BMJ Open

Lifestyle changes during the COVID-19 pandemic in Brazil: results from three consecutive cross-sectional web surveys

Marcelo Ribeiro-Alves,[1] Giovanna Lucieri Costa,[2] Jurema Corrêa da Mota,[3] Taiane de Azevedo Cardoso,[4] Keila Cerezer,[5] Thais Martini,[5] Marina Ururahy Soriano de Sousa,[2] Francisco I Bastos ,[3] Vicent Balanzá-Martínez,[6] Flavio Kapczinski,[5,7] Raquel Brandini De Boni [3]

To cite: Ribeiro-Alves M, Lucieri Costa G, Corrêa da Mota J, *et al*. Lifestyle changes during the COVID-19 pandemic in Brazil: results from three consecutive cross-sectional web surveys. *BMJ Open* 2023;**13**:e070328. doi:10.1136/bmjopen-2022-070328

► Prepublication history for this paper is available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2022-070328).

Received 22 November 2022
Accepted 28 June 2023

For numbered affiliations see end of article.

Correspondence to
Dr Raquel Brandini De Boni; raqueldeboni@gmail.com

ABSTRACT

Objective The importance of a healthy lifestyle in preventing morbidity and mortality is well-established. The COVID-19 pandemic brought about significant lifestyle changes globally, but the extent of these changes in the Brazilian population remains unclear. The objective of this study was to evaluate changes in lifestyle among the Brazilian general population during the first year of the pandemic.

Design Three consecutive anonymous web surveys were carried out: survey 1 (S1)—April 2020, S2—August 2020 and S3—January 2021.

Setting Brazil.

Participants The study included 19 257 (S1), 1590 (S2) and 859 (S3) participants from the general population, who were ≥18 years, of both sexes, with access to the internet, self-reporting living in Brazil and who agreed to participate after reading the informed consent.

Primary outcome Lifestyle changes were assessed using the Short Multidimensional Instrument for Lifestyle Evaluation—Confinement (SMILE-C). The SMILE-C assesses lifestyle across multiple domains including diet, substance use, physical activity, stress management, restorative sleep, social support and environmental exposures. We used a combination of bootstrapping and linear fixed-effect modelling to estimate pairwise mean differences of SMILE-C scores overall and by domain between surveys.

Results In all the surveys, participants were mostly women and with a high education level. Mean SMILE-C scores were 186.4 (S1), 187.4 (S2) and 190.5 (S3), indicating a better lifestyle in S3 as compared with S1. The pairwise mean differences of the overall SMILE-C scores were statistically significant ($p<0.001$). We also observed a better lifestyle over time in all domains except for diet and social support.

Conclusions Our findings indicate that individuals from a large middle-income country, such as Brazil, struggled to restore diet and social relationships after 1 year of the pandemic. These findings have implications for monitoring the long-term consequences of the pandemic, as well as future pandemics.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Large sample size from a middle-income country which are usually under-represented in lifestyle research.
⇒ The multidimensional evaluation of lifestyle using a validated questionnaire which may contribute for evolving research into the lifestyle medicine field.
⇒ Non-probabilistic nature of the web surveys which limits external validity.
⇒ The huge difference in response rate in the anonymous web surveys which can be related to people being overwhelmed with this research method during the pandemic.

BACKGROUND

Lifestyle may be understood as a multidimensional concept, usually evaluated through seven domains: diet and nutrition, substance use, physical activity, stress management, restorative sleep, social support and environmental exposures.[1–3] A healthy lifestyle is a determinant of health and decreases all-cause mortality, increases well-being and lowers the incidence of chronic diseases, such as diabetes and cardiovascular diseases.[4–6] Conversely, unhealthy behaviours have been linked to worse physical and mental health outcomes,[7] and strongly contribute to the global burden of diseases.[5] The seven lifestyle domains are connected and may influence each other.[6] In a systematic review and meta-analyses, Loef and Walach have shown an inverse relationship between the risk of all-cause mortality and the number of healthy lifestyle domains.[8] Our previous work has also shown a cumulative effect of worse lifestyle domains on risky drinking—that is, the higher the number of unhealthy lifestyle domains, the higher the likelihood of risky drinking.[2] Despite these findings, lifestyle research remains fragmented, with domains often investigated as independent risk factors, which may limit the development of comprehensive interventions to promote health.[9 10]

