The COVID-19 pandemic impact on wellbeing and mental health in people with psychotic and bipolar disorders

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Abstract
Introduction: The COVID-19 pandemic affects people globally, but it may affect people with psychotic and bipolar disorders disproportionally. Our aims were to investigate the pandemic impact on perceived wellbeing and mental health in this population, including which pandemic-related factors have had an impact.

Methods: People with psychotic and bipolar disorders (N = 520; female = 81%; psychotic disorders n = 75/bipolar disorder n = 445) completed an online survey about wellbeing and mental health in the early phase of the COVID-19 pandemic (June 5–July 5, 2020).

Results: Many participants experienced deteriorated wellbeing and mental health after the pandemic outbreak, especially in life satisfaction, meaning in life, positive feelings, depression, anxiety, and self-harm/suicidal ideation. Experienced recovery from mental health difficulties was significantly lower after compared to before the outbreak. Participants with psychotic disorders had significantly poorer wellbeing and mental health than participants with bipolar disorders, although they experienced significantly more worsening only of psychotic symptoms. Nearly half the participants reported coping with the situation; however, most factors potentially important to wellbeing and mental health changed adversely, including sufficiency and quality of treatment. More loneliness, low coping, insufficient mental health treatment during the COVID-19 pandemic, pandemic worry, more insomnia symptoms, and increased alcohol use predicted poor wellbeing and poor mental health.

Conclusions: During a pandemic, it is particularly important that mental health services strive to offer the best possible treatment under the current conditions and target loneliness, coping strategies, pandemic worry, insomnia, and increased alcohol use to uphold wellbeing and reduce mental health difficulties. For some, teletherapy is an agreeable substitute for traditional therapy.

KEYWORDS
bipolar disorder, COVID-19, mental health, psychotic disorders, schizophrenia
1 | INTRODUCTION

The Coronavirus disease-19 (COVID-19) developed fast into a pandemic with increasing death rates worldwide. Most governments have initiated public measures to prevent the spread of COVID-19, including wearing face masks, physical/social distancing, and self-isolation (WHO, 2020b). The pandemic has an unprecedented impact on people’s lives by causing worry about contracting the virus and challenges living with social precautions. This may have negative consequences for peoples’ mental health (Holmes et al., 2020; Kumar & Nayar, 2021).

Indeed, studies report that distress, disturbed sleep, anxiety, and depression have been common reactions in the general population during the current and previous virus outbreaks (e.g., the Severe Acute Respiratory Syndrome [SARS] outbreak in 2002–2004 and the Middle East Respiratory Syndrome [MERS] outbreak in 2012) (Alkhamees et al., 2020; Rajkumar, 2020b; Salari et al., 2020; Torales et al., 2020; Vindegaard & Benros, 2020). The pandemic implications for people’s wellbeing, that is, positive feelings, life satisfaction, meaning in life, and social connectedness (Chan et al., 2018) are more uncertain. Alongside potential negative effects, people may experience a renewed sense of shared purpose in the joint combat of the virus (Brown et al., 2020), and feelings of happiness, freedom, and an increased sense of calm have been reported resulting from a slower pace of life (Simblett et al., 2021).

Although the pandemic affects people globally, there are concerns that it impacts people with severe mental disorders disproportionately. Severe mental disorders include psychotic disorders (PsD; characterized by presence of psychotic symptoms) and bipolar disorders (BD; characterized by the presence of [hypo]manic and depressive symptoms). Psychotic disorders and bipolar disorders overlap in terms of symptomatology, with around 50% having secondary affective symptoms and psychotic symptoms, respectively (Romm et al., 2010; Simonsen et al., 2011). Thus, they can be regarded dimensionally rather than categorically different. People with PsD and BD may be more vulnerable during the pandemic due to higher sensitivity to stress, smaller social networks, high prevalence of substance use, sensitivity to circadian rhythm disruption, and dependency of social, community, and mental health services, which are all factors potentially affected by the pandemic (Brown et al., 2020; Holmes et al., 2020; Kozloff et al., 2020; Rajkumar, 2020a). Distress, loneliness, sleep problems, change in substance use, practical/financial problems, and lack of treatment may reduce wellbeing and affect mental health by exacerbation of anxiety, depression, suicidality, mania, or psychosis. Based on PsD and BD overlapping in terms of symptomatology, it is of interest to investigate whether or how they potentially differ in response to the life-changing situation brought about by the pandemic.

Some studies have investigated the impact of the COVID-19 outbreak on this population, with reports of higher levels of distress, alcohol use, sleep disruption, anxiety, depression, and poorer coping strategies compared to healthy controls (González-Blanco et al., 2020; Solé et al., 2020; Van Rheenen et al., 2020), with 30% showing symptom relapse and 5% reporting increased suicidality after the outbreak (Muruganandam et al., 2020). However, Pinkham et al. (2020) found no change in affective or psychotic symptoms and an increase in wellbeing in people with schizophrenia spectrum and affective disorders. Thus, the findings are somewhat inconsistent, with little knowledge about pandemic impact on wellbeing and psychotic symptoms specifically. Increased knowledge about pandemic effects may suggest measures that could mitigate negative consequences during the ongoing and future pandemics.

The primary aims of this study were thus to investigate the COVID-19 impact on the experience of both wellbeing and mental health difficulties in people with PsD and BD, including which pandemic-related factors have had an impact.

2 | MATERIALS AND METHODS

2.1 | Setting and procedures

The Norwegian Government announced a nationwide lockdown on March 12, 2020 in order to reduce the spread of COVID-19. Protecting healthcare professionals was highlighted, with the intention to uphold healthcare services (Government.no, 2020a). Physical distancing (2 m indoors/1 m in public spaces) and good hand hygiene were emphasized, and number of people allowed to meet was restricted. The general recommendation was to “avoid contact with other people.” People who tested positive for COVID-19 were to be isolated, and those who had been exposed to the virus had to quarantine. Day-care centers, educational institutions, fitness centers, swimming pools, and establishments providing hair and body care were closed. Restaurants, bars, etc. were closed except where visitors could keep a distance of at least 1 m. Cultural events, sporting events, organized sporting activities, and visits to holiday properties (e.g., summerhouses) were prohibited. Use of public transportation and all non-essential travels were advised against. Healthcare workers were prohibited from traveling abroad. Access to public healthcare facilities was restricted, and visits were prohibited. One-to-one health services (e.g., private mental health therapy, physiotherapy, etc.) that could not uphold physical distancing were closed. On March 17, 2020, the Government urged healthcare services to implement the use of digital tools, including videoconference (Government.no, 2020b). Following the Government’s announcement, general practitioners advised against attendance unless strictly necessary. Mental health services canceled services, except those considered necessary to avoid severe exacerbation and life-threatening behavior. However, in line with the Government’s recommendation, mental healthcare services gradually acquired and increased the use of digital tools/teletherapy. In sum, everyday life was highly affected by the lockdown, but Norway’s pandemic control was regarded as efficient, with comparatively low infection and death rates (Sachs et al., 2020).

From April 7, 2020, the precautions were gradually lifted, including reopening of day-care centers and schools, reopening one-to-one health services in accordance with guidelines for infection control standards, reducing the social distancing rule from 2 to 1 m, increasing the number of people allowed to gather, etc. For an overview and timeline of...
The authors and people with lived experience of mental health difficulties created an online survey in “Nettskjema” (University of Oslo, 2020). The people with lived experience provided input on content and phrasing of questions, as well as piloting the survey. All their input was taken into account. The survey was distributed from Oslo University Hospital (OUS) and Stavanger University Hospital via Facebook and Instagram, as well as via clinician networks, user organizations, and charities. We published the survey June 5–July 5, 2020, when society was still gradually reopening. The survey included an initial section informing about its purpose and that pressing “Next page” indicated consent to participate. Responses were anonymous. The study was approved by the Regional Committees for Medical and Health Research Ethics (reference number 140012), and by the Data Protection Officer at OUS (reference number 20/12120).

2.2 | Participants

People with PsD and BD were invited by OUS to respond to how they experienced the COVID-19 pandemic. The first item in the survey was to check off for the diagnostic group that the participants identified with. We chose to use the term “psychotic disorders” rather than the diagnostic equivalents (e.g., F20–F29 in the ICD-10 [WHO, 1992]), because this is a more commonly used term in Norway. There were no other inclusion or exclusion criteria.

2.3 | Measurements

In the survey, participants were informed that the questions concerned the situation during the COVID-19 pandemic, meaning after March 12, 2020. Questions about demographics covered age, gender, place of birth, immigration background, education, and marital status.

Wellbeing was measured using a Norwegian guideline list for wellbeing measurement (Nes et al., 2018), which is based on the OECD Guidelines on Measuring Subjective Well-being (OECD, 2013) and Diener’s Flourishing Scale (Diener et al., 2009). Questions about wellbeing covered life satisfaction, meaning in life, social support, and positive feelings. To assess mental health, we used the items from the Patient Health Questionnaire—4 (PHQ-4) (Kroenke et al., 2009) to measure anxiety symptoms (anxiousness, worry) and depressive symptoms (low mood, little interest/pleasure). All other questions were made for this survey. The additional questions concerning mental health covered symptoms of self-harm/suicidal ideation, mania, and psychosis. Participants rated all questions about wellbeing and mental health at the time of the survey (“now” or “past 2 weeks”) on a scale from 0 (not at all) to 10 (to a great extent), thus the original PHQ-4 scale from 0 to 3 was changed to 0–10, to be in line with the other outcome scales. Additionally, the participants rated whether each wellbeing and mental health item had changed after the pandemic outbreak. Participants also rated their experience of recovery (i.e., improvement) from mental health difficulties (1) before and (2) after the outbreak on a 0 (not at all) –10 (to a large extent) scale.

