysis based on semi-structured interviews of Chinese mothers with preschool children in the central part of Manchester 	N=30 Chinese mothers recruited from immunization records of the Health Authority of Central Manchester Community sample	<ul style="list-style-type: none"> ● Since migration into United Kingdom, these mothers have gone through psychological stress from various factors such as lack of social support, poor family relationships, gambling husbands, domestic violence, language difficulties, and cultural barriers ● Temptation to gamble increases due to convenience and availability of gambling venues (see in-text)
Papineau (2001)	<ul style="list-style-type: none"> ● Review of social standards and pathological gambling in Montreal's Chinese community from an anthropological viewpoint 	Number of participants not stated	<ul style="list-style-type: none"> ● Chinese gamblers held on to superstitious beliefs (see in-text for more details) ● Difficulty among PGs in admitting that there is a problem (see in-text) ● Independence and reluctance to seek help with PG outside the Chinese community network (see in-text)
Scull and Woolcock (2005)	<ul style="list-style-type: none"> ● Structured interviews developed based on literature review and preliminary findings ● Target communities were Chinese, Greek, and Vietnamese ● Two target participant groups were (1) Individuals with direct knowledge of problem gambling within NESB communities (e.g., welfare officers) and (2) PGs, relatives of PGs, or former PGs 	N=5 problem gamblers or former problem gamblers; N=3 relatives of problem gamblers	<ul style="list-style-type: none"> ● Prevalence estimation (see in-text for details) ● Identified vulnerable groups (see in-text) ● Motivations for gambling (see in-text) ● Predisposing factors: language barriers, irregular working hours, settlement difficulties ● Precipitating factors: advertising on gambling encourages false beliefs about winning, easy access to gambling venues in Australia as compared to home country ● Perpetuating factors: initial excitement of gambling replaced with the urgency to win money to cover their losses ● Consequences of gambling (see in-text) ● Barriers to help-seeking behaviors (see in-text)

key themes across the two types of studies included: Chinese individuals viewing gambling as a form of social activity, PGs refusing to admit that they have an issue, and reluctance to seek professional help outside the Chinese community network.

5. Discussion

5.1. General conclusions, strengths, and the results of the research thus far

Research in the area of PG is important due to the adverse consequences of gambling on the gambler and their family and friends. Critical analysis of the Chinese gambling literature was a challenging task and one that desperately needs more research to support claims from the current literature presented in this review article. Nevertheless, through analysis of the literature on Chinese gambling, patterns of gambling in this population were presented, revealing that social gambling is a popular form of entertainment in Chinese communities, but that prevalence estimates of PG and pathological gambling varied from one study to another. The studies reported here were significant in their contribution to this research area, and their findings provide us with a stepping stone from which we can develop future empirical investigations.

One of the important issues identified in this review relates to Chinese gamblers having difficulty admitting that PG is an issue that has to be dealt with, and viewing gambling as an avenue of gaining financial wealth despite having financial difficulties (GAMECS Project, 1999; Papineau, 2001; Scull & Woolcock, 2005; Victorian Casino and Gaming Authority, 2000). Difficulty in admitting the problem and seeking help are common cultural characteristics among the Chinese. Such behaviors are seen as a sign of weakness and vulnerability, which produces the feared reality of losing respect in the community (Basu, 1991; GAMECS Project, 1999). From a Chinese cultural viewpoint, public admittance of a problem will disrupt the harmony of others and the world around them; hence, many Chinese individuals avoid conflict in order to maintain peace and harmony (Cheung, 1993). Furthermore, Chinese individuals believe that they should not burden others with their problem and should block out unpleasant thoughts that may cause emotional upset. As a result, the gambler will be concealed within the family

while the head of the family decides on avenues for support, which usually include traditional healing methods and herbal medicines (Cheung, 1993).

As the characteristics of Chinese problem gamblers are in many ways different to those of gamblers in Western societies, they must be taken into consideration when planning treatments and developing support services to help them. Discretion and confidentiality of support services is essential in order to gain the trust of Chinese gamblers, as this will be pertinent to their fear of losing respect among their community members. Furthermore, the lack of awareness of PG in Chinese communities (Scull & Woolcock, 2005) should be addressed through multilingual information with clear explanations of the terms used in PG. The family and community focused problem-solving strategies utilized by the Chinese can also be used to advantage by distributing materials to community members, community based workers, local newspapers, and radio telecast so that they will be readily available to Chinese PGs. Accessibility to support services can also be improved by marketing seminars or workshops as something less stigmatizing (e.g., financial management).