Since the beginning of 2020, possible changes in lifestyle behaviours have been speculated. Long-term consequences of lifestyle

change due to the COVID-19 pandemic are still unclear, but data suggest that behavioural modifications may last for long periods.[10] Researchers reported worsening sleep quality and emotional stress in Italy[11] and in China[12] and an overall worsening of lifestyle in Spain.[13] In Brazil, many cross-sectional studies investigated the perceived changes in health behaviours. There were reports of both, worsening and improvement, in diet/nutrition[14 15] and physical activity,[16 17] while screen time was mainly perceived as worsened (ie, increased).[18 19] However, self-reported measures obtained in a single cross-sectional evaluation may not be the best method to evaluate behaviour changes due to recall and social desirability biases. Longitudinal assessments, such as cohorts and time-series analysis, are expected to provide more precise information. For instance, a study conducted in the UK (n=3591) found that most individuals (62%) did not change physical activity levels, but almost 30% of the sample decrease it.[20] Subsequently, the authors showed that changes in physical activity were associated with changes in other health behaviours (such as alcohol use and sleep).[21] In the same direction, a study with longer follow-up conducted in Italy also showed decrease in overall physical activity, although there was improvement in diet and decrease in alcohol use.[22] Results from a Brazilian cohort indicated a statistically significant increase in the consumption of healthy food and stability in the consumption of unhealthy food when comparing data obtained before and 6 months after identifying the first COVID-19 case in the country, indicating a favourable pattern of dietary changes during the pandemic.[23]

Given the limited longitudinal data available on lifestyle changes, the inconsistent results obtained in cross-sectional studies, and the importance of understanding those changes for planning public health measures, we aimed to evaluate lifestyle changes among a sample of the Brazilian population during the first year of the COVID-19 pandemic. Lifestyle was evaluated both as a multidimensional construct and as independent domains (diet and nutrition, substance use, physical activity, stress management, restorative sleep, social support and environmental exposures). In line with evidence from the initial phase of the pandemic and the possible syndemic effect of socioeconomic inequalities that overwhelm the Brazilian population, we hypothesised an overall deterioration of lifestyle during the first year of the pandemic.

METHODS

Three consecutive, anonymous, web surveys, programmed in SurveyGizmo, were conducted in Brazil: survey 1 (S1) from 20 April to 20 May 2020[1 7]; S2 from 28 August to 9 October 2020; and S3 from 18 January to 6 March 2021. All the web surveys comprised convenience samples. The study population comprised adults (≥18 years) from the general population, of both sexes, with access to the internet, self-reporting living in Brazil and who agreed to participate after reading the informed consent. Multiple entries by the same individuals were prevented by asking if the questionnaire was filled before. Volunteers were asked if they had answered the previous surveys (ie, S1 and S2), but, due to the anonymous nature of the surveys, their answers may not be identified/linked to the previous surveys. Recruitment in the three surveys was performed using the same strategies (modified snowball sampling and sponsored social network advertisements[7]). Due to the lack of parameters to estimate the sample size for S1, a 30-day period of data collection was prespecified. Response rates were not estimated in the study because the study denominator is unknown—that is, we are unable to estimate how many individuals have viewed/sent the survey.

Questionnaire

The original questionnaire was published elsewhere.[10] Skips, when appropriate, were implemented to decrease the time of completion. The usability and technical functionality of the online version were tested before launching the surveys.

