Journal of Gambling Issues
Issue 40, December 2018
http://igi.camh.net/doi/pdf/10.4309/jgi.2018.40.5
DOI: http://dx.doi.org/10.4309/jgi.2018.40.5

An Exploratory Study of Gamblers' Perceptions of Music's Effects on Gambling Behaviour

Stephanie Bramley,[1] Nicola Dibben,[1] & Richard Rowe[2]

[1] Department of Music, University of Sheffield, Sheffield, UK
[2] Department of Psychology, University of Sheffield, Sheffield, UK

Abstract

Background music is often present in gambling environments and has been found to influence gamblers' behaviour. However, little is known about gamblers' perception of environmental influences, including music, and whether gamblers believe that such influences can impact upon their gambling behaviour. An online questionnaire was administered to 136 gamblers to probe the perceived effects of gambling operator-selected and self-selected music on the cognitive, emotional, and behavioural aspects of gambling. In general, few respondents believed that music influences aspects of gambling participation. However, the analysis indicated that some gamblers, particularly those classified as moderate-risk and problem gamblers, self-select music to accompany gambling, and analysis of free-text responses indicated that this was undertaken to match their musical preferences or out of habit. Some gamblers believed that self-selected music promoted positive moods and supported concentration. Furthermore, some poker players thought that music may serve unique functions such as helping them to mask outward emotions and filling time between games. This study demonstrates that self-selected music is sometimes purposefully used by gamblers to support the cognitive and emotional aspects of gambling. However, as few gamblers believed that music could influence the cognitive, emotional, and behavioural aspects of gambling, this research reveals a disparity between subjective opinions and objective evidence, as gathered in published empirical laboratory experiments. This indicates the need to improve gamblers' awareness of the potential influence of background music on the gambling experience.

Keywords: gambling, background music, self-selected music, musical preferences, gambling behaviour perception, beliefs

Résumé

Dans les environnements de jeu, il y a souvent une musique de fond, et on a constaté qu'elle influençait le comportement des joueurs. Cependant, on sait peu de choses de

la perception qu'ont les joueurs des influences environnementales, notamment la musique, et de leur avis quant aux influences que ces facteurs environnementaux peuvent avoir sur leur comportement de jeu. Un questionnaire en ligne a été soumis à 136 joueurs compulsifs afin de sonder les effets perçus de la musique sélectionnée et choisie par les opérateurs de jeux d'argent, d'une part, et celle choisie par le joueur, d'autre part, sur les aspects cognitifs, émotionnels et comportementaux du jeu. En général, peu de répondants interrogés pensent que la musique influence certains aspects de la participation au jeu. Toutefois, l'analyse a montré que certains joueurs, en particulier ceux classés à risque modéré et à problème, choisissaient eux-mêmes leur musique pour accompagner les jeux de hasard, et l'analyse des réponses en texte libre indiquait que cela était fait pour correspondre à leurs préférences musicales ou par habitude. Certains joueurs étaient d'avis que la musique qu'ils choisissaient eux-mêmes favorisait une humeur positive et la concentration. De plus, certains joueurs de poker étaient d'avis que la musique pouvait potentiellement servir à des fonctions particulières, comme les aider à masquer leurs émotions et à combler le temps entre les parties. Cette étude démontre que les joueurs utilisent parfois délibérément de la musique qu'ils ont eux-mêmes choisie pour soutenir les aspects cognitifs et émotionnels du jeu. Cependant, comme peu de joueurs étaient d'avis que la musique pouvait influencer les aspects cognitifs, émotionnels et comportementaux du jeu, cette recherche révèle une disparité entre les opinions subjectives et les preuves objectives recueillies dans le cadre d'expériences empiriques de laboratoire publiées. Cette étude montre qu'il est nécessaire de sensibiliser davantage les joueurs à l'influence potentielle de la musique de fond sur l'expérience de jeu.

Introduction

Gambling is a popular leisure activity: In the United Kingdom, 48% of adults participated in gambling in 2016 (Gambling Commission, 2017). Background music often features within the design of gambling activities (Bramley & Gainsbury, 2015) and environments (Bramley, Dibben, & Rowe, 2016; Griffiths & Parke, 2005), where it is used to promote and enhance the gambling experience (Bramley et al., 2016; Parke & Griffiths, 2007). Yet, gambling is a risky behaviour and requires individuals to use a range of psychological processes, including attention (Noseworthy & Finlay, 2009), judgement, decision making, and memory, all of which can be influenced by music and other environmental stimuli (North & Hargreaves, 2008). Consequently, it is important to understand the influence of music on gambling behaviour and the extent of gamblers' awareness of these potential influences on behaviour.

The potential influences of music on gambling can be considered in relation to Griffiths (1993) categorization of ways in which the gambling industry encourages gambling in terms of (a) situational characteristics and (b) structural characteristics. Situational characteristics attract gamblers to a gambling environment (e.g., the location and density of gambling outlets in an area; gambling advertising) and are

important in an individual's initial decision to gamble. Structural characteristics are features that may maintain gambling behaviour (Parke & Griffiths, 2006) and include playability (e.g., speed of play) and ambient features (e.g., design of gambling environments or activities; Parke & Griffiths, 2007).

Music can be considered both as a situational and structural characteristic. As a situational characteristic, music can be present in the background of gambling environments and can feature in gambling activities (e.g., emitted from variously called fruit, slot, or gaming machines) as a structural characteristic. Therefore, music can potentially initiate gambling participation and maintain gambling behaviour. Background music is often present within gambling environments and its presence tends to be controlled by gambling operators (Bramley et al., 2016; Bramley & Gainsbury, 2015; Griffiths & Parke, 2005). In casinos, background music is a constant presence and is often sourced through external music supply companies (Bramley et al., 2016). Casino managers use recorded background music to create the right atmosphere for gambling and to promote positive moods (Bramley et al., 2016). To achieve these aims, casino managers manipulate the tempo, volume, and genre of the recorded background music by selecting appropriate playlists (Bramley et al., 2016). Some casino managers use live music, in addition to recorded background music, but live music is usually used to accompany non-gambling activities (e.g., the consumption of food and drink in the casino's restaurants and bars), to entertain customers, and to advertise the casino (Bramley et al., 2016).

