PANDEMIC DREAMS ARE SUSCEPTIBLE TO PRIMING AND UNRELATED TO COVID-19 EXPOSURE

Shawn P. Gallagher, Ph.D.,^{*1} Nicholas A. Incelli²

¹ Department of Psychology, Millersville University of Pennsylvania, Millersville, PA, USA,
<https://orcid.org/0000-0002-1979-7473>

² Department of Psychology, Millersville University of Pennsylvania, Millersville, PA, USA,
<https://orcid.org/0000-0001-6036-8147>

Abstract

Surveys that have recruited participants through social media and news websites have led researchers and clinicians to conclude that the COVID-19 pandemic has precipitated a parallel pandemic of nightmares that reflect pandemic-induced psychological distress. Many of these surveys were administered to participants who intentionally opted into research knowing that the investigators were soliciting pandemic dream reports. This investigation surveyed 193 college students who were blind to the purpose of the study to assess the prevalence of pandemic dreams and to determine if the wording of the questions could shape responses. Fewer than half could recall a dream. Reports were brief, susceptible to priming, and unrelated to personal SARS-CoV-2/COVID-19 exposure. Although this sample was not truly random, it is probably more representative of the US population than those recruited through thematic websites. Clinicians should be aware of problems inherent in survey research and understand how their words can shape client responses.

Keywords: COVID-19, priming, sampling bias, dreams, surveys.

Introduction

The COVID-19 pandemic has had an immeasurable impact on global health and wellbeing. The consequences have affected mental health while official and self-imposed restrictions have made it difficult for many to access counseling support in rapidly changing circumstances (Hanley, 2020; Costa et al., 2021). College students face unique risks in this respect; many now confront all the common challenges of

* Correspondence concerning this article should be addressed to Shawn P. Gallagher, Department of Psychology, 111 Susan P. Luek Hall, Millersville University, PO Box 1002, Millersville, PA 17551. Email: sgallagher@millersville.edu, US Phone: 717-871-7271.

the pandemic while having to learn remotely, far from traditional campus services. The pandemic-imposed distance has also made it difficult for counseling centers to promote their services and assess student wellbeing (Alpert & Nguyen-Feng, 2020; Copeland et al., 2021; Seidel et al., 2020).

Online psychological surveys offer a way for large institutions to remotely assess their communities but, if they want to identify true population trends, researchers must take care to recruit representative samples, present surveys in a non-sensationalistic context, and use questions that are neutrally worded. Similarly, healthcare professionals should be aware of threats to validity when interpreting data. Published results from large surveys administered to poorly understood samples can lead clinicians to misjudge the prevalence and nature of distress in their own communities or mistakenly assume that the circumstances and characteristics of a described sample reflect those of their clients.

Since the onset of the pandemic, reports from large-scale surveys have suggested that COVID-19 has had dramatic effects on sleep and dreaming (Barrett, 2020; Schredl & Bulkeley, 2020) and that, according to the continuity hypothesis, the changes in dream content mirror the experiences of waking life (Domhoff, 2017). One group of investigators declared that these changes could help clinicians ‘identify those persons who may be suffering the most due to the pandemic’ (Schredl & Bulkeley, 2020, p. 195).

Between March and July 2020, Barrett (2020) recruited an international sample of 2,956 participants through Facebook groups focused on dreaming or the pandemic to collect reports of coronavirus dreams. The narratives were analyzed using the Linguistic Inquiry and Word Count (LIWC) computer algorithm which is designed to analyze ‘the various emotional, cognitive, and structural components present in individuals’ verbal and written speech samples’ (Pennebaker et al., 2015, p. 1). The LIWC software showed that the pandemic-era reports had a mean length of more than one hundred words with females reporting longer and more emotionally laden dreams than males. Barrett (2020) concluded that the results reflected the well-documented and disproportionate effects that COVID-19 has had on women compared to men (Burki, 2020).