Outcome

The primary outcome was the change in lifestyle during the three surveys. Lifestyle was measured using the Short Multidimensional Instrument for Lifestyle Evaluation—Confinement (SMILE-C),[1] developed simultaneously in English, Portuguese and Spanish to allow a multidimensional measure of lifestyle. It comprises 27 items, evaluating seven domains (diet and nutrition, substance use, physical activity, stress management, restorative sleep, social support and environmental exposures). Answers were measured through a 4-point Likert scale. Scores were calculated by summing the responses (some questions have inverted scores) in each domain, dividing the value by the number of the questions in the domain, summing the final score and multiplying by 10 (domain scores range from 10 to 40, while SMILE-C scores range from 70 to 280). Such adjustment was necessary to balance the unequal number of questions in each domain.[2] The higher the score, the healthier the lifestyle.

Independent variables

Demographic information included: sex (female/male), age (dichotomised by the median age into 18–41/41–94), geographic region (categorised as Midwest/North/Northeast and South/Southeast, due to their similar socioeconomic vulnerability index[24]), educational level (school/undergraduate/graduate), number of people living in the house, employment status (no/yes/unemployed due to COVID-19), working as an essential worker (no/yes) and time of social distancing/self-isolation (no/yes). The COVID-19 questions were: 'Have you been diagnosed with COVID-19? (no/yes)' and 'Have you lost a significant one? (no/yes)'. Previously diagnosed conditions were investigated using the question 'In the last 12 months, have you been diagnosed by a medical doctor or health professional, or received treatment for any of the

following conditions?',[25] and conditions were aggregated as chronic diseases (no/yes) and mental health disorders (no/yes).

Statistical analysis

We described the absolute and relative frequency of demographic and clinical characteristics by survey (S1, S2 and S3) and compared them using X^2 tests. The mean SMILE-C scores (total and by domain) were estimated after bootstrapping the samples. Bootstrap samples were stratified by 'sex', 'age', 'geographic regions', 'employment status', 'educational level', 'self isolated', 'COVID-19 diagnosis', 'chronic disease' and 'mental disorder', totalling 768 strata. For each stratum of equal size (n=100), a sampling weight inversely proportional to its representativeness in the original sample was calculated.

To evaluate the changes in the SMILE-C scores, in the first moment, simple linear fixed-effect models were fitted in each bootstrap round for each of the seven domains of the SMILE-C and for the overall SMILE-C, in each stratified sample. From each of these models, the pairwise mean differences between the surveys for each outcome were obtained after Tukey's honest significance difference[26] correction for multiple testing and summarised as mean difference bootstrap estimates and their 95% CIs.

Afterwards, we fitted multiple linear models in each bootstrap stratified sample, for the same outcomes above, including in the systematic component of the model nominal conditioning variables (ie, 'sex', 'age', 'geographic regions', 'time isolated in weeks', 'employment status', 'essential worker', 'educational level', 'household members', 'self isolated', 'COVID-19 diagnosis', 'lost someone in the pandemic', 'chronic disease' and 'mental health disorder') and their interaction with the variable 'survey'. From these multiple linear fixed-effect models, the pairwise marginal mean differences were estimated between the surveys at each level of the conditioning variable after Tukey's honest significance difference correction for multiple testing.

All statistical analyses were performed using the software R V.4.0.5 and the libraries 'boot' and 'emmeans' and dependencies.

Patient and public involvement

The public was not involved in the planning and design of the study. The public was involved in the recruitment insofar any individual was able to disseminate the web link to fill out the questionnaire.

RESULTS

The surveys included n=19 257 (S1), n=1590 (S2) and n=859 (S3) participants. The percentages of women, individuals from the country's southern region and essential workers were substantially higher at S3 than at S1. The proportion of participants referring to a COVID-19 diagnosis ranged from 0.8% (S1) to 12.3% (S3), while the proportion of those referring to having lost someone was 7.3% (S1) and 26.6% (S3), as shown in table 1.

