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Adolescent psychiatric disorders during the COVID-19 pandemic and lockdown

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ABSTRACT

The aim of this paper was to review the literature on adolescent psychiatric disorders related to the COVID-19 pandemic and lockdown. Stressful life events, extended home confinement, brutal grief, intrafamilial violence, overuse of the Internet and social media are factors that could influence the mental health of adolescents during this period. The COVID-19 pandemic could result in increased psychiatric disorders such as Post-Traumatic Stress, Depressive, and Anxiety Disorders, as well as grief-related symptoms. Adolescents with psychiatric disorders are at risk of a break or change in their care and management; they may experience increased symptoms. The COVID-19 pandemic and lockdown may have a negative impact on the mental health of adolescents, although there is still no data on the long term impact of this crisis. Adolescents' individual, familial, and social vulnerability, as well as individual and familial coping abilities, are factors related to adolescent mental health in times of crisis. Adolescents are often vulnerable and require careful consideration by caregivers and healthcare system adaptations to allow for mental health support despite the lockdown. Research on adolescent psychiatric disorders in times of pandemics is necessary, as such a global situation could be prolonged or repeated.

1. Introduction

Since December 2019, an outbreak of a novel coronavirus disease (COVID-19) has spread from Wuhan, China (Huang et al., 2020), and became a pandemic affecting every continent (WHO, 2020). The COVID-19 outbreak has resulted in the death of nearly 383,000 people worldwide by the first days of June 2020 (WHO, 2020).

Adolescents are a vulnerable group and they are experiencing a time of difficult transition (Swick et al., 2002; Larsen and Luna, 2018; Sturman and Moghaddam, 2011). The COVID-19 outbreak and lockdown may have multiple consequences on the lives of adolescents: chronic and acute stress, worry for their families, unexpected bereavements, sudden school break, and home confinement in many countries, increased time of access to the internet and social media, worry for the economic future of their family and country.

Social relations are disrupted. Individuals are staying at home. Wearing masks is becoming more and more common in some countries where people were not used to it, and individuals no longer see each other's facial expressions. The COVID-19 pandemic is having a psychological impact on individuals (Asmundson and Taylor, 2020; Li et al., 2020). For adolescents with psychiatric disorders, lockdown may result in a sudden break or shift in care.

What is the impact of the COVID-19 pandemic and lockdown on adolescent psychiatric disorders? Could this situation increase the risk of developing or worsening psychiatric disorders?

2. Methods

A narrative literature review was led on MEDLINE and Google scholar using the following MeSH words: "adolescent", "mental disorder", "disasters", "pandemics", "COVID-19″. We added specific researches based on the issues found in the first articles: "trauma", "depression", "domestic violence", "intrafamilial violence". We also researched the words "internet addiction" associated with the first words. Some articles were extracted from other articles' references. Narrative literature review articles have an important role to provide

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up-to-date information for practitioners, although they do not provide a complete assessment of the existing literature, as systematic reviews do (Rother, 2007).

The COVID-19 outbreak and lockdown are still occurring during the time this article is being written. Moreover, this situation is unprecedented because of the crisis's extent and the context of social interaction transformation related to the lockdown, but also because of the digital revolution. There is little literature related to adolescent mental health in the context of epidemics or pandemics. We included articles providing specific data on psychiatric disorders in times of COVID-19 pandemic, epidemics, and disasters, focusing on adolescents whenever possible. We also included papers not directly related to adolescents, but related to similar crises, such as 2002–2004 SARS (Severe Acute Respiratory Syndrom) outbreak, and their impacts upon children as well as adults.

3. Results

3.1. Pandemic, disaster, lockdown

3.1.1. Trauma, depression, anxiety

In times of pandemic, as in disasters, there is an increased risk of Post-Traumatic Stress Disorder (PTSD), depression, and anxiety (Douglas et al., 2009). Two studies in China involving 2091 and 285 adult individuals in the weeks following the COVID-19 epidemic in Wuhan reported a prevalence of PTSD of 4.6% and 7% respectively, more commonly associated with female gender and poor sleep quality (Liu et al., 2020; Sun et al., 2020). A study of American families exposed to the H1N1 and SARS-CoV (Severe acute respiratory syndrome coronavirus) viruses reported PTSD in 30% of children exposed to quarantine measures (Sprang and Silman, 2013). Post-traumatic stress disorders, depression, and anxiety are potential disaster impacts on adolescent mental health (Kar and Bastia, 2006; Yule et al., 2000; Bolton et al., 2000; Kar, 2019). Girls are estimated to be twice as likely to suffer from post-traumatic stress disorder (Garza and Jovanovic, 2017; Fan et al., 2015).

