

BMJ Open Gambling and the COVID-19 pandemic in the province of Quebec (Canada): protocol for a mixed-methods study

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ABSTRACT

Introduction The COVID-19 pandemic has major collateral impacts on mental health. Gambling is among the major public health issues that seems to have been transformed by the pandemic. In the province of Quebec in Canada, gambling is an important leisure activity. About two out of three adults are in Quebec gamble. The objective of this study is to draw a portrait of the impacts of the COVID-19 pandemic on gamblers and to learn more about their experiences during the pandemic in the province of Quebec.

Method and analysis This study has a sequential explanatory mixed-method design in two phases. The first phase is a cross-sectional online survey with Quebec residents who are 18 years of age or older and have gambled at least once in the previous 12 months. The second phase will be a qualitative study. Semistructured interviews will be conducted with gamblers, family members, addiction counsellors and state representatives selected through purposive sampling.

Ethics and dissemination This study is one of the first mixed-methods studies on the impacts of the COVID-19 pandemic on gambling. This study will generate new scientific knowledge on a worrisome public health issue, that is, gambling, and provide a better understanding of the experiences and gambling behaviours of gamblers during the pandemic. This study is funded by the Ministry of Health and Social Services of the Government of Quebec and was approved on 27 October 2020 by the Scientific and Research Ethics Committee of the CIUSSS de l'Estrie-CHUS. This is a 2-year study that will be completed in June 2022.

INTRODUCTION

The COVID-19 pandemic is having a major impact on our daily lives. To help prevent the spread of the virus, health authorities have enacted various measures to protect citizens and mitigate the progression of the pandemic (physical distancing, lockdown, etc). These public health measures are having major collateral impacts, particularly on mental health, which has quickly become a concern for the scientific community and policy-makers.¹⁻⁵ An increase in anxiety and depressive symptoms has been observed in

Strengths and limitations of this study

- This is one of the first mixed-methods studies on the impacts of the COVID-19 pandemic on gambling.
- The results will provide a more comprehensive view of gambler's experience during the pandemic.
- Gamblers were involved in the development of the questionnaire and will be involved in the implementation and the dissemination of the study.
- The quantitative phase is a cross-sectional survey and the sampling is non-probabilistic.
- Participants must be 18 years of age or older, reside in the province of Quebec and have gambled at least once in the previous 12 months to be included in the study.

many countries⁴ and similar observations have also been made about the use of potentially addictive products (alcohol, cannabis, online gaming, use of pornography, etc).⁶⁻⁹

Many concerns have also been raised about gambling, which is an important public health issue. Several stakeholders are concerned about the consequences of the pandemic on gambling (eg, shift to online gambling because of the closure of physical gambling spaces and increase in gambling problems among individuals suffering from concomitant disorders, such as depression and anxiety).¹⁰⁻¹¹ The situation is concerning because, in the past, it has been shown that gambling tends to increase during the crises.¹²⁻¹⁴

In the province of Quebec in Canada, gambling is an important leisure activity. In 2018, about two out of three adults (65.6%) engaged in at least one form of gambling, and nearly one-third of the Quebec population (29.5%) reported gambling at least once a month up to once a week.¹⁵ In March 2020, to enforce public health regulations, the government of Quebec temporarily suspended several gambling activities (casinos, lotteries, etc) to address the pandemic. This suspension

of services has had major impacts. Gamblers' assistance services became overwhelmed with requests for help, and several actors were concerned about the resurgence of online gambling that seems to be occurring in the province.¹⁶⁻¹⁸

Since the beginning of the pandemic, a few studies have been published on the impacts of the COVID-19 pandemic on gambling.^{10 19-27} These studies are mainly quantitative and focused on gambling habits during the pandemic. In this context, it is possible to notice a lack of qualitative and mixed-method literature on the subject and realise that we know very little about gamblers' experiences during the pandemic. The objective of this study is to fill these gaps.