In May 2020, Schredl and Bulkeley (2020) recruited 3,031 U.S. respondents who were part of an online registry of willing survey research participants. Almost eighty percent stated that the pandemic had affected their daily life and wellbeing and about a third reported that they experienced an increase in dream recall. Negative pandemic dreams were more likely among younger participants, female participants, those with higher levels of education, and those who had been affected physically, financially, socially, or mentally. The authors asserted that those who experienced changes in the tone or frequency of dreams ‘may be most at risk for mental health problems during the pandemic’ (Schredl & Bulkeley, 2020, p. 196).

Online surveys of COVID-19 dreams have yielded dramatic accounts from participants who opted into research through social media groups (Barrett, 2020) or after reading stories about the pandemic (Miller, 2020; Nielsen, 2020; Science Friday, 2020). Since October 2020, the website for the Science Friday radio show has invited visitors to read an article about pandemic dreams, view nightmarish virus-themed images, and then complete a dream survey (Science Friday, 2020). Shredl and Bulkeley (2020) recruited participants through the YouGov website which invites prospective participants to ‘Share your opinion. Earn money. Shape the news.’ (YouGov, 2021, Login section). Such recruitment methods are likely to over-sample those with dreams to report and generate narratives that exaggerate the prevalence of COVID-19 dreams. The studies that compile such narratives might reflect the characteristics of specific media users and the language of the surveys rather than the general health of the population.

The purpose of the current investigation was to evaluate dream reports drawn from a sample of remote-learning college students who had not been recruited through COVID-19 or dream-themed portals that could over-sample those with pandemic dreams to share. The investigation also explored the hypothesis that those affected by COVID-19 would be more likely to report pandemic dreams than the unaffected. Finally, an experimental manipulation used two different questionnaires to test the hypothesis that the use of the phrase “coronavirus lockdown” or, alternatively, “quarantine” could influence the nature of the dream reports as measured by descriptions of the coronavirus pandemic, contamination illness, or social restriction.

Method

Participants

This study was conducted with informed consent and the approval of the university’s institutional review board. One hundred ninety-three undergraduate students responded to one of two versions of an online survey that invited them to report recalled dreams. For the 190 participants (98%) who reported it, mean age was 19.03 ($SD = 3.69$) years. One hundred forty-two participants (74%) responded to the open-ended gender classification as female, 46 (24%) responded as male, and five (3%) opted not to respond. One hundred forty-five (75%) responded to the open-ended ethnicity classification as white or Caucasian, 12 (6%) identified as African American, 9 (5%) identified as Latino/a, South American, or Central American, 5 (3%) identified as Multiracial, 2 (1%) identified as African, 2 (1%) identified as Asian, one (0.5%) identified as Arab, and seventeen (9%) did not respond. These

proportions reflected the population of the university when groups of five or fewer were collapsed, $X^2(3, n = 176) = 5.04, p > 0.05$.

Materials

Two surveys were created with SurveyMonkey and modeled after the one used by Barrett (2020, 2021). The administered surveys were identical to each other except for five locations in which the text employed either the word ‘quarantine’ or the phrase ‘coronavirus lockdown’ (Appendix). The *Quarantine* survey did not include the word ‘coronavirus’ or ‘lockdown’ whereas participants who completed the *Coronavirus Lockdown* survey read the phrase ‘coronavirus lockdown’ five times before reporting their dreams. This text manipulation was intended to test the hypothesis that the difference would yield different types of dream reports. Unlike Barrett’s (2020, 2021) survey, ours did not ask about personal exposure to COVID-19 until after the participants reported recalled dreams in order to reduce the influence of priming on dream reports.

The first three survey questions were open-ended demographic items requesting each participant's age, gender, and ethnicity. The survey then asked if the participant had been sleeping more and if they noticed more memorable dreams. Then, respondents were asked to report the number of memorable dreams since the beginning of ‘quarantine’ or ‘coronavirus lockdown’ and provide an account of as many as they would like. Like Barrett (2020), if the participants shared more than one, only the first report was considered. Finally, participants were asked if they had specific experiences with COVID-19 by being diagnosed with COVID-19, tested for COVID-19, or if they experienced respiratory symptoms or fever since the pandemic began. For the sake of clarity and consistency, when asking about testing, the survey used the word ‘COVID-19’ when it may have been more scientifically accurate to identify the virus, SARS-CoV-2.

