

Literature screening report

Impact of the Covid-19 crisis on addictive behaviours in the population and care for individuals experiencing substance use disorders

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Abstract

The COVID-19 pandemic spread rapidly among the Swiss population since its first detection in February 2020. Interventions to mitigate the spread of the SARS-CoV-2 virus and their fluctuations disrupted social institutions, exposed and aggravated health system vulnerabilities, and radically changed the way individuals experienced daily life. The current report describes the heterogeneous effect that this period had on population health due to the consumption of specific substances, participation in addictive behaviours, effect on health care service delivery, and observations on the social situation of vulnerable populations. Reasonable generalities that may be made based on existing evidence is that a minority of individuals who consumed substances or engaged in compulsive behaviours prior to the pandemic intensified their use and experienced greater health and social problems. Telemedicine emerged as a new modality among health care delivery services as the Swiss healthcare system became challenged by the pandemic; increases in service use among young populations are well-documented. The social situation of individuals experience substance use disorders remains unclear; however, vulnerable populations likely experienced serious challenges accessing health and social services during this period.

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Preamble

A large number of scientific publications become available on a daily basis, reflecting the rapid development of knowledge and progress of science on COVID-19 related issues. Leading authorities should base decisions or policies on this knowledge; hence they need to master the actual state of this knowledge. Due to the large number of publications shared daily, decision makers heavily depend on accurate summaries of these publications, in the different public health domains. Therefore, the authors of this report were mandated by the Swiss School of Public Health plus (SSPH+), on request of the Federal Office of Public Health (FOPH), to inform the FOPH on recent findings from the literature.

Background

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19, spread rapidly through Switzerland since it was first detected in the country on February 25, 2020 in Ticino¹. Switzerland was among the countries with the highest confirmed COVID-19 cases in Europe in early March 2020². In response, the Swiss authorities declared an *extraordinary situation* under the terms of the Federal Epidemics Act on 16 March 2020 whereby hygiene and physical distancing measures were implemented in an attempt to contain and mitigate the spread and impact of SARS-CoV-2³. Measures included the closure of universities, schools, non-essential businesses, sporting events, cultural events, among other ordinances⁴. An easing of restrictions occurred on 27 April 2020, normalization procedures occurred on 15 June 2021, and control measures tightened once more on November 30, 2020 as SARS-CoV-2 significantly affected health care system capacity⁵. Of note are the marked differences in experiences between German- and French- as well as Italian-speaking Switzerland; the latter two being more affected than the former^{6,7}. These interventions and their fluctuations disrupted social institutions, exposed and aggravated health system vulnerabilities, and radically changed the way individuals experienced daily life. These changes may have been associated with additional increased risks for individuals 'at-risk' or experiencing substance use disorders (SUD) due to potentially reduced access to services affected by pandemic control measures.

Pandemic control measures are known to influence population mental health states producing anxiety, depressive mood, anger, and fear which in turn influence coping behaviours such as intensified use of substances or compulsive behaviours such as gambling or internet use⁸⁻¹². The increased isolation, stress, and uncertainty represent barriers to engaging in healthy behaviours¹³⁻¹⁷. A number of studies have evaluated the impact of the first pandemic control ordinance period on general wellbeing measures and stress in Switzerland in Spring 2020 but very few focused on substance use or engagement in other compulsive behaviours^{6,18-23}. The COVID-19 pandemic compromised the mental well-being of the adult Swiss population, disproportionately affected socioeconomically disadvantaged populations, and increased health inequities among the population^{24,25}. There is a dearth of information on the impact of this extraordinary situation on substance use behaviours or dependence in the Swiss context. Presented is the most currently available knowledge in available peer-reviewed and grey literature examining Swiss settings as well experiences from culturally similar European countries and international experiences.

Questions addressed

- What is the impact of the COVID-19 crisis on substance use and other behaviours among the population?
 - What impact has the COVID-19 crisis had on the care landscape (incl. harm reduction services) for individuals experiencing substance use disorders?
 - How has the social situation of people affected by substance use dependence changed?
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Methodology

The current literature review spans the period from 1 December 2019 until 30 September 2021. Search strategies included broad searches for literature that focused on Swiss contexts from PubMed. PubMed comprises more than 33 million citations for biomedical literature from MEDLINE, life science journals, and online books; it catalogues English, German, French, and Italian language peer-reviewed articles, books, commentaries, etc. necessary to scan for the variance in cultural experiences in Switzerland. Our search produced 3,894 articles which were screened for the topic of interest. Publications without any data related to substance use or problematic behaviours specific to Switzerland were excluded. European publications from neighbouring countries are presented and discussed within the text to contextualize findings in each narrative review.

Given the scarcity of research in the Swiss context, triangulation with a range of grey literature for relevant information was also conducted. This involved specific searches for information from non-governmental associations in Switzerland and abroad, Public Health Departments from Switzerland's neighbouring countries, consultation with European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Europol, Interpol, relevant government agencies, international organizations, etc.

Lastly, broad searches for related news media including information from news outlets from French, German, and Italian Switzerland were sought to better illustrate the experiences of individuals living in Switzerland during the time of the COVID-19 Pandemic and federal ordinances that disturbed social patterns.

Results and Findings

What is the impact of the Covid-19 crisis on substance use and other behaviours among the population?