Mean SMILE-C scores were 186.4 (S1), 187.4 (S2) and 190.5 (S3), indicating a better lifestyle in S3 as compared with S1, and in S3 as compared with S2 (table 2). Figure 1 and table 2 show that lifestyle domains were better in S3, as compared with S1, regarding physical activity, stress management and environmental exposure, while they were worse in diet and social support.

Table 2 shows the SMILE-C scores pairwise mean/marginal mean differences among S1, S2 and S3 estimated by bootstrap and fixed-effect simple/multiple linear regressions. S2 and S3 presented higher scores than S1, and S3 presented higher scores than S2 (as may be seen by negative mean difference bootstrap estimates for the overall SMILE-C scores). This means that the lifestyle was increasingly better in August/October 2020 and January/March 2021 than in April/May 2020. All these estimates were statistically significant (95% CI did not include zero) and the biases (ie, the mean difference in estimates between bootstrap and a one-sample parametric method) were considerably high.

Table 2 also shows that a better lifestyle was observed over time regarding physical activity, stress management, restorative sleep and environmental exposure. On the other hand, scores were worst for diet and social support.

DISCUSSION

In three consecutive cross-sectional web surveys conducted in Brazil during the first year of the COVID-19 pandemic, we found that lifestyle improved over time. Except for diet and social support, improvement was observed for the multidimensional evaluation of lifestyle and other lifestyle domains. It is important to note that these measures refer to the period after Brazil's first COVID-19 case was diagnosed and did not reflect changes from before the pandemic outbreak.

An over time lifestyle improvement was against our initial expectations, but several plausible explanations may account for the results. The uncertainty and fear surrounding the COVID-19 pandemic could have heightened individuals' concerns with their health, making them more likely to engage in better food and physical activity choices. It is also possible that these feelings have propelled the search for efficient strategies to deal with stress under the circumstances ravaging the country. These are acceptable hypotheses, given that the participants in our web surveys (and most, if not all, web surveys conducted in Brazil[17]) were mainly women, employed and highly educated. It has been shown that women presented a better lifestyle during the pandemic,[27] and a higher socioeconomic position is a stronger predictor of a healthy diet and physical activity.[28 29] It is unlikely that individuals with lower socioeconomic statuses have improved their lifestyles. Still, as web surveys usually do not reach such population strata (given under coverage bias[30]), alternative recruitment strategies are greatly