Questions about factors potentially important to wellbeing and mental health and affected by the pandemic covered worry about pandemic consequences, coping with the pandemic situation, keeping updated about the pandemic situation via different channels, and adherence to government recommendations. Moreover, the survey included questions about change from before to after the pandemic outbreak in housing situation, daily activity, personal economy, social life, social isolation, and family conflicts. Participants rated feelings of loneliness the past 2 weeks on a 0 (not at all)–10 (to a large extent) scale, and also whether feelings of loneliness had changed after the outbreak. The survey included questions about change in substance use and medication use from before to after the outbreak. It also included questions about insomnia symptoms and trouble sleeping the past 2 weeks and change since before the outbreak, as well as bedtime and rise-time before and after the outbreak. Regarding treatment for psychotic and bipolar disorders, the survey included questions about mental health service providers, community and charity mental health support, and mode of treatment delivery before and after the outbreak, and also whether participants would like to continue with new modes of treatment delivery. Furthermore, we asked whether participants had received sufficient treatment during the pandemic and about the quality of treatment after compared to before the outbreak. Finally, the survey asked whether participants had refrained from contacting mental health services and whether they had called helplines after the outbreak. An English translation of the survey questions and response alternatives (except PHQ-4 items and demographics) relevant for this paper are presented in Appendix A.

2.4 | Statistical analysis

Statistical analyses were performed with IBM SPSS Statistics 26. Analyses were two-tailed with a pre-set significance level of .05. Diagnostic group differences were analyzed with t-test, Mann–Whitney U-test, chi-square test, and Fischer’s exact test according to analyses assumptions. Changes since before the outbreak (i.e., differences between pre and post outbreak ratings, or ratings of items having become “worse/no change/better”) were analyzed with McNemar’s test, Wilcoxon Signed Rank test, or chi-square test. In order to reduce the chance of type 1 errors, we ran a series of Bonferroni corrections on bivariate comparisons of PsD and BD, and bivariate comparisons of pandemic-related factors before and after the pandemic. Thus, we divided the pre-set significance level of .05 with the number of tests run for a certain area. Pandemic-related predictors of “Poor wellbeing” (no/yes) and “Poor mental health” (no/yes) were investigated with two series of binary logistic regression analyses. Poor wellbeing was assigned if either one of the following items had a score ≤ 5 and being “worse” post outbreak: Life satisfaction, meaning in life, social support, or being happy. Poor mental health was assigned if either one of the following items had a score ≥ 5 and being worse post outbreak: anxious, worried, depressed mood, little interest/pleasure, self-harm/suicidal
ideation, ideas of persecution, or hallucinations. The independent variables were factors potentially important for wellbeing and mental health that had changed during the pandemic and differed significantly between the no/yes poor wellbeing and no/yes poor mental health participants in bivariate analyses. To avoid multicollinearity, only the most relevant variable from each domain was selected. Controlling for potential confounders, diagnosis, age, gender, education, and being single were included in the analyses. Some variables were dichotomized for the regression analyses: Gender ("Female" vs. "Not" [male/other]); Marital status ("Single" [single, divorced/separated, widowed] vs. "Partner" [girlfriend/boyfriend, married/cohabitant]); and More alcohol use ("No" [no use, less use, a lot less use] vs. "Yes" [more use, a lot more use]).

To facilitate interpretation some variables were also reversed: treatment sufficiency = Insufficient treatment ("No" vs. "Yes/Uncertain"); coping with the situation = Low coping ("No" [not at all/a little] vs. "Yes" [a lot]; and Personal economy = Poorer economy ("No" [a lot better, somewhat better, no change] vs. "Yes" [a lot worse, somewhat worse]). Relevant independent variables were entered into the regression analyses for each of the two dependent variables, taking out those that did not have a significant contribution one by one.

3 | RESULTS

3.1 | Demographics

Five hundred and twenty participants completed the survey (BD, n = 445; PsD, n = 75). Demographic data are presented in Table 1. The only significant diagnostic group differences were BD participants having higher education and being married or cohabitant more often than the PsD participants.

3.2 | Wellbeing and mental health difficulties

Data on wellbeing and mental health difficulties are presented in Table 2. The majority of participants experienced low levels of wellbeing and mental health difficulties.

### TABLE 1  Demographic data for the total sample and differences across diagnostic groups

|                          | Total sample, N = 520 | Bipolar disorders, n = 445 | Psychotic disorders, n = 75 | Test statisticsa | p    |
|--------------------------|-----------------------|-----------------------------|-----------------------------|------------------|------|
| Age, M (SD)              | 36.8 (12.3)           | 37.1 (12.0)                 | 35.0 (14.0)                 | t = 1.4          | .176 |
| Gender, n (%)            |                       |                             |                             |                  |      |
| -Female                  | 420 (81)              | 358 (80)                    | 62 (83)                     |                  |      |
| -Male                    | 95 (18)               | 84 (19)                     | 11 (15)                     |                  |      |
| -Other                   | 5 (1)                 | 3 (1)                       | 2 (3)                       |                  |      |
| Place of birth, n (%)    |                       |                             |                             |                  |      |
| -Norway                  | 485 (93)              | 416 (94)                    | 69 (92)                     | χ² = 0.1         | .635 |
| -Abroad                  | 35 (7)                | 29 (7)                      | 6 (8)                       |                  |      |
| Immigration background, b n (%) |                   |                             |                             |                  |      |
| -No                      | 492 (95)              | 420 (94)                    | 72 (96)                     |                  |      |
| -Yes                     | 28 (5)                | 25 (6)                      | 3 (4)                       |                  |      |
| Education, n (%)         |                       |                             |                             |                  |      |
| -Compulsory school (10 years) | 49 (9)                | 35 (8)                      | 14 (19)                     |                  |      |
| -High school (13 years)  | 195 (38)              | 157 (35)                    | 38 (51)                     |                  |      |
| -1–2 years university    | 79 (15)               | 69 (16)                     | 10 (13)                     |                  |      |
| -Bachelor’s degree       | 133 (26)              | 124 (28)                    | 9 (12)                      |                  |      |
| -Master’s degree or higher | 64 (12)              | 60 (14)                     | 4 (5)                       | χ² = 22.0        | <.001|
| Marital status n (%)     |                       |                             |                             |                  |      |
| -Single                  | 205 (39)              | 156 (35)                    | 49 (65)                     |                  |      |
| -Girlfriend/boyfriend   | 63 (12)               | 54 (12)                     | 9 (12)                      |                  |      |
| -Married/cohabitant     | 209 (40)              | 197 (44)                    | 12 (16)                     |                  |      |
| -Divorced/separated     | 41 (8)                | 37 (8)                      | 4 (5)                       |                  |      |
| -Widowed                 | 2 (0.4)               | 1 (0.2)                     | 1 (1)                       |                  | <.001|

Note: Bold numerals indicate statistically significant differences between participants with psychotic- and bipolar disorders.
Abbreviations: M, mean; SD, standard deviation.
aTest statistics: t-test, Mann–Whitney U-test; chi-square, Fischer’s exact test.
bImmigration background = both parents being born abroad.
| Wellbeing | Total sample | Bipolar disorder | Psychotic disorder | Test statistics & p |
|-----------|--------------|------------------|-------------------|---------------------|
| **Wellbeing**<sup>b</sup> | | | | |
| Life satisfaction | | | | |
| - Low score ≤ 5, n (%) | 331 (64) | 272 (61) | 59 (79) | χ² = 7.8, .005 |
| - M (SD) | 4.8 (2.6) | 4.8 (2.5) | 3.4 (2.8) | t = 4.4, <.001 |
| - Worse/no change/better, n (%) | 234 (45)/206 (40)/80 (15) | 192 (43)/179 (40)/74 (17) | 42 (56)/27 (36)/6 (8) | χ² = 5.8, .056 |
| Meaning in life | | | | |
| - Low score ≤ 5, n (%) | 337 (65) | 277 (62) | 60 (80) | χ² = 8.1, .004 |
| - M (SD) | 4.4 (2.7) | 4.5 (2.7) | 3.4 (2.8) | t = 4.4, <.001 |
| - Worse/no change/better, n (%) | 188 (36)/269 (52)/63 (12) | 159 (36)/229 (51)/57 (13) | 29 (39)/40 (53)/8 (11) | χ² = 1.4, .491 |
| Social support | | | | |
| - Low score ≤ 5, n (%) | 226 (44) | 185 (42) | 41 (55) | χ² = 4.0, .047 |
| - M (SD) | 5.8 (2.8) | 5.9 (2.7) | 5.3 (3.0) | t = 1.7, .049 |
| - Worse/no change/better, n (%) | 89 (17)/354 (68)/77 (15) | 71 (16)/305 (68)/69 (16) | 18 (24)/49 (65)/8 (11) | χ² = 3.5, .170 |
| Positive feelings<sup>d</sup> | | | | |
| Happy | | | | |
| - Low score ≤ 5, n (%) | 332 (64) | 277 (62) | 55 (73) | χ² = 3.0, .065 |
| - M (SD) | 4.6 (2.4) | 4.7 (2.3) | 4.0 (2.5) | t = 2.5, .013 |
| Engaged | | | | |
| - Low score ≤ 5, n (%) | 358 (69) | 303 (68) | 55 (73) | χ² = 0.6, .440 |
| - M (SD) | 4.4 (2.5) | 4.4 (2.5) | 3.8 (2.7) | t = 1.9, .057 |
| Calm and relaxed | | | | |
| - Low score ≤ 5, n (%) | 388 (75) | 330 (74) | 58 (77) | χ² = 0.2, .659 |
| - M (SD) | 3.8 (2.6) | 3.9 (2.5) | 3.6 (2.9) | t = 0.8, .407 |
| Mental health difficulties<sup>e</sup> | | | | |
| Measured on a scale from 0 (“not at all”) to 10 (“to a large degree”) | | | | |
| Anxious<sup>e</sup> | | | | |
| - High score ≥5, n (%) | 369 (71) | 312 (70) | 57 (76) | χ² = 0.8, .367 |
| - Mdn (min–max) | 7 (0–10) | 6 (0–10) | 7 (0–10) | U = 19,088.0, .045 |
| - Worse/no change/better, n (%) | 262 (50)/218 (42)/40 (8) | 219 (49)/190 (43)/36 (8) | 43 (57)/28 (37)/4 (5) | χ² = 1.9, .384 |
| Worried<sup>e</sup> | | | | |
| - High score ≥5 n (%) | 336 (65) | 279 (63) | 57 (76) | χ² = 4.4, .036 |
| - Mdn (min–max) | 6 (0–10) | 5 (0–10) | 7 (0–10) | U = 20,166.0, .004 |
| - Worse/no change/better, n (%) | 226 (44)/260 (50)/34 (7) | 185 (42)/229 (52)/31 (7) | 41 (55)/31 (41)/3 (4) | .100 |
| Depressed mood<sup>e</sup> | | | | |
| - High score ≥5 n (%) | 361 (69) | 305 (69) | 56 (75) | χ² = 0.9, .352 |
| - M (SD) | 6.0 (2.9) | 5.9 (2.8) | 6.4 (3.2) | t = −1.3, .195 |
| - Worse/no change/better, n (%) | 254 (49)/212 (41)/54 (10) | 212 (48)/185 (42)/48 (11) | 42 (56)/27 (36)/6 (8) | χ² = 1.9, .389 |