In amusement arcades, managers choose background music with the aim of appealing to their customers' preferences, basing their decisions on associations between particular music genres and the targeted age and gender of customers, as well as on matching the machine they play (Griffiths & Parke, 2005). One amusement arcade manager commented that allowing gamblers to request certain music to be played kept the customers happy and "when they are happy, they are spending" (quoted in Griffiths & Parke, 2005, p. 5). In online slot machine gambling, research suggests that background music might help to elicit emotional responses in gamblers and enhance the gambling experience (Bramley & Gainsbury, 2015). Therefore, it appears that gamblers are exposed to a great deal of music that may be perceived to influence, or in reality to influence, their gambling experience and behaviour.

Research conducted in retail and commercial environments suggests that background music can influence the speed of consumer activity, perception of the environment, patronage, purchasing, and time perception (North & Hargreaves, 2006, 2008). Griffiths and Parke (2003, 2005) applied such research to gambling and suggested that background music may increase gamblers' confidence, arousal level, and risk-taking behaviour; aid relaxation; help gamblers to disregard previous losses; mask the auditory cues emitted from the slot machines; and induce a romantic affective state, leading gamblers to believe that their chances of winning are unrealistically enhanced. Furthermore, Griffiths and Parke (2005) hypothesized that popular music may be the most potent genre in influencing slot machine gambling

because this genre can influence behaviour in other commercial environments (e.g., cafeterias, banks, and bars).

Researchers have found that music can influence indices of laboratory gambling behaviour. Mentzoni, Laberg, Brunborg, Molde, and Pallesen (2014) found that slow-tempo music led participants to place more bets and fast-tempo music led to quicker reaction times during a simulated card game. Three studies have found that fast-tempo music leads to quicker betting in virtual roulette (Bramley, Dibben & Rowe, 2014; Dixon, Trigg, & Griffiths, 2007; Spenwyn, Barrett, & Griffiths, 2010). Noseworthy and Finlay (2009) found that music, particularly slow-tempo, high-volume music, can provide cues from which slot machine players can more accurately reconstruct elapsed duration of play. Therefore, evidence suggests that music can influence gambling behaviour, although the extent to which this transfers to real-life gambling situations is currently unknown.

The experience of background music in real-life gambling situations, from the gambler's perspective, has largely been neglected. Two studies that have investigated gamblers' experiences of music focused on the gamblers' opinions of the music and sound emitted from gambling equipment (Husain, Wardle, Kenny, Balarajan, & Collins, 2013; Livingstone, Woolley, Zazryn, Bakacs, & Shami, 2008). Husain et al. (2013) found that some gamblers reported that background music helped to create an illusion of a cosy, welcoming environment. Looking beyond the gambling environment, some evidence suggests that people may not always be aware of the presence of background music, nor of its potential effects. For example, stereotypical French and German background music played in a supermarket influenced the purchasing of French and German wine, yet shoppers' questionnaire responses suggested that they were aware of the music, but unaware of music's effects on their purchasing behaviour (North, Hargreaves, & McKendrick, 1999). More research in the field of gambling studies is needed to ascertain whether gamblers are aware of music's presence and potential to influence gambling behaviour. Gamblers may hold erroneous beliefs concerning the relationship of music and gambling. If so, such beliefs might contribute to problematic gambling and be potential targets for intervention.

To date, researchers have limited their investigations about how music may influence indices of gambling behaviour to experimenter-selected and gambling operator-selected music. However, research suggests that some casino and remote gamblers listen to music of their own choice (i.e., self-selected music; Bramley et al., 2016; Parke, Parke, Rigbye, Suhonen, & Vaughan Williams, 2012). Casino managers have observed gamblers listening to music via portable music players when playing poker and slot machines (Bramley et al., 2016). Furthermore, in a survey of online gamblers, "doing something simultaneously," such as "playing whilst listening to your own choice of music," was reported as an appealing feature of Internet gambling (Parke et al., 2012, p. 149). To date, self-selected music listening while gambling has not been widely acknowledged, which is somewhat surprising given the plethora of activities in everyday life that music can accompany and that have previously been

remarked on: housework, running, cycling, desk work, trying to get to sleep (Sloboda, 1999), driving (Dibben & Williamson, 2007; Sloboda, 1999), travelling (Heye & Lamont, 2010), and working (Haake, 2011).

As studies in these other domains indicate, self-selected music can serve a number of functions: provide enjoyment (Heye & Lamont, 2010; North, Hargreaves, & Hargreaves, J.J., 2004); pass time (Heye & Lamont, 2010; North et al., 2004); create the right atmosphere (North et al., 2004); create or accentuate an emotion (Heye & Lamont, 2010; North et al., 2004); regulate arousal and mood (Schäfer, Sedlmeier, Städtler, & Huron, 2013); aid concentration (Dibben & Williamson, 2007; North et al., 2004); and help achieve self-awareness (Schäfer et al., 2013), solace (Randall & Rickard, 2017), and relaxation (Dibben & Williamson, 2007). Such "functional niches" (Sloboda, Lamont, & Greasley, 2009) for music listening provide insights into how music might operate in a gambling context. Bull (2005, 2006) suggests that individuals who personalize and control their music listening can create an "auditory bubble" in which they obtain a sense of space and manage their experiences and interactions in public and private domains. Hence, one might expect individuals to report listening to music via headphones when gambling in a public place (e.g., in a casino) or when gambling alone (e.g., online gambling). Research suggests that individuals use music in precise ways that are tailored to their personal needs (Herbert, 2013); because there are behavioural, cognitive, and emotional aspects of gambling (Orford, 2011), it may be that gamblers use music to support psychological processes associated with gambling. Furthermore, the reciprocal feedback model of musical response (Hargreaves, MacDonald, & Miell, 2005) proposes that people's responses to music are determined by three broad classes of variables: those that relate to the listener, those that relate to the music, and those that relate to the listening situation. Each exerts a simultaneous influence on the other two variables. All of this may play a part in how gamblers respond to music heard in gambling environments, any perceived or actual influence on gambling behaviour, and which music gamblers and gambling operators select to accompany gambling participation.