Table 1 Characteristics of the sampled participants in survey 1 (S1), S2 and S3

		S1 n=19 257	S2 n=1590	S3 n=859	P value
Sex	Female	13 125 (68.2%)	1232 (82.4%)	677 (83.5%)	<0.001
	Male	6131 (31.8%)	263 (17.6%)	134 (16.5%)	
Age	(41–94)	7390 (38.4%)	950 (63.5%)	405 (49.9%)	<0.001
	(18–41)	11 866 (61.6%)	545 (36.5%)	406 (50.1%)	
Geographic regions	Midwest	1311 (6.8%)	41 (2.7%)	24 (3%)	<0.001
	North	667 (3.5%)	35 (2.3%)	23 (2.8%)	
	Northeast	2347 (12.2%)	125 (8.4%)	31 (3.8%)	
	South	3165 (16.4%)	676 (45.2%)	550 (67.8%)	
	Southeast	11 766 (61.1%)	618 (41.3%)	183 (22.6%)	
Time isolated	None	2121 (11%)	15 (1%)	8 (1%)	<0.001
(in weeks)	1–4	1947 (10.1%)	51 (3.4%)	36 (4.4%)	
	5+	14 172 (73.6%)	1246 (83.3%)	623 (76.8%)	
	rda	1016 (5.3%)	183 (12.2%)	144 (17.8%)	
Employment status	No	7348 (38.2%)	620 (41.5%)	249 (30.7%)	<0.001
	Yes	11 314 (58.8%)	842 (56.3%)	535 (66%)	
	Unemployed due to COVID-19	594 (3.1%)	33 (2.2%)	27 (3.3%)	
Essential worker	No	16 414 (85.2%)	1153 (77.1%)	565 (69.7%)	<0.001
	Yes	2842 (14.8%)	342 (22.9%)	246 (30.3%)	
Educational level	School	4622 (24%)	414 (27.7%)	212 (26.1%)	0.032
	Undergrad	10 146 (52.7%)	741 (49.6%)	400 (49.3%)	
	Graduate	4487 (23.3%)	340 (22.7%)	199 (24.5%)	
Household members	1	2528 (13.1%)	211 (14.1%)	123 (15.2%)	<0.001
	2–3	11 164 (58%)	930 (62.2%)	482 (59.4%)	
	4–9	5534 (28.7%)	354 (23.7%)	205 (25.3%)	
Self-isolated	No	3254 (16.9%)	125 (8.4%)	83 (10.2%)	<0.001
	Yes	15 862 (82.4%)	1355 (90.6%)	724 (89.3%)	
COVID-19 diagnosis	No	19 082 (99.1%)	1412 (94.4%)	711 (87.7%)	<0.001
	Yes	150 (0.8%)	80 (5.4%)	100 (12.3%)	
Lost someone in the pandemic	No	17 821 (92.5%)	1195 (79.9%)	593 (73.1%)	<0.001
	Yes	1403 (7.3%)	296 (19.8%)	216 (26.6%)	
Chronic disease	No	13 019 (67.6%)	931 (62.3%)	571 (70.4%)	<0.001
	Yes	6089 (31.6%)	554 (37.1%)	234 (28.9%)	
Mental disorder	No	12 219 (63.5%)	967 (64.7%)	546 (67.3%)	0.105
	Yes	6560 (34.1%)	491 (32.8%)	253 (31.2%)	

Brazil, 2020–2021.
rda, respondent did not answer /prefered not to answer.

needed to evaluate the health of such vulnerable populations better.

An additional explanation for lifestyle improvement is the regression toward the mean,[31] that is, lifestyle was remarkably worsened soon after the first months of the pandemic and was slowly returning to its mean after a few months. Around the world, many studies reported on a lifestyle worsening soon after the pandemic. For instance, there was a decrease in physical activity in Hong Kong,[32] and in the Effects of home Confinement on multiple Lifestyle Behaviours during the COVID-19 outbreak survey (ECLB-COVID-19) which included 1047 individuals from Europe, North Africa, Western Asia and the Americas.[33] An increase in sedentary behaviour and unhealthy dietary habits were also reported by the ECLB-COVID-19 study.[34] Sleep quality was found to be worse in Italy[11] and Spain,[35] and an increase in the use of alcohol drinking was reported in the USA.[36] In Brazil, individuals interviewed in the ConVid study[17] reported having reduced their engagement in physical activity, increased

Table 2 SMILE-C scores pairwise mean difference bootstrap estimates among S1, S2 and S3

Outcome	Survey	Mean difference	95% CI		P value	Bias
		Bootstrap estimates	Lower	Upper		
Lifestyle	1–2	−1.03	−1.29	−0.77	<0.0001	−2.39
(Overall SMILE-C score)	1–3	−4.14	−4.40	−3.89	<0.0001	−0.02
	2–3	−3.11	−3.39	−2.83	<0.0001	2.37
Lifestyle domains						
Diet	1–2	0.15	0.10	0.20	<0.0001	−0.47
	1–3	0.23	0.17	0.28	<0.0001	−0.39
	2–3	0.08	0.02	0.14	0.009	0.08
Substance use	1–2	0.21	0.17	0.25	<0.0001	−0.31
	1–3	−0.13	−0.17	−0.09	<0.0001	0.13
	2–3	−0.34	−0.38	−0.30	<0.0001	0.44
Physical activity	1–2	−2.11	−2.21	−2.01	<0.0001	−0.10
	1–3	−3.57	−3.67	−3.46	<0.0001	0.05
	2–3	−1.45	−1.57	−1.33	<0.0001	0.15
Stress managment	1–2	−0.18	−0.24	−0.13	<0.0001	−0.46
	1–3	−0.85	−0.90	−0.80	<0.0001	−0.05
	2–3	−0.67	−0.73	−0.61	<0.0001	0.41
Sleep	1–2	−0.27	−0.33	−0.21	<0.0001	0.35
	1–3	−0.04	−0.11	0.03	0.275	0.20
	2–3	0.24	0.17	0.31	<0.0001	−0.14
Social support	1–2	0.95	0.89	1.01	<0.0001	0.13
	1–3	0.78	0.71	0.84	<0.0001	0.43
	2–3	−0.17	−0.24	−0.11	<0.0001	0.30
Environmental exposure	1–2	0.19	0.11	0.28	<0.0001	−1.55
	1–3	−0.58	−0.67	−0.51	<0.0001	−0.43
	2–3	−0.78	−0.87	−0.68	<0.0001	1.13

