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COVID, THE MAIN CAUSE OF MYSERY OF TEENAGER? RETROSPECTIVE STUDY OF HOSPITALIZATIONS OF 15-25 IN PSYCHOSOMATICS (2018-2022)

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SUMMARY

Background: *Since the outbreak of COVID-19, there has been an apparent increase in the utilization of mental health services and psychiatric disorders among youth. However, there is little data on youth mental health prior to the pandemic. Some authors suggest that the increase in the use of psychiatric care started before. Are we facing a recent phenomenon initiated by the pandemic that will disappear with it, or did it highlight an older issue? Have the profiles of the young people and the care provided changed since the pandemic?*

Subjects and methods: *Retrospective study of the hospitalization records of patients aged 15 to 25. The inclusion period extends from January 1, 2018, to December 31, 2022.*

Results: *There was an increase in the number of young people hospitalized from September 2020 to February 2021, suggesting a delayed effect of Covid's impact. 44% of young people were hospitalized through emergency services, number that has increased. There has been an increase in prior psychiatric care and hospitalizations among patients hospitalized since the beginning of the pandemic. 49% attribute their condition to family issues. Upon discharge, many patients were on medication, but there has been no significant change in prescriptions since the pandemic began. The majority of patients were referred to their primary care physician, psychologist, and psychiatrist, which has not changed since the pandemic began.*

Conclusions: *Apart from the increase in hospitalizations, the rest of the practices within the institution has remained unchanged, suggesting that there are few differences in issues brought by patients since the start of the pandemic. Difficulties related to the family environment remain the primary reason for hospitalization requests. We do not have clear evidence of a worsening situation, which tends to support the hypothesis that COVID-19 has been a catalyst for a pre-existing state.*

Key words: *COVID – teenager - psychiatry*

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INTRODUCTION

Since the beginning of the Covid-19 pandemic, health professionals, echoed by the media, are sounding the alarm concerning the mental health of young people. The message conveyed is one of increased psychological distress and their recourse to psychiatric and psychological care. From the first weeks of confinement, numerous studies worldwide have highlighted the difficulties that young people have had to suddenly face. These difficulties primarily stem from confinement and social distancing rules (Magson et al. 2021). Many authors have highlighted stress, sedentary lifestyle, weight gain, insomnia, boredom, risk of exposure to domestic violence (Saggioro de Figueiredo et al. 2021, Meherali et al. 2021, Meade et al. 2021, Ma et al. 2021). Furthermore, the pandemic has also led to an increase in psychiatric disorders among teenagers. Studies note an increase in depressive and anxiety disorders, primarily among girls; a decrease in life satisfaction; an increase in family conflicts, especially among boys; the development of OCD related to fear of contamination; even PTSD following direct or indirect exposure via the media; an increase in alcohol and cannabis consumption (Saggioro de Figuieiredo et al. 2021, Meherali et al. 2021, Meade et al. 2021, Ma et al. 2021, Jones et al. 2021, Magson et al. 2021, Nearchou et al. 2020, Gao et al. 2020). On the other hand, there appears to be an increase in dependency on social networks and/or the Internet, directly proportional to depression and anxiety, as they have represented a way to maintain socialization (Jones et al. 2021, Saggioro de Figueiredo et al. 2021, Meherali et al. 2021, Meade et al. 2021, Magson et al. 2021), while a high exposure to media and information about Covid increases in turn the risk of depression because a lot of incorrect and scary information has circulated (Magson et al. 2021, Gao et al. 2020). For many authors, the impact of confinement would be durable over time and could alter mental and physical health in the long term, particularly because of long-term isolation (Jones et al. 2021, Saggioro de Figueiredo et al. 2021, Meade et al. 2021, Meherali et al. 2021, Nearchou et al. 2020). This, among other things, is because adolescents do not yet have sufficiently developed adaptation capabilities (Jones et al. 2021, Saggioro de Figueiredo et al. 2021). Their brain capabilities still being developing make them more vulnerable to anxiety, eating, or depressive disorders (Saggioro de Figueiredo et al. 2021, Meherali et al. 2021, Magson et al. 2021). At this period of life, social cognitions are also developing; emotionality is increased, and emotion regulation system is still underdeveloped (Magson et al. 2021). They are seeking social contacts with their peers more than with their family, which confinement has

deprived them of (Saggioro de Figueiredo et al. 2021, Magson et al. 2021). However, some studies are more nuanced. The presence of good social support and good dialogue with parents may have helped adolescents adapt to Covid (Jones et al. 2021). Magson et al. (2021) conclude that the impact of Covid on young people's mental health would ultimately be modest. And Nearchou et al. (2020) highlight increasing levels of psychological disorders among adolescents before the pandemic. But, there are few studies of this type, which makes conclusions about the impact of Covid difficult to establish (Magson et al. 2021). We have focused on the question of the use of psychiatric care by young people in Belgium over the recent years. The increase in psychiatric consultations and the frequency of psychiatric emergencies among 12-18 year-olds have been noted since 2010 and are ongoing (Guerfali et al. 2022). In contrast, for 19-24 year-olds, the situation was stable until 2020 and made a leap between 2020 and 2021 (Guerfali et al. 2022). We then asked ourselves the question of what was observed within our institution (CHU Mont-Godinne). Are we facing a recent phenomenon initiated by the pandemic that will disappear with it, or did the pandemic highlight an older problem? Has the profile of young people and the care provided changed since the beginning of the pandemic?

