Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science

It is now undeniably clear that the current coronavirus pandemic will severely and permanently affect every single side of people's lives, such as economical strategies and activities, and especially social aspects, including mental and physical health. For instance, the definition '*mental health sciences*' refers to everything that concerns psychiatry and psychology, neurosciences, clinical medicine and behavioural and social sciences.

Therefore, medical experts and individuals with lived experience of mental health issues are teaming up to explore and analyse the massive psychological and social effects of the ongoing pandemic and to settle immediate priorities, and to develop not only effective support systems, which are supposed to mitigate the effects of this tragic situation, but long-term strategies as well.

Since rapidity is currently fundamental, the United Kingdom has already started working on an efficient methodology that experts and organisations are required to follow, in order to collect significant data regarding people's mental and physical wellness after the impact of the virus.

This process was split into different phases, whose objectives can be summed up using these two questions.

What is the effect of COVID-19 on mental health disorder, such as anxiety, depression, and other harmful outcomes, such as self-harm and suicide?

What would be the optimal structure for a mentally healthy life when coping with social and physical distancing, caused by the CoVid-19 pandemic?

For a start, people who have dealt proper mental disorders or experienced the virus itself provided an input as part of an expert advisory group. Subsequently, online surveys were used to gather various information about the psychological and physical implications of the pandemic and the concerns it caused, and about the way patients have been coping with these. Patients from ethnical minorities, front-line workers, NHS staff, stakeholders, elders and young people were all included in the survey databases.

The association MQ: Transforming Mental Health reportedly received more than 2100 completed surveys, which were thematically analysed. Similarly, the British group Ipsos MORI uploaded a set of two questions, still regarding people's mental wellbeing at this time and the way they are dealing with it: these received more than 1000 answers back.

Surveys and results were all published online.

Examined and combined, these results provided an interesting insight into people's most frequent and major concerns and their causes. As anticipated, quarantine and social and physical distancing, and, consequently, loneliness, appeared to be key risk factors for mental health issues, such as the rise in symptoms of anxiety, depression and harmful behaviours, which could vary from self-harm to suicide attempts. It was then necessary to determine effective immediate resolutions and long-term strategies suitable to answer the two questions presented.

	immediate resolutions	*long-term strategies*
What is the effect of COVID-19 on mental health disorder, such as anxiety, depression, and other harmful outcomes, such as self-harm and suicide?	The monitoring and reporting process of the rise in rates of anxiety, depression, self-violence, suicide, and harmful behaviours should be drastically improved; moreover mechanistical digital and non-digital interventions should be chosen and an optimal model of application should be assessed.	The mechanisms (which could be feelings of entrapment and loneliness cause by social distancing) that explain the rise in the rates of mental disorders are to be determined, and the role of psychological factors in softening the effect of the current social context on mental health issues is to be acknowledged; longer-term consequences on wellbeing of the pandemic for the young, elders and vulnerable groups must be a priority.
What would be the optimal structure for a mentally healthy life when coping with social and physical distancing, caused by the CoVid-19 pandemic?	It is necessary to determine what psychological support is available to help the NHS staff, front-line workers and their families; experts also have to analyse the psychological (e.g.: coping strategies), physiological (e.g.: nutrition and sleep) and structural (e.g.: work timetables and daily routines) factors that protect or damage one's mental wellness.	Developing novel interventions to protect mental health, including the ones based on positive mechanistical components (e.g.: prosocial behaviours and altruism), and understanding their effects is crucial; it is also required to figure out how to optimise positive social resources and enhance resilience in the face of mental/physical stress.

Social and population factors: the effect of COVID-19 on mental health

COVID-19 is indirectly interfering with the mental stability of a great part of the population, as the measures taken by governments to contain it could undermine the wellbeing of numerous social groups.
Research in this regard must aim at analysing the whole situation from diverse perspectives in order to understand the consequences and comprehend how to reduce their impact.

- What are the mental health consequences of the COVID-19 lockdown and social isolation for vulnerable groups? How can these be mitigated under pandemic conditions?

- What is the effect of repeated media consumption about COVID-19 through traditional media and social media on mental health, and how can wellbeing be promoted?

- What are the best methods for promoting successful adherence to behavioural advice about COVID-19 while enabling mental wellbeing and minimising distress?

What are the mental health consequences of the COVID-19 lockdown and social isolation for vulnerable groups, and how can these be mitigated under pandemic conditions?