Procedure

In the fall semester of 2020, six months after our state’s first mandated stay-at-home order and after our university had moved to a mostly remote teaching format, students from eight undergraduate courses were e-mailed one of two links inviting them to simply ‘complete a survey for extra credit.’ Those who chose not to participate could earn the same amount of credit through other research or educational opportunities. Survey results were compiled and analyzed in Microsoft Excel and all hypotheses were tested with $\alpha = 0.05$.

We operationalized pandemic dream reports as those that mentioned the coronavirus or COVID-19, contamination illness, or lockdown restrictions. Rather than using ambiguous terms like ‘nightmare,’ we operationalized the affective nature

of the reports by creating a one-dimensional dream valence scale. After the survey results were compiled, ten additional undergraduate volunteers who were not available to take the survey were asked to read each dream report and then if they agreed with the statement 'I would not want to have that dream.' Each dream report was given a valence score between 0 and 10 that indicated how many of the evaluators responded affirmatively. High valence scores were associated with dreams that most volunteers would not want to have.

Results

Those Personally Affected by COVID-19

Thirty-nine participants (20%) stated that they had been personally affected by COVID-19 according to the applied criteria. Four participants (2%) reported having been diagnosed with COVID-19, 35 (18%) had been tested, and six (3%) reported having symptoms of COVID-19 since the pandemic began. One hundred fifty-four (80%) reported no such experiences. There was no significant difference in personal impact among individuals who identified as white or Caucasian and those who did not, $X^2(1, n = 176) = 0.03, p > 0.05$. This study was conducted at a time when most testing was reserved for those who were symptomatic or knowingly exposed.

Dream Reports

Ninety-three participants (48%) reported having dreams since the onset of the pandemic with 76 of 142 (53%) females and 15 of 46 (33%) males relating at least one. The difference between the proportion of reporting females and reporting males was statistically significant $X^2(1, n = 188) = 6.08, p < 0.05, \Phi = 0.18$. The reported dreams had a mean length of 39.80 ($SD = 31.68$) words with a range of 3 to 175. Dream length did not differ between females and males, $t(89) = -0.53, p > 0.05$.

Among those personally affected, 21 of 39 (54%) reported at least one dream since the beginning of COVID-19 restrictions. For the unaffected, the number was 72 of 154 (47%). The proportions of dream reporters did not differ significantly between the affected and unaffected groups, $X^2(1, N = 193) = 0.63, p > 0.05$. Nineteen (49%) of the affected individuals and 92 (60%) of the unaffected participants reported changes in sleep and number of memorable dreams. This difference was also not significant $X^2(1, N = 193) = 1.55, p > 0.05$.

Results from the ten volunteer evaluators yielded dream valences that ranged from 0 to 10 with a mean of 5.85 ($SD = 3.08$). Although the valence measure was unique to this study, it had face validity. A high valence indicated that the reviewers

would not want to have such a dream. Reports with high valence scores (9 or 10) included the following:

- ...In the dream I go to work (I work in the service industry as a busser) and at one of my tables, this old woman, ... peels my mask down and coughs a mucousy cough right in my face. I then get sent home immediately after and right when I get home my father kicks me out of the house for having the virus...
- I have had a dream about living in a world where everyone was self-isolated and that it was mandatory because the virus had gotten worse. Everyone had to stay inside so there was no freedom.

Reports with intermediate valence scores (4-6) included these:

- I had a dream that my next-door neighbor's house was the house from a childhood movie, [movie name], I used to watch all the time as a kid. For some reason there was a maze inside the house, and I was posted in it. I woke up when I got scared and couldn't get out. I felt extremely anxious.
- I had a dream where I went to a couples' pottery class with my boyfriend and his truck was stolen so I had to do a car chase on foot.