This discussion of the current state of knowledge about gamblers' perceptions of background music in real gambling environments reveals a lack of data regarding how gamblers experience music and, indeed, little acknowledgement that gamblers might listen to self-selected music. This is important to investigate, as gamblers may opt out of listening to the music provided by gambling operators and listen to their own choice of music, given that recorded music is widely available (e.g., via streaming services) and accessible due to the miniaturization of portable music-listening devices. However, it is currently unknown which functions that self-selected music might serve for gamblers and the potential impact of their choices on their gambling experience. The present exploratory study had two aims. The first was to probe gamblers' beliefs about whether gambling operator-selected music heard in gambling environments influences the cognitive, emotional, and behavioural aspects of gambling. The second was to establish why gamblers listen to self-selected music and to examine their beliefs about whether this type of music influences the cognitive, emotional, and behavioural aspects of gambling.

Method

Participants

An e-mail was sent to a list of staff and students who were interested in volunteering to participate in research studies at The University of Sheffield, Sheffield, UK. The e-mail informed potential respondents about the study and invited individuals to complete an online questionnaire about music and gambling via a link. Inclusion criteria were that participants should be at least 18 years of age and have gambled in the last 12 months.

Materials & Procedure

The questionnaire consisted of 19 questions with varying response formats: forced-choice, quantitative ratings, and open-ended responses. None of the questions were mandatory and the use of skip logic ensured that participants answered only those questions that reflected their gambling participation and music-listening habits.

The first section collected demographic information (age, gender, marital status, employment status, and income) and asked respondents about their gambling habits (i.e., which activities they played, how often they played, and their expenditure) in land-based gambling environments and when gambling remotely. The second section collected information about gamblers' opinions of gambling operator-selected music by using responses to 11 statements compiled from the hypothesized and actual effects of music on behaviour as identified in previous research (Table 1).

In Table 1, the statements are grouped according to the three aspects of gambling identified by Orford (2011): behavioural, cognitive, and emotional. These statements were used to examine the possible functions and influences of gambling-operator music heard in traditional and remote gambling environments, as well as of self-selected music. The respondents rated their agreement with the statements on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The third section collected information about self-selected music and included questions about how participants listened, how often they listened, which music genres they listened to, their motivations for listening (via free-text responses), and their opinions about self-selected music (by responding to 11 statements).

Finally, respondents completed the PGSI (Ferris & Wynne, 2001). The PGSI focuses on the harms and consequences associated with gambling, such as chasing losses, needing to gamble with larger amounts of money to experience the same level of excitement, and experiencing financial difficulties (Ferris & Wynne, 2001). The PGSI score consists of the sum of nine questions (e.g., "Thinking about the last 12 months, have you bet more than you could really afford to lose?") answered as "never" (0), "sometimes" (1), "most of the time" (2), or "almost always" (3). Higher scores indicate greater risk of problem gambling. Scores obtained for each question were

Table 1
Statements Probing Respondents' Beliefs About Music Heard When Gambling, With References to Where Actual or Hypothesized Effects of Music on Gambling Behaviour Were Suggested in Previous Research

Statement	Aspect of gambling	Relevant literature source
"attracts me to a particular area, website, or game"	Cognitive/ Emotional	Griffiths & Parke (2005)
"is distracting"	Cognitive	Bramley (2015)
"aids my concentration"	Cognitive	Dixon et al. (2007)
"affects my ability to judge the amount of time that I have spent gambling"	Cognitive	Noseworthy & Finlay (2009)
"creates the right atmosphere"	Emotional	Bramley (2015) Mayer & Johnson (2003)
"makes me gamble for a longer period of time"	Behavioural	Griffiths & Parke (2005)
"makes me gamble for a shorter period of time"	Behavioural	Griffiths & Parke (2005)
"makes me place bets at a faster rate"	Behavioural	Bramley et al. (2014); Dixon et al. (2007); Spenwyn et al. (2010)
"makes me place bets at a slower rate"	Behavioural	Bramley et al. (2014); Dixon et al. (2007); Spenwyn et al. (2010)
"makes me bet larger amounts of money"	Behavioural	Griffiths & Parke (2005)
"makes me bet smaller amounts of money"	Behavioural	Griffiths & Parke (2005)

totalled to provide participants' problem gambling status (0 = non-problem gambler; 1–2 = low-risk gambler; 3–7 = moderate-risk gambler; 8 + = problem gambler).

Respondents were then thanked for participating and provided with a list of organizations to contact should they wish to discuss their gambling habits. The entire questionnaire took approximately 15 min to complete.

Ethics approval was granted by The University of Sheffield Research Ethics Committee. Informed consent was obtained at the beginning of the online questionnaire.

Data Analysis

We analysed quantitative data with SPSS in order to perform descriptive and inferential statistical tests. Responses to the open-ended questions were analysed with thematic analysis (Braun & Clarke, 2006), which enables researchers to scrutinize data in detail by identifying, analysing, and reporting themes (patterns) within it (Braun & Clarke, 2006). We used the five phases of thematic analysis: (1) becoming familiar with the data (the research team repeatedly read the responses), (2) generating initial codes, (3) searching for themes, (4) reviewing themes, and (5) defining and naming themes (Braun & Clarke, 2006).

Results

Sample characteristics

A convenience sample of 136 respondents (79 male; 57 female; $M = 28$ years; $SD = 10.46$; age range: 18–58 years) completed the questionnaire. The respondents were most commonly single (66.2%), in full-time education (58.8%), and earning up to £10,399 (47.1%) per annum. The majority of respondents ($n = 67$; 49.3%) were classified as land-based gamblers (i.e., people who gamble in physical environments such as casinos, bookmakers, live sporting events, amusement arcades, etc.), 59 (43.4%) as mixed gamblers (i.e., land-based and remote gamblers), and 10 (7.3%) as remote gamblers (i.e., people who gamble via the Internet, television, smartphones, tablets, or any other kind of electronic or technological device). A chi-square analysis with post hoc Z-tests revealed a significantly higher proportion of females in the land-based group (56.7%) and a significantly higher proportion of males in the mixed group (74.6%), $\chi^2(2) = 12.64$, $p < .05$.

Table 2 shows that the National Lottery was the most popular gambling activity, followed by betting and private betting. The previous month expenditure on these gambling activities was most commonly "less than £10.00." The number of gambling activities that respondents reported engaging in provided an indication of gambling involvement. On average, respondents participated in 4.6 gambling activities in the past year ($SD = 2.66$; range: 1–13).