5.2. Methodological weaknesses

The methodology of the studies used in this area of research needs to be considered so that we can build on current knowledge and improve future research. The studies presented here recruited Chinese participants; however, there was variability in the inclusion criteria (i.e., some studies recruited Chinese Diaspora who grew up in Western countries). There is a need to standardize what classifies an individual as being Chinese and this can be done by clearly identifying whether participants are of Chinese descent. However, are Chinese individuals born and raised in Western countries considered to be “Chinese”? Perhaps, by conceptualizing Chinese individuals as being on a continuum may allow movement between categories. For example, categories may include “Chinese raised in China,” “Chinese raised in Taiwan,” and “Chinese raised in America.”

There are also issues surrounding the acculturation process (i.e., difficulties in adapting to the mainstream culture) such as that shown in the research by Chan (2000) on Chinese migrants in the UK. Stressors experienced during this integration process could increase the risk of individuals taking up gambling (Raylu & Oei, 2004a), as past research has demonstrated that factors such as boredom, loneliness, emotional stress, and isolation are important motivators for gambling (e.g., Blaszczynski et al., 1998; Scull & Woolcock, 2005). The effects of acculturation have also been demonstrated in the depression literature. Parker, Chan, Tully, and Eisenbruch (2005) have suggested that Westernized Chinese (i.e., high-acculturation Chinese) were more likely to recognize their depressive state and more likely to report an episode of lifetime depression in comparison to controls (non-Chinese) and low-acculturation Chinese. The process of acculturation should be taken into consideration when assessing or treating Chinese PGs and assistance should be made available when required.

As with the literature on pathological gambling (Raylu & Oei, 2002), there are also methodological issues relating to the definitions of PG in the Chinese gambling literature. Raylu and Oei (2002) suggested classifying gambling behavior and gambling problems along a continuous scale, which would allow movement between categories (e.g., gamble vs. do not gamble) and along a continuum (e.g., infrequent gambling to frequent gambling). For example, Petry (2005) and Shaffer, Hall, and Vander Bilt (1999) have adapted the conceptualization of gambling along a continuum with the number of levels indicative of the severity of gambling involvement and related problems. The utilized levels are as follows: “Level 0 gambling” refers to someone who has never gambled, “Level 1 gambling” refers to social or recreational gambling, “Level 2 gambling” refers to wagering coupled with the development of gambling-related problems, and “Level 3 gambling” refers to gambling to a degree that it is associated with significant problems. At this level, the individual would have typically met the criteria for pathological gambling in the DSM-IV-TR.

Steps that can be taken to improve the generalizability and validity of results reported here include increasing sample sizes in quantitative studies and focusing on more theoretical sampling for qualitative studies, where the aim is to approach people who would yield the most informative results, on a priori grounds. Future studies also need to examine similarities and differences in gambling correlates between Chinese individuals living in different countries. This is important as Chinese communities exist in numerous countries and although gambling is ingrained into Chinese culture, the history and social norms of gambling in each country are different. As research in this area progresses, the utilization of a variety of data collection methods would provide significant insights that no single approach would yield (Volberg, 1996). Multiple research techniques will inevitably resolve discrepancies and increase the depth of perception in the field of gambling research among the Chinese. Consequently, the development of a coherent strategy for integrating methodologies designed to analyze clearly defined hypotheses comprehensively will form the basic foundation for research in this area.

5.3. Other weaknesses and future development

Another important issue is that the available data on demographic patterns of gambling does not lend itself to a clear understanding of the area. Nonetheless, the preliminary, qualitative and quantitative studies reported here suggest cultural differences when compared to more common studies conducted on Western samples (e.g., Oei et al., *in press*; Scull & Woolcock, 2005). The highlighted differences lie in stronger familial influences on Chinese gamblers and distorted beliefs and cognitions stemming from superstitions. As mentioned in the previous section, gaps remain in our knowledge of prevalence and demographics that might be addressed by future surveys. A clearer understanding of demographic patterns in Chinese gambling may be possible through large-scale epidemiological studies in various countries that closely resemble the target population. More research examining variations in game preferences according to gamblers' gender and age could be done to provide a clearer picture of PG in the Chinese population. The question of higher rates of PG among certain demographic groups (e.g., married middle-aged men) leads to questions that need answers. We need to find out the extent to which Chinese and non-Chinese problem gamblers utilize

social services such as street kitchens, suicide hotlines, social welfare, unemployment services, and crisis centers. Not only will these answers be useful for developing theories, they would help in deciding where to provide services for problem gamblers.

From the research reported here, it is reasonable to argue that there are lack of validated instruments designed specifically for Chinese individuals and PGs. These measures can be used to assess PG and other important related variables such as severity, sensation-seeking behavior, attitudes toward gambling, cognitions, help-seeking behavior, and treatment receptiveness. Likewise, greater attention to more theory-based systematic studies of all forms of gambling and successful interventions among the Chinese seems necessary. At present, there is no single theoretical framework that can adequately capture the complex interplay of factors associated with gambling and PG among Chinese individuals. For that reason, an eclectic approach may prove to be beneficial when considering the interactive and complex relationships between factors implicated in PG and its treatment. It is also important to explore and understand the correlates of gambling among Chinese individuals (e.g., gambling cognitions, attitudes, and help-seeking behavior) as such correlates may eventually affect the outcomes of any preventive or intervention program devised for Chinese gamblers. For instance, treatment programs that incorporate psycho-education addressing erroneous beliefs about winning and superstitions may be beneficial for Chinese PGs seeking help (Oei et al., *in press*).

