

Digital Mental Health in Ireland: Effectiveness and the Future of the Service

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Abstract: *Purpose: Mental disorders are serious concern in our society. In the era of digital tech-nology, Telemental health and mental health apps are becoming an avenue where people seek mental health support, but in general very little is known about the effectiveness of the service considering the complexities surrounding mental disorder as a disease. In the light of COVID-19 pandemic, researchers noticed a spike in anxiety levels amongst the populace, prompting more people to use the service. The purpose of this study is to evaluate the users of the service to check the effectiveness, the cost of the service, and to ask whether users will opt for the service in the future.*

Design and Methods: Three major questions were asked to adult participants (ages 18-35 years; n=50). Female participants(n=25) and Male participants(n=25). Within the semi-structured interviews, participants were also allowed to share their lived experiences to enhance this study. The questions are as follows: 1. The effectiveness of the service in terms of recovery 2. The cost of service 3. The question about the future use of the service. Differences in groups and research variables were compared across the demographics. To measure psycho-pathology, PHQ-9, GAD-7, SAQ, Insomnia Severity Index and ASI-Lite were used to evaluate the conditions and description of the participants. This evaluation is employed to validate the patient's threshold for Telemental health intervention.

Results: The people that are more likely to use the service in the future were female (85%) than their male counterpart (64%), but the groups are similar concerning the effectiveness of the service. When controlled for gender, male (85%) and female (80%) were more satisfied with the service they receive and record a positive outlook of their conditions. Compared with first-time users of the service, regular users mention service providers as key to their recovery. Participants (18-35 years, n=50) describe depression, anxiety, addictions and insomnia as the reason for the use of the service, issues responsive to neuropsychotherapeutical and cognitive behavioural therapy. About the cost, the participants (68%) seem to be satisfied with the cost while (32%) would prefer cost reduction. (Mean age=25.96 years) and (s.d=5.32).

Implications:

This data shows the effectiveness of Telemental health service. If expanded on a larger scale, it can take the pressure off the traditional mental health care system in Ireland, giving the practitioners time to focus on severe mental conditions. However, variables in the contextual description of patient's experiences will require value-based treatment where individual factors (bio-psycho-social analysis) are needed to be incorporated into the treatment. Besides, the data also reveals that continuous destigmatization of mental disorders will encourage men to opt for the service if societal judgment diminishes. Translating this data to the global data on mental disorders means that those regions, including rural areas without mental health support, that is, traditional mental health care infrastructure, their

governments should be encouraged to implement Telemental health service as the effectiveness is confirmed through this data. This may help reduce the morbidity numbers linked with disorders globally, thus improving the well-being of patients.

Keywords: *Digital Mental health; Ireland; Mental disorders; CBT; Mental health; Neuropsychotherapy.*

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Introduction

In the wake of digital technology advancement, its development has been felt in all areas of our endeavours. As a result of this proliferation, we have seen increased use of digital approaches in mental health care (Bauman & Rivers, 2015). Despite this success, little is known about their long term outcome to patient state of health. As the research is still ongoing, only a small fraction of clinical data in the domain of mHealth apps that one can point to as being effective (Rowland et al., 2020). Employing a device to inform clinical decision is not new per se in mental health, from Edmund Jacobson to the Greens, the talk of the period was the moment has arrived, high tech is finally meeting a higher level of consciousness (Derra, 2017; Green, Green & Walters, 1970; Green & Green, 1977; Jacobson 1938). Telemental health, which is part of the digital mental health is different in the sense that one can easily use an app or remotely get treatment without meeting the practitioner face-to-face. Concerning mental health in Ireland, its results, and what it means to the public and policies are still in progress, hence this research.

Mental health issues are a public concern in Ireland given that Ireland is ranked up there when it comes to mental health conditions registered in comparison to other European countries. 18,5% of the Irish population was confirmed as having mental conditions in 2016, disorders such as depression, anxiety, bipolar, schizophrenia and addictions (Cullen, 2018). Effectiveness in the Telemental health field may help reduce the morbidity numbers linked with disorders in Ireland, thus improving the well-being of patients. As the HSE describes it, one in four or five Irish will develop mental conditions during his/her lifetime (HSE, Ireland, 2020), so the move to digital approaches can help reduce the morbidity rate in Ireland if proven to be effective. Nevertheless, the challenges remain on how to integrate technological advancement into the existing standard. To put it simply, the integration of the digital into the analogue component of the traditional healthcare ecosystem.