Of the sample, 40 respondents were classified as non-problem gamblers (22 male), 41 as low-risk gamblers (21 male), 29 as moderate-risk gamblers (19 male), and one male as a problem gambler on the basis of their Problem Gambling Severity Index

Table 2
Gambling participation by activity (top 10 activities)

Gambling activities	*N*
National Lottery	90
Betting	83
Private betting	58
Scratch cards	48
Slot/fruit machines	47
Table games (roulette, cards, or dice games played in a casino)	43
Virtual gaming machines (electronic machines that offer gamblers the opportunity to play games such as roulette, blackjack, poker, keno, or bingo in a land-based gambling environment)	29
Another form of gambling (used to allow respondents to document a form of gambling that they participated in such as peer gambling, or for respondents who may not have understood the descriptions of the gambling activities)	26
Football pools	12
Betting exchange	12

[a] Multiple responses to this question were permitted.

(PGSI) scores (Ferris & Wynne, 2001). Twenty-four respondents did not complete the PGSI. For analysis purposes, the classifications "non-problem gambler" and "low-risk gambler" were collapsed into one category named "non-problem or low-risk gamblers." Similarly, those classified as either "moderate-risk gambler" or "problem gambler" were organized into a single category named "moderate-risk or problem gamblers." A chi-square analysis found no relationship between gender and PGSI classification, $\chi^2(3) = 2.23$, $p = .526$. Moderate-risk or problem gamblers ($M = 7$, $SD = 2.75$) were significantly more involved with gambling, $F(1, 105) = 21.50$, $p < .001$, as they participated in a greater number of gambling activities than did non-problem or low-risk gamblers ($M = 4.51$, $SD = 2.33$).

Experiences of Gambling Operator-Selected Music in Land-Based Gambling Environments

Over half of the respondents ($n = 69$; 50.7%) reported that they had heard music in a land-based gambling environment within the last 12 months.

Responses to the statements in relation to gambling operator-selected music are summarized in Table 3. Only one item ("creates the right atmosphere") was positively endorsed by over half the sample. For Items 2 to 8, the majority of responses were "neither agree nor disagree" and therefore showed a degree of uncertainty about whether gambling operator-selected music was attractive, was perceived to extend the duration of gambling sessions, influenced gamblers' betting speed or time perception abilities, influenced the duration of gambling sessions, or hindered or

Table 3
Responses to the Statements in Relation to Gambling Operator-Selected Music Heard in Land-Based Gambling Environments in Terms of Percentage Agreement, Mean Rating, and Standard Deviation of Each Statement

Statement[a]	% Agreeor strongly agree[b]	*M*	*SD*
1 ...creates the right atmosphere	59.7	3.6	.80
2 ...attracts me to a particular area, website, or game	35.5	3.0	1.06
3 ...is distracting	30.6	2.9	1.00
4 ...makes me gamble for a longer period of time	27.4	2.9	.97
5 ...affects my ability to judge the amount of time that I have spent gambling	16.1	2.8	.86
6 ...makes me place bets at a faster rate	14.5	2.9	.67
7 ...aids my concentration	11.3	2.7	.90
8 ...makes me gamble for a shorter period of time	3.2	2.4	.75
9 ...makes me bet larger amounts of money	3.2	2.3	.81
10 ...makes me place bets at a slower rate	0	2.6	.61
11 ...makes me bet smaller amounts of money	0	2.3	.72

Note. $n = 62$.
[a] Each statement began, "The music I hear when gambling in a land-based gambling environment..."
[b] 1 = *strongly disagree*; 5 = *strongly agree*.

aided gamblers' focus. Regarding Items 9 to 11, the majority of responses disagreed with the statements, suggesting that respondents did not consider gambling operator-selected music to affect their speed of betting or their expenditure.

Experiences of Self-Selected Music

Over a third of respondents (n = 52; 38.2%) self-selected music to accompany gambling. The majority of the respondents who self-selected music were mixed gamblers (n = 34; 65.4%), followed by remote (n = 10; 19.2%) and land-based gamblers (n = 8; 15.4%).

Background variables associated with listening to self-selected music. Statistical analyses were performed to explore whether choosing music to accompany gambling was associated with age, gender, or PGSI classification. An independent t test showed that age significantly influenced whether respondents self-selected music, $t(123.95) = 4.27$, $p < .001$ (equal variances not assumed), $r = .75$. Those who self-selected music were younger (M = 24.5 years, SD = 7.76) than those who did not (M = 31.6 years, SD = 10.85).

A chi-square analysis found a significant association between gender and whether individuals listened to music of their own choice, χ^2 (1) = 8.33, $p < .05$. The odds ratio showed that males were 3.03 times more likely than females to listen to music of their own choice when gambling.

Just under half (n = 25; 48.1%) of the individuals who self-selected music were classified as non-problem or low-risk gamblers and over a third (n = 19; 36.5%) were classified as moderate-risk or problem gamblers (eight respondents who self-selected music did not complete the PGSI). A chi-square analysis revealed a significant association between PGSI classification and respondents who listened to music of their own choice, χ^2 (1) = 10.80, $p < .001$. Moderate-risk or problem gamblers were 4.1 times more likely to self-select music than were non-problem or low-risk gamblers.

Mode of listening and genres listened to while gambling. The most popular device used to facilitate music listening was a hi-fi or computer (n = 38 responses; 73.1%), followed by a portable music player such as an MP3 or CD player or a smartphone (n = 23 responses; 44.2%) and then the radio (n = 6 responses; 11.5%). The respondents indicated which genres of music they chose to listen to while gambling from a list of 15 categories. The most popular genre listened to was alternative/Indie (n = 24 responses; 14.8%) followed by rock (n = 23 responses; 14.2%), pop (n = 23 responses; 14.2%), dance/electronic/house (n = 20 responses; 12.3%), heavy metal (n = 13 responses; 8%), rap/hip-hop/RnB (n = 12 responses; 7.4%), blues (n = 10 responses; 6.2%), folk (n = 9 responses; 5.6%), classical (n = 7 responses; 4.3%), jazz (n = 7 responses 4.3%), soul/funk (n = 6 responses; 3.7%), soundtracks (n = 5 responses; 3.1%), other (n = 2 responses; 2.5%), and religious music (n = 1 response; 0.6%).