Post-traumatic stress disorders in children have an impact on brain development. PTSD in children is associated with alterations in the fronto-limbic circuits, which may contribute to increased threat reactivity and weaker emotion regulation (Herringa, 2017). PTSD in children have neuroanatomical and neurofunctional consequences (declining hippocampal volume, increasing amygdala reactivity, and declining amygdala-prefrontal coupling with age) (Herringa, 2017).

According to Cao et al., having a relative or an acquaintance infected with COVID-19 was a risk factor for anxiety, in a population of Chinese undergraduate students (Cao et al., 2020). Among the 7143 participants to their survey, they found that living in urban areas, family income stability and living with parents were protective factors against anxiety.

In a survey among 8079 Chinese adolescents aged 12–18, Zhou et al. reported a high prevalence of symptoms of depression (43%), anxiety (37%) and combinated depression and anxiety (31%) during the COVID-19 outbreak (Zhou et al., 2020). Female gender was the highest risk factor for these symptoms.

These studies on adolescent mental health during the COVID-19 outbreak support the hypothesis of a risk of PTSD, depressive and anxiety symptoms related to this pandemic.

3.1.2. Lockdown

Quarantine has negative and potentially prolonged effects on the psychological health of individuals, including post-traumatic stress symptoms, confusion, and anger (Brooks et al., 2020). In children and adolescents, periods without school are associated with decreased physical activity, more screen time, irregular sleep patterns, and less appropriate diets (Wang et al., 2020). There are reciprocal interactions between brain maturation and social environment, and isolation may have an influence on psychiatric disorder onsets during adolescence (Lamblin et al., 2017).

Adolescents are experiencing a new period of insecurity: worry about the health and work of their relatives, the ubiquitous issue of death, sudden separation from friends, and school disruption. In a university sample in Spain, high numbers of students experienced moderate to extremely severe scores of anxiety (21%) and depression (34%) during the first weeks of confinement (Odriozola-González et al., 2020).

Lockdown, for some adolescents, is experienced as insufferable. They have to withdraw at home, whereas in normal times, excessive social withdrawal is considered as a psychiatric symptom (Tajan 2015; Lamblin et al., 2017). Interestingly, acute isolation may cause social craving, with neural craving responses similar to hunger, even at the neurofunctional level (Tomova et al., 2020). While regressive behavior and externalized symptoms can be observed in children in times of crisis, the manifestations of psychological suffering in this context may be more discreet in adolescents: sleep disturbances, problems with peers, isolation, and depression (Douglas et al., 2009). Moreover, schools have closed worldwide, yet school routines are important coping mechanisms for young people with mental health issues (Lee, 2020).

3.1.3. Suicidality

Epidemics may be linked to increased suicide rates (Chan et al., 2006), but we found no data on adolescent suicidality during epidemics. Stressful life events are a risk factor for adolescent suicidality (Brent 1995). According to a US study preliminary findings, there is a potential link between several COVID-19-related experiences (such as fear of physical harm and effect of social distancing policies) and past-month suicidal ideation and attempts in adults (Ammerman et al., 2020). A longitudinal study among 4978 adolescents after Hurricane Andrew observed that the following factors had an effect on post-hurricane suicidal ideation: being female, low socioeconomic status, pre- and post-hurricane depression, high stress scores, low family support and pre-hurricane suicidal ideation (Warheit et al., 1996). There are projections of increased suicidality in Canada due to indirect impacts of COVID-19 (McIntyre and Lee, 2020), but these projections do not concern adolescents in particular.