METHODS AND ANALYSIS

Aim

The objective of this study is to draw a portrait of the impacts of the pandemic on gamblers and to learn more about the experiences of gamblers during the pandemic in the province of Quebec.

Design

This study uses a sequential explanatory mixed research design.²⁸ A mixed sequential and explanatory research design is a two-phase project that begins with the collection and analysis of quantitative data (phase I), followed by the collection and analysis of qualitative data (phase II). The objective of phase II is to enrich and explain the information obtained in phase I. 'The overall intent of this design is to have the qualitative data help explain in more detail the initial quantitative results'.²⁸ The questions in the qualitative phase will be based on the information obtained in the quantitative phase.

The use of a mixed-methods design combines the strength of quantitative and qualitative methods.²⁹ These methods are frequently used in research on complex issues such as mental disorders and gambling.³⁰⁻³² The study design is presented in [figure 1](#).

Eligibility criteria

Participants must be 18 years of age or older, reside in the province of Quebec and have gambled at least once in the previous 12 months to be included in the study. This information is collected through a self-reported questionnaire at the beginning of the study. Participants must speak and understand French to participate in the study.

Phase I: quantitative study

Phase I involves a cross-sectional online survey in French. The objective is to learn more about the impacts of the COVID-19 pandemic on gamblers and to draw a portrait of their gambling habits.

Sample size and sampling method

The sample size will be 1250 gamblers, which was determined based on the existing literature on gambling.³²⁻³⁷ The sampling method will be non-probabilistic, and participants will be recruited online voluntarily using social media.

Data collection

The survey is divided into four sections: (1) demographics; (2) general impacts of COVID-19 (social relationships, family life, mental health); (3) impacts of COVID-19 on gambling and (4) health profile and experience of healthcare.

The first section on the demographic characteristics of participants includes questions on age, gender, first

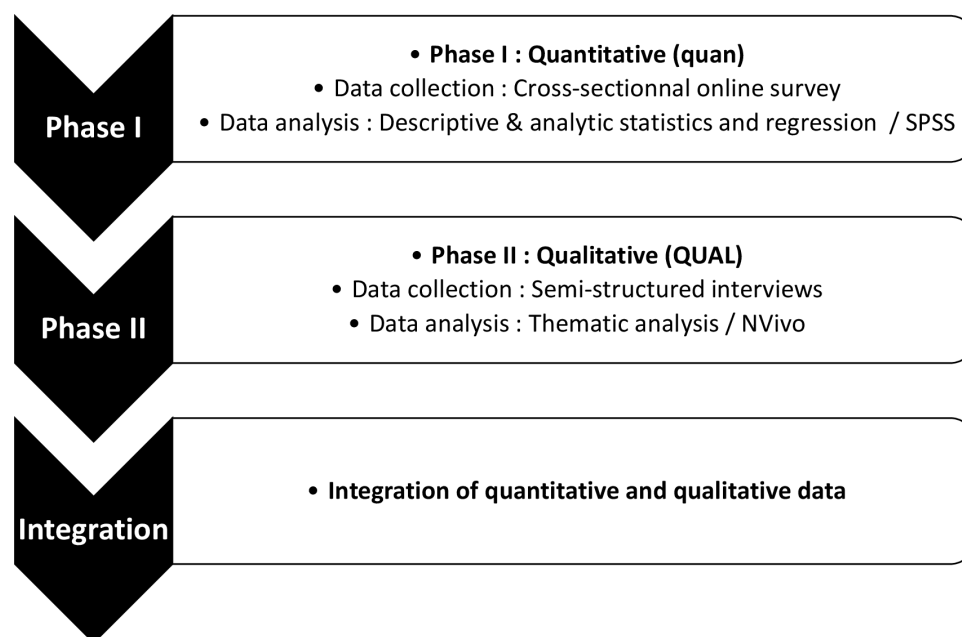


Figure 1 Study design visual.

language, ethnic origin, region of residence, marital status, family status, employment, annual income and level of education. To determine the impact of COVID-19 on the sociodemographic profiles of the participants, we will also examine the impact of the pandemic on marital status, employment, and annual income by asking them about their situation before and after the beginning of the pandemic.

