revista de pesquisa ISSN 2175-5361

CUIDADO É FUNDAMENTAL

Escola de Enfermagem Alfredo Pinto – UNIRIO

RESEARCH

DOI: 10.9789/2175-5361.rpcfo.v14.11697

ADAPTATION OF REFERRAL SERVICES FOR PEOPLE LIVING WITH HIV/ AIDS DURING THE COVID-19 PANDEMIC

Adaptação de serviços de referência para pessoas vivendo com HIV/AIDS durante a pandemia de COVID-19 Adaptación de los servicios de referencia para personas viviendo con VIH/AIDS durante la pandemia de COVID-19

Iasmin Maria Ferreira da Silva¹ D
Amuzza Aylla Pereira dos Santos¹ D
Natalha Cabral do Nascimento¹ D
Rayssa Francielly dos Santos Alves² D
Sueli Teresinha Cruz Rodrigues¹ D
Thaís Honório Lins Bernardo¹ D

ABSTRACT

Objective: describe the adaptations that occurred in healthcare referral services regarding the care for individuals living with HIV/ Aids in the covid-19 pandemic scenario. **Method:** the research is of a quantitative exploratory descriptive nature. The research was authorized by the ethics and research committee (Comitê de Ética e Pesquisa) under the protocol CAAE 46795521.5.0000.5013. **Results:** a total of 32 interviews were performed. The main modifications that occurred in the scenarios where data was collected were the distribution of supplies and materials to prevent contamination from SARS-CoV-2, bigger intervals between consultations and the expansion of the time in months for the dispensing of medications. **Conclusion:** it is evident that the pandemic brought diverse impacts to HIV healthcare referral services, as well as its users. Such scenario created challenges that may be overcome with interdisciplinary teamwork and institutional support, as well as collaboration and engagement of patients in the modifications proposed.

DESCRIPTORS: HIV; Coronavirus infections; Health services.

Received: 02/08/2022; Accepted: 03/09/2022; Published online: 11/11/2022

Corresponding Author: lasmin Maria Ferreira da Silva, E-mail: iasminferreira.ms@gmail.com

How cited: Silva IMF, Santos AAP, Nascimento NC, Alves RFS, Rodrigues STC, Bernardo THL. Adaptation of referral services for people living with HIV/AIDS during the COVID-19 pandemic. *R Pesq Cuid Fundam* [Internet]. 2022 [cited year mouth day];14:e11697. Available from: https://doi.org/10.9789/2175-5361.rpcfo.v14.11697













¹ Universidade Federal de Alagoas, Alagoas, Maceió, Brazil

² Universidade Estadual de Ciências da Saúde de Alagoas, Alagoas, Maceió, Brazil

RESUMO

Objetivo: descrever as adaptações que ocorreram em serviços de referência no atendimento ao usuário vivendo com HIV/Aids no contexto da pandemia de covid-19. **Método:** trata-se de uma pesquisa quantitativa exploratória de caráter descritivo. A pesquisa foi autorizada mediante aprovação do Comitê de Ética e Pesquisa, sob número CAAE 46795521.5.0000.5013. **Resultados:** foram realizadas 32 entrevistas. As principais modificações ocorridas nos cenários de coleta de dados desta pesquisa foram a distribuição de insumos e materiais para a prevenção da contaminação por SARS-CoV-2, espaçamento de consultas e ampliação da quantidade de meses de dispensação de medicação para os pacientes. **Conclusão:** fica claro que a pandemia acarretou diversos impactos nos serviços de referência para pessoas vivendo com HIV, bem como em seus usuários, proporcionando desafios que podem ser superados com o trabalho em equipe interdisciplinar e o apoio institucional, bem como com a colaboração e adesão dos pacientes às modificações propostas.

DESCRITORES: HIV; Infecções por coronavírus; Serviços de saúde.