(Continues)
| Mental health difficulties | Measured on a scale from 0 (“not at all”) to 10 (“to a large degree”) | Total sample N = 520 | Bipolar disorder n = 445 | Psychotic disorder n = 75 | Test statistics | p |
|---------------------------|-------------------------------------------------|-----------------|-----------------|-----------------|----------------|---|
| Little interest/pleasure<sup>a</sup> | | | | | | |
| - High score ≥5, n (%)  | 306 (59) | 265 (60) | 41 (55) | χ² = 0.5 | .504 |
| - M (SD) | 5.0 (2.9) | 5.0 (3) | 5.1 (3.5) | t = −0.5 | .627 |
| - Worse/no change/better % | 200 (38)/278 (54)/42 (8) | 174 (39)/235 (53)/36 (8) | 26 (35)/43 (57)/6 (8) | χ² = 0.6 | .750 |
| Self-harm/suicidal ideation | | | | | | |
| - High score ≥5, n (%) | 211 (41) | 170 (38) | 41 (55) | χ² = 6.6 | .007 |
| - Mdn (min–max) | 3 (0–10) | 3 (0–10) | 5 (0–10) | U = 20,371.5 | .002 |
| - Worse/no change/better, n (%) | 173 (33)/312 (60)/35 (7) | 138 (31)/276 (62)/31 (7) | 35 (47)/36 (48)/4 (5) | χ² = 7.1 | .029 |
| Elevated mood | | | | | | |
| - High score ≥5, n (%) | 156 (30) | 140 (32) | 16 (21) | χ² = 2.7 | .102 |
| - M (SD) | 4.8 (3.2) | 4.9 (3.2) | 4.4 (3.3) | t = 1.1 | .275 |
| - More/no change/less, n (%) | 105 (20)/284 (55)/131 (25) | 93 (21)/240 (54)/112 (25) | 12 (16)/44 (59)/19 (25) | χ² = 1.0 | .598 |
| Irritable mood | | | | | | |
| - High score ≥5, n (%) | 292 (56) | 254 (57) | 38 (51) | χ² = 0.8 | .363 |
| - M (SD) | 4.8 (3.2) | 4.9 (3.2) | 4.4 (3.3) | t = 1.1 | .275 |
| - More/no change/less, n (%) | 259 (50)/221 (43)/40 (8) | 224 (50)/183 (42)/38 (9) | 35 (47)/38 (51)/2 (3) | χ² = 4.4 | .109 |
| Increased activity | | | | | | |
| - High score ≥5, n (%) | 188 (36) | 165 (37) | 23 (31) | χ² = 0.9 | .348 |
| - Mdn (min–max) | 3 (0–10) | 3 (0–10) | 2 (0–10) | U = 16,052.5 | .590 |
| - More/no change/less n (%) | 166 (32)/238 (46)/116 (22) | 140 (32)/203 (46)/102 (23) | 26 (35)/35 (47)/14 (19) | χ² = 0.7 | .690 |
| Derealization | | | | | | |
| - High score ≥5, n (%) | 114 (22) | 81 (18) | 33 (44) | χ² = 23.5 | <.001 |
| - Mdn (min–max) | 0 (0–10) | 0 (0–10) | 4 (0–10) | U = 22,471.5 | <.001 |
| - Worse/no change/better, n (%) | 88 (17)/426 (82)/6 (1) | 67 (15)/374 (84)/4 (1) | 21 (28)/52 (69)/2 (3) | χ² = 9.8 | .007 |
| Ideas of self-reference | | | | | | |
| - High score ≥5, n (%) | 39 (8) | 25 (6) | 14 (19) | χ² = 15.8 | <.001 |
| - Mdn (min–max) | 0 (0–10) | 0 (0–10) | 0 (0–10) | U = 20,710.5 | <.001 |
| - Worse/no change/better, n (%) | 30 (6)/486 (94)/4 (1) | 21 (5)/421 (95)/3 (1) | 9 (12)/65 (87)/1 (1) | .037 |
| Ideas of persecution | | | | | | |
| - High score ≥5, n (%) | 106 (20) | 74 (17) | 32 (43) | χ² = 25.2 | <.001 |
| - Mdn (min–max) | 0 (0–10) | 0 (0–10) | 3 (0–10) | U = 23,122.0 | <.001 |
| - Worse/no change/better, n (%) | 80 (15)/423 (81)/17 (3) | 65 (15)/369 (83)/11 (3) | 15 (20)/54 (72)/6 (8) | .020 |
| Ideas of grandiosity | | | | | | |
| - High score ≥5, n (%) | 56 (11) | 37 (8) | 19 (25) | χ² = 17.6 | <.001 |
| - Mdn (min–max) | 0 (0–10) | 0 (0–10) | 1 (0–10) | U = 22,172.0 | <.001 |
| - Worse/no/better, n (%) | 30 (6)/477 (92)/13 (3) | 20 (5)/415 (93)/10 (2) | 10 (13)/62 (83)/3 (4) | .007 |
| Hallucinations | | | | | | |
| - High score ≥5, n (%) | 73 (14) | 42 (9) | 31 (41) | χ² = 51.5 | <.001 |
| - Mdn (min–max) | 0 (0–10) | 0 (0–10) | 2 (0–10) | U = 24,214.0 | <.001 |
| - Worse/no change/better, n (%) | 47 (9)/460 (89)/13 (3) | 32 (7)/405 (91)/8 (2) | 15 (20)/55 (73)/5 (7) | <.001 |

(Continues)
TABLE 2 (Continued)

| Mental health difficulties | Total sample | Bipolar disorder | Psychotic disorder | Test statistics | p |
|----------------------------|--------------|------------------|-------------------|----------------|---|
| Chaotic thinking           |              |                  |                   |                |   |
| High score ≥5, n (%)       | 361 (69)     | 307 (69)         | 54 (72)           | χ² = 0.2       | .698 |
| Mdn (min–max)              | 7 (0–10)     | 7 (0–10)         | 8 (0–10)          | U = 18,843.0   | .071 |
| Worse/no change/better, n (%) | 227 (44)/266 (51)/27 (5) | 189 (43)/232 (52)/24 (5) | 38 (51)/34 (45)/3 (4) | χ² = 0.438 |   |

Note: Bold numerals indicate statistically significant difference between participants with psychotic- and bipolar disorders. Due to Bonferroni correction the significance levels were changed as follows: Wellbeing items (0.05/4) = 0.013; Depressive/anxiety symptoms (0.05/5) = 0.01; Psychotic symptoms (0.05/6) = 0.008. Italics numerals indicate no longer statistically different after Bonferroni correction.

Abbreviations: M, mean; Mdn, median; SD, standard deviation.

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The majority of participants reported high levels of feeling anxious, worried, depressed, little interest/pleasure, irritable, and experiencing chaotic thinking, with around half of the participants reporting worsening post outbreak. PsD participants reported feeling significantly more worried and experienced more self-harm/suicidal ideation, derealization, ideas of self-reference, ideas of persecution, ideas of grandiosity, and hallucinations than BD participants. PsD participants also experienced more worsening of derealization, ideas of grandiosity and hallucinations.

The participants’ experience of recovery (i.e., improvement) from mental health difficulties was significantly reduced from before to after the COVID-19 outbreak (see Figure 1). Furthermore, the median recovery experience score was reduced from 6 to 3 (0–10 scale) from before to after the outbreak (z = −9.7, p < .001). PsD participants had lower median recovery scores post outbreak than BD participants (1 vs. 3; U = 13,793.0, p = .015).

3.3 Pandemic-related factors

3.3.1 Concerns and coping

Figure 2 shows that the majority of participants worried about COVID-19 pandemic consequences, cope “a little” or “a lot,” kept updated, and followed Government recommendations. There was a numerical small but statistically significant group difference in keeping updated about the pandemic situation (PsD, n = 71 [95%] vs. BD, n = 445 [100%], p = .005).

3.3.2 Housing, daily activity, and economy

Table 3 shows that in the BD group there was a significant increase in living with family/cohabitant from before to after the outbreak. There was also a significant reduction in studying and full-time work and increase in temporarily lay-offs and “other” activities. One-in-three reported worsened personal economy after the outbreak (see Table 4).

