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The use of technology to improve mental health services in universities

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Main takeaways:

- The number of university students who experience mental health problems has been increasing and COVID-19 drastically increased this number.
- With more students in need of mental health support, new approaches and services must be developed. Technology can be a very useful tool for this process.
- Self-care apps, semi and fully automated conversation agents and approaches, Artificial Intelligence (AI) services to help match students with appropriate treatment options or to help navigate resources have all shown to help students suffering from mental help problems and thus alleviate counsellors' workload.
- Online and automated mental health services raise questions regarding data privacy, lack human interaction and funding, but they continue to prove efficient, especially in human-machine integrated approaches.
- While technology can support our understanding of students' needs and the delivery of mental health services, the need for in person support should not be discarded.
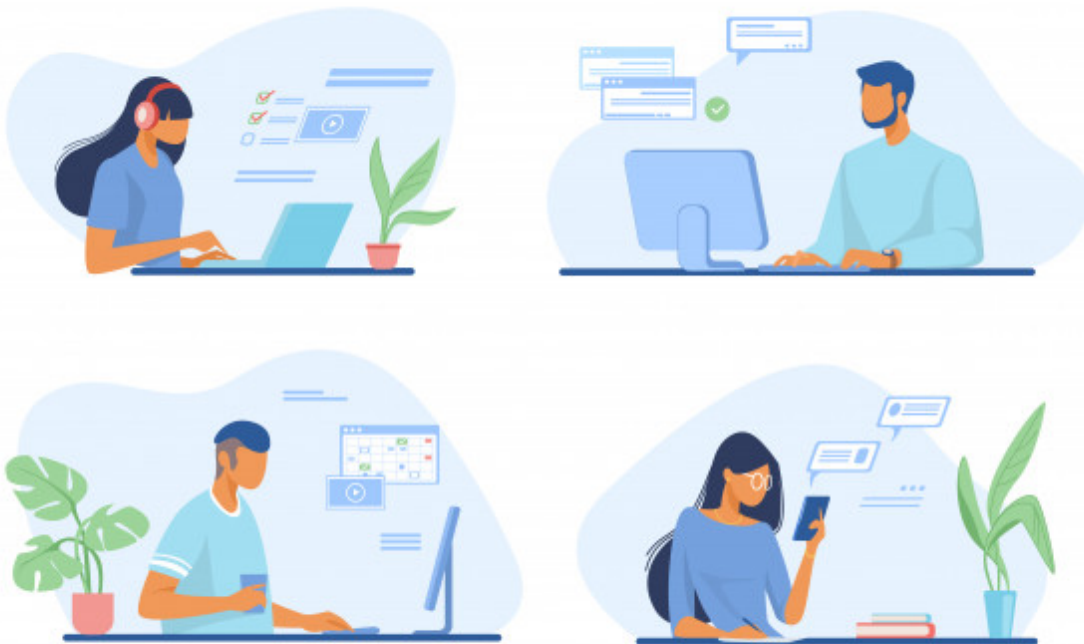

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"We suffered from anxiety due to the uncertainties–as results of this pandemic, i.e. how long the disease will be going on? There were also worries on the spreading of the disease, i.e. whether this disease will further cause more death, and whether the vaccine production is on time and enough to control this infectious disease.

The mental impact of not having a normal life like before – meeting family members and friends, walking on the beach or shopping in the mall can be devastating, especially if it occurs in a longer run. The restriction on movements and being in seclusion will serve as an ongoing sequelae to the mental well-being and physical health which is testing our 'sanity'."

[Hatta, 2020, p.2]

The number of university students who experience mental health problems has been increasing throughout the years and it is no surprise that this number exponentially increased last year during the COVID-19 pandemic [Lee, 2020]. COVID-19 changed the world and university students have been deeply affected. In a study by Mind UK [2020], more than 70% of students verified that their conditions have deteriorated since March 2019. In this new and challenging world new methods for helping students have to be adopted by universities and technology might be the key.

1. **Interest from Higher Education (HE) institutions on using technology for mental health services**

In a 2017 survey conducted by the British Journal of Guidance & Counselling, 65 HE institutions were questioned about the use or interest in providing alternative counselling support for their students, with 71% of the participants demonstrating interest. Among the alternative support available and considered we can highlight the use of self-care apps as the most prominent, followed by e-therapies, email counseling and the creation of online communities [Broglia, Millings and Barkham, 2017].