RESUMEN

Objetivo: describir las adaptaciones ocurridas en los servicios de referencia en la atención a usuarios que viven con VIH/Aids en el contexto de la pandemia de covid-19. **Método:** se trata de una investigación exploratoria cuantitativa de carácter descriptivo. La investigación fue autorizada por aprobación del Comité de Ética e Investigación bajo el número de CAAE 46795521.5.0000.5013. **Resultados:** Se realizaron 32 entrevistas. Los principales cambios que se produjeron en los escenarios de recolección de datos de esta investigación fueron la distribución de insumos y materiales para la prevención de la contaminación por SARS-CoV-2, el espaciamiento de las consultas y la ampliación de la cantidad de meses de dispensación de medicamentos a los pacientes. **Conclusión:** es claro que la pandemia ha tenido varios impactos en los servicios de derivación para las personas que viven con VIH, así como en sus usuarios, proporcionando desafíos que pueden ser superados con el trabajo en equipo interdisciplinario y el apoyo institucional, así como con la colaboración y adhesión de los pacientes a las modificaciones propuestas.

DESCRIPTORES: VIH; Infecciones por coronavirus; Servicios de salud.

INTRODUCTION

The covid-19 pandemic has had negative impacts in many health care settings, with high rates of person-to-person transmission and severe consequences especially for health systems and vulnerable populations, making it increasingly difficult to access needed care. When health systems are overburdened, as is the case with the pandemic, both direct mortality from the problem-causing cause and indirect mortality from preventable and treatable conditions increase dramatically.

A study that analyzed the Ebola epidemic in 2014 suggested that the increase in deaths from measles, malaria, HIV/AIDS, and tuberculosis attributable to health system failures exceeded even deaths from the Ebola virus. Therefore, a system's ability to maintain the delivery of essential health services will depend on its basic adaptive capacity and disease burden. ²

To date, some prevention and care guidelines for people living with HIV/AIDS and services serving them in the context of the covid-19 pandemic include, among others, ensuring guidance to general service and cleaning workers on protective and precautionary measures during the performance of these procedures, including the provision, use, and proper disposal of PPE; prioritizing the care of PLHIV in health facilities, as they are immunosuppressed patients; providing longer intervals between appointments, if the patient's clinical conditions permit; extend the dispensation of antiretroviral therapy (ART), whenever possible, for three months, observing the specifics of each individual (adherence to treatment, viral load, among others),

especially for individuals with a CD4 T-lymphocyte count < 500 cels/ml; verify that all vaccines are up to date, including vaccines against seasonal influenza and bacterial pneumonia, because these vaccine-preventable diseases disproportionately affect people with HIV; dispense medications for pre-exposure prophylaxis (PrEP) for up to 4 months, considering available stocks, in order to minimize the patient's trip to the health unit and spacing the return for individuals on PrEP with proper guidance. ³

Strategic planning and coordinated action must be implemented to maintain health care and service delivery, mitigating the risk of system collapse. Many routine and elective services may be delayed or suspended. Establishing effective patient flow of covid-19 and non-covid-19 cases is essential at all levels. Successful implementation of these strategic changes will require transparency and frequent communication with the public, specific protections to ensure access for socially vulnerable populations, active engagement of communities and other stakeholders, and a high degree of cooperation from individuals.²

In the northeastern Brazilian capital where the research data collection was carried out, there are three Specialized Care Services (SAE), that is, three health units referenced for HIV/Aids treatment. The institution chosen for this research has approximately 4,700 people living with HIV registered in the program and making use of the services, which offers care from professionals in several areas. To date, the SAEs exist as the only alternative for the care of people living with HIV, since primary care has not yet been able to absorb this population within a proposal of a decentralized line of care.⁴

Silva et al. 3

This research is justified since the referral services for people living with HIV needed to adapt in some way during the covid-19 pandemic in order to continue providing quality care to this population and such changes have a direct positive or negative influence on the health of this public. Therefore, the present study contributes to identifying the adaptations adopted in the context of the covid-19 pandemic and to evaluate whether these were resolutive, contributing to quality care provided to patients living with HIV in a personalized and individualized manner.

Thus, the objective of this study is to describe the adaptations that occurred in reference services in the care of users living with HIV/AIDS in the context of the covid-19 pandemic.

METHOD

This is a quantitative exploratory descriptive research, carried out in a SAE in HIV/Aids located in a city in northeastern Brazil. All professionals who work in the service were invited to participate in the research, totaling 53 people in the population; of these, 15 were eliminated by the exclusion criteria, totaling a sample of 32 workers. All professionals were included in the sample, because there are recommendations regarding the covid-19 pandemic for all professional categories of the data collection environment. The approach occurred through access to the blocks, after authorization from the health institutions and the Research Ethics Committee.