Table 4
Responses to the Statements in Relation to Self-Selected Music Experienced When Gambling in Land-Based or Remote Gambling Environments in Terms of Percentage Agreement, Mean Rating, and Standard Deviation of Each Statement

Statement[a]	% Agree or strongly agree[b]	*M*	*SD*
1 ...creates the right atmosphere	67.4	3.8	.97
2 ...makes me gamble for a longer period of time	37.2	3.2	.90
3 ... aids my concentration	37.2	3.1	.91
4 ...affects my ability to judge the amount of time that I have spent gambling	30.2	2.8	1.10
5 ...is distracting	14.0	2.4	.93
6 ...makes me place bets at a faster rate	9.3	2.6	.76
7 ...makes me bet larger amounts of money	7.0	2.5	.70
8 ...makes me place bets at a slower rate	4.7	2.4	.70
9 ...makes me bet smaller amounts of money	0	2.3	.61
10 ...makes me gamble for a shorter period of time	0	2.3	.64

Note. $N = 43$.
[a] Each statement began, "The music that I choose to listen to when gambling…" The statement "attracts me to a particular area, game/website or machine" was omitted for self-selected music.
[b] 1 = *strongly disagree;* 5 = *strongly agree*.

Opinions towards self-selected music. Gamblers' beliefs about self-selected music are summarized in Table 4. Only one item ("creates the right atmosphere") was positively endorsed by two-thirds of respondents. Over a third of respondents positively endorsed the item "aids my concentration" and the same proportion positively endorsed the item "makes me gamble for a longer period of time." For the remaining items, the majority of responses were "strongly disagree" or "disagree," showing that participants disagreed that self-selected music influenced their ability to judge time, influenced their betting speed, shortened the duration of gambling sessions, or affected their expenditure. Over 50% of respondents disagreed that self-selected music was distracting.

Motivations for listening to self-selected music. The gamblers' free-text responses ($n = 48$) to the question, "Why do you listen to music of your own choice when gambling?" were coded by using thematic analysis (Braun & Clarke, 2006) because it offered flexibility through its theoretical freedom and allowed data to be described in detail by identifying, analysing, and reporting themes (patterns; Braun & Clarke, 2006). The level of detail obtained in response to the question ranged from one word to a brief paragraph (circa. 100 words). The responses highlighted that some (39.6%) but not the majority of gamblers who listen to self-selected music consider this type of music to influence aspects of their gambling participation. Four themes emerged from the thematic analysis, as follows.

Musical preferences influence music listening. Musical preferences were referred to by 37.5% ($n = 18$) of respondents who self-selected music to accompany their

gambling as a factor that led them to self-select music. Some respondents listened to their own music because they disliked the music played by gambling operators: "*Because I enjoy my own music rather than cheesy 'poker music'*"; "*I can listen to songs with words rather than annoying sounds*"; "*I like my music not that rubbish that comes over the sound system*"; "*Relaxing, enjoyable, better than the sites' own annoying music*." Some gamblers were dissatisfied with the gambling operators' music, as it was deemed to be of poor quality. The type of music gamblers chose to listen to was informed by their personal musical preferences: "*Because I prefer my own music*"; "'*cos Lady Gaga isn't played by the betting websites*." It was also informed by which gambling activity they were playing: "*Varies depending on what I'm gambling on. Poker is usually more heavy music than roulette, for example*."

Listening to music promotes appropriate moods. Over a quarter of respondents (n = 13; 27.1%) who self-selected music to accompany their gambling behaviour made reference to self-selected music promoting appropriate moods while gambling. Six individuals reported that self-selected music created an appropriate atmosphere for gambling: "*Creates a better atmosphere*"; "*makes a more comfortable environment*"; "*Sets comfortable/relaxing atmosphere when with friends*"; "*Creates the right sort of atmosphere*"; "*I like music whether gambling or not but sometimes music can set a good tone at a poker game for example*." Self-selected music was therefore valued because it could help to convey positive affective states (e.g., comfort, relaxing, calmness) in gambling situations.

Three respondents reported listening to self-selected music in order to manage their inner feelings when gambling: "*It calms down my nerves*." Self-selected music could also help to relieve tension: "*In a social context (poker with friends) it provides a bit of entertainment and helps fill in the pauses. It also takes the tension off of the situation – without music the game would get far too serious and then it's just not fun.*" In addition, one respondent listened to music via a portable music player with the aim of masking his outward feelings while gambling: "*Allows me to feel comfortable in the surrounding environment, mainly for poker so it is harder for people to read you*."

Habitual music listening. For 22.9% of respondents (n = 11) who self-selected music to accompany their gambling, they did so habitually with gambling for two reasons. The first was because music listening was a part of their everyday life: "*I listen to music all the time*"; "*I always listen to music*"; "*I like music whether gambling or not*"; "*I always have music on*." The second was because self-selected music frequently accompanied their computer usage, which could encompass online gambling: "*...mostly when gambling online it's simply just listening to music. I can't really do anything especially online without listening to some sort of music*"; "*...It's all part of the computer experience. When I am on the computer, unless I am writing, I listen to music...The computer experience is not that interesting in itself, so to enhance the process of internet access, I listen to music. The music listening is not linked to the gambling. It' linked to the computer*"; "*Music plays when I gamble remotely as I just tend to have music on when I'm at the computer*"; "*I listen to music generally when on the computer and so gambling falls into this*."

Listening to music provides cognitive effects. A small number of respondents (n = 6; 12.5%) who listened to self-selected music did so because they thought that it supported the cognitive aspects of gambling. Three respondents reported that music helped them to concentrate: "*Just to have something to listen to in the background, if I'm in a big tourney online that's gonna last a few hours it helps me stay awake and focused to a certain extent*."

Four respondents remarked that self-selected music could divert their attention from monitoring the passage of time when waiting, either to find out whether they had won or lost, or for one of their competitors to gamble: "*To fill in the time while waiting to see if I've won*"; "*online poker is a very slow and dull process especially in a high stakes game. Music fills in the gaps.*" Self-selected music could also provide a positive distraction: "*When playing poker online I like to listen to my own music because it makes the game more enjoyable and helps me detach myself slightly from the game which I find to be beneficial to my game and when the game is going slowly because there is a player that likes to take their time…it provides a welcome distraction*."