3.1.4. Addictions

The issue of increased addictive disorders of adolescents related to disasters has also been raised (Reijneveld et al., 2005), but little literature is available on this topic. As mechanisms of coping with traumatic stress, some authors suggest that adolescents are likely to engage in risk-behaviors such as drug abuse and sexual relationships (Hagan, 2005).

3.2. Grief

For some adolescents, the numerous deaths linked to COVID-19 are their first experience with death. This is brutal, without the patients being accompanied in their last days, and often without the possibility to visit the hospitals' “COVID units”, followed by immediate casketing and thus deprivation of many funeral rites. Adolescents will certainly experience this as traumatic. Traumatic events are associated with longer grief in adolescents, particularly in the case of a violent death (Nader and Salloum, 2011). Parental death is a risk factor for a major depressive disorder in adolescents (Gray et al., 2011). A lower economic status would have a negative influence on adolescents' intrafamilial grief (Stikkelbroek et al., 2016).

3.3. Family and intrafamily violence

Families are forced into home confinement in many countries. Stressful life events are linked to emotional distress in parents and

consequently less availability for children, with more punitive attitudes toward children (Taylor et al., 1997).

Family confinement may be a trigger for intrafamilial violence during the COVID-19 pandemic. Several countries, such as France and Brazil have reported an increase in reported cases of domestic violence; children are more at risk of abuse or neglect when they live in a home where domestic violence occurs (Campbell, 2020). During this period, women and girls are reportedly more exposed to gender-based violence, including sexual violence (UNFPA, 2020). Although data is scarce, it can be assumed that adolescents, particularly adolescent girls, are a population at risk of enduring violence during this crisis. In the context of lockdown, and school closures, adolescents escape the vigilance of professionals or other adults who would have spotted their distress in normal social conditions.

3.4. Internet, social media, access to information

The COVID-19 pandemic is taking place in a new social and technological context: social media, internet, and access to information have never been so developed, easy, and immediate.

Social media could play an even more important role during the lockdown. They enable socialization and communication and they are learning opportunities, including for adolescents' access to information about their health (O'Keeffe et al. 2011). Social media use could be a positive factor in helping teenagers to maintain social interaction during lockdown. However, social media also are associated with adverse outcomes. According to a recent systematic literature review, time spent and investment in social media correlate with levels of depression, anxiety, and psychological distress (Keles et al., 2020). They may be associated with sleep problems (Barry et al., 2017).

The current period of pandemic and lockdown brings together several factors related to internet addiction. Internet addiction is characterized by excessive or poorly controlled preoccupations, urges, or behaviors regarding computer use and internet access that lead to impairment or distress (Shaw and Black, 2008). Among the explanatory models of internet addiction, studies suggest that internet addiction may be influenced by stressful and traumatic experiences (Cerniglia et al., 2017). Internet addiction is believed to be associated with online games and social applications (Kuss et al., 2013). Internet addiction is also associated with depression (Ha et al., 2007).

Furthermore, adolescents receive a lot of information through social media, which are sometimes more direct and less contextualized than traditional media. During the COVID-19 pandemic, a lot of adolescents are monitoring the news (Oosterhoff and Palmer, 2020). However, they do not have the same skills as adults, their brain is still maturating towards adulthood (Murty et al., 2016). They have access in real-time to videos, photos, stories on all current topics, and related controversies. Adult guidance would be necessary to acquire analytical skills on this information.

3.5. Adolescents with psychiatric disorders facing the COVID-19 outbreak

Harsh lockdown, fear of infection, and its consequences could increase the symptoms of some patients with psychiatric disorders. Adolescents with mental health problems may be less likely to tolerate a lockdown (Chevance et al., 2020). There is a concern about the continued care of patients with psychiatric disorders (Fegert and Schulze, 2020). Among the specific outcomes for this population, the disruption of psychological and/or institutional care could be an important adverse factor. A survey including 2111 adolescents with a mental health history in the UK reported that 83% of them agreed that the pandemic had worsen their mental health and 26% said that they were no longer able to access mental health support (age range: 13–25; mean: 16–17; including 61% with ongoing mental health difficulties) (Youngminds, 2020).

Adolescents with a history of depression are exposed to prolonged psychological suffering in connection with the sudden loss of a parent (Melhem et al., 2011).