The inclusion criteria were: professionals working in the reference services for people living with HIV chosen for this research; having worked in the service before and continuing to work during the covid-19 pandemic; while the exclusion criterion is: professionals not working during the data collection period.

Data were collected by means of interviews with a semi-structured questionnaire applied to the professionals working in these health institutions. This instrument was based on scientific literature5 and is composed of three parts: 1 - Demographic characteristics of the professional; 2 - Data regarding the institution; 3 - Data regarding the team's view on the changes adopted in the service to continue offering quality care to people living with HIV in times of covid-19.

The Microsoft Office Excel 2016 program was used to organize, tabulate and analyze the data, using descriptive statistics to analyze the quantitative data, which will be presented here in tables and graphs. In the open questions, the answers were grouped by similarity, culminating in categories.

The research was authorized by approval of the Ethics and Research Committee (CEP), through Plataforma Brasil, for analysis CAAE 46795521.5.0000.5013. After approval, data collection started in August 2021 and ended in January 2022.

RESULTS

Of the total sample of professionals, 15 were eliminated by the exclusion criteria and 6 refused to participate in the research, and 32 interviews were conducted. Of these, six (18.75%) are administrative, two (6.25%) are receptionists, one (3.12%) is a general services, one (3.12%) is a nutritionist, five (15.62%) are psychologists, three (9.37%) are social workers, one (3.12%) is an oral health assistant, one (3.12%) is a dentist, one (3.12%) is a nursing assistant, two (6.25%) are nursing technicians, seven (21.87%) are nurses, and two (6.25%) are physicians. The sample was mostly female (71.87%), married (50%), with an average monthly income of 6-9 minimum wages (37.5%), and aged 55 years or more (28.12%), as shown in Table 1.

When it comes to data related to the adaptations of the service during the pandemic of covid-19 in the researched institution, most (65.62%) said they knew the resolutions and regulations for the reference services that care for PLHIV and, of these, 71.42% could give some example of resolution/normative, the others said they could not remember any at the time of the interview, as shown in Table 2.

Most of the interviewees (87.5%), also said that PLWHA are more susceptible or belong to the risk group of covid-19; they also reported that guidance was provided to health professionals on preventive measures in care (53.12%). Still regarding the data in Table 2, it is clear that most of the sample said that there was a supply of alcohol gel (96.87%) and PPE (93.75%) regularly for all professionals; most (93.75%) reported that there was spacing of consultations in which the patient presented favorable health situations.

When the interviewees were questioned about the increase in the number of months of antiretroviral (ARV) dispensation, most of them (68.75%) said there was, although the number of months of increase was reported differently in the answers. Of the 22 participants who answered yes to the questioning, five said they did not know the extension period, two said the dispensation had been extended to three months, two said the period was equivalent to four months, two reported it varied from four to six months, 10 said it had been extended to six months, and one said it varied between six and eight months.

When questioned about who guided the adaptations that should be made, 15 (46.87%) informed that it was the professionals of the sector, seven (21.87%) reported that it was the management of the SAE, nine (28.12%) pointed either the institution or the professionals, and one (3.12%) did not know, as illustrated in Figure 1.

As for the data regarding the professionals' evaluation of the adaptations adopted in the service, illustrated in Table 3, the majority (75%) said they consider that the adaptations ensured safe care to PLHIV during the pandemic and that the patients adhered well to the proposed changes (56.25%); when asked if they consider the pandemic of covid-19 a factor contributing to treatment abandonment, most respondents (65.62%) said yes, reporting different aspects, with fear being the most cited factor, by 13 people (61.9%).

Thus, it is clear that the service needed to make several organizational and care adaptations in order to ensure the safety of both users and professionals. According to the data collected, the main changes that occurred in the data collection scenario

Table 1 – Frequency of professionals interviewed by gender, marital status, monthly income, age group. Maceió, AL, Brazil, 2022

	V ariables	N	%
Gender	Female	23	72
	Male	9	28
Marital status	Single	11	28
	Married	16	54
	Divorced	5	18
	Up to 1 minimum wage	1	2
	From 1 to 3 minimum wages	5	16
	From 3 to 6 minimum wages	7	24
Family Income	From 6 to 9 minimum wages	12	28
	From 9 to 12 minimum wages	3	12
	From 12 to 15 minimum wages	1	4
	More than 15 minimum wages	3	14
	25 to 29 years old	2	4
	30 to 34 years old	2	8
	35 to 39 years old	2	10
Age	40 to 44 years old	4	12
	45 to 49 years old	6	18
	50 to 54 years old	7	20
	55 years or older	9	28