SUBJECTS AND METHODS

We conducted a retrospective study on the hospitalization records of patients aged 15 to 25 at the time of admission. Our institution (UHC Mont-Godinne) is the only university hospital within approximately 100 km, thus making it a privileged access point for initial psychiatric care requests compared to the psychiatric services in the non-university general hospitals in the region, and even more so compared to more asylum-like institutions.

The inclusion period extends from January 1, 2018 to December 31, 2022, in order to have a period of 26 months before (P1) the first lockdown in Belgium (March 2020) and 34 months after (P2). The post-lockdown period is slightly longer to account for the cessation of outpatient care and scheduled hospitalizetions during the initial months of lockdown. In total, the records of 368 hospitalized patients were included in the study.

The study project was submitted and approved by the institution's Ethics Committee (internal number 10/2023).

Data collected by one author was then transmitted anonymously to an independent statistician outside the author's department, via an Excel file and an SPSS file. For each question, the statistician compared the patient population groups from P1 and P2 using an analysis of variance (ANOVA). Prior, a Fisher's test and/or Hartley's test as well as a Jarque-Bera test were performed to confirm or refute the normality and homoscedasticity assumptions of the errors. The null hypothesis of the ANOVA assumes identical means of data for P1 and P2. Rejecting the null hypothesis shows the presence of differences between the groups of data since the beginning of the pandemic. The p-value for rejecting the null hypothesis was set to 5%.

RESULTS

The analysis of the evolution of the number of hospitalized patients was initially conducted in terms of absolute patient values per year. We found a proportion of 8.2% of young people in 2018 (out of a total of 998 hospitalized patients of all ages), 7.3% in 2019 (999 admissions), 8.1% in 2020 (619 admissions), 12.6% in 2021 (715 admissions), and 11.4% in 2022 (642 admissions). To refine the results, an analysis of the monthly number of hospitalizations revealed a gradual increase in the number of young people hospitalized from September 2020 to February 2021. This gradual increase suggests a lag effect of one year regarding the impact of COVID on patients (first lockdown in Belgium on March 17, 2020). For the entirety of the study, we considered this lag effect: the pre-COVID period extends until February 2021 (P1). Overall, the average monthly number of hospitalizations increased by 20% over the study period. However, this figure should be interpreted with caution as the p-value was 0.055, while our confidence threshold was set to 0.05.

Evolution of the profile of hospitalized patients

A common claim among psychiatric caregivers is that patients have become younger since the onset of the pandemic. This was evidenced in our study, as the average age of hospitalized patients was found to be 8 months younger than previously (statistically significant with a p-value of 0.047 in the variance analysis), reflecting a 3% rejuvenation.

We subsequently analysed the location of the initial engagement with psychiatric care. Outpatient consultation remains the predominant method of seeking help, accounting for 49% of first contacts. 44% of young people first sought help at the emergency department, and there is a statistically significant difference (p-value 0.001) between P1 and P2, indicating an increase in urgent requests.

We further explored the living environments of hospitalized patients at different levels. Of the 363 patients for whom we had information, 61% live in their family of origin, 11% live alone, 1% in a therapeutic accommodation facility, 9% live with a partner, 2% have established their family, 7% live in student residences or other non-therapeutic collective living spaces, and 10%

live in other environments. Aiming at performing a two-factors ANOVA, the homoscedasticity and normality assumptions of the errors were violated, which made the results misleading, and therefore preventing us to confirm any COVID effect and/or any interactions between COVID and living environments. Focussing on the number of patients living in their family of origin in the P1 and P2, the difference was not significant (p-value 0.0112), not allowing us to reject the null hypothesis of identical means in the two periods.

On the professional front, we had information for 361 patients which allowed us to establish a distribution as follows: 8% were school dropouts, 23% were high school students, 19% were college students, 16% were in training or working, and 34% receive unemployment compensation or benefits from their mutual insurance company. Aiming at performing a two-factors ANOVA, the homoscedasticity and normality assumptions of the errors were violated, which made the results misleading, and therefore preventing us to confirm any COVID effect and/or any interactions between COVID and educational plans.