Discussion

This study is the first to examine gamblers' beliefs about gambling operator-selected and self-selected music and associated behaviours. The results indicate that both gambling operator-selected and self-selected music are considered to create the right atmosphere for gambling. However, in general, there was not a strong recognition of a number of effects that have been demonstrated in the literature, therefore suggesting a possible disparity between the aspects of gambling that gamblers believe music can influence and objective evidence obtained in empirical experiments.

The results of laboratory studies suggest that musical characteristics can influence betting speed (Bramley et al., 2014; Dixon et al., 2007; Spenwyn et al., 2010), reaction time (Mentzoni et al., 2014), and estimations of duration of play (Noseworthy & Finlay, 2009). However, responses to the statements in relation to both gambling operator-selected and self-selected music showed that, in general, gamblers do not believe that music influences their gambling behaviour (i.e., betting speed, the ability to judge the time spent gambling, expenditure, and duration of gambling sessions). There are at least three possible explanations here. First, it may be that the processes associated with gambling have become more automatic. Relative to controlled processes, automatic processes are fast, demand fewer attentional resources, and can occur with little awareness (Sternberg, 2009). From this, it may be that gamblers are unaware of environmental stimuli such as music exerting an influence on their gambling participation. Second, socially desirable reporting may have had an impact on our study: Individuals may have been reluctant to disclose that aspects of their gambling participation can be influenced by music because of their desire to portray themselves favourably and their belief that they are in control of their gambling. Third, effects of music (e.g., influences of tempo on betting speed; Bramley et al., 2014) only occur when playing particular games (e.g., roulette) that involve gamblers

participating in regular cycles of betting (roulette) or gambling over a prolonged period (e.g., poker). Music is unlikely to influence discontinuous gambling activities such as the National Lottery, which was the most popular form of gambling that this sample participated in. This is because individuals buy tickets and then wait a potentially prolonged period of time for the draw to take place before they know whether they have won or lost.

Regarding self-selected music, this study provides direct evidence to support the notion that some individuals self-select music to accompany their gambling (Parke et al., 2012). Of those who self-selected music, the free-text responses revealed that over 60% chose music to match their musical preferences or out of habit. The remaining respondents believed that music could support either the cognitive or emotional aspects of gambling. Similar to other studies that have investigated the use of music by drivers (Dibben & Williamson, 2007) and athletes (Laukka & Quick, 2013), it appears that some gamblers also use music in purposeful ways to enhance their gambling experience. Self-selected music fulfilled a range of functions for gamblers, including promoting positive affective states (e.g., comfort, relaxation, calmness, easing tension), maintaining arousal levels, diverting attention, aiding concentration, and filling time. Such functions are also common uses of music in other everyday situations (North et al., 2004; Schäfer et al., 2013). However, it is important to note that although some gamblers reported that self-selected music can support certain cognitive and emotional aspects of gambling, this was not the view of the majority.

The analysis of gamblers' free-text responses concerning their motivations for self-selected music listening provided insights into additional functions served by this type of music that were not captured by the statements. Two unique functions were reported by a gambler who played poker in a social setting. First, the gambler used music to detach from the context. Bull (2006) discussed how portable music players could provide an "auditory bubble" for the user, and in poker it may be that self-selected music provides a positive distraction by capturing attention. This particular use of music may be important because of the concept of "tilting": when negative emotions elicited by monetary losses lead gamblers to make detrimental and out-of-control decisions (Browne, 1989; Palomäki, Laakasuo, & Salmela, 2013). Gamblers who focus their attention on self-selected music when "on tilt" may experience a change in emotion that reduces any tension or frustration induced during the gambling session. Using music in this manner relates to previous research that found that individuals report using music to seek detachment from the self, activities, and their surroundings (Herbert, 2013).

Second, this gambler reported using music to manage mood and thereby control outward emotions portrayed in body language that might otherwise have allowed opponents to determine the strength or weakness of the gambler's poker hand. Therefore, for this participant, music was one component of maintaining a "poker face" (van Ingen, 2008). Using music to manage outward feelings is akin to two dimensions of mobile listening proposed by Bull (2006); this gambler used music with

a moral dimension—to avoid relating to others—as well as with a cognitive dimension in an attempt to manage his moods and thoughts.

Poker was mentioned by five other gamblers when explaining why they self-select music and indicated that this type of music serves different functions depending on whether the gamblers play poker online or offline. These differences seem related to the different characteristics of online versus in situ gambling. In online poker, players typically gamble alone in a virtual social setting such that players cannot see each other (Gainsbury, 2010, 2012). The speed of play in online poker may be quicker than in offline poker because actions, including shuffling and dealing cards, are automated. Consequently, gamblers may be able to play more hands and play several tables at once (Fiedler & Rock, 2009). In this study, online poker players tended to use music to enhance their enjoyment, help them to detach from the game, provide a positive distraction during slower periods of play, and fill in the gaps during play. In such examples, it appeared that self-selected music shifted to the foreground from the background and was listened to attentively. By contrast, offline (in situ) poker is characterized by individuals playing against each other face to face. Therefore, offline poker players used music to manage the social setting in which the poker took place. Music was used in social poker gambling situations to provide entertainment, ease tension, and help gamblers to feel comfortable; one respondent reported using music to mask outward emotions. This study therefore illustrates how gamblers' use of music can relate to the characteristics of specific gambling activities and situations.

Our study also showed that individuals classified as moderate-risk or problem gamblers were more likely to self-select music. Three possible explanations are proposed to explain this finding. First, it may be that for moderate-risk or problem gamblers, self-selecting music allows them to exert control over their gambling environment, as this type of music is more likely to be predictable, familiar, and less distracting. Therefore, it may support the cognitive work that is required to make decisions during gambling sessions. Second, it may be that for moderate-risk or problem gamblers, self-selecting music is, or forms part of, a superstitious belief. Gamblers may believe that certain musical pieces are "lucky" and listen to them while gambling, an idea supported by evidence that problem gamblers hold more superstitious beliefs than non-problem gamblers do (Joukhador, Blaszczynski, & Maccallum, 2004). Third, as moderate-risk or problem gamblers may participate in gambling more frequently or for longer durations than do non-problem or low-risk gamblers, it may be more worthwhile for the former to invest time into selecting appropriate music to accompany their gambling. These hypotheses require further testing in future research.