Summary:

KEY MESSAGES

- There is no clear or uniform pattern to population behaviours associated with substance use disorders in Switzerland; very little data exists among populations living in Switzerland
- Reasonable generalities that may be made based on existing evidence is that a minority of individuals who consumed substances or engaged in compulsive behaviours prior to the pandemic intensified their use and experienced greater health and social problems
- The impact of pandemic control measures on substance use patterns may be temporary or long-lasting; too early to conclude
- Proxy evaluations from neighbouring countries' experiences should be avoided when possible; each country had distinct pandemic mitigation strategies that are not necessarily comparable (e.g., duration, intensity, timing, restrictiveness, etc.)
- Existing literature and available documentation describes the initial period in which the COVID-19 pandemic affected Switzerland; as of yet, nothing further has been published to date

Factors associated with substance use in general have been detailed as they relate to gender, age, ethnicity, mental health, caregiver status with mixed findings in each case²⁶. Consistent in all studies that have examined substance use during the COVID-19 pandemic is that stressors including mental health problems, caregiving, and previous substance use behaviours were associated with substance use behaviours that were deleterious to health. Below, we examine substances and behaviours of reasonable prevalence for which there is at least *some* evidence in Swiss contexts.

ALCOHOL CONSUMPTION— In Switzerland, existing evidence suggests the possibility of stable to slightly decreased alcohol consumption in the initial months of the COVID-19 pandemic. Declines in population mental health are of concern as this may indicate increased likelihood of alcohol use and other substance use behaviours, particularly among young populations.

The most recent estimates conducted in 2014 state that in 2010, the social cost of alcohol consumption in Switzerland was an estimated CHF 4.2 billion; alcohol consumption has a clear impact on market and labour costs beyond the consumer²⁷. Individuals experiencing alcohol use disorders or alcoholic liver disease are vulnerable to increasingly severe forms of COVID-19,

requiring more care and imposing greater social costs²⁸. According to the 2017 Swiss Health Survey, approximately 1 in 10 individuals living in Switzerland over the age of 14 reported consuming alcohol daily (14.9% males; 7.1% females)²⁹. Recent work that collected similar data among the general population in 2018 suggests decreases in reported *weekly* risky alcohol use (9.8% overall; 11.2% males; 8.3% females)³⁰. During the first Swiss lockdown, prevalence of *weekly* risky alcohol consumption decreased slightly from 2018 figures (7.6% overall; 9.0% males; 6.0% females)³⁰. Findings from a study that examined substance use and addictive behaviours at four points of the pandemic among Zurich young people revealed that beer and wine consumption (61% to 69%) as well as consumption of spirits or liquor (28% to 39%) increased over the course of the pandemic between April and September 2020³¹.

Market data from the Swiss Beverage Association states that multinational breweries' stock exchange prices fell significantly due to losses from cancelled cultural events suggesting decreases in overall alcoholic beverage consumption (e.g., Carlsberg, -16% market value; Heineken, -22% market value)^{32,33}. However, alcoholic beverage retail sales increased by 1.7% in quantity from mid-March to June 2020; it is unclear if losses were due to overall decreases in population alcohol consumption or lost commercial opportunities from cancellations of large events such as the Montreux Jazz Festival, Moon & Stars, Paléo Festival, etc. or closures of bars, restaurants, and other spaces alcohol is sold.

InfoDrog, the Swiss Office for the Coordination of Addiction Facilities, deployed an online survey³⁴ among the general population and among substance users living in Switzerland (N=604; n=314 German; n=240 French; n=50 Italian) over the initial period of the pandemic (14 April – 31 May 2020) and observed that 1 in 5 respondents (n=132; 21.9%) reported more frequent alcohol use during this initial period³⁵. It may be that overall alcohol consumption decreased or was unchanged across the general population; however, a minority of people within the Swiss population was observed to use alcohol at greater frequencies and may require targeted intervention. Sucht Schweiz (Addiction Switzerland, a national centre for prevention, research and knowledge transfer in the field of addiction) also deployed a study in 2020. Sucht Schweiz collected information on 6,040 test purchases across Switzerland and made these available to 18 organizations (i.e., municipalities, cantonal offices, companies, associations, specialized organizations etc.) to be analyzed³⁶. Overall, approximately one-third (29%) of alcohol purchases by minors were successful. Difficulties in enforcement of age verification among minors due to mask requirements led to significant increases in illicit sales to adolescents during the pandemic; it is noted that in 3 of every 4 cases, vendors carried out age checks. Additionally, pairs of underage girls were more likely than pairs of underage boys to be successful in purchasing alcohol during this study period.

Around Switzerland, France and Belgium saw decreases in alcohol consumption linked to closures of bars and restaurants^{37,38}. Neighbouring Germany experienced a one-third increase in alcohol sales during this period and a 3.3% increase in alcohol revenues in 2020 compared to 2019 records; increased alcohol consumption was also confirmed among a third of participants in a simple anonymous survey among 2102 individuals living in Germany in 2020 by Koopman et al.³⁹⁻⁴¹. More broadly, according to the EMCDDA, an increase in alcohol use was observed among European Union countries during the period of the first Swiss lockdown and throughout the pandemic^{42,43}. Internationally, literature on alcohol consumption is limited to the initial period of the COVID-19 pandemic and has produced mixed findings on changes in prevalence, severity, and

hazardous drinking behaviours²⁶. Similar to Swiss findings, individuals around the world who reported consuming alcohol in hazardous ways prior to the pandemic were more likely to increase alcohol and other substance use behaviours. The strain on Swiss mental health services since the onset of the pandemic, particularly among young people, is of particular concern. Internationally, declines in population mental health indicators and experiences with mental health disturbances were associated with greater use of alcohol and other substances²⁶, suggesting that this could also be happening in the Swiss population.

