

Psychological distress and the experience of self-restrained lifestyle through COVID-19 in Japan – public insights from #Corona-utsu on Twitter[†]

Yan Huo ¹, Carmen Lim ^{2,3*}, Vivian Chiu ^{2,3}, Hisateru Tachimori ⁴ and Janni Leung ³

¹ Ochanomizu University, Tokyo, Japan

² National Centre for Youth Substance Use Research (NCYSUR), Faculty of Health and Behavioural Sciences, Brisbane, Australia

³ School of Psychology, Faculty of Health and Behavioural Sciences, Brisbane, Australia

⁴ Department of Mental Health Policy and Evaluation, National Institute of Mental Health, National Center of Neurology and Psychiatry, Japan

* Correspondence: Carmen Lim, c.lim2@uq.net.au ;

† Presented at the title, place, and date.

Abstract: In Japan, lockdowns were imposed in April 2020 to combat the spread of COVID-19. Many Japanese citizens have taken their mental health concerns to Twitter, a social media platform with 45 million monthly Japanese users. This study investigates the themes of tweets related to mental health during the COVID-19 lockdown period. We analysed the themes of tweets (n = 1734) collected in May 2020 using the #corona-depression [#コロナうつ] trending hashtag in Japan. Tweets were classified into four main themes: i) feeling depressed, as expected (41%), ii) anxiety/fears (17%), iii) lifestyle issues (46%), and iv) positivity (15%). In theme I, over 2/3 were about the loss of sleep/not getting out of bed. Others tweeted about crying (5%) loss of interest in activities or energy (18%), and suicidality (10%), all of which corresponded with symptoms in the Diagnostic and Statistical Manual of Mental Disorders. Among the tweets about frustration in lifestyle consequences, many (64%) expressed distress due to social isolation and the restrained lifestyle. Essential workers were fearful of being exposed to infection (13%), while others expressed distress from the loss of employment (11%). Housewives expressed the increased burden (e.g., home-schooling) with comments of being burn-out (11%). Despite the situation, some users used the platform to provide/gain support by sharing advice for staying positive (15%). Pandemics and lockdowns have significant mental health impacts on the community. Continue monitoring is needed to determine whether these effects are temporary or long-term.

Keywords: COVID-19; Coronavirus; Psychological distress; Depression; Anxiety; Twitter

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1. Introduction

On 11 March 2020, the World Health Organization (WHO) has declared COVID-19 a pandemic. Following this, on 7 April 2020, the Japanese government declared a State of Emergency for a period of 29 days (7 April 2020 to 6 May 2020) in a number of major cities and prefectures (Saitama, Chiba, Tokyo, Kanagawa, Osaka, Hyogo, and Fukuoka) in response to COVID-19 (1). A week after the initial announcement, on 16 April 2020, this emergency measure was extended to all 47 prefectures (1). All citizens were required to stay at home with the aim to slow down the infection rates by minimizing the chances of contact (1).

Like many countries around the world, the prolonged period of restricted measures has caused radical lifestyle changes. Many cross-sectional COVID-19 surveys showed an elevated rate of psychological distress, loneliness, and suicidality during the lockdown

period (2, 3). Many citizens have taken their mental health concerns to social media to share their experiences and advice for coping (4). Studies shown that mental health impact from the aftermath of a natural (5) or biological disaster (6) can be extremely persistent and disabling.

Data from social media platforms are increasingly being used to monitor population-based mental health issues. For example, Doan and colleagues used data from Twitter to understand public opinions and to track awareness and anxiety levels after the 2011 Great Tohoku Earthquake (7). Understanding the sentiments or key topics during a stressful event has been shown to provide an early warning indicator for the population's mental health (8). This may bear important implications for policy making in Japan.

On Twitter, a trending hashtag #Coronautsu which translates to depressive symptom caused by COVID-19, suggests that psychological distress may be a rising issue in Japan during the lockdown period. The aim of this study is to understand psychological distress in the context of COVID-19 in Japan on Twitter, a social media platform with 45 million monthly Japanese users (9).

2. Methods

This cross-sectional study analyzed all Twitter posts (Tweets) that contained the hashtag #Corona-utsu [#コロナうつ] between February and June 2020 using Python 3.8. We have collected a total of 1,734 Tweets. Tweets were included if it is related to COVID-19 and mental health issues. Tweets were excluded if: (a) tweets were irrelevant to Corona-utsu, (b) policy announcements, and (c) tweets on COVID-19 for informational or educational purposes. A Thematic Analysis was performed to allocate themes to each tweet (10). Each tweet can be allocated to multiple themes. All data collected in this study were publicly anonymized Twitter data.