Brazil, 2020–2021.
SMILE-C, Short Multidimensional Instrument for Lifestyle Evaluation—Confinement.

screen time and alcohol and tobacco use. They reported unhealthier dietary patterns as compared with prepandemic months. While many of those findings are prone to recall bias and social desirability bias (since individuals were asked retrospectively about their behaviour before the pandemic), a study that tracked physical activity using a smartphone app found a 37% reduction in such physical activity during the first 3 months after the lockdown in the UK, compared with prepandemic levels.[37] The latest did not find major improvements in physical activity during the month following the relaxation of lockdown measures. Still, additional follow-up may objectively inform physical activity and overall lifestyle changes.

Our findings suggest that diet and nutrition have deteriorated over time. A systematic review conducted in 2021, which evaluated the effects of confinement on diet, revealed an increase in food consumption and weight.[38] However, it is also possible that the worsening of the situation in Brazil is associated with economic reasons. In December 2020, a population-based study found an association between the quality of the diet and food insecurity in the country.[39] Between 2019 and 2021, the prevalence of food insecurity has risen from 30% to 36%—the highest it has been since 2006, when this trend began to be evaluated.[40] This, coupled with the increasing prevalence of undernourishment, has placed Brazil back on the Food and Agriculture Organization of the United Nations' hunger map (https://www.fao.org/fileadmin/templates/SOFI/2022/docs/map-pou-print.pdf). These figures are unacceptable, particularly for one of the largest food producers globally, and it is expected that the recent changes in political leadership prioritise the tackling of hunger in the country.

Social support has also been found to worsen over the time. Social support is a complex domain, frequently understudied in the lifestyle field,[9] and hard to define. Williams *et al*[41] attempted to create a unified definition of social support, proposing it involves social relationships (including the strength, structure and type of social bonds) and also the feeling of being supported by others