Unrecorded alcohol comprises a heterogeneous set of alcohol-containing products that are produced, distributed, and/or sold but not formally registered in a given country⁴⁴. These unregulated products tend to be more affordable and readily available among the population, particularly groups that do not necessarily have easy access to regulated alcohol supply (e.g., rural communities). Completely absent from grey or peer-reviewed literature is the role of unrecorded alcohol in Switzerland over the pandemic. Data from 2016 suggests that unrecorded alcohol doubled from 1991 (0.6% APC; alcohol per capita consumption in litres of pure alcohol) to 2016 (1.2% APC)⁴⁵.

There is insufficient evidence to make claims regarding changes in alcohol use behaviours in Switzerland over the course of the COVID-19 pandemic. Currently, there is no information that is readily available on alcohol use trends over time since the initial period of the pandemic and what does exist is vulnerable to serious methodological issues to make such claims³⁰. While one might think to look toward culturally or linguistically similar countries to extrapolate experiences, each country and region within Switzerland had distinct pandemic control measures and social ordinances that affected or perhaps did not affect populations in different ways.

TOBACCO CONSUMPTION— Changes in tobacco product use are not well known among the population living in Switzerland as a result of the COVID-19 pandemic. Initial findings suggest decreases in use may have been observed in areas that were more affected by the COVID-19 pandemic; confounding this was initial misinformation regarding the role of tobacco use on SARS-CoV-2 susceptibility. Currently, there appears to be a study underway by the Swiss Association for Tobacco control that examined changes in tobacco consumption over the COVID-19 pandemic in Switzerland.

The annual cost of smoking tobacco in Switzerland is an estimated CHF 5 billion (exceeding revenues from tobacco taxes) and is responsible for 15% of all preventable deaths⁴⁶. Like alcohol users, tobacco consumers are at a greater risk for severe health outcomes should they become exposed to the virus that causes COVID-19⁴⁷. The Swiss Association for Tobacco Control reported that a study on the impact of the COVID-19 pandemic on smoking behaviours among a sample of smokers, however, no results have been made publicly available⁴⁸. Among the only studies in a Swiss setting that included tobacco consumption during the COVID-19 pandemic examined how tobacco use may impair mental wellbeing; smokers in the study were twice as likely to report impaired mental health than non-smokers²⁵. This is an important finding as these impairments lower individuals' thresholds for substance use, particularly among Swiss young people⁴⁹. Findings from a study that examined substance use and addictive behaviours at four points during the pandemic among Zurich young people revealed that tobacco product consumption increased (45% to 50%) over the course of the pandemic between April and September 2020³¹. This figure suggests that young people in Zurich are using tobacco products at double the reported prevalence rate of current

tobacco users in Switzerland⁵⁰. The increasing trend in use across measurement occasions should be of concern to public health authorities. In Switzerland, there is a lack of adequate tobacco control regulations to protect the health of young people. Age restrictions for tobacco purchasing range from 16 to 18 depending on the canton, no national minimum age limit to purchase tobacco products; the only other country in Europe without a minimum age limit to purchase tobacco products is Kosovo. No prohibitions exist regarding flavouring or marketing to youth, and a general dearth of tobacco control guidelines to dissuade young people from purchasing tobacco products persists⁵¹.

According to InfoDrog, among individuals (n=153; 25.3%) who reported changing their tobacco consumption frequencies, 6 in 10 (n=92; 60.1%) reported more frequent use since the start of the COVID-19 pandemic³⁵. Changes in tobacco use associated with the COVID-19 pandemic are quite mixed internationally. Increases in use, marginal change, and increases in tobacco cessation attempts have been observed around the world⁵²⁻⁵⁶. Initial findings on tobacco use in the early days of the pandemic produced findings that suggested that tobacco use was protective from SARS-CoV-2 infection; this misinterpretation has now been clarified (indeed, severe negative health outcomes have been associated among tobacco users who become infected with SARS-CoV-2), but engaging in tobacco use behaviours during this time of confusion may have been perceived as healthful among tobacco users^{57,58}. Recent work on the subject suggests that respondents from countries that experienced a low impact of COVID-19 during the early phase of the pandemic were less likely to report reducing or quitting smoking; the vast majority of smokers did not change their smoking behaviours⁵⁹. It may be that individuals living in French and Italian Switzerland decreased their smoking frequency and increased cessation attempts since they may have had greater perceptions of susceptibility as its population was more affected by the pandemic than German Switzerland^{6,7}. Not surprisingly, greater perceived stress was associated with increased frequency of smoking among other populations studies such as Germany⁶⁰.

NON-MEDICAL CANNABIS CONSUMPTION— Currently, information on pandemic-related changes in cannabis consumption in the Swiss context is not well known. Secular trends suggest increases in use were expected given existing surveillance data. Among individuals who reported use prior to the pandemic, increased use was observed in the limited evidence base available.