Table 2 – Data regarding the adaptations adopted during the covid-19 pandemic in the Institution's SAE. Maceió, AL, Brazil, 2022

Objective questionnaire	Responses	Ν	%
Do you know the resolutions and norms for services serving PLHIV during the pandemic?	Yes	21	65,62
	No	11	34,37
	I don't know	0	0
	Yes	28	87,5
Are PLHIV more susceptible to or part of the covid-19 risk group?	No	4	12,5
	I don't know	0	0
	Yes	17	53,12
Was orientation to health care professionals about preventive measures performed during care?	No	11	34,37
car c.	I don't know	4	12,5
Was alcohol gel provided?	Yes	31	96,87
	No	0	0
	I don't know	1	3,12
Yes	Yes	30	93,75
Was personal protective equipment (PPE) provided to all professionals?	No	2	6,25
	I don't know	0	0
	Yes	30	93,75
Spacing of consultations in which the patient presented favorable health situations?	No	1	3,12
	I don't know	1	3,12
	Yes		68,75
Extension of the number of months of antiretroviral dispensation?	No	2	6,25
	I don't know	8	25

Silva et al. 5



Figure 1 - Data regarding who oriented about the adaptations that the services should adopt in the institution. Maceió, AL, Brazil, 2022

Table 3 - Data regarding the professionals' evaluations about the adaptations adopted in the Institution's SAE. Maceió, AL, Brazil, 2022

Objective questionnaire	Responses	N	%
	Yes	24	75
Did the adaptations ensure safe care for PLHIV even during the pandemic?	No	3	9,37
	I don't know	5	15,62
	Yes	18	56,25
Did the patients adhere well to the proposed modifications during this period?	No	11	34,37
	I don't know	3	9,37
From your experience in the service during the pandemic, do you believe that covid-19	Yes 2		65,62
may be a contributing factor to treatment abandonment in people living with HIV?	No	11	34,37
	No 11 I don't know 0	0	

of this research were the distribution of supplies and materials for the prevention of contamination by SARS-CoV-2, such as PPEs and 70% alcohol gel, the spacing of consultations, and the increase in the number of months of ARV medication dispensing for patients, with the aim of minimizing visits to the service and, consequently, reducing the risk of exposure to the virus.

DISCUSSION

According to the data collected in the survey, although most of the professionals reported knowing the resolutions and norms published by the Ministry of Health (MOH), few knew how to exemplify them. During the pandemic period, the MOH, through the Department of Chronic Conditions Diseases and Sexually Transmitted Infections (DCCI), sent to state and municipal HIV program coordinators, documents that guide the care of PLHIV in the context of the pandemic, which are basically the same already indicated for the general population.⁵

As for the extension of the months of ARV dispensation, there were divergences in the answers of the research sample, besides the fact that most of them did not know how to inform the number of months of extension. According to documents issued by the Ministry of Health and the World Health Organization (WHO), it is recommended to states and municipalities that ARV dispensing be extended, whenever possible, to periods between three and six months, and that consultations be spaced

out, after assessing the patient's health status, in order to reduce the flow of people in health services.²⁻⁵

The guidelines about the expansion of ARV dispensing state that the state coordinators must identify the Drug Dispensing Units (MDUs) that can receive a larger quantity of drugs to expand ARV dispensing, and make complementary shipments of these drugs. If necessary, the state may request the DCCI an extra shipment of drugs within the ascending schedule, which will be analyzed and attended to as much as possible. Therefore, stock assessment is essential for the measure to be effectively employed and the recommendations to be safely followed.