It is also evident that there is limited research in the area of treatment effectiveness and efficacy among Chinese gamblers. This significant deficit in the literature should not persist, as Chinese PGs deserve an intervention program that is tailored to meet their needs and is proven to work for them. In addition, there are a lack of direct comparisons of PG and its treatments between the Chinese and other ethnic groups (e.g., Caucasians, Vietnamese, and Macedonians). Future research in the area of treatments built upon existing knowledge of Chinese gambling and extrapolations of Western gambling literature will be beneficial in developing cohesive and effective intervention plans specifically for Chinese PGs. Such investigations may include theory development, effectiveness research with randomized controlled trials, and validation of Chinese-specific assessment instruments. Avenues for further research may also include questions such as: Are Western-based treatments effective in treating Chinese PGs? How receptive are Chinese PGs to the clinically validated interventions that are available? What changes can be made in the intervention process that may improve treatment outcome? It is important to remember that all research should be practical, high in functionality, and should meet the needs of the targeted population.

As mentioned previously, the majority of prevention and intervention research has focused on identifying risk factors and at-risk individuals. However, not all at-risk individuals go on to develop anticipated disorders and many thrive in spite of them (Lussier, Derevensky, Gupta, Bergevin, & Ellenbogen, 2007). In healthcare settings, disorders are typically conceptualized from the biomedical perspective that frame disorders as something negative residing within the individual and reduction in negativity is seen as success (Harris & Thoresen, 2006). Indeed, this conceptualization may be adequate in many cases as reducing PG behavior is undoubtedly an important outcome, but the focus on the negative alone is too narrow to capture the complexity of human behavior. Therefore, in order to capture the complexity of human behavior (we have both positive and negative traits), the development of interventions that build character strengths such as optimism and hope may be beneficial when used together with interventions targeting problem behaviors. Such interventions may also improve overall quality of life. A similar framework can be applied in PG research. By reframing disorders to include the absence of positive characteristics and protective factors, in addition to the presence of negative characteristics, strength-promoting interventions may consequently be more successful, effective, and appealing to consumers or problem gamblers. Vigorous theory testing should precede all treatment advances. Translational research that provides empirical evidence for effective solutions via the integration of positive psychology (PP) concepts in mainstream psychopathology is an avenue for further developments in both PP and PG research.

5.4. Summary

Previous studies conducted in this area clearly have both strengths and weaknesses, but they have certainly provided us with a wide spectrum of information regarding gambling, PG, and pathological gambling among the Chinese. The challenge for the future lies in concentrating on the types of research questions that may help problem gamblers and increase funding for interventions for PG and its equivalent. Questions that will arise are: Can the integration of PP and PG research be a useful advancement in understanding PG? What are the prevention strategies that can work efficiently among the Chinese? What percentage of welfare recipients has gambling problems? What are the successful treatment plans available for PG among the Chinese? What is the most cost-effective method of administering treatment? Is it feasible and effective if interventions require active participation of significant others? While research in this area is still at its infancy, future studies on Chinese gambling seems promising as there are numerous opportunities and platforms from which researchers could conduct their investigation. Furthermore, such developments will undoubtedly be beneficial in preventing and remediating the negative outcomes of PG for the gambler and their significant others.

The migration of Chinese individuals into other countries such as Australia and the United States will inevitably and indirectly affect the responsibility of these countries to provide remediation for social problems that may arise due to PG as it has been shown to be prevalent among the Chinese. Future research in this area requires urgent attention as some Asian countries (e.g., Macau, China and Singapore) have already legalized gambling and others (e.g., Korea, Taiwan, Indonesia, and Vietnam) are considering the option of legalized gambling. More focus should be given to such issues and we should take up the challenge. The continued lack of attention towards this area of research could lead to an array of difficulties in the future (e.g., PG becoming a social problem that requires huge governmental funding and intervention). The legalization of gambling should be followed by governmental responsibility to provide adequate support services for PGs and their significant others. We have witnessed that through the legalization of gambling in Western countries, the availability of gambling venues and the prevalence of PG have increased (Petry, 2005). Clearly, psychological approaches are one of the many steps that can be taken to prevent the rise of a potentially damaging

social issue. We need to understand all aspects of PG — assessment, prevention, and treatment, so that we will have sufficient knowledge to handle the issue when it arises.

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