Cannabis is the most widely used illicit substance in Europe, with a prevalence of use five times that of other illicit substances; an increasing trend in prevalence of use has also been detected over the past decade^{43,61}. Switzerland has experienced a steadily increasing trend in non-medical cannabis consumption from 1997 when 19.1% of the general population aged 15 to 59 years reported ever consuming non-medical cannabis to 32.1% in 2017²⁹. Switzerland is set to launch cannabis pilot projects to develop a much-needed Swiss evidence base to guide future control regulations⁶². Unfortunately, this space has not received much attention during the COVID-19 pandemic. Use, price, and purity of cannabis as found to have remained stable, at similar pre-pandemic levels and a trend to decreased use was observed⁶³. This is consistent with the findings from a forthcoming study that examined substance use and addictive behaviours at four points of the pandemic among Zurich young which revealed stable cannabis use across the pandemic³¹. Another study among a sample of Swiss athletes found differences in use by particular sport participation with bodybuilders reporting more cannabis use; among cannabis users, greater frequency of use was observed during

the first Swiss lockdown⁶⁴. This is consistent with broader European findings by the EMCDDA and Europol that pre-pandemic levels of cannabis and synthetic cannabinoids continued to be available in the illicit market as it diversified its trafficking routes^{43,65}. According to InfoDrog, among individuals (n=166; 27.4%) who reported changing their cannabis consumption frequencies, 7 in 10 (n=117; 70.5%) reported more frequent use since the start of the COVID-19 pandemic³⁵. Conflicting evidence on Switzerland's neighbouring countries exists wherein greater or less use was observed^{26,66-68}. In France, 6.9% of adults reported that they increased their cannabis consumption in ways which made it increasingly difficult to control use⁶⁹. In Zurich, synthetic cannabinoids 5F-MDMB-PICA and THJ-018 were detected to be in circulation during the course of the pandemic. This is of concern because these substances have been linked – worldwide – to at least 13 deaths and acute and severe poisoning events during the pandemic⁷⁰. Virtually nothing is known about the role of the Dark Web or other online sources of cannabis on the Swiss cannabis supply.

COCAINE CONSUMPTION— Currently, information on changes in cocaine consumption in the Swiss context is not well known. Existing evidence suggests stable to slightly decreased use among individuals who reported using cocaine prior to the pandemic in Switzerland.

Cocaine is the second most commonly used illicit substance in the European Union and in Switzerland^{29,43}. Cocaine use among individuals in Switzerland doubled from 1997 (2.7%) to 2017 (6.7%) among the general population aged 15 to 49 years²⁹. Swiss settings have long been associated with high prevalence of cocaine consumptions according to wastewater analyses^{71,72}. In Switzerland, the use, price, and purity of cocaine remained stable, at similar pre-pandemic levels and a trend to decreased use was observed among participants in small study drawn from the Addiction Treatment Centre of Lausanne University Hospital⁶³. According to InfoDrog, among individuals (n=88; 14.5%) who reported changing their cocaine consumption frequencies, approximately two-thirds (n=61; 69.3%) reported less frequent use since the start of the COVID-19 pandemic³⁵. Some neighbouring settings such as Innsbruck, observed reduced consumption of substances including cocaine according to wastewater analyses; other settings, as outlined by EMCDDA observed increases in mean weekly benzoylecgonine (cocaine metabolite)^{73,74}. A heterogeneous effect was observed across European contexts in terms of accessibility of substances such as cocaine among populations as evidenced by wastewater analyses⁷⁵. Across Europe, wholesale importation was undisturbed; however, due to hygiene precautions and social distancing measures, prices increased and purity decreased in certain European countries⁶⁵. In response to these limitations, there has been an observed diversification in services from the Dark Web which reduce the need for cash and provide home deliveries. This reduced need for face to face meetings may become the new norm⁶⁵.

HEROIN CONSUMPTION— Currently, COVID-19-related information on changes in heroin consumption in the Swiss context is not well known. What is readily available suggests stable use.

Heroin use in Switzerland appears to have remained relatively stable at very low levels in the Swiss population aged 15 to 49 years from 1997 through 2017 (1997 [0.8%]; 2002 [0.9%]; 2007 [1.1%]; 2012 [0.9%]; 2017 [0.8%]). During the initial period of the pandemic, it appears that heroin production was unaffected but that perhaps certain markets were affected a certain degree in some countries depending on national confinement rules and porosity of the national border⁶⁵. The

pandemic may have influenced the severity of substance use disorders such as heroin dependencies if markets made heroin inaccessible due to increased price and thus, these individuals may have substituted these substances with what was available (i.e., prescription opioids, novel psychoactive substances including designer opioids, methamphetamine, and other amphetamines, etc.). This, however, is speculative in the Swiss context, as very little information exists on prevalence measures, let alone changes over time during the COVID-19 pandemic on heroin use. From a small study conducted in Lausanne, Geneva, heroin use, price, and purity were reportedly stable when two time points in the early phase of the Swiss lockdown were considered⁶³.

GAMBLING— Piecing together data from government documents and the sole study on this in a Swiss setting, the findings suggest that an increase in gambling behaviours occurred as a result of the COVID-19 pandemic.

Gambling in Switzerland has an annual social cost of CHF 69.7 million from gambling in land-based casinos alone, according to the most recent estimates available from the Federal Casino Commission (Eidgenössischen Spielbankenkommission; ESBK)⁷⁶. A new Swiss Federal Act on Gambling came into force in January 2019 which opened the market for online casinos – no comprehensive monitoring, evaluation, or estimates of this have been determined to date although there appear to be plans in place⁷⁷. March 2020 saw five Swiss casinos legally offering online gambling products. According to the Swiss Institute for Public Health and Addiction, in 2017, 2.8% of the Swiss population were “high-risk” for problematic gambling behaviours and 0.2% met criteria for “pathological gambling” behaviours⁷⁸. Strategies are in place for the social protection of high risk individuals, whom, if they meet certain criteria such as gambling beyond their means, or inability to control the length of time spend gambling, are prohibited from continuing to participate; these exclusions may be ordered or voluntary. The number of individuals banned from gambling rose sharply between 2019 and 2020 which may partly be attributed to the growing online market⁷⁹. This is consistent with the only study examining Swiss gamblers’ gaming habits over the pandemic wherein individuals who reported gambling during the lockdown reported higher intensity of gambling and increased use of online platforms to gamble⁸⁰.