The need for adaptation of essential health services to keep safe the assistance to their users, as well as the working conditions to their professionals is a fact, therefore, it is essential that there is effective communication between the health team and the service management. According to the data collected in this research, 15 people (46.87%) reported that only the workers mobilized themselves to modify the sector, a fact that corroborates with a research, which concludes that adaptations were often organized by the service professionals themselves, having only a few references from the institutions.⁶

In this regard, the WHO states that appropriate training and supervision; organization of care pathways; safe and decent working conditions, including occupational health and safety; rapid regulatory and regulatory review; and support mechanisms, including financial resources, are essential strategic approaches in times of pandemic; it also reaffirms that national programs

should develop standard operating procedures (SOPs) to guide providers on how best to locate and re-enroll clients in care, especially if treatment is interrupted.²

A large proportion of the professionals interviewed (87.5%) stated that they consider PLHIV to be more susceptible or belonging to the covid-19 risk group. In this regard, the literature states that this public, if they have a reconstituted immune system, is not at greater risk for infection, but the social isolation, a consequence of the pandemic, reverberates in barriers and challenges to the continuity of care and testing of users; therefore, despite not having greater susceptibility to covid-19 infection, PLHIV are at high risk of suffering the consequences of the harmful impact of the pandemic on weak and overloaded health systems.⁷⁻⁸

For this population, covid-19 is a serious disease, as well as for the general population, but elderly people with heart and/or lung problems living with HIV may be at greater risk and more likely to have severe symptoms due to their vulnerabilities. Thus, we reiterate the need for all people living with HIV to seek their health care units and health care professionals, to ensure that they have adequate stocks of medications and that their prescriptions are released, in addition to the responsibility of the health system to provide comprehensive care. 9

A little more than half of the sample in this research (53.12%) reported that there was training with the professionals in the service about the adoption of preventive measures to covid-19, in agreement with the recommendations of the MH, which provides guidance on the use of PPE and 70% alcohol gel, ensuring the proper distribution of equipment, as well as the area supervision and occupational safety to monitor the distribution and control of PPE per employee, observe the proper use, maintenance, and replacement. It is also necessary to make sure that alcohol gel, water, and soap are available at all access points for professionals.⁵

Another question asked to the interviewees was if covid-19 can be a factor that contributes to the abandonment of treatment in people living with HIV, which the majority (65.62%) said yes; in this regard, it is a fact that the abandonment and/or noncompliance with treatment has always occurred in reference services, however, the pandemic brings new and major implications and barriers to people who need to leave their homes to seek health care; The fear and anxiety of contracting the virus, coupled with the difficulties in trying to schedule appointments, treatments, complementary examinations, and/or diagnoses, resulting from the reduction in the number of health professionals in the non-essential network and the reorganization of services in order to avoid crowding and reduce the transmission of the virus, cause many patients to be unassisted and end up losing treatment. ⁶

Thus, it is likely that at the end of the pandemic, many PLHIV will be presenting complications resulting from previous chronic diseases or acquired during the period in which they remained in social isolation, because, due to fear of contracting the virus, they did not seek care or simply could not get an appointment.⁶ Moreover, the pandemic should generate repercussions especially for new people diagnosed with HIV, who should have started ART in the hospital and may have encountered barriers that

reverberate in the impediment or delay of care, start of treatment and/or diagnosis, due to the great demand of covid-19, which resulted in numerous necessary priority measures, including that may be a reason to put HIV resources in second place in favor of meeting the demands of the pandemic.⁸

Similarly, fear, often associated with the pandemic, can worsen existing mental disorders and can also result in new diagnoses; anxiety is associated with non-adherence to antiretroviral therapy, corroborating the withdrawal from care; depression is associated with treatment failure and lower CD4 cell counts. A balanced mental health decreases the risks of non-adherence and treatment dropout. Therefore, providing psychosocial care needs to be guaranteed in health services along with continuous measures and actions to end stigmatization and prejudice against the key population.¹⁰

CONCLUSION

Given the data presented, it is clear that the actions of care in the treatment and prevention of HIV and other STIs were affected by the covid-19 pandemic and that health services needed to adopt measures to restrict outpatient care, translated as a decrease in the number of consultations, reduction in routine testing, changes in care and educational activities in health programs, cancelled and/or rescheduled routine consultations, which affected the distribution of medicines to PLHIV, as well as the assistance provided.

Moreover, the search for alternatives to overcome the difficulties encountered in the service needs to be constant, just as the maintenance of close monitoring in the care of PLHIV, with strategies to provide information and continuing education activities, emphasizing the benefits of adherence to ART and measures to prevent infection, to achieve the identification of symptoms, early diagnosis and treatment of covid-19 and prevention of critical or fatal outcomes by coinfection with the virus. It is crucial to expand knowledge about the effects of covid-19 on HIV infection at the local, regional, and global levels, not only for patients but also for professionals, through continuing education and frequent updates.