Dream reports with low valence scores (0 or 1) included these:

- My cast mates and I were practicing for our canceled spring musical and were planning on performing it in secret.
- Me and my best friend went to a family party, then after the party, we went to her house and packed our stuff for Mexico.

The females had a mean dream valence of 5.80 ($SD = 3.09$) and the males had a mean valence of 6.80 ($SD = 2.43$). This difference was not statistically significant, $t(89) = -1.18, p > .05$. Among the dream reporters, the mean length [$t(91) = 0.39, p > .05$] and valence [$t(91) = -0.45, p > .05$] showed no significant difference between participants who identified as white or Caucasian and those who did not.

Comparison of Experimental Conditions

One hundred four participants received the *Coronavirus Lockdown* survey while 89 received the *Quarantine* survey. Among the participants in the *Coronavirus Lockdown* condition, 61 (59%) reported an increase in sleeping and dreaming. Among those in the *Quarantine* condition, 49 (55%) reported an increase. These frequencies did not differ, $X^2(1, N = 193) = 0.25, p > 0.05$. In the *Coronavirus Lockdown* condition, 55 of 104 (53%) participants reported at least one dream, whereas 38 of 89 (43%) in the *Quarantine* condition reported a dream. This was also not a statistically significant difference, $X^2(1, N = 193) = 1.99, p > 0.05$.

In the *Coronavirus Lockdown* condition, 36 of 55 (65%) participants related pandemic dreams that mentioned COVID-19 (e.g. *COVID*, *virus/coronavirus*, *the*

pandemic), contamination illness (e.g. *coughing, mucous, sick*), or physical restrictions (e.g. *trapped in a room, locked in a house, couldn't go anywhere*) while, in the *Quarantine* condition, 17 out of 38 (45%) reported such. This was a statistically significant difference, $\chi^2(1, n = 93) = 3.94, p < 0.05, \Phi = 0.21$. The language of the survey types was reflected in the responses. Eleven participants in the *Coronavirus Lockdown* group used the word 'lockdown' in their responses while only four used the word 'quarantine.' Among those in the *Quarantine* group, 19 used the word 'quarantine' but none used the word 'lockdown.' Eighteen participants in the *Coronavirus Lockdown* group used the word 'coronavirus' in their responses. Only two participants in the *Quarantine* group used the word 'virus' and none used 'coronavirus.' All three of these frequency comparisons were statistically significant ($p < 0.05$, Fisher exact). These findings are summarized in Figure 1.

Figure 1. Differences in Word Usage between Experimental Conditions

Note. All between-condition comparisons are statistically significant ($p < 0.05$, Fisher exact). The proportion mentioning 'Lockdown' in the *Quarantine* condition was zero.

The *Coronavirus Lockdown* group had a mean dream valence of 5.89 ($SD = 3.35$) and the *Quarantine* group had a mean valence of 5.79 ($SD = 2.67$). This difference was not statistically significant, $t(91) = 0.16, p > 0.05$. The *Coronavirus Lockdown* group had a mean dream length of 39.27 ($SD = 32.35$) words and the *Quarantine* group had a mean length of 40.05 ($SD = 31.4$). This difference was also not statistically significant, $t(91) = -0.12, p > 0.05$.

Gender Differences within Experimental Conditions

A chi-square test of independence showed a significant relationship between gender and dream reporting in the *Coronavirus Lockdown* group, $X^2(1, n = 102) = 6.06, p < 0.05, \Phi = 0.24$. This relationship was not observed in the *Quarantine* group, $X^2(1, n = 86) = 0.92, p > 0.05$ (Figure 2). The mean report length and dream valence for males and females did not differ in the *Coronavirus Lockdown* group or the *Quarantine* group, all t -test $p > 0.05$.

Figure 2. Proportion of Participants Reporting at Least One Dream

Note. Asterisk indicates that, compared to males, a larger proportion of females reported dreams in the *Coronavirus Lockdown* condition, $p < 0.05$.