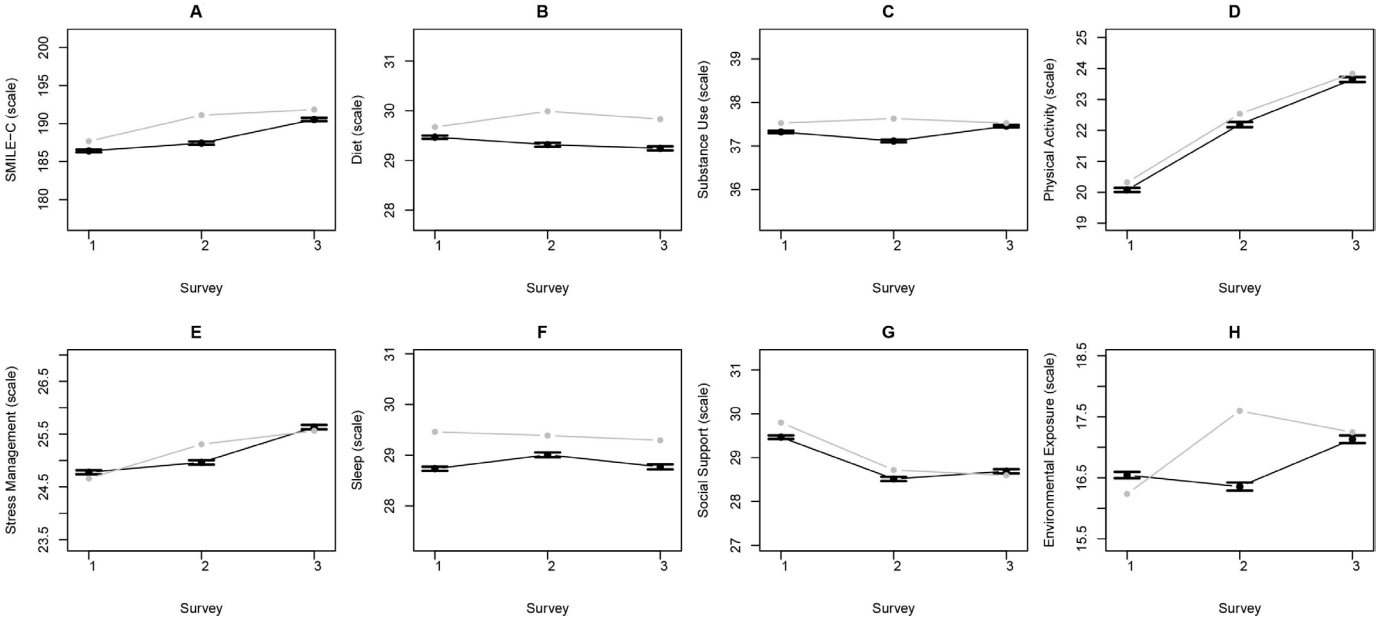

Figure 1 Lifestyle Short Multidimensional Instrument for Lifestyle Evaluation—Confinement (SMILE-C)* scores (overall and for each domain) in survey 1, survey 2 and survey 3. Brazil, 2020–2021. *The higher the score, the better the lifestyle. (A) SMILE-C overall score, (B) diet, (C) substance abuse, (D) physical activity, (E) stress management, (F) sleep, (G) social support and (H) environmental exposition. In grey, parametric means. In black, bootstrap means and their 95% CI estimated in (B=1000) equal-sized (n=100) bootstrap samples stratified by 'sex', 'age', 'geographic regions', 'employment status', 'educational level', 'self isolated', 'COVID-19 diagnosis', 'chronic disease' and 'mental disorder', totalling 768 strata.

as an individual. Given this definition, the social isolation measures taken to control the pandemic may have profoundly affected people's relationships, disrupting social bonds across all aspects of their lives.[42] There was a significant reduction in contact with others, both at work (due to work-from-home policies) and in personal relationships (due to the lockdown itself), contributing to the feeling of isolation and loneliness. Connecting with others is critical to experience social support, and even lifting social restrictions may not have been sufficient to fully restore social relationships to prepandemic levels.

Long-term effects of lack of social support are concerning, as loneliness and lack of connection have been associated with worse drinking habits, substance abuse, increased mental health disorders (such as depression and post-traumatic stress disorder, increased suicide ideation and increased risk for mortality[34 41 43 44]). Such pieces of evidence reinforce the need to strengthen social bonds. However, social support interventions are not easy to develop. In a review, Hogan *et al*[45] investigated different approaches to improve social support and inferred that an improvement in social support can be done by increasing access to 'supportive persons'. This goal could be achieved both by incorporating new people into someone's support network or by strengthening a pre-existing relationship. In this sense, technology may be a useful tool to increase social interactions, even though it may not substitute in-person relationships.