REFERENCES

- 1. Vrazo AC, Golin R, Fernando NB, Killam WMP, Sharifi S, Phelps BR, et al. Adapting HIV services for pregnant and breastfeeding women, infants, children, adolescents and families in resource-constrained settings during the covid-19 pandemic. J. int. aids soc. [Internet]. 2020 [cited 2021 nov 10];23(9). Available from: https://doi.org/10.1002/jia2.25622.
- World Health Organization (WHO). Covid-19: Operational guidance for maintaining core health services during an outbreak. [Internet]. 2020 [cited 2021 nov 12]. Available from: https://apps.who.int/iris/bitstream/

Silva et al. 7

- handle/10665/331561/WHO-2019-nCoV-essential_health_services-2020.1-eng.pdf?sequence=1&isAllowed=y.
- 3. Secretaria da Saúde do Estado da Bahia (SESAB). Nota técnica COE saúde nº 51 de 30 de abril de 2020: Orientações de prevenção e cuidado para as pessoas que vivem com HIV/aids e serviços que atendem PVHIV no contexto da pandemia do covid-19. [Internet]. 2020 [acesso em 11 de novembro de 2021]. Disponível em: http://www.saude. ba.gov.br/wp-content/uploads/2020/06/NT_n_51___HIV_AIDS___Servicos_que_atendem_PHIV_no_contexto_da_pandemia.pdf.
- 4. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Departamento de Vigilância, Prevenção e Controle das Infecções Sexualmente Transmissíveis, do HIV/Aids e das Hepatites Virais. Cuidado integral às pessoas que vivem com HIV pela Atenção Básica: manual para a equipe multiprofissional. [Internet]. Brasília: Ministério da Saúde; 2017 [acesso em 12 de novembro de 2021]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/cuidado_integral_hiv_manual_multiprofissional.pdf.
- 5. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde Departamento de Doenças de Condições Crônicas e Infecções Sexualmente Transmissíveis Coordenação-Geral de Vigilância do HIV/AIDS e das Hepatites Virais. O cuidado das Pessoas Vivendo com HIV/AIDS (PVHIV) no contexto da pandemia do covid-19. [Internet]. Brasília: Ministério da Saúde; 2020 [acesso em 20 de novembro de 2021]. Disponível em: http://www.aids.gov.br/pt-br/legislacao/oficio-circular-no-82020cgahvdccisvsms.
- 6. Parente JS, Azevedo SL, Moreira LFA, Abreu ML, Souza LV. O impacto do isolamento social na pandemia de covid-19 no acesso ao tratamento e aos serviços de prevenção do HIV. Research, Society and Development. [Internet]. 2021 [acesso em 02 de dezembro 2021];10(1). Disponível em: https://doi.org/10.33448/rsd-v10i1.11692.
- 7. Golin R, Godfrey C, Firth J, Lee L, Minior T, Phelps B. PEPFAR's response to the covergence of the HIV and covid-19 pandemics in Sub-Saharan Africa. J. int. aids soc. [Internet]. 2020 [cited 2021 dez 01];23(8). Available from: https://doi.org/10.1002/jia2.25587.
- 8. Jiang H, Zhou Y, Tang W. Maintaining HIV care during the covid-19 pandemic. Lancet HIV. [Internet]. 2020 [cited 2021 dez 01];7(5) Available from: https://doi.org/10.1016/S2352-3018(20)30105-3.
- The Joint United Nations Programme on HIV/ Aids (UNAIDS). Informações básicas sobre o HIV e a Aids. [Internet]. 2021 [acesso em 01 de dezembro 2021]. Disponível em: https://unaids.org.br/informacoes-basicas/.
- Marbaniang, I., Sangle, S., Nimkar, S., Zarekar, K., Salvi, S., Chavan, A, et al. The burden of anxiety among people living with HIV during the covid-19 pandemic in Pune, India. BMC public health (Online). [Internet]. 2020 [cited

2021 nov 30];20(1). Available from: https://doi.org/10.1186/s12889-020-09656-8.