Discussion

The purpose of this investigation was to collect dream reports from a sample of college students during the COVID-19 pandemic and compare them to the reports from studies that recruited participants through news articles, social media groups, or online participant pools. An experimental manipulation tested the hypothesis that surveys that used the phrases ‘quarantine’ or ‘coronavirus lockdown’ would differentially influence responses.

Approximately half of the respondents recalled a dream from the pandemic period, whether they had been personally affected by COVID-19 or not. The results showed no link between personal exposure and dream reports and no difference in

sleep or dream recall trends between the affected and unaffected groups. Dream valence also did not differ between the affected and unaffected. Although valence indicated a preponderance of undesirable dream reports, this finding is consistent with pre-COVID-19 studies that suggest bad dreams are the ones most likely to be remembered (Schredl & Reinhard, 2011; Schredl, 2014). We have no standard of comparison for our distribution of dream valences, but a bias toward unpleasant dream recall is not necessarily a COVID-19 effect.

Our results are inconsistent with the findings of Schredl and Bulkeley (2020) who suggested that participants who were affected by COVID-19 were more likely to experience changes in dream recall, changes in dream emotions, and COVID-19 dreams. This discrepancy could be because Schredl and Bulkeley (2020) collected their data in May of 2020, early in the pandemic, and used a broad definition of ‘affected’ which included changes in employment, finances, social life, mental health, and the physical health of the respondent or family. We believed that these criteria would have had little discriminatory value for our sample which was surveyed five months later, after the numbers of COVID-19 cases and deaths in the U.S. had more than quintupled (Centers for Disease Control and Prevention, 2021). We maintain that our measure, even though it only considers the respondent’s own physical health, should be a sensitive late-pandemic indicator of COVID-19’s impact on the lives of our participants since those personally affected would have already been exposed to graphic media coverage of the pandemic’s severity and connected those images to their own wellbeing. The impact of personal exposure was not reflected in dream recall. Another factor that could account for the differences between our results and those of Schredl and Bulkeley (2020) is the fact that their participants all had an active dream life to monitor and evaluate whereas half of our participants recalled no dreams since the start of the pandemic.

It is concerning that, without considering the sizable portion of the public who may have no dreams to report (Stepansky, 1998), Schredl and Bulkeley (2020) asserted that the ‘people most strongly affected [by COVID-19] also reported the strongest effects on their dream life’ (p. 196). These words could lead some to conclude that those without dreams to report are not strongly affected. Our measure of personal impact, when applied to a sample of college students not incentivized to report dreams, could not be linked to dream recall and we advise those who would use dream recall as an indicator of life disruption not to assume that all the pandemic-affected have dreams to report.

Our experimental manipulation showed that differences in survey text were associated with discrepant dream reports. The survey using the phrase ‘coronavirus lockdown’ generated more pandemic-related dream details than an identically worded survey that substituted the phrase with ‘quarantine.’ These details included specific references to the coronavirus, descriptions of contamination, and descriptions of physical or social restrictions. The language of the surveys was also echoed in the participant responses. Remarkably, the word ‘coronavirus’ which

appeared in eighteen responses from participants in the *Coronavirus Lockdown* group was absent in the responses from the *Quarantine* group. These findings are not surprising because dream recall is, after all, recall and practitioners must recognize that it is susceptible to priming, suggestion, and all the other post-event factors that can create or reshape memories (Laney & Loftus, 2010). For this reason, unlike Barrett (2020, 2021) we did not ask participants about their personal exposure to COVID-19 until after they provided their dream reports. Priming participants by asking them about their own exposure – or even having the unaffected contemplate the possibility of past exposure – could motivate them to give a previously benign dream narrative a new pandemic theme (Morewedge & Norton, 2009), especially if that is what the participant believes the researcher wants to hear. This social desirability effect is certainly a confounding risk for recruitment platforms like dream-themed or pandemic-themed social media groups. One online article on pandemic dreams recruits participants by asking ‘Have you had a memorable or disturbing dream during the pandemic? Recount your experience...’ (Science Friday, 2020, para. 10). While recruitment strategies that attract participants through content-specific websites can produce fascinating narratives, they do not yield unbiased samples and the degree to which they can be used to identify population trends or inform clinicians is unknown. Our sample, of course, represents the classic convenience sample of college students, but by first recruiting participants and then asking them about their dreaming, we minimized the risk of priming, we captured those who had no dreams to report, and we did not encourage reporters to elaborate. Consequently, our dream reports were typically brief and much like the examples provided by Schredl and Bulkeley (2020) who used an existing registry to recruit participants with little priming, using a generic survey link. Notably, the reports collected in this investigation, like the examples provided by Schredl and Bulkeley (2020), were too short for a LIWC content analysis (Boyd, 2017, p. 171; Boyd, personal communication, October 29, 2020).