Limitations of this study include the huge difference in response rate among the three surveys, which may or not be related to the outcome. Our S1 was one of the first web surveys launched in Brazil and the second in sample size (May 2020). It is possible the population was overwhelmed by the large number of web surveys occurring in the country and was less prone to answer over time. This is a relevant methodological issue to be observed in the near future, especially if considering web surveys for surveillance. Additionally, in Brazil, ethical regulation does not allow any payment for the study's participants, so even if other sampling techniques are adopted (such as probability panels, which usually include some reimbursement), it is possible that selection bias and non-response would persist. Regardless of these differences in response ratios among samples, the adoption of the stratified bootstrap aimed to minimise sampling bias by providing equal representation of unbalanced characteristics among the samples obtained over time, as well as the size of these samples. The second limitation is that none of the samples was probabilistic, and the results may not be generalised to the Brazilian population. Third, although changes in the SMILE-C scores were statistically significant, the magnitude of change was small and the long-term effect of these changes remains to be evaluated. Regardless of the limitation, to the best of our knowledge, this is the first study evaluating lifestyle changes in Brazil profiting from repeated web surveys.

CONCLUSIONS

The three surveys show an overall improvement in lifestyle over time. While this result could be attributed to heightened health concerns among the participants, it may also

reflect a regression to the mean hypothesis. Considering the huge burden of disease related to behavioural risk factors, it is of utmost importance that lifestyle patterns remain to be closely monitored.

Author affiliations
[1]Laboratório de Pesquisa Clínica em DST-AIDS, Instituto Nacional de Infectologia Evandro Chagas (INI), Oswaldo Cruz Foundation, Rio de Janeiro, Brazil
[2]Escola de Medicina e Cirurgia, Universidade Federal do Estado do Rio de Janeiro, Rio de Janeiro, Brazil
[3]ICICT, Oswaldo Cruz Foundation, Rio de Janeiro, Brazil
[4]Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, Ontario, Canada
[5]Department of Psychiatry, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
[6]Departament de Medicina, Universitat de València, INCLIVA, CIBERSAM, València, Spain
[7]Hospital de Clinicas de Porto Alegre, Porto Alegre, Brazil

Contributors RBDB, VB-M and FK conceived the web surveys. MR-A analysed the data. MR-A, GLAC, FB and RBDB interpreted the data and wrote the first draft of the manuscript. TdAC, KC and TM coordinated data collection and communication. JCdM was responsible for data management. GLAC and MUSdS helped with literature review and writing the first draft of the manuscript. All authors revised the manuscript and provided significant intellectual contributions. All the authors approved the submitted version. RBDB is the study guarantor.

Funding VB-M acknowledges the national grant PI16/01770 from the Instituto de Salud Carlos III, ISCIII (The PROBILIFE study). TdAC acknowledges her postdoctoral fellowship from the Canadian Institutes of Health Research. FK acknowledges funding from the Fundação de Amparo à Pesquisa do Estado de São Paulo (INCT 2014, 2014/50891-1), CNPq (INCT 465458/2014-9) and the Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (47177.584.16785.16042020). RBDB acknowledges the Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro (E-26/203.154/2017) and the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq #31253/2020-4 and #400197/2022-7). Funding agencies had no role on study design, data collection, analysis and interpretation or writing the manuscript.

Competing interests VB-M has received grants and served as a consultant, advisor or continuing medical education speaker during the last 5 years for the following entities: Angelini Spain, Angelini Portugal, Bristol Myers Squibb, Ferrer, Janssen, Juste, Lundbeck, Nutrición Médica and Otsuka. None is related to the contents of this work.

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 applicable.

Ethics approval The web surveys were approved by the Comissão Nacional de Ética em Pesquisa (CONEP, Brazil—3.968.686) and the Ethics Committee from Hospital de Clínicas de Porto Alegre (CAAE-31520620.0.1001.5327). As a direct benefit, participants found information on lifestyle and reliable websites and telephone numbers to find information regarding COVID-19. Participants read the consent form and confirmed their interest in participating in the first screen of the online questionnaire.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request. Data are available with the corresponding author following a reasonable request.

ORCID iDs
Francisco I Bastos http://orcid.org/0000-0001-5970-8896
Raquel Brandini De Boni http://orcid.org/0000-0002-2455-5997

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