The second section includes questions on the general impacts of COVID-19 (social relationships, family life and mental health). This section was inspired by the Statistics Canada survey on the impacts of COVID-19. It includes questions on the impact of COVID-19 on lifestyle habits (sleep, nutrition and diet, tobacco, alcohol, drugs, cannabis, use of pornography, physical activity and social activities). The mental health status of each participant will be evaluated by administering the Patient Health Questionnaire-4 (PHQ-4).

The PHQ-4 is a validated screening scale used to screen for general anxiety and depressive symptoms.³⁸ The PHQ-4 consists of an anxiety subscale (Generalized Anxiety Disorder-2 (GAD-2)) and a depression subscale (PHQ-2), with two items for each. The four items are added up to produce the PHQ-4 total score. A four-point Likert scale ranging from 0=not at all to 3=nearly every day is used to rate the items. The PHQ-4 total score is used to classify the symptoms of anxiety and depression as follows: none (0–2), mild (3–5), moderate (6–8) and severe (9–12). This tool is validated in French.^{39 40}

The third section includes questions on the impacts of the COVID-19 pandemic on gambling behaviours (frequency of gambling, length of gambling sessions and amount of money spent before and since the beginning of the pandemic). It also includes an assessment of problem gambling through the administration of the Problem Gambling Severity Index (PGSI).⁴¹

The PGSI is a nine-item validated instrument designed to measure problem gambling in the general population. For each item, respondents answer using a four-point scale from 0=never to 3=almost always. The PGSI total score is used to classify gambling as follows: non-problem gambler (0); low-risk gambler (1–2), moderate-risk gambler (3–7) and problem gambler (8 and over). This tool is validated in French.⁴²

The fourth section aims to develop a health profile of the participants and learn more about their comorbidities (anxiety, depression, substance use, etc) and their experiences of healthcare and services during the pandemic.

Data analysis

Quantitative data will be analysed with SPSS and SAS software. Descriptive statistics will be generated to describe our sample. Categorical variables will be presented with frequencies and percentages. Normally distributed continuous variables will be presented with the mean and SD or with the median and IQRs (IQR: 25–75th percentiles).

The PGSI score will be categorised into four levels. Sociodemographic variables, PHQ-4 and gambling-related variables will be compared across the four levels of the PGSI using χ^2 for categorical variables or the exact Monte Carlo method if there are too small frequencies. Continuous variables will be compared with analysis of variance or Kruskal-Wallis test depending on whether the data are normally distributed or not, respectively.

A multivariate logistic regression will be performed to evaluate variables that could explain a score PGSI ≥ 3 or < 3 . Variables with $p < 0.1$ in the univariate analyses will be included in the multivariate model. A stepwise selection will be performed to keep only the variables with a $p < 0.05$ in the final model.

As there are many variables analysed, a false discovery rate correction will be used to reduce the risk of error. After adjustment, a $p < 0.05$ will be considered significant.

Phase II: qualitative study

Phase II includes semistructured interviews with gamblers. Complementary interviews will also be conducted with the gamblers' families, addiction counsellors, Loto-Québec representatives and policy-makers from the Ministry of Health and Social Services of the government of Quebec.

Sample size and sampling method

Twenty-five gamblers will be selected by purposive sampling among the phase I participants who agree to be contacted for phase II of the study. Gamblers will be selected to ensure a diversity of profiles based on the results of the quantitative phase. Certain criteria (age, gender, comorbidity, etc) will be used to select participants to ensure maximum variability. Sampling will continue until data saturation is reached.