PROBLEMATIC INTERNET USE— There is evidence to suggest that the COVID-19 pandemic re-established or redefined individuals’ relationship with the internet in ways that may not have manifested as of yet, particularly among children, youth, and young adults in terms of their psychosocial development, reliance on it as a coping mechanism, and its association with common mental health disturbances such as depression or anxiety.

Problematic internet use as a concept suffers from the same issues as any of the many ways substance use is defined as problematic; for example, at least 49 definitions exist for problematic cannabis use covering a range of priorities in the literature⁸¹. Likewise, problematic internet use has been conceptualized in a number ways⁸². A diagnosis has not been included in the 5th Edition of the Diagnostic and Statistical Manual for Mental Health Disorders (DSM-5) although “Internet Gaming Disorder (IGD)” has been included with questionable value as a diagnostic tool⁸³. One study among the general Swiss population found that approximately one-third of children and one-fifth of young adults met the criteria for problematic internet use during the first Swiss lockdown³⁰. In the context of the COVID-19 pandemic, when Swiss federal ordinances required closure of schools and offices at its most restrictive, school aged children, youth and young people spent their school days

interfacing with their peers and teachers online. Due to social distancing requirements, leisure time that would have normally been spent with peers or engaging in other activities was spent isolated. Adults faced similar issues, particularly those fortunate enough to continue to participate in the labour force remotely. There is mounting evidence that operationalizing internet use that interferes with the daily lives of individuals in problematic ways is necessary, particularly during vulnerable points of human development across the lifespan⁸².

VIDEO GAMING— Existing evidence related to the impact of COVID-19 pandemic measures on video gaming among the Swiss population is limited. Among general population samples, reported prevalence was stable. However, among certain populations, use increased. There is evidence about potential benefits of video gaming during times of crisis on psychological well-being.

Dramatic increases in time spent indoors and online may lead to the development of behavioural patterns that give rise to dependence or problematic use behaviours. Computer gaming increases among young people were also associated with home confinement measures around the world⁸⁴. Reasons provided included coping with stress and escapism. Virtual reality game use increased during home confinement around the world; respondents attributed benefits to their mental health and physical well-being⁸⁵. Interestingly, physical activity measures were reported to be greater among virtual reality game users than console users. Little is known conclusively regarding associations between increases in computer/video game playing time and physical and mental health well-being in general; very little work exists in Swiss contexts^{86,87}. The limited literature suggest that video gaming was effective in decreasing psychosocial stress and was an effective coping strategy among sample of Swiss elite athletes⁸⁸. A study among Zurich young people showed that the prevalence of video gaming was relatively stable across the pandemic from April to September 2020; in fact, a decline in computer gaming was detected³¹. The gamification of health is an emerging and promising area of research that has already penetrated society primarily through physical activity devices which promotes health and well-being⁸⁹.

PORNOGRAPHIC MEDIA CONSUMPTION— Limited findings of pornographic media use among the Swiss population as a result of COVID-19 pandemic measures indicate stable use. While the vast majority of individuals may not experience negative effects from pornography use, sexual health promotion is an important aspect of a pandemic response.

Increases in pornographic media consumption were observed around the world and attributed to home confinement measures particularly among countries that instituted stricter measures⁹⁰. Boredom has been associated with hypersexual behaviours and with increased use of pornographic media⁹¹. While boredom may perhaps be attributed to increased use, use of pornography has also been identified as a coping tool to manage negative affect and as a terror management tool in the face of overwhelming uncertainty^{92,93}. In Switzerland, Pornhub recorded an average increase of 11.5% visits to its daily average on March 17, 2020 which coincided with the day after the Swiss Federal Council announced restrictions on gathering places such as bars, clubs, and restaurants⁹⁴. Available evidence in the Swiss context suggests that there were no significant changes in pornographic media consumption across time among young people in Zurich³¹. These findings are consistent with international reports that problematic pornography use tended to decrease in other settings⁹⁵. While substantial adverse effects of pornography use have been documented for a

minority of individuals, most individuals have not been found to report problems related to use of pornographic media and some even find health-promoting aspects through these materials^{96,97}. As with other behaviours discussed in the current report, this is an area that warrants attention to promote healthy sexual behaviours among young people and design public health communications to alleviate potential existential stressors during times of crisis.

Results:

The following are brief descriptions of the extant peer-reviewed literature on the impact of the COVID-19 crisis on substance use behaviours and other problematic behaviours **specific to Swiss settings**.

ALCOHOL

Mohler-Kuo et al.³⁰ sought to assess the impact of the first Swiss lockdown due to COVID-19 by examining prevalence measures of symptoms of mental illness and other behaviours among the general Swiss population (N=3919: 1627 young adults [19-24 yrs]; 1146 children/adolescents [12-17 yrs]; 1146 parents [32-55 yrs]) using an online cross sectional survey. The group found that risky alcohol use decreased by 10% among their sample. A serious limitation of this study is that it was conducted 1 to 3 months after the first pandemic control ordinances and is thus significantly threatened by recall bias.