Although the long-term effects of the social isolation are still not perfectly clear, data evidence shows how it can make an impact on the most vulnerable individuals. The susceptible groups are:
- *Children, young people and families:* may be affected by school closure or be victims of domestic violence, as well as parental employment issues;
- *Elders :* pre-existing disorders might aggravate, may be strongly affected by isolation;
- *People with existing mental issues:* extremely affected by distress and impairment to social functioning, serious risk of relapse;
- *Front-line health-care workers:* might suffer from moral injury, work stress or fear of contamination;
- *People with learning difficulties:* affected by change in routine and loss of support;
A particular case is that of socially excluded groups such as prisoners or homeless, who need a specific response.

The priority is now to create a well-functioning mechanism, capable of recognising which will be the most effective remote service or intervention for each individual group; over-time data is needed to ensure the support and efficiency of the methods.

For what concerns the long-term line of action, it is necessary to offer a guideline to health resources on how to handle this delicate situation in the most appropriate way: this includes identifying targets using social science end seek for international cooperation. Research should leverage digital platforms, verify the functionality of new approaches as well as the usual ones, in a continuous cycle of purposing, developing and testing.

What is the effect of repeated media consumption about COVID-19 through traditional media and social media on mental health, and how can wellbeing be promoted?

When reporting pandemic-related news, the media can turn into misleading sources of information, as they tend to exaggerate the risk perception and subsequently lead the vulnerable part of the population to increased levels of anxiety and stress responses: mental and physical health may decline as a consequence, resulting in paranoid behaviour.

In order to solve this problem, research must identify a suitable method to only provide authoritative information, determine reporting guidelines, and avoid excessive media consumption; in addition, positive use of social media should be promoted.

What are the best methods for promoting successful adherence to behavioural advice about COVID-19 while enabling mental wellbeing and minimising distress?

One of the mental health sector's duties is to supervise the messaging area, since the population must be well informed and motivated to properly follow the protective guidelines.

An excessive concern could cause an increase in mental health issues, therefore the key for the right promoting strategy is to give clear advice to people, making them aware of how to manage distress.

For this purpose, research should use public responses to elaborate a communication scheme able to optimise behaviour while reducing mental issues: this can be done by focusing on content, format and developing a diverse solution for each group. Also, by doing this, communities will be prepared to an eventual adequate response in the future.

Neuroscience: effects of the virus on brain health and mental health

Greta

Effects of SARS-CoV-2 infection on the human system are scarcely known. The SARS-CoV-2 virus is zoonotic, so it deeply affects CNS (Central Nervous System). Coronaviruses are included in this type of virus and are cause of mental health and neurological disorders.

In particular, COVID-19 infections cause neurological symptoms that include dizziness, headache, loss of taste and smell, muscle pain and weakness, more than fevers.

To deal with this critical situation, there are resolutions that need to be adopted.

Immediate actions could be:

- The development of a clinically and geographically inclusive, neuropsychological database related to COVID-19
- The expansion of facilities for severe acute respiratory syndrome SARS-CoV-2 infected tissue handling

Longer-term research programmes would be:

- Understanding how SARS-CoV-2 enters and propagates through the body and reaches the brain (there are two ways: neuronal and vascular) and how the immune system responds to infection affects mental health and neurological symptoms;
- Investigating the long-term relationship between the SARS-CoV-2 infection and post-infective depressive syndromes
- Validating clinical biomarkers of SARS-CoV-2 brain infection using MRI or other methods
- Developing interventions to interrupt or prevent the effects of SARS-CoV-2 on the brain's vital functions and mental health.

Infrastructures and opportunities

Dealing with the SARS-CoV-2 infection's effects on health requires two priorities to be set: the first point is the surveillance of either general and specific populations; the second priority is determining longer terms outcomes by assembling cohorts and helping studies to work out interventions that could monitor their effectiveness.

There are three ways to do it:
• Identifying health effects at scale by checking electronic health records and link this system to community health services to compare effects in population and in individuals with COVID-19
• Using existing cohorts or data platforms to monitor COVID-19 infected mental and cognitive health
• Organising new population-based studies on mental health and COVID-19, particularly for people who appear to be more vulnerable

Since the entire population is living the experience of COVID-19 pandemic, the involvement of patients and the public in research is a fundamental component for the research.

Call for action

Multidisciplinary research plays an important role in understanding how to deal with the COVID-19 pandemic.

Research priorities are:
• Collecting data on mental health and psychological effects of the current COVID-19 pandemic on the whole population, that should be put together in a national data portal
• Improving psychological interventions to promote well-being and reducing mental health risks in society caused by the virus' spread
• Optimising health messaging around COVID-19.

Neuroscience and mental health research infrastructures need funding to achieve these priorities.
 During this hard time, mental health science should not be underestimated because it could have massive long-term benefits on mental and physical health.