3. Results

Four key themes were identified in this study: 1) feeling depressed because of lifestyle issues/ changes; 2) anxiety and fears of being infected by COVID-19; 3) having depressive symptoms due to social distancing practice; and 4) coping with positive thinking (Table 1).

Theme 1: Lifestyle issues/changes

Forty-six percent of the Tweets were on lifestyle issues. Many people had a negative sentiment about lifestyle changes brought on by the COVID-19. Some expressed their frustration about losing jobs and missing job opportunities while others complained about the self-restrained lifestyle as public events were cancelled or endless parenting.

Theme 2: Anxiety/fears about being infected by COVID-19

Anxiety and fears about being infected by COVID-19 were also shared and discussed on Twitter (17%). Some shared experiences of themselves, friends or families who were too afraid to leave the house. Frontline workers, such as medical professionals and those working in customer service complained about the lack of protection provided to them at work.

Theme 3: Feeling depressed

As expected, feeling depressed were one of the emerging themes of the study (41%). Often, the depressive symptoms expressed in tweets matched those that form part of a depression diagnosis (Appendix B). Some reported clinical symptoms of depression, such as, insomnia, always crying, loss of appetite, lack of motivation to more severe symptoms at the end of the scale such as having suicidal thoughts.

Theme 4: Positivity

Some Twitter users seemed to adapt well to the changing circumstances and remained optimistic (15%). They shared positive messages to encourage others.

Table 1. Translation of included selected Tweets for the four key themes that emerged.

Themes	Subthemes	Original Tweets	Translation
Fear towards the illness	In those not exposed	老母がコロナの恐怖でかなり落ち込んでいます。まったく外に出られなくなりました。	My elderly mother was so depressed due to COVID-19, that she could not go out at all.
	In at risk groups	明日は仕事...医療施設だから出勤せざるを得ない。本当は家に籠もっていたいけど、私達が籠もったら私達に頼っている利用者達もれなく死ぬ。自分たちだって感染リスクを抱えている恐怖といつまで向き合えるかね	Tomorrow is working day... I am working in a medical facility, so I have to go to work. I really want to stay at home, but if we do, all the users who rely on us will die. How long we have to face the fear of being at risk of infection?
Loss of jobs/workload reduced		コロナウイルスで入社直後に解雇とか内定取り消しとか目につくのですが、社員のことより事業継続を優先する会社は忘れてすぐに次探したほうがいい。我々みたいに体調を崩して、会社から雑な扱いをされたことがある人間が味わっている痛みをコロナで何人浴びるのか	You may notice dismissal or cancellation of your job offer immediately after joining the company due to coronavirus pandemic, but it is better to forget the company that prioritizes business continuity rather than employees and immediately search for the next one. In this coronavirus pandemic, I wonder how many people in Corona will experience the same pain that people who are sick like us and have been treated roughly by the company.
		自粛生活から1ヶ月。職場の営業再開の目処もたたず。さすがに自粛疲れでメンタルやられてきました。休まず働いて下さっている方が沢山いるのは勿論わかっていますし、感謝しています。けど、自粛して耐え続けるのも辛い。元の生活を取り戻せない現実を受け入れれないとな	One month from self-restraint. There is no prospect of resuming business at the workplace. As expected, I was tired of self-restraint and I was mentally broken. I know, of course, that there are many people who work day and night for us, and I am grateful. However, it is hard to keep refraining from self-restraint. I have to accept the reality that I can't recover my original life
Lifestyle change		本当に狂ってる！ 先の見えない不安と恐怖とイライラとモヤモヤ... 全てが中止、延期、休み、自粛... 精神衛生が保てません むしろ不健康になっていく	Really crazy! Uncertain anxiety, fear, irritability, and misery... everything is canceled, postponed, rested, self-restraint... I cannot maintain my mental health. I will be unhealthy, even if I do not get an infectious disease because of the self-restraint.
		終わりの見えないこの自粛生活に真面目に病んでしまってるのってきっと私だけじゃないんだろうな。色んな人が「前向きに頑張ろう！」っていうけどとても前向きには自粛頑張れない。爆発寸前のところで終わりの見えない絶望に全てのやる気を削がれる感じ	I'm not the only one who is seriously sick of this endless self-restraint life. A lot of people said, "Let's do our best in the positive way (even in self-restraint life)!" But I can't do my best in a positive way to be self-restraining. I feel like I'm dying of all the unseen despair just before the explosion.
Depressed mood		こどもらを規則正しく生活させることに、ものすごく疲れてきたぜよ。自分の時間がないんですけどー ダラダラしたーい 二度寝したーい 3食作りたくないーい 家の片付けしたくないーい でも、家が散らかってるのを見るとイライラするー！	I'm really tired of keeping my children a regular life. I don't have time for myself, I want to hang out, I want go back to sleep, I don't want to make three meals, I don't want to clean up my house, but I'm frustrated to see the house messed up!
		毎晩、日課のZEROを観て寝るんだけど...コロナのニュースでイライラや不安で寝付きが悪い	Every night, I watch the "news zero" on TV as part of my routine before going to bed... News