Alcohol use disorder was examined as one of a number of psychosocial consequences of COVID-19 mitigation strategies by Moser and colleagues⁹⁸. A model was constructed, erring on conservative estimates, using data from conceptually similar situations as the COVID-19 pandemic, applied to Switzerland's population to project years of life lost (YLL) due to specific psychosocial factors including alcohol use disorder. An estimated 17.67 YLLs per person were estimated among individuals experiencing alcohol use disorder as well and an increased incidence of 0.6% of alcohol use disorder as a result of a 3-month isolation period/home confinement. This is a step toward informing authorities and decision makers regarding the design of countermeasures beyond infection-attributable risk.

Imboden et al.⁶⁴ assessed changes in alcohol use during the first Swiss COVID-19 pandemic lockdown among a sample of Swiss athletes (N=275). Elite athletes, those who performed Olympic disciplines or sports recognized by the International Olympic Committee, were observed to consume more alcohol than their bodybuilder peers; elite were also more likely to increase their alcohol consumption. Approximately 1 in 5 (17.7%) elite athletes reported greater frequency of alcohol use compared to pre-pandemic levels compared to 1 in 10 (8.2%) of bodybuilders. Changes in alcohol consumption were attributed to existential fear and male sex.

Leos-Toro et al.³¹ examined prevalence and changes in substance use prevalence figures among a sample of Zurich young people over four time points of the Swiss pandemic experience. The sample was drawn from an ongoing longitudinal study (*Zurich Project on the Social Development from Childhood to Adulthood, z-proso*) wherein participants were invited to participate in 4 COVID-19 supplementary surveys. Supplement 1 (8-14 April 2020, N=786), Supplement 2 (30 April – 5 May 2020, N=650), Supplement 3 (21-26 May 2020, N=569), and Supplement 4 (10-15 September 2020, N=525). Beer and wine consumption (61% to 69%) as well as consumption of spirits or liquor (28% to 39%) increased over the course of the pandemic between April and September 2020.

TOBACCO

Indirect examination of tobacco use

Diaz Hernandez and colleagues²⁵ examined the effect that COVID-19 had on the general Swiss population (N=1022, 18-78 yrs) on self-rated general health and wellbeing measures including tobacco consumption in the period after the first pandemic control ordinances using an online survey. Individuals who reported smoking were approximately twice as likely to report impaired mental well-being than non-smokers (adjOR 1.8; 95%CI 1.24-2.61; $p=0.002$). This is an important finding as these impairments lower individuals' thresholds for substance use, particularly among Swiss young people⁴⁹.

Direct examination of tobacco use

Leos-Toro et al.³¹ examined prevalence and changes in substance use prevalence figures among a sample of Zurich young people over four time points of the Swiss pandemic experience. The sample was drawn from an ongoing longitudinal study (z-proso) wherein participants were invited to participate in 4 COVID-19 supplementary surveys. Supplement 1 (8-14 April 2020, N=786), Supplement 2 (30 April – 5 May 2020, N=650), Supplement 3 (21-26 May 2020, N=569), and Supplement 4 (10-15 September 2020, N=525). Tobacco product consumption increased (45% to 50%) over the course of the pandemic between April and September 2020³¹.

NON-MEDICAL CANNABIS, COCAINE, HEROIN

Gaume and colleagues⁶³ examined the impact of the COVID-19 pandemic on the supply of illicit substances as well as the health and social impact to individuals who use illicit substances. A mixed methods approach was used over two anonymized survey waves to examine changes over time; the first survey was conducted during the first lockdown (17-24 April 2020; N=49) and the second wave was conducted two weeks later as easing of public ordinances occurred (4-8 May, 2020; N=51). The study population was drawn from the Addiction Treatment Centre of Lausanne University Hospital service user population who had purchased any illegal substance in the past 7 days. This study found use, price, and purity of heroin, cocaine, and non-medical cannabis to be stable as reported by this study population; use trended to decrease. Furthermore, in general, this sample reported little impact of the pandemic on their social situation overall.

Imboden et al.⁶⁴ assessed changes in alcohol use during the first Swiss COVID-19 pandemic lockdown among a sample of Swiss athletes (N=275). Elite athletes, those who performed Olympic disciplines or sports recognized by the International Olympic Committee, were observed to consume less cannabis than their bodybuilder peers. However, cannabis was used by less athletes overall, however, increased frequency was reported among those who continued to use cannabis over the first Swiss lockdown. Only three of 203 elite athletes reported to use cannabis during lockdown in contrast 16 of 85 bodybuilders.

Leos-Toro et al.³¹ examined prevalence and changes in substance use prevalence figures among a sample of Zurich young people over four time points of the Swiss pandemic experience. The sample was drawn from an ongoing longitudinal study (z-proso) wherein participants were invited to participate in 4 COVID-19 supplementary surveys. Supplement 1 (8-14 April 2020, N=786), Supplement 2 (30 April – 5 May 2020, N=650), Supplement 3 (21-26 May 2020, N=569), and

Supplement 4 (10-15 September 2020, N=525). Significant changes in cannabis use were not detected.

GAMBLING

Changes in self-reported gambling of land-based casino players and whether they turned to other forms of gambling or experienced changed in gambling intensity were examined by Lischer and colleagues⁸⁰. This team examined a sample of Swiss gamblers three weeks after the first Swiss lockdown using an online supplement to an existing longitudinal survey (N=110; 64 German speakers, 30 French speakers, 16 Italian speakers; mean age [SD] 33.5 [11.64]). The COVID-19 pandemic did not appear to interrupt gambling behaviours among this sample; it simply changed how it happened. Overall, gambling intensity decreased ($p < 0.001$). However, when only considering respondents who reported gambling during lockdown (n=61), online gambling increased ($p < 0.002$). A small proportion (n=15) reported higher gambling intensity. Respondents who gambled during lockdown were more often in relationships and had higher net incomes.