The results from this survey study provide new insights into background music while gambling. However, three limitations should be considered. First, the overall completion rate (percentage of returned questionnaires that were completely answered) was 79.2%. Questions located towards the end of the questionnaire, for example, the PGSI, were unanswered by some respondents, which limited the ability

to probe associations between PGSI classification and motivations for listening to self-selected music. Second, the questionnaire relied on retrospective recall of which particular gambling activities individuals were engaged in while listening to music. Future research could ask participants to recall the last time that they heard music when gambling in order to examine whether certain gambling activities are more likely to be accompanied by music. Furthermore, future research could use alternative methodologies, such as the experience sampling method, in order to reduce the delay between gambling while listening to music and reporting on the gambling experience. Third, the low sample sizes ($n < 100$) meant that more sophisticated statistical analyses (e.g., factor analysis) could not be performed on the data.

Despite these limitations, the study provides exploratory findings into the music-listening habits of gamblers. Gamblers reported hearing music in land-based gambling environments (other research has suggested that music is present in gambling environments, but it was unknown whether gamblers pay attention to the music; Bramley et al., 2016) and some gamblers self-selected music, a music-listening practice that up to now has not been widely recognized in academic research investigating music and gambling. Notably, analysis of responses to the statements showed that gamblers disagree that music can influence the cognitive, emotional, and behavioural aspects of gambling despite empirical evidence to the contrary. Our study suggests that a gap exists between subjective opinion and objective evidence: Gamblers are seemingly not aware of music's potential to influence the gambling experience. This is an important finding, given that music is often incorporated into the design of gambling products and environments (Bramley et al., 2016; Bramley & Gainsbury 2015) and that music, together with other structural characteristics, is thought to be partly responsible for the development of gambling problems (Orford, 2011). This study therefore provides context for more in-depth research into this topic, such as investigating the relationships between the music experienced in gambling environments; individuals' choices concerning the music they listen to; gamblers' perceptions, experiences, and behaviours; and the gambling situation itself so as to inform the design of the gambling environment and equipment.

References

Bramley, S. (2015). *Exploring the presence, experience and influence of background music in gambling situations* (Unpublished doctoral dissertation). The University of Sheffield, Sheffield, UK. http://etheses.whiterose.ac.uk/8411/

Bramley, S., Dibben, N., & Rowe, R. (2014). The influence of background music tempo and genre on virtual roulette. *Journal of Gambling Issues*, *29*. doi:10.4309/jgi.2014.29.17

Bramley, S., Dibben, N., & Rowe, R. (2016). The utilisation of music by casino managers: An interview study. *Journal of Gambling Studies*, *32*: 1127–1141. doi:10.1007/s10899-016-9604-z

Bramley, S., & Gainsbury, S. M. (2015). The role of auditory features within slot-themed social casino games and online slot machine games. *Journal of Gambling Studies*, *31*: 1735–1751. doi:10.1007/s10899-014-9506-x

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*: 77–101. doi:10.1191/1478088706qp063oa

Browne, B.R. (1989). Going on tilt: Frequent poker players and control. *Journal of Gambling Behaviour*, *5*: 3–21. doi:10.1007/BF01022134

Bull, M. (2005). No dead air! The iPod and the culture of mobile listening. *Leisure Studies*, *24*: 343–355. doi:10.1080/0261436052000330447

Bull, M. (2006). Investigating the culture of mobile listening: From Walkman to iPod. In K. O'Hara & B. Brown (Eds.), *Consuming music together: Social and collaborative aspects of music consumption technologies* (pp. 131–149). London, United Kingdom: Springer.

Dibben, N., & Williamson, V. J. (2007). An exploratory survey of in-vehicle music listening. *Psychology of Music*, *35*: 571–589. doi:10.1177/0305735607079725

Dixon, L., Trigg, R., & Griffiths, M. (2007). An empirical investigation of music and gambling behaviour. *International Gambling Studies*, *7*: 315–326. doi:10.1080/14459790701601471

Ferris, J. & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report*. Ottawa, ON: Canadian Centre on Substance Abuse.

Fiedler, I. C., & Rock, J-P. (2009). Quantifying skill in games: Theory and empirical evidence for poker. *Gaming Law Review & Economics*, *13*: 50–57. doi:10.1089/glre.2008.13106

Gainsbury, S. (2010). Response to the Productivity Commission Inquiry Report into gambling: Online gaming and the Interactive Gambling Act. *Gambling Research*, *22*: 3–12. Retrieved from https://epubs.scu.edu.au/cgi/viewcontent.cgi?referer=https://www.google.co.uk/&httpsredir=1&article=1416&context=tourism_pubs

Gainsbury, S. (2012). *Internet gambling: Current research findings and implications*. New York, NY: Springer.

Gambling Commission. (2017). *Gambling participation in 2016: Behaviour, awareness and attitudes: Annual report*. Retrieved from http://www.gamblingcommission.gov.uk/PDF/survey-data/Gambling-participation-in-2016-behaviour-awareness-and-attitudes.pdf

Griffiths, M. (1993). Fruit machine gambling: The importance of structural characteristics. *Journal of Gambling Studies*, *9*: 101–120. doi:10.1007/BF01014863

Griffiths, M., & Parke, J. (2003). The environmental psychology of gambling. In G. Reith (Ed.), *Gambling: Who wins? Who loses?* (pp. 277–292). New York, NY: Prometheus Books.

Griffiths, M., & Parke, J. (2005). The psychology of music in gambling environments: An observational research note. *Journal of Gambling Issues*, *13*. doi:10.4309/jgi.2005.13.8

Haake, A. B. (2011). Individual music listening in workplace settings: An exploratory survey of UK offices. *Musicæ Scientiæ*, *15*: 107–129. doi:10.1177/1029864911398065

Hargreaves, D. J., MacDonald, R. A., & Miell, D. E. (2005). How do people communicate using music? In D. E. Miell, R. A. R. MacDonald, & D. J. Hargreaves (Eds.), *Musical communication* (pp. 1–25). Oxford, United Kingdom: Oxford University Press.