3.3.3 Social life

Table 4 shows that the majority of participants experienced worsened social life post outbreak, feeling more isolated, outside the community and lonely. Family conflicts had worsened for some.
FIGURE 2  Participants experience of worry about pandemic consequences, keeping updated1, following Government recommendations2, and coping with the pandemic situation during the COVID-19 pandemic3 (N = 520). 1 Keeping updated about the outbreak via either “health authorities webpages” (90%), “newspapers” (83%), “TV/radio” (78%), “social media” (83%), “blogs” (9%), or “friends/family” (84%). 2 Recommendations about hand washing and social distancing. 3 During the COVID-19 pandemic = between March 12, 2020 and June 5–July 5, 2020. 67% (n = 347); 33% (n = 173) / 99% (n = 514); 1% (n = 6) / 92% (n = 480); 8% (n = 39); 0.2% (n = 1) / 45% (n = 234); 41% (n = 216); 14% (n = 70)

TABLE 3  Changes in housing and daily activity from before to after the COVID-19 outbreak4 in the total sample and across diagnostic groups

| Change in housing from before to after the COVID-19 outbreak, n (%) | Total sample N = 520 | Bipolar disorders n = 445 | Psychotic disorders n = 75 |
|---------------------------------------------------------------|-----------------------|---------------------------|----------------------------|
|                                                              | Before | After | p  | Before | After | p  | Before | After | p  |
| Alone                                                        | 168 (32) | 159 (31) | .151 | 134 (30) | 126 (28) | .170 | 34 (45) | 33 (44) | 1.000 |
| With family/cohabitant                                      | 305 (59) | 322 (62) | .012 | 277 (62) | 295 (66) | .005 | 28 (37) | 27 (36) | 1.000 |
| With friends/shared accommodation                            | 34 (7) | 24 (5) | .041 | 31 (7) | 20 (5) | .019 | 3 (4) | 4 (5) | 1.000 |
| Supported housing                                            | 12 (2) | 15 (3) | .375 | 2 (0.4) | 4 (1) | .500 | 10 (13) | 11 (15) | 1.000 |
| No residence                                                 | 1 (0.2) | 0 | 1.000 | 1 (0.2) | 0 (0) | 1.000 | 0 (0) | 0 (0) | – |

| Change in daily activity from before to after the COVID-19 outbreak, n (%) | Before | After | p  | Before | After | p  | Before | After | p  |
|---------------------------------------------------------------------------|-------|-------|----|-------|-------|----|-------|-------|----|
| Studying                                                                   | 74 (14) | 50 (10) | <.001 | 66 (15) | 43 (10) | <.001 | 8 (11) | 7 (9) | 1.000 |
| Part time work                                                             | 82 (16) | 73 (14) | .233 | 70 (16) | 63 (14) | .337 | 12 (16) | 10 (13) | .688 |
| Full time work                                                             | 115 (22) | 95 (18) | .001 | 110 (25) | 90 (20) | .001 | 5 (7) | 5 (7) | 1.000 |
| Unemployed                                                                 | 63 (12) | 60 (12) | .648 | 41 (9) | 39 (9) | .815 | 22 (29) | 21 (28) | 1.000 |
| Temporarily lay-off                                                        | 4 (1) | 23 (4) | <.001 | 3 (1) | 20 (5) | <.001 | 1 (1) | 3 (4) | .500 |
| Other                                                                      | 182 (35) | 219 (42) | <.001 | 155 (35) | 190 (43) | <.001 | 27 (36) | 29 (39) | .688 |

Note: Bold numerals indicate statistically significant change from before to after the COVID-19 outbreak. Italic numerals indicate no longer statistically different after Bonferroni correction. Due to Bonferroni correction, the significance level was changed: (.05/8) = .006. Changes from before to after the COVID-19 outbreak were analyzed with McNemar’s test.

4Before the COVID-19 outbreak = before March 12, 2020; after the COVID-19 outbreak = June 5–July 5, 2020.

3.3.4  | Substance use

Users of alcohol and illicit drugs reported increased use post outbreak (Table 4).

3.3.5  | Medication use

Some participants taking antipsychotics used more post outbreak, with comparatively fewer reporting increased use of mood stabilizers and antidepressants (Table 4). Half of the participants using anxiolytics reported increased use post outbreak.

3.3.6  | Sleep

Table 4 also shows data on sleep. Participants reported insomnia symptoms half of the nights and for many this had increased post outbreak. Troubling nightmares were less frequent, but one-in-four reported an increase. There were no pre–post changes in sleep duration (p = .212).
### TABLE 4  Pandemic-related factors: Changes in factors potentially important to wellbeing and mental health difficulties from before to after the COVID-19 outbreak\(^a\) in the total sample and across diagnostic groups

|                                | Total sample, \(N = 520\) | Bipolar disorders, \(n = 445\) | Psychotic disorders, \(n = 75\) | Test statistics\(^b\) | \(p\)  |
|--------------------------------|----------------------------|---------------------------------|---------------------------------|-----------------------|------|
| **Personal economy**           |                            |                                 |                                 |                       |      |
| -Worse/no change/better, n (%) | 170 (33)/288 (55)/62 (12)  | 143 (32)/251 (56)/51 (12)      | 27 (36)/37 (49)/11 (15)         | \(\chi^2 = 1.4\)      | .490 |
| **Social life**                |                            |                                 |                                 |                       |      |
| -Worse/no change/better, n (%) | 345 (66)/119 (23)/56 (11)  | 300 (67)/98 (22)/47 (11)       | 45 (60)/21 (28)/9 (12)          | \(\chi^2 = 1.7\)      | .437 |
| **Social isolation\(^c\)**    | n = 486                    | n = 415                         | n = 71                          |                       |      |
| -More/no change/less, n (%)    | 370 (76)/84 (17)/32 (7)    | 322 (78)/68 (16)/25 (6)        | 48 (68)/16 (22)/7 (10)          |                       | .154 |
| **Feeling outside of the community\(^c\)** | n = 467 | n = 397 | n = 70 | | |
| -More/no change/less, n (%)    | 321 (69)/103 (22)/43 (9)   | 269 (68)/92/23/36 (9)          | 52 (74)/11 (16)/7 (10)          | \(\chi^2 = 1.9\)      | .382 |
| **Family conflict\(^c\)**     | n = 396                    | n = 338                         | n = 58                          |                       |      |
| -More/no change/less n (%)     | 149 (38)/196 (49)/51 (13)  | 130 (38)/162 (48)/46 (14)      | 19 (33)/34 (59)/5 (8)           | \(\chi^2 = 2.5\)      | .283 |
| **Loneliness\(^d\) (0–10)**   | 284 (55)                   | 234 (53)                       | 49 (65)                        | \(\chi^2 = 2.5\)      | .115 |
| -High score ≥ 6, n (%)         | 110 (33)/147 (45)/71 (22)  | 99 (34)/126 (44)/63 (22)       | 11 (28)/21 (52)/8 (20)          | \(\chi^2 = 1.2\)      | .567 |
| -M (SD)                        | 5.6 (3.3)                  | 5.5 (3.3)                      | 6.2 (3.5)                      | \(t = −1.8\)          | .079 |
| **Substance use\(^c\)**       |                            |                                 |                                 |                       |      |
| Alcohol                        | n = 328                    | n = 288                         | n = 40                          |                       |      |
| More/no change/less, n (%)     | 110 (33)/147 (45)/71 (22)  | 99 (34)/126 (44)/63 (22)       | 11 (28)/21 (52)/8 (20)          | \(\chi^2 = 1.2\)      | .567 |
| Illicit drugs                  | n = 62                     | n = 51                          | n = 11                          |                       |      |
| More/no change/less, n (%)     | 24 (39)/25 (40)/13 (21)    | 20 (39)/19 (37)/12 (24)        | 4 (36)/6 (55)/1 (9)             | \(\chi^2 = 5.1\)      | .077 |
| **Medication use\(^c\)**      |                            |                                 |                                 |                       |      |
| Antipsychotics                 | n = 222                    | n = 185                         | n = 37                          |                       |      |
| More/no change/less, n (%)     | 54 (24)/144 (65)/24 (11)   | 47 (25)/117 (63)/21 (11)       | 7 (19)/27 (73)/3 (8)            | \(t = −1.8\)          | .079 |
| Mood stabilizers               | n = 306                    | n = 293                         | n = 13                          |                       |      |
| More/no change/less, n (%)     | 46 (15)/241 (79)/19 (6)    | 44 (15)/230 (79)/19 (6)        | 2 (15)/11 (85)/0 (0)            |                       | 1.00 |
| Antidepressants                | n = 173                    | n = 152                         | n = 21                          |                       |      |
| More/no change/less, n (%)     | 27 (16)/133 (77)/17 (3)    | 22 (14)/118 (78)/12 (8)        | 5 (24)/15 (71)/1 (5)            | \(\chi^2 = 5.1\)      | .579 |
| Anxiolytics                    | n = 178                    | n = 146                         | n = 32                          |                       |      |
| More/no change/less, n (%)     | 92 (52)/74 (41)/12 (7)     | 71 (49)/65 (44)/10 (7)         | 21 (66)/9 (28)/2 (6)            | \(\chi^2 = 2.1\)      | .351 |
| **Sleep**                      |                            |                                 |                                 |                       |      |
| -Insomnia symptoms\(^d\)      |                            |                                 |                                 |                       |      |
| -Number of nights              | 7 (0–14)                   | 7 (0–14)                       | 7 (0–14)                       | \(U = 15032.0\)       | .166 |
| Mdn (min–max)                  | 7 (0–14)                   | 7 (0–14)                       | 7 (0–14)                       | \(U = 15032.0\)       | .166 |
| -More/no change/less, n (%)    | 212 (41)/272 (52)/36 (7)   | 181 (41)/236 (53)/28 (6)       | 31 (41)/36 (48)/8 (11)          | \(\chi^2 = 2.1\)      | .351 |
| **Troubling nightmares\(^d\)** |                            |                                 |                                 |                       |      |
| -Number of nights              | 2 (0–14)                   | 2 (0–14)                       | 3 (0–14)                       | \(U = 13728.5\)       | .012 |
| Mdn (min–max)                  | 2 (0–14)                   | 2 (0–14)                       | 3 (0–14)                       | \(U = 13728.5\)       | .012 |
| -More/no change/less, n (%)    | 133 (25)/36 (7)/25 (5)     | 108 (24)/316 (71)/21 (5)       | 25 (33)/46 (61)/4 (5)           | \(t = −2.8\)          | .032 |
| **Sleep duration before COVID-19 outbreak h, M (SD)** | 8.74 (1.8) | 8.7 (1.7) | 9.3 (2.4) | \(t = −2.8\) | .032 |
| **Sleep duration after COVID-19 outbreak h, M (SD)** | 8.8 (2.2) | 8.8 (1–21) | 9.2 (2.7) | \(t = −1.4\) | .259 |

Note: Bold numerals indicate statistically significant difference between participants with psychotic- and bipolar disorders. Due to Bonferroni correction, the significance level was changed: \((.05/8) = .006\). Italic numerals indicate no longer statistically different after Bonferroni correction.