Female participants were more likely to report dreams than males. Though many studies have documented the various effects that past and present pandemics have had on women (Burki, 2020; Wenham et al., 2020), the gender difference in dream recall described here was noted before COVID-19 (Schredl & Reinhard, 2011; Schredl, 2014). Our results may therefore reflect a preexisting disparity in dream recall rather than the impact that the pandemic has had on females. The pandemic has also had a well-documented and disproportionate impact on Latino/a and African American communities (Millett et al., 2020; Moore et al., 2020). The limited sample size and narrow subject matter of this study make it difficult for us to draw any conclusions about how the pandemic has affected nonwhite students, but the results presented here offer no reason to suspect that the disparity would manifest itself in dream reports.

Implications for Counselors

A therapist using dream content in a clinical setting should recognize that many people have no dreams to report and that recalled dream narratives are vulnerable to suggestion. More than half of our participants related no dreams and any study that posits dreaming as an indicator of psychological distress could draw attention away from those with nothing to report. Dream recall is often an accident of physiology and timing and there is no evidence to suggest that the dreams recalled are more clinically relevant than the ones that are not. Since Aserinsky and Kleitman (1955) demonstrated how dream reports were related to whether a sleeper was awakened during periods of rapid eye movement (REM), many other factors have been linked to recall; these include cerebral blood flow (Eichenlaub et al., 2014; Vallat et al., 2020; van Wyk et al., 2019; Waltman et al., 2018), bedtime routines and journaling (Langens, 2007; Ribeiro et al., 2018), panic disorder (Schredl et al., 2001), sleep disorders (Schredl, 2010), gender (Schredl, 2014), and, perhaps most relevantly, pharmacological treatments commonly used for anxiety and depression (Nicolas & Ruby, 2020; Pace-Schott, 2001; Tribl et al., 2013). With so many potentially confounding variables, clinicians should be cautious when attributing a dream report or an increase in dream recall to a single factor like declining mental health. Notably, surveys conducted by Blume et al. (2020) have suggested that the lockdown periods in three European countries were associated with increases in sleep duration but decreases in sleep quality. This alone could account for an increase in dream recall during the lockdown as more hours asleep created more opportunities to dream and poor-quality sleep led to more frequent awakenings (Bottary et al., 2020). Wellbeing is notoriously difficult to assess in the college student population (Barkham et al., 2019), and mental health should not be assumed to fluctuate with a poorly validated measure. Changes in dream recall may correlate with several pandemic-related phenomena and still not necessarily signal a change in wellbeing; equally important, a lack of change should not rule it out.

An evidence-based practitioner must recognize that the degree to which people ascribe meaning to dreams varies widely. Some who recall their dreams are indifferent to content while others keep and reflect upon meticulous dream journals with the hope of gaining personal insight (Schredl & Göritz, 2019). Morewedge and Norton (2009) demonstrated that the latter are also likely to believe that dreams can be prophetic. By using emotionally charged words like ‘virus’ and ‘lockdown’ while inquiring about such a believer’s wellbeing, a clinician could inadvertently shape a dream narrative and make the continuity hypothesis a self-fulfilling prophecy as recalled nightmares are assumed to be a predictor of future distress.