Herbert, R. (2013). An empirical study of normative dissociation in musical and non-musical everyday life experiences. *Psychology of Music*, *41*: 372–394. doi:10.1177/0305735611430080

Heye, A., & Lamont, A. (2010). Mobile listening situations in everyday life: The use of MP3 players while travelling. *Musicæ Scientiæ*, *14*: 95–120. doi:10.1177/102986491001400104

Husain, F., Wardle, H., Kenny, T., Balarajan, M., & Collins, D. (2013). *Exploring machine player behaviour: A qualitative exploration*. London, England: NatCen Social Research. Retrieved from http://natcen.ac.uk/media/205544/exploring-machine-characteristics-report-final-2-.pdf

Joukhador, J., Blaszczynski, A., & Maccallum, F. (2004). Superstitious beliefs in gambling among problem and non-problem gamblers: Preliminary data. *Journal of Gambling Studies*, *20*: 171–180. doi:10.1023/B:JOGS.0000022308.27774.2b

Laukka, P., & Quick, L. (2013). Emotional and motivational uses of music in sports and exercise: A questionnaire study among athletes. *Psychology of Music*, *41*: 198–215. doi:10.1177/0305735611422507

Livingstone, C., Woolley, R., Zazryn, T., Bakacs, L., & Shami, R. (2008). *The relevance and role of gaming machine games and game features on the play of problem gamblers*. Adelaide, Australia: Independent Gambling Authority of South Australia. Retrieved from http://apo.org.au/node/2737

Mayer, K. & Johnson, L. (2003). A customer-based assessment of casino atmospherics. *Gaming Research and Review Journal*, *7*: 21-31,

Mentzoni, R. A., Laberg, J. C., Brunborg, G. S., Molde, H., & Pallesen, S. (2014). Type of musical soundtrack affects behavior in gambling. *Journal of Behavioral Addictions*, *3*: 102–106. doi:10.1556/JBA.3.2014.006

North, A., & Hargreaves, D. J. (2006). Music in business environments. In S. Brown & U. Volgsten (Eds.), *Music and manipulation: On the social uses and social control of music* (pp. 103–125). Oxford, United Kingdom: Berghahn Books.

North, A. C., & Hargreaves, D. (2008). *The social and applied psychology of music*. Oxford, United Kingdom: Oxford University Press.

North, A. C., Hargreaves, D. J., & Hargreaves, J. J. (2004). Uses of music in everyday life. *Music Perception*, *22*: 41–77. doi:10.1525/mp.2004.22.1.41

North, A. C., Hargreaves, D. J., & McKendrick, J. (1999). The influence of in-store music on wine selections. *Journal of Applied Psychology*, *84*: 271–276. doi:10.1037/0021-9010.84.2.271

Noseworthy, T. J., & Finlay, K. (2009). A comparison of ambient casino sound and music: Effects on dissociation and on perceptions of elapsed time while playing slot machines. *Journal of Gambling Studies*, *25*: 331–342. doi:10.1007/s10899-009-9136-x

Orford, J. (2011). *An unsafe bet? The dangerous rise of gambling and the debate we should be having*. West Sussex, United Kingdom: Wiley.

Palomäki, J., Laakasuo, M., & Salmela, M. (2013). 'This is just so unfair!': A qualitative analysis of loss-induced emotions and tilting in on-line poker. *International Gambling Studies*, *13*: 255–270. doi:10.1080/14459795.2013.780631

Parke, J., & Griffiths, M. D. (2006). The psychology of the fruit machine: The role of structural characteristics re-visited. *International Journal of Mental Health and Addiction*, *4*: 151–179. doi:10.1007/s11469-006-9014-z

Parke, J., & Griffiths, M. D. (2007). The role of structural characteristics in gambling. In G. Smith, D. Hodgins, & R. Williams (Eds.), *Research and measurement issues in gambling studies* (pp. 211–243). New York, NY: Elsevier.

Parke, J., Parke, A. J., Rigbye, J., Suhonen, N., & Vaughan Williams, L. (2012). The eCOGRA global online gambler report. In R. J. Williams, R. T. Wood, & J. Parke (Eds.), *Routledge international handbook of Internet gambling* (pp. 140–160). Oxon, United Kingdom: Routledge.

Randall, W. M., & Rickard, N. S. (2017). Reasons for personal music listening: A mobile experience sampling study of emotional outcomes. *Psychology of Music*, *45*: 479–495. doi: 10.1177/0305735616666939.

Schäfer, T., Sedlmeier, P., Städtler, C., & Huron, D. (2013). The psychological functions of music listening. *Frontiers in Psychology*, *4*, 511, doi:10.3389/fpsyg.2013.00511.

Sloboda, J. A. (1999). Everyday uses of music listening: A preliminary study. In S. W. Yi (Ed.), *Music, mind and science* (pp. 354–369). Seoul, South Korea: Western Music Institute.

Sloboda, J., Lamont, A., & Greasley, A. (2009). Choosing to hear music: Motivation, process, and effect. In S. Hallam, I. Cross, & M. Thaut (Eds.), *The Oxford handbook of music psychology* (pp. 431–441). Oxford, United Kingdom: Oxford University Press.

Spenwyn, J., Barrett, D. J. K., & Griffiths, M. D. (2010). The role of light and music in gambling behaviour: An empirical pilot study. *International Journal of Mental Health and Addiction*, *8*: 107–118. doi:10.1007/s11469-009-9226-0

Sternberg, R. J. (2009). *Cognitive psychology*. Belmont, CA: Wadsworth, Cengage Learning.

van Ingen, C. (2008). Poker face: Gender, race and representation in online poker. *Leisure*, *32*: 3–20.

****

Submitted December 11, 2017; accepted August 31, 2018. This article was peer reviewed. All URLs were available at the time of submission.

For correspondence: Stephanie Bramley, Ph.D., Department of Music, The University of Sheffield, Jessop Building, 34 Leavygreave Road, Sheffield, S3 7RD, UK.
E-mail: stephanie.bramley@icloud.com

Competing interests: None declared (all authors).

Ethics approval: The University of Sheffield approved on May 14, 2010, the research project, "Exploring the Presence, Experience and Influence of Background Music in Gambling Situations."