Abbreviations: \(M\), mean; \(SD\), standard deviation; \(Mdn\), median; \(h\), hour.

\(^a\)Before the COVID-19 outbreak = before March 12, 2020; after the COVID-19 outbreak = June 5–July 5, 2020.

\(^b\)Test statistics: Chi-square, Fischer’s exact test, \(t\)-test, Mann–Whitney \(U\)-test.

\(^c\)Participants who had not experienced these phenomena or did not use substances or medications were excluded from these analyses.

\(^d\)Past 2 weeks.
### 3.3.7 Mental health services

Table 5 shows that in the total sample and among BP participants significantly fewer patients were in treatment for their mental disorder after compared to before the outbreak, with fewer receiving treatment from general practitioners.

Regarding community and charity mental health support, \( n = 86 \) participants had support pre-outbreak. The group difference (PsD \( n = 21 \) [28%] vs. BD \( n = 65 \) [15%]; \( \chi^2 = 7.4, p = .007 \)) did not survive Bonferroni correction \( (p = .05/8 = .006) \). There was reduced support post outbreak for the whole sample; 43 participants (50%) experienced that support was canceled or paused, 22 participants (25%) experienced less support, 17 participants (20%) experienced no change, while 4 participants (5%) experienced more support. There were no diagnostic group differences in change \( (\chi^2 = 1.5, p = .685) \).

A relatively large proportion of the sample \( (n = 201, 39\%) \) responded that they had not received sufficient treatment for their psychotic or bipolar disorder during the pandemic, and the same proportion of participants \( (n = 200, 39\%) \) reported having received sufficient treatment, while 119 participants (23%) were uncertain. There were no group differences \( (\chi^2 = 3.4, p = .182) \). Of the \( n = 326 \) participants who had been in treatment both pre and post outbreak, many \( (n = 140, 43\%) \) had experienced poorer treatment quality post outbreak, 156 participants (48%) reported no change in treatment quality, 30 participants (9%) had experienced improved treatment quality. There were no group differences \( (p = .124) \).

Of the sample, \( n = 220 \) participants (42%) had not contacted mental health services post outbreak for issues they normally would, and only 39 participants (8%) had called helplines. There were no diagnostic group differences \( (\chi^2 = 2.9, p = .087, \text{and } \chi^2 = 3.4, p = .066, \text{respectively}) \).

Among the \( n = 370 \) participants receiving treatment post outbreak, 199 participants (54%) had treatment via telephone, and 37% \( (n = 74) \) wanted to continue this; 86 participants (23%) had videoconference treatment, and 44% \( (n = 38) \) wanted to continue this; 70 participants (19%) had treatment via text messages or chat, and 40% \( (n = 28) \) wanted to continue this. A significantly higher proportion of participants with PsD \( (n = 16, 30\%) \) compared to BD \( (n = 54, 17\%) \) had received treatment via text messages or chat post outbreak \( (\chi^2 = 4.0, p = .047) \), but this difference was no longer significant after Bonferroni correction \( (0.05/8; p = .006) \).

### 3.4 Impact of pandemic-related factors on wellbeing and mental health difficulties

Table 6 presents results from the binary logistic regression analyses with poor wellbeing as dependent variable and age, being single, worry about pandemic consequences, low coping, loneliness, insufficient treatment, poorer economy, increased alcohol use, and insomnia symptoms entered as independent variables. Insufficient treatment, more loneliness, and low coping significantly and independently predicted poor wellbeing in both the first and the final model.

Table 6 also presents results from the binary logistic regression analyses with poor mental health as dependent variable and age, worry about pandemic consequences, low coping, loneliness, insufficient treatment, poorer economy, increased alcohol use, and insomnia symptoms entered as independent variables. Insufficient treatment, more loneliness, low coping, worry about pandemic consequences, more nights with insomnia symptoms, and increased alcohol use significantly and independently predicted poor mental health in the final model. All variables apart from age, poor economy and increased alcohol use were significant in the first model. Increased alcohol use became significant in the model when age and personal economy were removed.
TABLE 6  Logistic regression analyses with poor wellbeing\(^a\) (no/yes, \(n = 233/287\)) and poor mental health\(^b\) (no/yes, \(n = 178/342\)) as dependent variables

| Predictor                                      | B   | S.E  | Wald  | df | \(p\)   | Ex(B) | 95% CI    |
|-----------------------------------------------|-----|------|-------|----|---------|-------|-----------|
| Predictors of poor wellbeing\(^c\)            |     |      |       |    |         |       |           |
| Low coping with the situation (no/yes)        | 1.558 | .213 | 53.695 | 1  | <.001   | 4.749 | 3.131–7.205 |
| Loneliness\(^d\)                              | .197 | .034 | 33.358 | 1  | <.001   | 1.218 | 1.139–1.302 |
| Insufficient treatment (no or uncertain/yes)  | .853 | .220 | 15.016 | 1  | .000    | 2.347 | 1.524–3.613 |
| Predictors of poor mental health\(^e\)        |     |      |       |    |         |       |           |
| Worry about pandemic consequences (no/yes)    | .656 | .234 | 7.847  | 1  | .005    | 1.927 | 1.218–3.049 |
| Low coping with the situation (no/yes)        | 1.465 | .232 | 40.039 | 1  | <.001   | 4.329 | 2.749–6.815 |
| Loneliness\(^d\)                              | .168 | .037 | 20.960 | 1  | <.001   | 1.183 | 1.101–1.272 |
| Insufficient treatment (no/uncertain or yes)  | .795 | .232 | 11.777 | 1  | .001    | 2.215 | 1.406–3.488 |
| Increased alcohol use (no/yes)                | .581 | .293 | 3.929  | 1  | .047    | 1.787 | 1.007–3.174 |
| Nights with insomnia symptoms past 2 weeks    | .054 | .024 | 4.892  | 1  | .027    | 1.055 | 1.006–1.106 |

\(^{a}\)Poor wellbeing was defined as a score of \(\leq 5\) (on a 0–10 scale) and in addition responding that the item had become “worse” after the COVID-19 outbreak (i.e., after March 12, 2020) on either one of the following items: life satisfaction, meaning in life, social support, or feeling happy.

\(^{b}\)Poor mental health was defined as a score of \(\geq 5\) (on a 0–10 scale) and in addition responding that the item had become “worse” after the COVID-19 outbreak (i.e., after March 12, 2020) on either one of the following items: anxious, worried, depressed mood, little interest/pleasure, self-harm/suicidal ideation, ideas of persecution, or hallucinations.

\(^{c}\)Model chi-square = 171.884 \(df = 3\), \(p = .000\). The model as a whole explained between 28.1% (Cox & Snell \(R^2\)) and 37.7% (Nagelkerke \(R^2\)) of the variance and correctly identified 75.0% of the cases.

\(^{d}\)Loneliness past 2 weeks was scored on a scale from 0 (“not at all”)–10 (“to a great extent”).

\(^{e}\)Model chi-square = 180.081, \(df = 6\), \(p = .000\). The model as a whole explained between 29.3% (Cox & Snell \(R^2\)) and 40.5% (Nagelkerke \(R^2\)) of the variance and correctly identified 78.5% of the cases.

4 | DISCUSSION

The main findings in this study are that the majority of participants with BD and particularly PsD experienced low levels of wellbeing and high levels of mental health difficulties in the early phase of the COVID-19 pandemic, with around half reporting that they had experienced worsening post outbreak. Participants’ experience of being in recovery from mental health difficulties was significantly lower after compared to before the outbreak. Amongst pandemic-related factors, low coping with the situation, loneliness, and insufficient treatment had a negative impact on both wellbeing and mental health difficulties, while worrying about pandemic consequences, increased alcohol use, and insomnia symptoms only affected mental health adversely.

4.1 | Wellbeing and mental health difficulties

Deteriorated wellbeing involved reduced life satisfaction, meaning in life, and positive feelings. Few participants had experienced improved wellbeing. The average wellbeing scores in our participants were relatively low, and correctly identified 75.0% of the cases. Deteriorated wellbeing involved reduced life satisfaction, meaning in life, and positive feelings. Few participants had experienced improved wellbeing. The average wellbeing scores in our participants were relatively low, and correctly identified 78.5% of the cases.

Others have reported that depression and anxiety symptoms are prevalent reactions to the COVID-19 pandemic in the general population (Rajkumar, 2020b; Salari et al., 2020), and even higher levels of depression and anxiety in people with PsD and BD compared to healthy controls (Mankiewicz et al., 2013; Stanga et al., 2019; Uzenoff et al., 2010). Our findings suggest that the pandemic affected wellbeing in our target group more adversely than the general population.

Participants reported worsening of especially depression and anxiety symptoms, but also self-harm/suicidal ideation. This is in line with another survey of people with lived experience of mental health difficulties conducted earlier in the COVID-19 pandemic finding heightened anxiety and general concerns about becoming mentally unwell because of pandemic pressure (Academy of Medical Sciences, 2020). Others have reported that depression and anxiety symptoms are prevalent reactions to the COVID-19 pandemic in the general population (Academy of Medical Sciences, 2020; Rajkumar, 2020b; Salari et al., 2020), and even higher levels of depression and anxiety in people with PsD and BD compared to healthy controls (González-Blanco et al., 2020; Van Rheenen et al., 2020). The worsening of self-harm/suicidal ideation in 33% of participants is highly concerning, as pandemic disruption to mental health services may reduce prevention of suicides (Sher, 2020). Whether our results would be similar in people without a pre-existing mental disorder is unknown, but a recent study finds no increase in self-reported mental disorders or suicidal ideation from before the pandemic compared to the early phase of the pandemic (March 12 to May 31, 2020) in the general Norwegian population (Knudsen et al., 2021). Furthermore, this study presents data from the Norwegian Cause of Death Registry, which showed no increase in suicide deaths from March to May 2014–2018 compared to March to May 2020. Also worth noting are findings that levels of anxiety in people seeking help for anxiety and depression increased in the first 4 weeks of the pandemic, but then declined...
The majority experienced deterioration in their social life post outbreak, presumably in line with the general population. Several COVID-19 campaigns have been designed around “we-are-all-in-this-together” (Nilsen & Skarpenes, 2020; Society of Editors, 2020). This message did clearly not have the full-intended effect on the majority of our sample, who were feeling more outside of the community. The worsening of social isolation and loneliness is not in keeping with the general population, where levels of loneliness remained stable or even decreased during early months of the pandemic (Luchetti et al., 2020; NIPH, 2020). Our findings are in line with previous concerns that social restrictions may impact more severely on people with severe mental disorders (Brown et al., 2020). We found that loneliness predicted both poor wellbeing and poor mental health, consistent with previous findings (Beutel et al., 2017; Eglit et al., 2018). However, over half of the participants experienced social support, with few experiencing a reduction post outbreak. This can be regarded as a resource for interventions aimed to counteract pandemic consequences.