Unable to sleep/sleeping too much	昼寝した反動で、睡眠薬飲んだのに寝られなくなってしまった...嗚呼、最悪だ 空はもう明るい	related to COVID-19 makes me have trouble sleeping because of frustration and anxiety. Due to the nap, I could not sleep at night although I took sleep pills... It's the worst, the sky is already bright.
Lost interests in activities	「死にたい」とか「消えたい」とは思わない。でも、生きていく上での活力が、なかなか湧いてこない... 2日ぶりに入浴でも、体洗うの面倒くさい。スマホをいじる以外の気力が湧いてきません...	I don't think I want to die or disappear. However, the vitality for living is not so strong... Even after taking a bath for the first time in 2 days, it is troublesome to wash your body. I don't feel any energy other than playing with my smartphone...
Crying	つい、また... 涙が出ちゃった... 最近、すごく涙もろい。メンタルの浮き沈みが激しい... #コロナうつ ...? なんでもないのに涙が出る 理由もないのに泣けてくる	By the way... I've started crying again... Recently, I'm very fragile. Mental ups and downs are erratic... Is this COVID-19 depression...? Tears come out of nothing, I cry for no reason.
Suicidal thoughts	別に私は死んでも大丈夫 痛くなく、苦しくなく、スッと逝けるなら 別に構わない 生きるために生きていたくない	I'm okay if I die, if it doesn't hurt, If it's not painful and I could go quickly. I don't want to live to live
Positive Tweets	「コロナうつ」になりそうなときは、うーんと頑張って掃除を始めて、やり始めてしまえば、こっちのもので、終われば「ワンランク上の自分」リセットして、前進だ!!!	When you're about to get "covid-19 depression," start cleaning your house and do some chores. Once you're done, you would become a better you and move on!!!

4. Discussion

Tweets on lifestyle changes and depressive symptoms were the two most prominent themes found in this study. Other themes found were fear of being infected by COVID-19 and positivity.

Many twitter users expressed being dismissed from work or they work a reduced set of hours. Unemployment and the lack of future prospect under the extending period of the outbreak may exacerbate psychological distress, a risk factor for mental health problems (11). Due to the restriction, many users were experiencing 'social isolation' because they were refrained from going out. Prolonged isolation is shown to have correlate with mental health problems (12) especially when loneliness is already well-recognized problem among institutionalized older adults (13).

During the period of lockdown, many Twitter users also expressed their struggle of being confined to their home. Depressive symptoms such as insomnia, hypersomnia, loss of appetite, and lack of motivation were extremely prevalent in this sample of tweets as users were bombarded with media misinformation, repetition of routine (e.g. slept in excessive amount) or stress related to additional parenting role. Suicidal thoughts were also found in this sample of tweets. Social distancing in practice may also deplete this group from peer support and medical help they needed. Tailored online intervention such as counseling services and virtual well-being activities may benefit this group by providing them access to online mental health support while access to physical services remains limited.

This study is not without its limitation. The tweets in the current study is based on one hashtag, #coronautsu hence may not have captured all tweets in relation to depression during COVID-19. Also, this study is cross-sectional in nature with tweets deidentified prior to data analysis, therefore longitudinal studies are required to assess the long term impacts of depression caused by COVID-19. Twitter demographics are usually younger,

older adults and people that do not use social media were excluded from the current study.

5. Conclusion

This study has provided a real-time insight on the population mental health of Japanese Twitter users during the period of lockdown. The mental health impact associated with the COVID-19 pandemic is unprecedented. Our findings suggest that the mental health issues might not only be directly affected by COVID-19, but also by the new-normal lifestyle of the pandemic. Continuing monitoring is required even after the lockdown has been lifted. Given how COVID-19 has accelerated the development of digital transformation, the government can prioritize online counseling services to reduce the burden associated with mental disorder.

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