PROBLEMATIC INTERNET USE

Mohler-Kuo et al.³⁰ sought to assess the impact of the first Swiss lockdown due to COVID-19 by examining prevalence measures of symptoms of mental illness and other behaviours among the general Swiss population N=3919: 1627 young adults [19-24 yrs]; 1146 children/adolescents [12-17 yrs]; 1146 parents [32-55yrs]) using an online cross sectional survey. The group found that 30% of children and adolescents and one-fifth of young adults met the criteria for problematic internet use. A serious limitation of this study is that it was conducted 1 to 3 months after the first pandemic control ordinances and is thus significantly threatened by recall bias. It is also important to note that, in Switzerland, when schools and universities were closed, online modalities replaced in-person classes, thus, it is difficult to distinguish problematic use.

GAMING

Breckwoldt et al.⁸⁸ sought to assess the extent of video game consumption in relation to mental and physical health factors among a sample of 203 elite athletes in Switzerland; operationalized as those who participated in Olympic sports or in International Olympic Committee- approved events. Among respondents who reported playing video games prior to the pandemic, a 165% increase in gaming time occurred during the period of the first Swiss lockdown. Furthermore, an 8% increase in video gaming behaviour was observed across the entire sample. Among this sample, participating in video gaming was an effective coping strategy to the difficulties some population segments experienced over the pandemic. For example, respondents who participated in video gaming were less likely to display signs of fear, anxiety, depressive symptoms, and sleeping disorders.

PORNOGRAPHIC MEDIA CONSUMPTION

Leos-Toro et al.³¹ examined prevalence and changes in substance use prevalence figures among a sample of Zurich young people over four time points of the Swiss pandemic experience. The sample was drawn from an ongoing longitudinal study (z-proso) wherein participants were invited to participate in 4 COVID-19 supplementary surveys. Supplement 1 (8-14 April 2020, N=786), Supplement 2 (30 April – 5 May 2020, N=650), Supplement 3 (21-26 May 2020, N=569), and Supplement 4 (10-15 September 2020, N=525). Significant changes in pornographic media consumption were not detected, however, males were more likely to report pornographic media consumption than females.

What impact has the COVID-19 crisis had on the care landscape (incl. harm reduction services) for individuals experiencing substance use disorders?

Summary:

KEY MESSAGES

- Little is known regarding use of services by populations experiencing or at risk of substance use disorders in Switzerland; often organizations providing harm reduction services are understaffed and unable to report most-current figures of service use
- The demand for mental health services increased among young people
- Guidelines, orders, and health messaging created barriers among older adults or those with compromised immune systems to seek health care services
- Telemedicine is an emerging modality which continues to be evaluated in terms of accessibility and acceptability among populations experiencing substance use disorders
- The changing care landscape requires careful foresight of unintended consequences and needs to consider individuals who may have trouble accessing telemedicine modalities

Very little data exists on the impact of COVID-19 on the care landscape in Switzerland specific to substance use disorders. Existing evidence suggests that online modalities became more prevalent as mental health services, often serving individuals experiencing substance use disorders, became overwhelmed²⁵. Online modalities have the clear advantage of reducing physical contact with service users thereby reducing associated health risks of COVID-19 for service providers and users alike. Ethical issues with these services include aspects of data security, clinical safety for service users, legal, regulatory financial concerns, informed consent, social justice issues among others⁹⁹. Additionally, thinking into the future, decision makers and stakeholder groups must think about how provision of novel service delivery modalities will affect practice, shape the service provider profession, and the individuals it may inevitably exclude, including individuals experiencing homelessness, adults with impaired cognition, individuals experiencing dementia etc. who may not have access to or ability to use these services.

COVID-19 was particularly limiting for older adults living in the community in terms of engaging with their social networks, participating in regular activities of daily life, and seeking care as they were deemed a high-risk population; it was much worse for older adults in long-term care facilities¹⁰⁰. Telemedicine emerged as an important medium to deliver health care services; however, a digital divide became evident for older populations seeking care given their lack of acceptability or feasibility for technologically illiterate populations, those with hearing or vision impairments etc.^{101,102}.

Increased demand for services leading to urgent openings of wards at Geneva’s psychiatric hospital were documented – unclear are specific numbers of individuals served who experiencing substance use disorders¹⁰³. Young people in Geneva were observed to be particularly vulnerable to stress associated with COVID-19 and were observed to increasingly participate in mental health services (See Fig 1)¹⁰⁴. The University of Bern’s Psychiatric Services also experienced surges in demands ranging from anxiety to suicidal ideation over the course of the pandemic¹⁰⁵. Dargebotene Hand Zentralschweiz, an anonymous resource centre for a variety of concerns from domestic violence, depression, addiction, among other concerns, reported a 12% increase in service use over 2020¹⁰⁶. In Vaud, consumers of illicit substances that were known to Unisanté tended to be older males and had associated comorbidities including having been exposed to Hepatitis C, participants of opioid agonist treatments among other characteristics – no further information has been reported on this group but they represent a vulnerable population at high risk of negative health outcomes in the case of interrupted service use¹⁰⁷. Zurich also experienced increased demand and complexity among presentations in inpatient and outpatient psychiatric services for children and adolescents over the pandemic’s course documented to persist as recently as Autumn 2020^{108,109}. Eastern Switzerland has also experienced increases in psychiatric services uptake, among young populations where capacity has not been able to keep up with demand; in certain cases a 6-month wait for treatment has been recorded¹¹⁰.