Users of illicit drugs and alcohol reported increased use post outbreak, in line with other studies (Pinkham et al., 2020; Van Rheenen et al., 2020). Increased substance use may reflect maladaptive coping with pandemic distress, anxiety and depression, and/or result from a more monotone/boring life or fewer regulating social constraints. Increased alcohol consumption requires attention, as increased alcohol use predicted poor mental health, as anticipated (Rajkumar, 2020a).

The most prominent finding concerning medication use is that half the participants using anxiolytics reported increased use, probably reflecting pandemic concerns and increase in anxiety symptoms. Whether the increased use of medications was according to prescription or self-medication is unknown. However, reduced access to general practitioners and mental health services and a reluctance to seek help during the lockdown may have caused participants to self-medicate.

Insomnia symptoms were prevalent, and for many participants sleep problems had worsened post outbreak. Other studies report more post outbreak sleep disruptions in people with severe mental disorders compared to healthy controls (Solé et al., 2020; Van Rheenen et al., 2020). The worsening is concerning due to adverse outcomes associated with poor sleep (Laskemoen et al., 2019). In line with this, we found that high levels of insomnia symptoms predicted poor mental health.

Significantly fewer BD participants received treatment post outbreak, suggesting that they were not prioritized and/or more reluctant to seek help. In fact, almost half of the total sample had refrained from contacting mental health services for issues they normally would. Bearing in mind the poorer mental health of participants with PsD compared to participants with BD, we regard it as positive that participants with PsD did not report reduction in being in treatment. The group of participants in inpatient treatment before and after the outbreak was small, and the reduction in inpatient treatment in the total sample from before to after the outbreak was no longer significant after Bonferroni correction. A small group of participants received treatment from ambulatory teams, and an interesting finding was that ambulatory care was unchanged post outbreak. Ambulatory teams in Norway provide
care for people with severe mental health difficulties, including poor functioning, thus maintaining ambulatory care for this group may have been prioritized after the outbreak. Still, more than one-third of the total sample reported insufficient treatment for their mental disorders and reduced treatment quality post outbreak. Our findings that experienced recovery from mental health difficulties was halved, and that insufficient treatment predicted both poor wellbeing and poor mental health suggests that participants needed the same or more treatment in these troubled times. In line with this, studies have found increased mental help seeking and service demand in the early weeks of the pandemic, and later when COVID-19 transmission was high (Staples et al., 2021; Titov et al., 2020). However, a WHO survey found that 93% of responding countries reported pandemic disruptions to mental health services, despite goals to ensure continue of care (WHO, 2020a), indicating how uncertainty about timing and impact of a pandemic poses challenges for planners and service providers. The Norwegian Directorate of Health (2021) reports that number of adult patients treated in public mental health outpatient clinics remained the same in 2019 and 2020, mainly due to a 50% increase in treatment delivered via phone or videoconference in 2020, while number of admissions to mental health inpatient wards was reduced by 7% from 2019 to 2020. Of note is that these numbers do not reflect number of treatment sessions and may not reflect mental health services in the early phase of the pandemic, when they were trying to adjust to the situation. Some of our participants had teletherapy, most prevalently via phone or video conference. For some participants this was an agreeable solution, while others did not want to continue with this mode of treatment delivery, indicating that teletherapy on its own is not adequate for everyone. In many countries, the pandemic also led to increased capacity for mental health helplines (WHOa, 2020). However, few participants in our study had called mental helplines. People with PsD and BD may find helplines to be inadequate to accommodate their specialized needs; continuity in care and an established therapeutic alliance may be especially important for this population.

4.3 | Clinical implications

The clinical implications of our findings include that low wellbeing and increased anxiety and depression may be normalized as common reactions during a pandemic. New knowledge from this study is that mental health services should be particularly aware of potential increase in self-harm/suicidal ideation and psychotic symptoms in people with PsD and BD. Moreover, mental health workers should probe actively for signs of loneliness, insomnia, and increased alcohol use and offer adequate treatment. Poor coping should be targeted, for example, by introducing strategies suggested by other people with mental disorders, including cognitive coping strategies (Simblett et al., 2021) and behaviors such as staying connected, keeping busy, physical activity, staying calm, managing media intake, and maintaining routine (Academy of Medical Sciences, 2020). Peer-support could be beneficial in this context and is currently an underused resource, which should be promoted. Experiences of insufficient treatment suggests that mental health services were not adequately prepared for the COVID-19 pandemic; however, services should seek to deliver the best possible care under current conditions. This population’s potential vulnerability and reluctance to seek help implies a need for active outreach via available channels. Development of customized teletherapy is needed to fit individual needs. Meanwhile, mental health services should strive to uphold physical sessions when called for, requiring supply and training in infectious control equipment. When conditions prevent optimal mental health services, all available resources should be considered, including family members who already provide important support (Eckardt, 2020). Empowering family members requires establishing contact pre-crises and supporting them during strenuous times.

4.4 | Strengths and limitations

Our sample is relatively large, potentially from across the country, with a wide age range. The majority of respondents being female is also seen in other online surveys (Academy of Medical Sciences, 2020; Solé et al., 2020). Diagnosis was based on self-report; thus, the reliability of the diagnoses and specific diagnostics are uncertain. Moreover, comorbid disorders were not recorded. The sample is skewed towards people with BD. This may at least partly be explained by the user organization for bipolar disorder in Norway sharing the survey to its members, while there is not an equivalent user organization for people with psychotic disorders in Norway. The representativity of our sample may be biased regarding severity of illness and service satisfaction. However, we reached participants with varied levels of wellbeing and mental health difficulties, both in and outside of treatment, indicating a relative diversity. The survey probed experiences pre and post the pandemic outbreak at a single time point, resulting in potential situation and recall-bias. We lack information about life events not related to the pandemic that may have affected wellbeing and mental health difficulties. However, the survey questions were formulated to encourage pandemic-related responses. Obvious strengths are that our survey covered both wellbeing and mental health difficulties and a wide range of factors affected by the pandemic. Moreover, people with lived experience of PsD and BD were involved in designing the survey.

5 | CONCLUSIONS

Our findings indicate that the early stages of the COVID-19 pandemic had serious consequences for wellbeing and mental health difficulties in many people with PsD and BD. Adverse change in treatment sufficiency, loneliness, insomnia symptoms, alcohol drinking, pandemic worry, and low coping was related to the deterioration. Our findings suggest a need to increase general disaster preparedness in mental health services to ensure provision of sufficient care under suboptimal conditions. Future research should investigate what service users think the health services could do to improve during a pandemic.
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DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

PEER REVIEW
The peer review history for this article is available at https://publons.com/publon/10.1002/brb3.2559