Participants for the complementary interviews (ministry of health and social services (1), Loto-Québec (1), addiction counsellors (2), gambler's families (3)) will also be selected by purposive sampling in collaboration with gambling: help and referral, the ministry of health and social services and Loto-Québec.

The information provided by these various sources will allow us to better understand the political, administrative and social context related to gambling in Quebec during the pandemic.

Data collection

Data will be collected through online or in-person semistructured interviews, depending on public health restrictions. The two main topics covered during the interviews will be the participant's experiences during the COVID-19 pandemic and the impacts of the pandemic on their health and gambling habits.

The interviews with family members, addiction workers, Loto-Québec representatives and decision-makers from the Ministry of Health and Social Services will help us learn more about the policy-making process, the issues related to access to care for gamblers, and the impacts of the pandemic on gamblers. We will also ask all actors

what they believe are the best courses of action to take to improve healthcare and services for gamblers.

The interviews will be recorded and transcribed verbatim. Data collection will continue until saturation is reached for gamblers and no new themes emerge in the interviews.

Data analysis

Data will be imported into NVivo software to carry out a thematic analysis. Thematic analysis is a methodology used to systematically identifying, organising, coding and offering insight into a data set by the creation of themes.⁴³

The verbatim of the interviews will first be coded and classified by themes, independently, by two members of the research team. The initial codes will be examined for similarities and differences during consensus meetings. These themes will then be organised into similar groups to create a thematic tree structure. The team will then organise codes into a hierarchy to create final themes. Iterative phases of analysis will be carried out. These iterative phases will allow the team members to take ownership of the content of the analysis and the coding process, but will also help the team to develop a common understanding of the context and the data being studied. This iterative and reflexive process will allow the triangulation of team members' expertise (medical, psychological, social work, etc) and knowledge.

Interpretation of quantitative and qualitative data

After completing the two phases, the quantitative and qualitative data will be interpreted in concert with each other, as expected in a mixed design,²⁸ in order to obtain a better understanding of the experiences of gamblers during the pandemic and the impacts of the crisis on their health and gambling habits.

Public involvement statement

A gambler was involved in the development of the questionnaire and will be involved in the implementation and the dissemination of the study. Gamblers were not involved in the development of the original design of this study.

Ethics and dissemination

This study has been approved by the Scientific and Research Ethics Committee of the Integrated University Health and Social Services Centre of the Estrie region—University Hospital Center of Sherbrooke (CIUSSS de l'Estrie-CHUS) under the number #2021-3818. Electronic and/or written informed consent, depending on the data collection format (online survey and online or in-person interviews), will be obtained from each participant. A copy of the consent form and contact information will be delivered to each participant.

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The results of this study will be shared with the Ministry of Health and Social Services of the Government of Quebec, Loto-Quebec, gambling: help and referral, researchers and the general public, and will be submitted for publication.

CONCLUSION

This study is, to our knowledge, one of the first mixed-methods studies on the impacts of the COVID-19 pandemic on gamblers.^{44 45} This study will generate new scientific knowledge on a major public health issue, that is, gambling, and provide a better understanding of the experiences of gamblers during the pandemic. This study has some limitations. First, the quantitative phase is a cross-sectional survey. A longitudinal survey would have provided a better understanding and a more complete description of the impact of the pandemic on the gamblers. Second, the sampling is non-probabilistic and the results cannot be generalised. Third, this study only concerns gamblers aged 18 and over.

Despite these limitations, this study will fill an important gap in the literature as there are only few mixed studies on the subject.^{44 45} The use of a mixed design will provide a more comprehensive picture of gamblers' experiences during the pandemic and better knowledge about their gambling habits. This study will also allow us to learn more about the general mental health status of gamblers during the pandemic. Obtaining these data is crucial for the development of public policies related to gambling to help this population during not only the remainder of the pandemic but also future crises.

This 2-year study will end in June 2022.

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Disclaimer The funding body is not involved in the research and the researchers are independent.

Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

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