Fig 1. Monthly requests for psychiatric consultations for young adults in Geneva. Period from August 2019 – March 2021. *From Tettamanti et al., 2021¹⁰⁴.*

Opioid-assisted treatments for individuals with heroin dependence were extended during the course of the pandemic making it possible to receive greater quantities of diacetylmorphine to reduce clinic visits ¹¹¹. Prior to the pandemic the Federal Office of Public Health required patients to attend treatment centres multiple times each day, the Federal Council’s amendment allowed for other aspects of care to be carried out. At the Psychiatric University Hospital Zurich, participation among service users in opioid substitution therapies were detected to be stable despite the challenges that the pandemic wrought on the health care sector between January and June 2020¹¹².

Première Ligne, a Geneva harm reduction association which provides a number of services for the community including individuals who consume substances, saw a decreases in service use in 2020 from 2019 at their Quai 9 location¹¹³.

An emergence of tools designed for populations in Switzerland experiencing psychological distress due to COVID-19 is becoming more evident. For example, an internet-based self-help program ROCO funded by the University of Bern is examining the efficacy and user acceptability of telemedicine modalities¹¹⁴. Swiss physicians have also contributed to the development of COVID-19 Caregiver Cockpit (C19CC), a free-of-charge, web-, and app- based tool to assist health care providers with telecare options that minimize contact and risk of exposure to SARS-CoV-2 and its variants and optimize workflows to manage health care settings working at or beyond capacity during potential future outbreaks¹¹⁵.

Results:

ACCESS TO SERVICES

Diaz Hernandez and colleagues²⁵ examined the effect that COVID-19 had on the general Swiss population (N=1022, 18-78 yrs) on self-rated general health and wellbeing measures including access to mental health interventions after the first pandemic control ordinances using an online survey. Globally, shortages and disruptions to mental health services were prevalent¹¹⁶. In Switzerland, psychiatric services at the University of Bern were overwhelmed with their youth population, however, little is known regarding care for young adults, adults, and older adults beyond an increased uptake of telemedicine modalities^{21,105}.

How has the social situation of people affected by substance use dependence changed?

Summary:

KEY MESSAGES

- Individuals, whether they are currently experiencing substance use dependence or not, are embedded in an ecological system. Policies and intervention require the consideration of appropriate historical, social, physical, and environmental contexts.
- Individuals deprived of liberties require treatment based on a human-rights approach that acknowledges basic needs, care, and dignity while in the care of the government.
- Vulnerable populations including migrants, sex workers, incarcerated individuals, undocumented groups, older adults, individuals with cognitive or physical disabilities, etc. require consideration beyond being labelled *vulnerable populations*; they require customized or alternative services to access health resources.

A 7.3% contraction of the 2020 Swiss GDP was observed, unemployment and long-term unemployment are projected to increase to record levels (beyond 2021 State Secretariat for

Economic Affairs predictions) which expose a significant segment of the population living in Switzerland to insecurities related to basic needs such as food and shelter^{117,118}.

A small study that examined the evolution of the illicit substance market and substance users' social situation in Switzerland⁶³. Overall, the Swiss illicit substance market seemed unaffected at the time of study as were substance users' social situations. Psychopathological outcomes, internationally, were observed among inpatient populations rather than outpatient populations¹¹⁹. In Switzerland, suicide attempts in Switzerland's largest pre-trial prison (Champ-Dollon) increased by 57% over the course of the pandemic; closures of workshops, sports, reduced contact with outside world and family are thought to have contributed to this outcome¹²⁰.

In Vaud, vulnerable populations including forced migrants, general migrant populations, individuals who are in prisons, and individuals experiencing homelessness were at increased risk of experiencing inequitable care during the COVID-19 pandemic¹²¹. For example, asylum seekers, relocated Syrian families, victims of human trafficking, sex work, undocumented individuals are some groups identified in Vaud that slipped through the cracks as well as *vulnerable populations*, described by the Confederation generally also included integrated populations above 65 and/or experiencing co-morbidities. These selected populations have tendencies to experience substance use involvement, greater barriers to access services (i.e., language, stigma, economic resources, health literacy etc.) and it is unclear, given the scarcity of current data, the extent of harms experienced among these populations during this exceptional situation¹²²⁻¹²⁵.

The Correlation - European Harm Reduction Network, Pompidou Group, and EMCDDA are excellent resources to collaborate and learn from specific experiences from front-line workers, service users, and other stakeholders¹²⁶.

Results:

SOCIAL SITUATION

Gaume and colleagues⁶³ examined the impact of the COVID-19 pandemic on the supply of illicit substances as well as the health and social impact to individuals who use illicit substances. A mixed methods approach was used over two anonymized survey waves to examine changes over time; the first survey was conducted during the first lockdown (17-24 April 2020; N=49) and the second wave was conducted two weeks later as easing of public ordinances occurred (4-8 May, 2020; N=51). The study population was drawn from the Addiction Treatment Centre of Lausanne University Hospital service user population who had purchased any illegal substance in the past 7 days. This study found use, price, and purity of heroin, cocaine, and cannabis to be stable as reported by this study population. Furthermore, in general, this sample reported little impact of the pandemic on their social situation overall.

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