This study should remind clinicians that dream recall is malleable, not universal, biased toward unpleasant dreams and, according to our findings, not readily linked to the personal impact of the pandemic. Consequently, dream reports, or a lack thereof, should not be a foundation for evaluating the impact of the COVID-

19 pandemic. Published reports indicate that one need only ask to discover how the pandemic has affected the physical, emotional, educational, financial, and social wellbeing of college students and that these domains can be reliably correlated with measures of health and wellness (Copeland et al., 2021).

Limitations and Future Research

Our study is limited by the fact that we collected survey data from students at a single university at the onset of a significant wave of COVID-19 cases and deaths. As of early 2021, the region surrounding our institution had a higher per-capita COVID-19 mortality rate than the U.S. national mean (Centers for Disease Control and Prevention, 2021). We do not know how time and location influenced our findings, but we suspect that the pandemic and its consequences were more apparent to our participants than they were to individuals surveyed in the early weeks of the crisis. We also recognize that our participants were younger than those who participated in other studies and that advanced age could make COVID-19 risk more salient. The age distributions for both the Barrett (2020) and Shredl and Bulkeley (2020) studies, however, are positively skewed, based on reported means and ranges, placing most participants under 50 and at a relatively low risk for hospitalization and death (Centers for Disease Control and Prevention, 2021).

We chose to use personal experience with COVID-19 or its symptoms as the defining criteria for those affected because, at the time of data collection, nearly all participants had been impacted by the social restrictions of the pandemic and likely knew someone who had, or had recovered from, COVID-19. It is not known if those who did not report being personally affected by our definition had suffered other consequences, like loss of a loved one or employment, or if such experiences altered the pandemic's effect on dream recall for those we classified as unaffected. We can only conclude that personal experience with COVID-19 as we defined it was not linked to dream recall.

Every survey is vulnerable to indifference and participants may have understood that receiving participation credit was not contingent on reporting a dream. Perhaps encouragement and incentives to report could have yielded more and longer narratives, but they may have also confounded our study by encouraging confabulation. Our sample is also considerably smaller and more localized than the ones recruited through international survey registration sites, news websites, and social media groups, but compared to other published reports (Barrett, 2020; Schredl & Bulkeley, 2020), we maintain that our results, which did not selectively recruit dreamers, are a better measure of the prevalence of recalled dreams and how inclined participants in a random sample are to report elaborate COVID-19 dreams.

Counseling is an individualized endeavor, and we cannot say that dream reports are clinically useless, especially if they represent the most distressingly

salient aspect of a client's experience. Dream narratives in the time of pandemic, however, should not be pursued at the expense of more obvious stressors. We also recommend that those who offer broad clinical advice based on surveys about dreaming or any other psychological phenomenon take care to consider the recruitment methods, the characteristics of the samples, and the ways priming and context can influence responses.

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Appendix

Organization of the Online Survey

Bold text shows the phrases that differed between conditions separated by a slash.

Dreams Related to the **Quarantine/Coronavirus Lockdown**

[New Page: Consent]

[New Page: Student information for assigning course credit.]

[New Page] In the past few months, as a result of the **quarantine/coronavirus lockdown**, many people have had more time to sleep, which means they have had more time to dream. Please answer the following questions to help us better understand this trend.

- Your age ____
- Your gender ____
- Your ethnicity ____

[New Page] Since the beginning of the **quarantine/coronavirus lockdown**, have you been sleeping more, and have you noticed more memorable dreams? (Yes/No)

How many memorable dreams have you had since the beginning of the **quarantine/coronavirus lockdown**? ____

In the box below, please write or block copy any dreams you have had related to the **quarantine/coronavirus lockdown**. You may enter multiple dreams of any length, but please label the start of a new dream clearly. Thanks!

If you have any specific experiences with COVID-19, Check as many categories that apply:

- Diagnosed with COVID-19 ____
- Have been tested for COVID-19 ____
- Have had respiratory symptoms and/or fever since COVID-19 pandemic began ____
- None of the above ____

[New Page] This concludes the survey. Thank you for participating.

If you are experiencing significant mental health concerns for any reason, please contact the Counseling Department for assistance at XXX-XXX-XXXX.

See the website for more information: <https://www.xxxxxxx>

[End of Survey]