As a result of the increasing need for alternative student support, numerous self-care apps have been developed, including Edinburgh's Feeling Good, UCL's Positive, Mind's Emoodji and a number of online learning apps, including wellbeing tips developed

after lockdown, such as East Anglia's Ryze. It is also worth noting the partnerships between HE and mental health organisations such as Togetherhall, Student Minds and Mind UK, amongst many others that provide a number of support systems, including e-therapy wellbeing blogs, podcasts and online communities [News, 2021].

But how effective are these services?

Togetherall, for example, has stated that 77% of their student users felt better after using their services and 67% claimed it improved their overall student experience [Parnham, 2019] and these numbers might be rising. Although insufficient data has been gathered regarding the newest apps, taking the example of the SAM (Self-help for Anxiety Management) mobile app, created in 2013, studies show an aggregate trend of reduction in self-reported anxiety across all minimally-engaged users, thus we can optimistically infer that with enough engagement from users these apps could be a success [Matthews, Topham and Caleb-Solly, 2018].

Given that universities have been working on partnerships and integrating external apps to support their students, how have they changed their services to match with the shift to online learning?

2. COVID-19 and its impact on HE Organisations

A study by Savage et al. [2020] suggested that students' mental health and physical activity decreased significantly in the first five weeks of the first UK lockdown, and there was a significant increase in perceived stress and time spent sedentary. Furthermore, research found that compared to measures before the crisis, university students experienced higher levels of stress, anxiety, loneliness, and depressive symptoms, with their stressors shifted over time from fears of missing out on social life to concerns about physical and mental health, the well-being of loved ones, and their future [Elmer, Mepham, and Stadtfeld, 2020]. The detrimental effects are even more pronounced among minority groups, further revealing inequalities within groups such as BAME communities [Daly, Sutin, and Robinson, 2020], with a significantly higher deterioration in mental health identified in BAME men [Proto and Quintana-Domeque, 2020]. Further research showed that international students experienced significantly higher stress from uncertainties, potentially due to lack of social support, with those who stayed behind in the host country experiencing more negative mental health impacts than those who returned home [Lai et al, 2020]. A study looking at coping styles during the pandemic

also found that a lower socio-economic position is associated with more avoidant and detrimental coping strategies [Fluharty et al., 2020]. These findings all paint a complex and intersectional picture of mental health issues during the COVID-19 pandemic.

Universities have also been affected by the global pandemic, with hundreds of students in need of help and not enough staff to provide it. There have been recordings of longer waiting times for counselling and with fewer sessions available, they are usually not conducted weekly, which might mean that students are not getting enough continued support [Fazackerley, 2020]. Despite the benefit of not having to travel for support, students are still not receiving the help they need due to an overworked system. Universities are continuously pushing students into external counselling programmes due to their lack of resources, but this makes it difficult for the university to keep track of their students' progress and mental health, leaving them ill equipped to help. With universities struggling to find money for their mental health services and to hire professionals, they have no choice but to turn to technology to cut budgetary costs. In this way, there have been calls for more financial support from the government and external companies/investors interested in helping to develop such technology [Fazackerley, 2020; Shackle, 2019].

3. Integration of technology in mental health services

A possible solution is the investment by HE institutions in technology, especially AI. AI has been used in mental health settings many times "to help match students in need of treatment with optimal Internet interventions and to determine which students need referrals to other types of treatment" [Harrer et al., 2018], or by using fully automated mobile conversational agents in the delivery of mental well-being for patients in waiting lists. In a recent example, the fully automated Wysa app recorded that 67.7% of user-provided feedback responses found the experience helpful and encouraging [Inkster, Sarda and Subramanian, 2018]. Multiple studies of mental support AI apps like Tess and Wysa have been conducted showing that integrative psychological AI and even fully-automated ones emerge as feasible options for delivering support [Fulmer et al., 2018]. AI can also be used as a way to navigate through university resources or as a "wellbeing buddy", since not all students might require counselling. Wellbeing activities, mentoring opportunities or even sports might improve students quality of life/ mental health considerably.