Adolescents with Attention Deficit Hyperactivity Disorder (ADHD) may have more difficulty adjusting to lockdown (Cortese et al., 2020). They can face more behavioral problems. Parent-focused ADHD interventions and mental-wellbeing interventions should be implemented, and risks and benefits of medications under the COVID-19 specific situation should be carefully considered (Cortese et al., 2020).

For patients with Autism Spectrum Disorder, the pandemic, disruption of care, and lockdown have potential negative impacts (Sharon, 2020). Lifestyle habits are disrupted, in patients for whom inflexible behavior, habits, and rituals are often important symptoms (American Psychiatric Association, 2013).

Among patients with Eating Disorders, anorexia nervosa is often complicated by immunodeficiency related to chronic malnutrition (Allende et al., 1998), generally leading to vulnerability to infections. Teleconsulting should be encouraged for these patients in particular. A team from Singapore reported an increase in health-related anxiety in patients with Eating Disorders, related to COVID-19 (Davis et al., 2020). The anxiety due to the pandemic may increase the patients' difficulties to control their eating behavior (Fernández-Aranda et al., 2020).

The reaction of patients with Obsessive-Compulsive Disorders, particularly those with obsessive contamination fears, is uncertain, but there is already an expert consensus on the management to be recommended for adults (Fineberg et al., 2020).

3.6. Economic crisis

The COVID-19 pandemic is also resulting in an economic crisis (Fernandes, 2020). Despite existing data about adults, there is little data about adolescents' psychiatric disorders during economic crises. Periods of economic crisis are reportedly associated with an increase in suicides, depression, anxiety, and addiction disorders in adults (Gili et al., 2013; Marazziti et al., 2020; Uutela, 2010; Silva et al., 2020). Interestingly, some authors reported that income reduction was the highest predicting factor of psychological disorder development during recovery following the 2003 SARS outbreak in Beijing, China (Mihashi et al., 2009). Some authors suggested that during the economic crisis in Greece, adolescents reported more tensions and fights within the family and less life satisfaction (Kokkevi et al., 2014). Emotional support from parents and time spent with parents may preserve adolescents from possible negative effects of an economic crisis (Gudmundsdóttir et al., 2016).

4. Discussion

4.1. Vulnerability

Adolescent populations are vulnerable in a time of pandemic. Adolescence is a time of difficult transition and maturation towards adulthood. This review shows that early studies on adolescent mental health during the COVID-19 outbreak support a risk of PTSD, depressive and anxiety symptoms during the pandemic. The lockdown and COVID-19 related worries are stress factors, as well as the increase in intrafamily violence associated with the confinement. Sudden deaths due to COVID-19 are possible factors of grief-related psychiatric symptoms, trauma, and depression for adolescents. Vulnerable adolescents may be deprived of school and extra-family support. Adolescents with a psychiatric history are especially at risk. Adolescent girls and adolescents living in lower economic status families may be more vulnerable. Other studies show that more vulnerable populations (women, ethnic minorities, and low-income populations) worry more when they face crises (Helm et al., 2018).

Also, our review reports that adolescents with psychiatric disorders are particularly vulnerable, possibly due to disruption of care, COVID-19 related anxiety, and difficulties in coping with confinement. Besides,

there are concerns about excessive access to the internet, social media, and the news.

4.2. Trauma type and PTSD

There is an increased risk of PTSD symptoms after disasters, as well as epidemics. The potential traumatic effects of the COVID-19 outbreak on adolescents are unlikely to be identical to any disaster outcome. Containment measures and stress due to fear of infection are likely to be different stressful events from a violent natural disaster (a hurricane, for example). Indeed, different trauma types probably have different impacts on adolescent cognition and traumatic symptoms and PTSD onset (Nöthling et al., 2017; Luthra et al., 2009; Kira et al., n.d.).

4.3. Family and adolescent coping

This review suggests that family has a role in positive and negative outcomes for adolescents in times of crisis. Some aspects of the family environment, parenting practices, and parents' coping are likely to influence children's post-disaster mental health (Cobham et al., 2016). There may be some family inequalities that influence the outcome of children and adolescents' mental health after crises. Moreover, in this period of global lockdown, it is not known whether there are more balanced effects of confinement: could it be an opportunity for family togetherness and closer relationships and an asset for a better family adjustment in some homes?