REFERENCES
Academy of Medical Sciences. (2020). Survey results: Understanding people's concerns about the mental health impacts of the COVID-19 pandemic. http://www.acmedsci.ac.uk/COVIDmentalhealthsurveys
Alkhamees, A. A., Alrashed, S. A., Alzunaydi, A. A., Almohimeed, A. S., & Aljohani, M. S. (2020). The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia. Comprehensive Psychiatry, 102, 152192. https://doi.org/10.1016/j.comppsych.2020.152192
Beutel, M. E., Klein, E. M., Brähler, E., Reiner, I., Jünger, C., Michal, M., Wiltink, J., Wild, P. S., Münzel, T., Lackner, K. J., & Tibubos, A. N. (2017). Loneliness in the general population: Prevalence, determinants and relations to mental health. BMC Psychiatry (Electronic Resource), 17(1), 97. https://doi.org/10.1186/s12888-017-1262-x
Brown, E., Gray, R., Lo Monaco, S., O'Donoghue, B., Nelson, B., Thompson, A., Franey, S., & McGorry, P. (2020). The potential impact of COVID-19 on psychosis: A rapid review of contemporary epidemic and pandemic research. Schizophrenia Research, 222, 79–87. https://doi.org/10.1016/j.schres.2020.05.005
Chan, R. C. H., Mak, W. W. S., Chio, F. H. N., & Tong, A. C. Y. (2018). Flourishing with psychosis: A prospective examination on the interactions between clinical, functional, and personal recovery processes on well-being among individuals with schizophrenia spectrum disorders. Schizophrenia Bulletin, 44(4), 778–786. https://doi.org/10.1093/schbul/sbx120
Dieni, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D.-W., & Oishi, S. (2009). New measures of well-being. In E. Dieni (Ed.), Assessing well-being (pp. 247–266). Springer. https://link.springer.com/book/10.1007/978-90-481-2354-4
Eckardt, J. P. (2020). Caregivers of people with severe mental illness in the COVID-19 pandemic. Lancet Psychiatry, 7(8), e53. https://doi.org/10.1016/S2215-5342(20)30252-2
Eglit, G. M. L., Palmer, B. W., Martin, A. S., Tu, X., & Jeste, D. V. (2018). Loneliness in schizophrenia: Construct clarification, measurement, and clinical relevance. PLoS One, 13(3), e0194021. https://doi.org/10.1371/journal.pone.0194021
González-Blanco, L., Dal Santo, F., García-Álvarez, L., de la Fuente-Tomás, L., Moya Lacasa, C., Panigagua, G., Sáiz, P. A., García-Portilla, M. P., & Bobes, J. (2020). COVID-19 lockdown in people with severe mental disorders in Spain: Do they have a specific psychological reaction compared with other mental disorders and healthy controls? Schizophrenia Research, 223, 192–198. https://doi.org/10.1016/j.schres.2020.07.018
Government.no. (2020a). Omfattende tiltak for å bekjempe koronaviruset. https://www.regjeringen.no/no/dokumentarkiv/regjeringen-solberg/aktuelt-regjeringen-solberg/smk/pressemeldinger/2020/nyetiltak/id2693327/
Government.no. (2020b). Oppfordrer helsetjenesten til å bruke videokon- sultasjon. https://www.regjeringen.no/no/dokumentarkiv/regjeringen-solberg/aktuelt-regjeringen-solberg/smk/pressemeldinger/2020/nyetiltak/id2693327/
Holmes, E. A., O’Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Silver, R. C., Everall, I., Ford, T. John, A., Kabir, T., King, K., Madan, I., Michele, S., Przybylski, A. K., Shafran, R., Sweeney, A., ... Bullmore, E. (2020). Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. Lancet Psychiatry, 7, 547–560. https://doi.org/10.1016/S2215-0366(20)30168-1
Hölze, P., Aly, L., Frank, W., Förstl, H., & Frank, A. (2020). COVID-19 distresses the depressed while schizophrenic patients are unimpressed: A study on psychiatric inpatients. Psychiatry Research, 291, 113175. https://doi.org/10.1016/j.psychres.2020.113175
Knudsen, A. K. S., Stene-Larsen, K., Gustavson, K., Hotopf, M., Kessler, R. C., Krokstad, S., Skogen, J. C., Øverland, S., & Reneflot, A. (2021). Prevalence of mental disorders, suicidal ideation and suicides in the general population before and during the COVID-19 pandemic in Norway: A population-based repeated cross-sectional analysis. The Lancet Regional Health, 4(100071), 1–9.
Koenders, M., Mesbahi, R., Spijker, A., Boere, E., de Leeuw, M., van Hemert, B., & Giltay, E. (2021). Effects of the COVID-19 pandemic in a preexisting longitudinal study of patients with recently diagnosed bipolar disorder: Indications for increases in manic symptoms. Brain and Behavior, 11, e2236. https://doi.org/10.1002/brb3.2236
Kozloff, N., Mulsant, B. H., Stergiopoulos, V., & Voineskos, A. N. (2020). The COVID-19 global pandemic: Implications for people with schizophrenia and related disorders. Schizophrenia Bulletin, 46, 752–757. https://doi.org/10.1093/scr/bxaa051
Kroesen, K., Spitzer, R. L., Williams, J. B., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: The PHQ-4. Psychosomatics, 50(6), 613–621. https://doi.org/10.1016/j.appsy.50.6.613
Kumar, A., & Nayar, K. R. (2021). COVID 19 and its mental health consequence. Journal of Mental Health, 30(1), 1–2. https://doi.org/10.1080/09682327.2020.1757052
Laskemoen, J. F., Simonsen, C., Buchmann, C., Barrett, E. A., Bjella, T., Lagerberg, T. V., Vedal, T. J., Andreassen, O. A., Melle, I., & Aas, M. (2019). Sleep disturbances in schizophrenia spectrum and bipolar disorders—A transdiagnostic perspective. Comprehensive Psychiatry, 91, 6–12. https://doi.org/10.1016/j.comppsych.2019.02.006
Luchetti, M., Lee, J. H., Aschwanden, D., Sisker, A., Strickhouse, J. E., Terracciano, A., & Sutin, A. R. (2020). The trajectory of loneliness in response to COVID-19. American Psychologist, 75(7), 897–908. https://psycnet.apa.org/fulltext/2020-42807-001.html
Mankiewicz, P. D., Gresswell, D. M., & Turner, C. (2013). Subjective wellbeing in psychosis: Mediating effects of psychological distress on happiness levels amongst individuals diagnosed with paranoid schizophrenia. Journal of Wellbeing, 3(1), 35–59. https://www.internationaljournalofwellbeing.org/index.php/ijow/article/view/146
Mork, E., Aminoff, S. R., Barrett, E. A., Simonsen, C., Hegelstad, W. T. V., Melle, I., & Romm, K. L. (in press). COVID-19 lockdown—Who cares? The first lockdown from the perspective of relatives of people with severe mental illness.
Muruganandam, P., Neelamegam, S., Menon, V., Alexander, J., & Chaturvedi, S. K. (2020). COVID-19 and Severe Mental Illness: Impact on patients and its relation with their awareness about COVID-19. Psychiatry Research, 291, 113265. https://doi.org/10.1016/j.psychres.2020.113265
Nes, R. B., Hansen, T., & Barstad, A. (2018). Livskvalitet. Anbefalinger for et bedre mælesystem. https://www.fhi.no/publ/2018/livskvalitet-anbefalinger-for-et-bedre-mælesystem
Nilsen, A. C. E. N., & Skarpenes, O. (2020). Coping with COVID-19. Dugnad: A case of the moral premise of the Norwegian welfare state. International Journal of Sociology and Social Policy. Advance online publication. https://www.emerald.com/insight/content/doi/10.1108/IJSSP-07-2020-0263/full/html
Norwegian Institute of Public Health. (2020). Livskvalitet under koronaepidemien—foreløpige resultater fra Nordland og Agder. https://www.fhi.no/div/helseundersokerl/ytelsenhlaseundersokerl/livskvalitet-underskoronaepidemienforelopigeresultater-nordland-agde/

OEC. (2013). OECD guidelines on measuring subjective well-being. https://www.oecd-ilibrary.org/economics/oecd-guidelines-on-measuring-subjective-well-being_9789264191655-en

Pinkham, A. E., Ackerman, R. A., Depp, C. A., Harvey, P. D., & Moore, R. C. (2020). A longitudinal investigation of the effects of the COVID-19 pandemic on the mental health of individuals with pre-existing severe mental illnesses. Psychiatry Research, 294, 113493. https://doi.org/10.1016/j.psychres.2020.113493

Rajkumar, R. P. (2020a). Bipolar disorder, COVID-19, and the risk of relapse. Bipolar Disorders, 22(6), 640. https://doi.org/10.1111/bdi.12947

Rajkumar, R. P. (2020b). COVID-19 and mental health: A review of the existing literature. Asian Journal of Psychiatry, 52, 102066. https://doi.org/10.1016/j.ajp.2020.102066

Romm, K. L., Rossberg, J. I., Berg, A. O., Barrett, E. A., Faerden, A., Agartz, I., Andreassen, O. A., & Melle, I. (2010). Depression and depressive symptoms in first episode psychosis. Journal of Nervous and Mental Disease, 198(1), 67–71. https://doi.org/10.1097/NMD.0b013e3181c81f0

Sachs, J., Schmidt-Traub, G., Kroll, C., Lafortune, G., Fuller, G., & Wohelm, F. https://s3.amazonaws.com/sustainabledevelopment.report.pdf

Saltari, N., Hosseinian-Far, A., Jalali, R., Vaisi-Raygani, A., Rasoupoor, S., Mohammad, M., Rasoupoor, S., & Khalidi-Paveh, B. (2020). Prevalence of stress, anxiety, depression among the general population during the COVID-19 pandemic: A systematic review and meta-analysis. Global Health, 16(1), 57. https://doi.org/10.1186/s12992-020-00589-w

Shor, L. (2020). Suicide research and prevention during and after the COVID-19 pandemic. Acta Psychiatrica Scandinavica, 142(5), 353–354. https://doi.org/10.1111/acps.13248

Simblett, S. K., Wilson, E., Morris, D., Evans, J., Odoi, C., Mutepe, M., Dawe-Lane, E., Jilka, S., Pinfold, V., & Wykes, T. (2021). Keeping well in a COVID-19 crisis: A qualitative study formulating the perspectives of mental health service users and carers. Journal of Mental Health, 30(2), 138–147. https://doi.org/10.1080/09638237.2021.1875424

Simonsen, C., Sundet, K., Vaskinn, A., Birkenaes, A. B., Engh, J. A., Faerden, A., Jønsdóttir, H., Ringen, P. A., Opjordsmoen, S., Melle, I., Friis, S., & Andreassen, O. A. (2011). Neurocognitive dysfunction in bipolar and schizophrenia spectrum disorders depends on history of psychosis rather than diagnostic group. Schizophrenia Bulletin, 37(1), 73–83. https://doi.org/10.1093/schbul/sbp034

Society of Editors. (2020). All in, all together: UK government partners with newspaper industry on Covid-19 ad campaign. https://www.societyofeditors.org/soe_news/all-in-all-together-uk-government-partners-with-newspaper-industry-on-covid-19-ad-campaign/

Solé, B., Verdolini, N., Amoretti, S., Montejo, L., Rosà, A. R., Hogg, B., Garcia-Rizo, C., Mezquida, G., Bernardo, M., Martínez-Aran, A., Viaña, E., & Torrent, C. (2020). Effects of the COVID-19 pandemic and lockdown in Spain: Comparison between community controls and patients with a psychiatric disorder. Preliminary results from the BRIS-MHC STUDY. Journal of Affective Disorders, 281, 13–23. https://doi.org/10.1016/j.jad.2020.11.099

Stanga, V., Turrina, C., Valvecchi, P., Sacchetti, E., & Vita, A. (2019). Well-being in patients with schizophrenia, mood and personality disorders attending psychiatric services in the community. A controlled study. Comprehensive Psychiatry, 91, 1–5. https://doi.org/10.1016/j.comppsych.2019.02.001

Staples, L., Nielsen, O., Kayrouz, R., Cross, S., Karin, E., Ryan, K., Dear, B., & Titov, N. (2020). Rapid report 2: Symptoms of anxiety and depression during the first 12 weeks of the coronavirus (COVID-19) pandemic in Australia. Internet Interventions, 22, 100351. https://doi.org/10.1016/j.invent.2020.100351

Staples, L., Nielsen, O., Kayrouz, R., Cross, S., Karin, E., Ryan, K., Dear, B., & Nielsen, O. (2020). Rapid report: Early demand, profiles and concerns of mental health users during the coronavirus (COVID-19) pandemic. Internet Interventions, 21, 100327. https://doi.org/10.1016/j.invent.2020.100327

Torailes, J., O’Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. International Journal of Social Psychiatry, 66(4), 317–320. https://doi.org/10.1177/1173406820915212

University of Oslo. (2020). Nettskjema. https://www.uio.no/english/services/it/adm-services/nettskjema/

Uzenoff, S. R., Brewer, K. C., Perkins, D. O., Johnson, D. P., Mueser, K. T., & Penn, D. L. (2010). Psychological well-being among individuals with first-episode psychosis. Early Intervention in Psychiatry, 4(2), 174–181. https://doi.org/10.1111/j.1751-7893.2010.00178.x

Van Rheenen, T. E., Meyer, D., Neill, E., Phillipou, A., Tan, E. J., Toh, W. L., & Rossell, S. L. (2020). Mental health status of individuals with a mood-disorder during the COVID-19 pandemic in Australia: Initial results from the COLLATE project. Journal of Affective Disorders, 275, 69–77. https://doi.org/10.1016/j.jad.2020.06.037

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. Brain, Behavior, and Immunity, 89, 531–542. https://doi.org/10.1016/j.bbi.2020.05.048

Wang, B., & Chen, D. (2013). Evidence for seasonal mania: A review. Journal of Psychiatric Practice, 19(4), 301–308. https://journals.lww.com/practicalpsychiatry/FullText/2013/07000/Evidence_for_Seasonal_Mania_A_Review.7.aspx

World Health Organization. (1992). The ICD-10 Classification of Mental and Behavioural Disorders, Clinical Descriptions and Diagnostic Guidelines.Geneva: World Health Organization.