We examined the individual(s) proposing hospitalization to the patient. As each patient can have multiple "referrers" depending on their follow-ups and supports, we mention the relative value; the absolute value is in brackets. 28% of hospitalizations are requested by the psychiatrist following the patient or meeting him/her in the emergency room (120 patients). 9% are made at the request of the family physician (39), 24% at the request of the patient themselves (104), 1% is requested by the school (4), 14% by the family (60), 1% is supported by the young person's friends (3), 15% are proposed by the patient's psychologist (65), and 8% by other entities, mainly the police (35). 1 was sent by a psychiatric mobile team. Aiming at performing a two-factors ANOVA, the homoscedasticity and normality assumptions of the errors were violated, which made the results misleading, and therefore preventing us to confirm any COVID effect and/or any interactions between COVID and who has sent the patient to the hospital. Focussing on the number of self-referrals, we find that the difference is not significant between P1 and P2 (p-value 0.094). We cannot therefore reject the null hypothesis of identical means. Looking at the number of psychiatrist referrals, the violation of the homoscedasticity assumption of the errormade the one-factor ANOVA results misleading from a potential COVID effect perspective. Moving to the number of psychologist referrals, there is a significant difference (p-value 0.003) between P1 and P2. This confirms an increase.

When studying the histories of patients hospitalized, we find that the majority have already benefited from "psy" interventions. As each patient can have multiple medical background, we mention the relative value; the absolute value is in brackets. 12% have had child-psychiatric or psychological follow-ups (79 patients), 27% have seen a psychiatrist at least once (180), 32% have seen a psychologist at least once (209), 24% have already been hospitalized in psychiatry in our service or in another (161), 2% have attended a day centre in our service or in another (15), 3% have been followed by a mobile team (19). 1 patient for whom we had no information. 76 patients had no psychiatric history. Most therefore had several histories. Aiming at performing a two-factors ANOVA, the homoscedasticity and normality assumptions of the errors were violated, which made the results misleading, and therefore preventing us to confirm any COVID effect and/or any interactions between COVID and psychiatric history. Focussing on psychiatric follow-ups and hospitalizations, there is a significant difference (p-value 0.026 and 0.028 respectively), which confirms a COVID effect.

Patients highlighted various types of issues leading to hospitalization. As each patient can have multiple issues, we mention the relative value; the absolute value is in brackets. 49% attributed their condition to familial issues (307 patients), 23% to occupational or academic problems (146), 18% to relational issues (111), 7% to problems with peers (45), and 2% reported hospitalization due to suffering directly related to COVID (15). 30 patients did not mention any of these problems. Aiming at performing a two-factors ANOVA, the homoscedasticity and normality assumptions of the errors were violated, which made the results misleading, and therefore preventing us to confirm any COVID effect and/or any interactions between COVID and issues leading to hospitalization. Comparing the number of familial problems between P1 and P2, the COVID effect remains unknown (the normality assumption of the errors was violated, which made the one-factor ANOVA results misleading). Focussing on the professional issues, it revealed no significant difference between P1 and P2 (p-value 0.625).

Upon discharge, the diagnoses assigned to patients were distributed as follows (as each patient can have multiple diagnoses, we mention the relative value; the absolute value is in brackets): 21.7% (124 patients) had mood disorders, 13.8% (79) had anxiety disorders, 4% (23) had psychotic disorders, 5.9% (34) had eating disorders, 11.5% (66) had substance use disorders, 5.8% (33) had personality disorders, 2.8% (16) had somatoform disorders, 0.5% (3) had sleep disorders, 3% (17) had suicidal ideation without mood disorder, 6.3% (36) had relational issues, 18.4% had adjustment disorders or conduct disorders (105), 1.9% had intellectual disabilities (11), 4.2% had PTSD (24), and 0.2% had ADHD (1). Aiming at performing a two-factors ANOVA, the homoscedasticity and normality assumptions of the errors were violated, which made the results misleading, and therefore preventing us to confirm any COVID effect and/or any interactions between COVID

and diagnoses. When analysing mood disorders, anxiety disorders and substance use disorders between P1 and P2, the normality assumption of the errors was violated, which made the one-factor ANOVA results misleading too.

Evolution of care provided to patients upon discharge

Upon discharge, many patients were prescribed medications. The prescribed medications were distributed as follows (as each patient can have multiple medications, we mention the relative value; the absolute value is in brackets): 26% anxiolytics (174 patients), 24% antidepressants (164), 19% antipsychotics (127), 29% sleep aids (196), and 2% mood stabilizers (13). 57 patients took no medication, meaning most patients were prescribed multiple drugs.