Despite possible negative outcomes, many adolescents exposed to disasters are able to cope with these experiences (for example to take greater responsibility for themselves, contribute to recovery processes and engage in prosocial behaviors) and have capacities of recovery and resilience (Nuttman-Shwartz, 2019). Adolescents can have efficient coping strategies during epidemics. A study among 381 undergraduate students (age range: 17–24, mean: 20.16, $SD = 1.46$ years) suggested that active coping strategies predicted life satisfaction during the 2003 Beijing SARS epidemic, whereas the number of stressors and use of avoidant coping strategies predicted psychological symptoms (Main et al., 2011).

Also, could the adolescents who suffer from school attendance problems and bullying experience a transient relief due to the school break that was implemented in many countries? Avoidance behavior is not beneficial in the long term. Maybe instoring a routine with family time during lockdown would have beneficial effects for some socially withdrawn adolescents.

4.4. Helping adolescents cope with stress

To promote adolescent well-being and sense of security, it is advisable to promote reassurance, appropriate information, and stress-reducing actions for adolescents. Parents are the closest and most evident help for children and adolescents. dialog with the aim of enhancing comprehension and alleviating anxiety is recommended (Wang et al., 2020). Promoting balanced life patterns, especially sleep patterns, is also recommended (Guichard et al., 2020). The World Health Organization has published recommendations addressed to adolescents to help them cope with stress: identify normal emotional reactions, engage in dialog and social exchange, maintain appropriate lifestyles and social contacts, avoid smoking, alcohol and other drugs, seek out health workers help when necessary, seek information from reliable sources, limit exposure to the media, develop strategies for emotional regulation (World Health Organization 2020).

4.5. Mental health system adaptation

Adapting the mental health system may be a challenge, stressing the need for integrated services designed for young people (Hetrick et al., 2017). For example, in France, mental health centers for adolescents have closed or reduced their activity due to the lockdown, even though most health care facilities now allow teleconsultations (Chevance et al., 2020; Benoit et al., 2018), which was unusual in this country before the COVID-19 outbreak. Also, psychiatry and psychotherapy teleconsultations increased enormously in Germany (Fegert and Schulze, 2020). In many countries, emergency helplines for patients and the general population were set up specifically in response to the COVID-19 outbreak or already existed as disaster distress helplines (PHA of Canada, 2020; COVID-19 / Coronavirus Resources 2020; CovidEcoute - Plateforme de Soutien Psychologique 2020; CDC, 2020). Ensuring continuity of psychiatric support is essential for adolescents already under care.

4.6. Psychosocial interventions

Psychosocial interventions can help adolescents after traumatic events. A 2017 meta-analysis supported that cognitive-behavioral therapy, eye movement desensitization and reprocessing (EMDR), narrative exposure therapy for children and classroom-based interventions can be equally recommended for adolescents after man-made and natural disasters (Brown et al., 2017).

Beyond the immediate consequences on mental health, one can wonder about the consequences of the pandemic on the psychological construction of adolescents, who suddenly grow up in a world where society and the economic model are dramatically transformed in order to face the pandemic and protect the population. If growing up in a secure family environment is a protective factor for the health of adolescents (Schofield and Beek, 2009), growing up in a stable and secure world is probably just as protective.

5. Conclusion

Adolescents are vulnerable and require careful consideration by caregivers and healthcare system adaptations to allow for mental health support despite the lockdown. The COVID-19 pandemic could result in increased psychiatric disorders such as Post-Traumatic Stress, Depressive, and Anxiety Disorders, as well as grief-related symptoms. Home confinement is associated with an increase in intrafamilial violence. The link between lockdown and the consequences of excessive use of the internet and social media needs to be explored. Adolescents' individual, familial, and social vulnerability, as well as individual and familial coping abilities, are factors related to adolescent mental health in times of crisis. Research on adolescent mental health in times of pandemics is necessary, as such a pandemic may continue or repeat.

Declarations of Competing Interest

None

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