WHO. (2020a). The impact of COVID-19 on mental, neurological and substance use services: Results of a rapid assessment. https://www.who.int/publications/i/item/978924012455

WHO. (2020b). Coronavirus. https://www.who.int/health-topics/coronavirus#tab=1

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### APPENDIX A: Survey questions relevant for this paper

| Questions                                                                 | Response alternatives                                                                 |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| I have: Bipolar disorder/psychotic disorder                               |                                                                                       |
| This survey concerns the situation during the corona pandemic, meaning after March 12 |                                                                                       |
| Are you concerned about the consequences of the corona outbreak?          | No/yes                                                                                 |
| Have you followed government recommendations regarding social distancing and hand washing? | Not at all/a little/a lot                                                                 |

#### The following questions concern how you are doing now

| All in all, how satisfied are you with your life now?                    | 0 (not satisfied at all)—10 (very satisfied)                                           |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| All in all, to what degree do you experience that what you do in life is meaningful? | 0 (not meaningful at all)—10 (very meaningful)                                          |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| To what extent do you agree with the following statement: My social relationships are supportive and rewarding? | 0 (strongly disagree)—10 (strongly agree)                                               |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |

#### Think about how you have felt the past 2 weeks. To what extent have you been

- Happy                                                                 | 0 (not at all)—10 (to a great extent)                                                  |
- Engaged                                                                 | 0 (not at all)—10 (to a great extent)                                                  |
- Calm and relaxed                                                       | 0 (not at all)—10 (to a great extent)                                                  |
- Have these feelings changed compared to before the corona outbreak?    | Become worse/No change/Become better                                                   |

#### To what extent have you experienced the following during the past 2 weeks? (0 = “not at all” and 10 = “to a great extent”)

| Suicide thoughts or thoughts about self-harming                        | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| Loneliness                                                              | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| A lot more happy/cheerful/elevated than usual several days in a row     | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Less/No change/More                                                                   |
| A lot more irritable than usual, several days in a row                  | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Less/No change/More                                                                   |
| A lot more active than usual, several days in a row                     | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Less/no change/more                                                                   |

#### To what extent have you experienced the following during the past 2 weeks?

| Hearing or seeing something that others do not hear or see              | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| Feeling persecuted or that someone wants to hurt you                   | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| Feeling that you are an extraordinary person or that you have special powers | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| Feeling that your surroundings or other people are strange, not genuine or unreal | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| Feeling that you thoughts are chaotic                                   | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| Feeling that what is communicated on television, radio, internet, or in newspapers is about you in particular | 0 (not at all)—10 (to a great extent)                                                  |
| Has this changed compared to before the corona outbreak?                | Become worse/No change/Become better                                                   |
| Recovery                  | 0 (not at all) — 10 (to a great extent) |
|--------------------------|----------------------------------------|
| Did you experience that your mental health difficulties were in recovery before the corona outbreak? |                                        |
| Do you experience that your mental health difficulties are in recovery now? |                                        |
| The following are questions about your life now compared to before the corona outbreak |                                        |

| Treatment               |                                               |
|-------------------------|------------------------------------------------|
| Where did you receive treatment for your psychotic disorder or bipolar disorder when the corona outbreak started on March 12? Select all that apply. | No treatment/general practitioner/outpatient clinic/ambulatory (e.g., FACT/ACT team), meeting at home or outdoors/inpatient ward/community health worker/psychologist or psychiatrist in private practice/other |
| Where do you receive treatment for your psychotic disorder or bipolar disorder now? Select all that apply. | No treatment/general practitioner/outpatient clinic/ambulatory (e.g., FACT/ACT team), meeting at home or outdoors/inpatient ward/community health worker/psychologist or psychiatrist in private practice/other |
| How was treatment delivered when the corona outbreak started on March 12? Select all that apply. | At outpatient clinic or in hospital/via phone/via text messages/via chat/via videoconference (e.g., Skype, Confrere, etc.)/outdoors/at home/other |
| How is treatment delivered now? Select all that apply. | At outpatient clinic or in hospital/via phone/via text messages/via chat/via videoconference (e.g., Skype, Confrere, etc.)/outdoors/at home/other |
| Are there any new elements of treatment delivery you would like to continue when the corona pandemic is over? Select all that apply. | Treatment via phone/via text messages/via chat/via videoconference (e.g., Skype, Confrere, etc.)/outdoors/other/no |
| Have you received sufficient treatment during the corona outbreak? | No/yes/uncertain |
| Has the quality of treatment now changed compared to before the corona outbreak? | Not applicable/worse/no change/better |
| During the corona outbreak, did you refrain from contacting mental health services with issues you normally would have sought help for? | No/yes |
| Did you call help lines during the corona outbreak (e.g., Red Cross, etc.)? | No/yes |
| Did you receive support from community services or charity organizations (e.g., support worker, Fountain house etc.) before the corona outbreak? | No/yes |
| Did this support change after the corona outbreak? | Paused/canceled/less/no change/more |

| Sleep                  |                                               |
|------------------------|------------------------------------------------|
| During the past 2 weeks, how many nights did you experience sleep problems (e.g., problems falling asleep, waking up during the night, or waking up too early)? | 0–14 nights |
| –Has this changed compared to before the corona outbreak? | Less/no change/more |
| During the past 2 weeks, how many nights did you experience troubling nightmares? | 0–14 nights |
| –Has this changed compared to before the corona outbreak? | Less/no change/more |

**Before the corona outbreak:**

Before the corona outbreak: When did you usually go to bed on weekdays? (Time chosen on a 24-h clock)  
Before the corona outbreak: When did you usually get up on weekdays? (Time chosen on a 24-h clock)  
During the corona outbreak: When have you usually gone to bed on weekdays? (Time chosen on a 24-h clock)  
During the corona outbreak: When have you usually gotten up on weekdays? (Time chosen on a 24-h clock)
Use of substances

| Did your use of substances change compared to before the corona outbreak? | No use/less use/no change/more use |
|-----------------------------------------------------------------------|-----------------------------------|
| Alcohol                                                               | No use/less use/no change/more use |
| Illicit substances (e.g., cannabis, heroin, and amphetamine)          |                                   |

Medications

| Did your use of medications change compared to before the corona outbreak? | No use/less use/no change/more use |
|-------------------------------------------------------------------------|-----------------------------------|
| Antipsychotics (e.g., Zyprexa, Leponex, Risperdal, Ablilify)            |                                   |
| Mood stabilizers (e.g., Orfiril, Lamictal, Lithium)                      |                                   |
| Antidepressants (e.g., Cipralex, Remeron)                               |                                   |
| Anxiolytics (e.g., Sobril, Valium)                                      |                                   |

Social life

| Has the corona outbreak affected your social life? | Become better/no change/become worse |
|----------------------------------------------------|--------------------------------------|
| Did you experience any of the following and has it changed compared to before the corona outbreak? | Not applicable/less than before/no change/more than before |
| Feeling isolated                                    | Not applicable/less than before/no change/more than before |
| Feeling outside of the community                    | Not applicable/less than before/no change/more than before |
| Family conflicts                                    | Not applicable/less than before/no change/more than before |

Keeping updated

| Which news channels do you use to keep updated about the corona outbreak? | Not at all/a little/a lot |
|-------------------------------------------------------------------------|--------------------------|
| Public authorities                                                      | Not at all/a little/a lot |
| Newspapers/online newspapers                                            | Not at all/a little/a lot |
| Television/radio                                                        | Not at all/a little/a lot |
| Social media                                                            | Not at all/a little/a lot |
| Blogs                                                                   | Not at all/a little/a lot |
| Friends/family                                                          | Not at all/a little/a lot |

Coping

| Do you experience that you are coping with the situation during the corona outbreak? | Not at all/a little/a lot |
|-------------------------------------------------------------------------------------|--------------------------|
| Personal economy                                                                     | A lot worse/a little worse/no change/a little better/a lot better |
| How is your economy after the corona outbreak?                                      |                          |

8 The questions about life satisfaction, meaning in life, social support, and positive feelings were taken from the Norwegian guideline list for measurement of wellbeing/quality of life (Nes et al., 2018), which is based on the OECD Guidelines on Measuring Subjective Well-being (OECD, 2013) and Diener’s Flourishing Scale (Diener et al., 2009).
9 Questions about symptoms of depression and anxiety from the Patient Health Questionnaire-4 (Kroenke et al., 2009) were included in this section.
10 This question was only given to participants who had responded that they were in treatment on March 12.
11 This question was only given to participants who had responded that they were in treatment at the time of the survey.
12 This question was only given to participants who had responded that they had received support from community or charity organizations before the COVID-19 outbreak.