Upon discharge, the majority of patients were referred to their general practitioner (30%, this represents 327 patients). 1% (8 patients) were obligated to receive treatment, 23% (252) were referred to a psychologist, 22% (237) to a psychiatrist, 12% (127) were transferred to another hospital for a longer stay or re-hospitalized within weeks following discharge, 4% (41) were referred to the day centre of our service, 6% (64) were recommended for family therapy, and 2% (27) were referred to a mobile team. Aiming at performing a two-factors ANOVA, the homoscedasticity and normality assumptions of the errors were violated, which made the results misleading, and therefore preventing us to confirm any COVID effect and/or any interactions between COVID and post-hospitalization follow-ups. When analysing more specifically referrals to primary care physicians, psychologists, psychiatrists, there are no significant differences (respective p-values of 0.89, 0.062, and 0.154). However, when comparing the number of re-hospitalizations or transfers to another psychiatric hospital, the effect of COVID cannot be interpreted.

DISCUSSION

Our question was to evaluate whether UHC Godinne experienced an increase in hospitalizations since the onset of COVID. Indeed, this was the case, but the effect was delayed by one year following the first lockdown. This delayed effect could be linked to the almost total closure of outpatient consultation services and elective hospitalization beds during the first weeks of lockdown. During March and April 2020, we only conducted emergency hospitalizations. However, the second lockdown, in September 2020, did not cause the same halt in hospitalizations as outpatient services gradually resumed their usual functioning. Furthermore, the increase in emergency department visits among young people could be explained by the increase in the average delay before an appointment in a private or hospital outpatient consultation.

On the educational front, we did not observe any increase in school dropout between P1 and P2, despite significant fears related to distance learning reported in previous studies.

However, since the start of the lockdown, patients seem to have increasingly severe psychiatric histories, often involving several diagnoses. An increasing number of patients had already encountered a psychiatrist, and more and more had been hospitalized in psychiatry. Yet, nearly a quarter of patients were discharged with a "non-psychiatric" diagnosis such as adjustment disorders or relational issues. Very few patients attributed their suffering primarily to psychiatric symptoms (only 30 in our sample). Most attributed their symptoms to family problems, whether they were conflicts with family members, feelings of abandonment by one or both parents, physical or psychological maltreatment, or even abusive or incestuous behaviours. And very few young people associated their condition directly or indirectly with COVID-19 (only 15 in our sample).

As in other studies, we observed an increase in the number of reported familial conflicts following the pandemic; however, the violation of the normality assumption of the errors made the one-factor ANOVA results misleading from a statistical perspective. Therefore, we cannot draw conclusions from this, but it should be noted that patients rarely highlighted family living conditions during confinement as a trigger for their distress. Reported conflicts in records are typically older, most dating back to childhood.

The studies cited in the introduction report an increase in anxiety and depressive symptoms, as well as in substance use. In our sample, while these were indeed the most diagnosed psychiatric disorders, and although the absolute number of anxiety and depressive disorders slightly increased (contrarily, we note a slight decrease in substance use disorders), the COVID-19 effect remained unknown due to the violation of the normality assumption of the errors making the one-factor ANOVA results misleading.

These results raise the question of a form of psychiatrization of adolescents and about the changes that characterize this period of life. More so, only 57 patients were discharged from hospitalization without medication. Among the 311 other patients, most were taking multiple medications. Even though these included herbal medicine, it represents a significant proportion when considering that nearly one-third are treated with antipsychotics.

In addition, there is a large number of follow-ups put in place upon discharge from hospitalization. The majority had multiple referrals to psychologists, psychiatrists, transfers to another hospital, etc. Very few were referred only to their general practitioner.

Thus, more youths were hospitalized, had increasingly severe histories, did not mention COVID-19 as the trigger but rather familial problems; most of them have been on medication since before the health crisis, and they have multiple follow-ups. It seems that young people have been suffering longer than the pandemic has lasted, but the latter may have served to highlight these problems. Thanks to the media spotlight and a form of "normalisation" of mental health care use, they have more easily crossed the threshold of asking for help.

Study Limitations

The study was conducted retrospectively on a small sample size and in a single psychiatric centre. Furthermore, it must be taken into account that hospitalization places were limited during the peak of the crisis, admitting only emergencies while the number of available beds remained below the service's normal capacity from the beginning of the crisis to the end of the study, due to staff shortages. These two variables may have impacted our results, and new studies should be conducted multi-centre with a larger cohort.

CONCLUSIONS

Except for the number of hospitalizations, which increased, the rest of the practices within the institution remained the same for adolescents, suggesting little difference between the problems brought by patients since the beginning of the pandemic. Difficulties linked to the family environment remain the primary reason for suffering and hospitalization requests. These problems were already present before the onset of the pandemic, and we do not have clear evidence of a worsening situation, which tends to support the hypothesis that COVID-19 has been a catalyst for a state that pre-existed the crisis.

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Contribution of individual authors:

All authors made substantial contributions to conception and design, and/or acquisition of data, and/or analysis and interpretation of data.

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