According to D'Alfonso [2020], in mental health services, AI has indeed been used in the development of *prediction*, *detection* and *treatment* solutions. In relation to

prediction and *detection*, having access to an enormous amount of data via modern use of social media and personal devices means that data-driven AI methods can lead to prediction/detection models for mental health conditions. This can further lead to our understanding and predictions of behaviour or mental health of users.

In *treatment*, AI can lead to more effective digital interventions using web and smartphone apps that can interact with users, one example being the Ecological Momentary Interventions (EMIs) [D'Alfonso, 2020]. EMIs are "momentary health treatments provided via hand-held mobile technologies that deliver psychological interventions while people are engaged in their typical routines in their everyday life" [Heron & Smyth, 2010]. These treatments send momentary psychological interventions or behavioural prompts to personal mobile devices based on two main types of data: *active data* (collected via users' self-reported surveys) and *passive data* (collected from embedded phone sensors e.g. GPS, phone activity, screen state, and other devices e.g. smartwatches) [Schueller, Aguilera, and Mohr, 2017]. EMIs have shown effectiveness at reducing stress, anxiety levels and depressive symptoms, and they have also been linked to increasing positive psychological functioning [Ly et al., 2014; Tugade and du Pont, 2014].

4. Concerns with AI approaches

Although human-machine integrated approaches seem to work within the student population, a merely AI approach lacks human interaction and is not as popular or efficient as it seems. It is evident that complete digitalisation of student mental health services is not the solution to solving the problem of inadequate mental health support and services for students. In person sessions and human contact can be extremely important in cases of poor mental health and provide better help. A good option is to use AI systems during the waiting list period [Gamble, 2020].

Research on the use of AI to support mental health treatment emphasises the importance of social support alongside the use of technology. A study by Versluis and colleagues [2016] shows that EMIs on their own can achieve improvements to depressive symptoms. However, they also found another significant factor - *human support*. Their finding suggests that in comparison to stand-alone EMIs, more positive and more consistent results are associated with having human support alongside EMIs [Versluis et al., 2016]. This finding is consistent with the argument by some that the use of technology and AIs are likely more effective when they "complement and extend the

treatment rather than serving as a separate and disjointed adjunct" [Schueller, Aguilera, and Mohr, 2017, p.542].

Furthermore, the utilisation of personal and mental health data also leads to a number of ethical concerns in using AI. Doctor patient confidentiality is extremely important when discussing mental-health and the fact that sessions are conducted online does not change this psychotherapist-patient privilege and upholds the level of confidentiality the patients deserve. It is imperative that the information shared in sessions remains confidential and never discussed without permission or potential risk to themselves or others, but with online and AI support delivery systems there is the question of how this data is being protected by the university and the external apps. How is the increased risk of unintended breaches of confidentiality managed?

Personal data is protected under privacy laws, such as the General Data Protection Regulation (EU) 2016/679 (GDPR) and the Data Protection Act (DPA) 2018, according to which personal information must be "processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures" [Intersoft Consulting, 2013]. These laws require

that users' consent must be obtained for their data to be used for specific purposes [Information Commissioner's Office, 2021], but users do not always understand what they are consenting to. Beyond medical settings, the use of AI in HE contexts may pose a further conflict of interest when dealing with students' data. Does the university get to collect data on their students' mental health, or if not, who should have access to students' data? If the technology is developed by an external organisation, what would their role be in relation to this sensitive data? If universities are to fully integrate AIs and other technologies to support students' mental health services, they will have to navigate the ethical complexities regarding the data generated from these implementations, with full transparency on how the data will be handled.

5. Conclusion

Technology shows great promise as a tool to help students suffering from mental health conditions. Online services are practical, time-saving and highly available, they have proven effective when used correctly and they have the potential to reach and help a vast number of people due to their versatility and accessibility. However, not only is the implementation of technology a costly endeavour, but the potential dependency of universities on mental health apps developed by external organisations may also pose some difficult ethical questions. The effectiveness of technology to support mental health is undeniable, but data privacy obligations, ethical considerations, and a lack of funding are among the challenges that HEIs will have to overcome.

Overall, with the increased research and use of technology, its application towards better student mental health is definitely worth exploring and its development and implementation in universities will clearly help a larger number of students to get the support they so desperately need in these difficult times. While technology can support our understanding of students' needs and the delivery of mental health services, the need for in person support should not however be discarded, as this is not only essential for mental health diagnosis and treatment, but also necessary for establishing emotional and social connections at universities.

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