A study by Cohen and Martin calls for a practical approach to digital health as they suggest that incorporating the recent technology may be practical, but getting it done might be difficult to achieve. The errant model that is prevalent in the digital space does not incorporate the existing standard system (Cohen & Martin, 2020). Beyond this difficulty of integrating the digital model to the standard model, verifying their effectiveness remains a challenge. A wearable digital health app can suggest the next course of actions to patients after gathering their data. Does this action improve the mental health of users? How do we measure lived experiences during the treatment stage? Mental disorders are disorders that can occur outside of our neuroscientific explanation and a well-balanced-data of patients with the empirical fact is the future of treatment for patients struggling with mental disorders (Bamijoko-Okungbaye, 2019). So asking the users directly about the service will provide additional insight into the questions we are concerned with, such as effectiveness, cost and a hint about the predictive direction of the sector. Another criti-

cal aspect is incorporating the values of the patients into treatment within the app, and it can be complex to assimilate the data. Recognizing acculturative stress in mental conditions is essential; this may be, oblivious to the service provider of the digital mental healthcare, especially in a pluralistic society (Idemudia, 2014). In Ireland, less research is conducted in this area of the effectiveness and efficacy of Telemental health. The questions asked in this study will provide an insight that will inform policy and decision making.

Method & Participants

The numbers are chosen based on the resources and diverse experiences of patients, as Guest et al. put it, the more heterogeneous the group, the more interviews required (Guest, Bunce & Johnson, 2006). Participants are 25 females from 18-35 and 25 males from 18-35. All these participants have used Telemental health to get support in Ireland. Even though three questions are asked to make it descriptive but lived experiences of users were permitted. Participants were allowed to add their lived experiences to the questions to encourage dialogue. However, it was clear to the participants that the three questions asked will determine the direction of the data. Participants were recruited via HM non-profit organization, an organization promoting mental health literacy around the globe. This was done through email, social media tools, and directly asking others by word of mouth. The study was carried out in compliance with the ethical regulations of a non-profit organization registered in the European Union, and all participants consented to participate without compensation.

Participants were also told that answering the questions is not compulsory. In alignment with various ethical dimensions in mental healthcare, participants were informed not to include personal information where is not relevant. For example, we advise them that they can withdraw from the study if they choose to do so and any psychological distress during the research should be registered following the Child and Adult Vulnerable policy of HM non-profit organization.

Sources of Data

Participants completed demographic questions and a semi-structured interview protocol predicated on three study's questions. These questions are developed to provide an in-depth insight into participants' experiences with Telemental health service.

Research Questions

1. Is Telemental service effective, in terms of recovery and coping? good/bad
2. Is the cost of the service moderate? costly/appropriate
3. Will the users use the service again? Yes/No

Procedures

Criterion-based sampling (Patton, 1990) was used to capture the questions asked, that is, participants using/used the service were recruited in a purposeful format. As the best people that can express what equity means in healthcare are the users of the services (Hughes & Fulford, 2005).

Tools

This aspect is done to screen the participants to ensure that we have users reaching the threshold of clinical intervention. The psychopathology was measured using these tools PHQ-9 (Kroenke, Spitzer & Williams, 2001) GAD-7 (Spitzer et al., 2006) SAQ and Insomnia Severity Index (Bastien, 2001, Ibáñez, Silva & Cauli, 2018; Kan, 2008) and ASI Lite (McLellan et al., 1980). These tools have been proven to be effective in several studies. Recordings range from medium to severity. This is done to make sure that we validate participants' answers. All participants reach ranges that require intervention if users requested it. The ASI Lite evaluation was conducted with those that use the service for addiction, medium-range was noted, and records were not taken for conditions <5%.

Descriptive Emotional Dimensions of the Users

Table 6.1

Conditions	Ranges
Anxiety	14-20
Insomnia	17-26
Depression	13-24

This is done for screening purpose only, and participants were informed about the data. After screening test was performed to examine the users' clinical threshold to use Telemental health $R > 12$ in all participants (Anxiety, Insomnia and Depression). This signals that their use of the ser-

vice is within a clinical recommendation. It is important to note that insomnia can also be a symptom of depression.

Data Analysis

The research was designed to test the primary hypothesis of whether Telemental healthcare is effective to deal with users' mental conditions. Because of this, a multidimensional analysis of variance was used to test this hypothesis. The foci of this study are on the three questions asked in this study; less emphasis was put on the group's emotional levels, albeit results were registered where significant findings were detected. This is within the description that health is a constituent of the totality of human experience, and when an event disrupts this totality construct of the whole, disorder emerges. This is what makes disorder the opposite of health. The inward and outward experiences of the patient determine whether the patient needs treatment. This experience from the patient's perspective makes a condition, a disorder. The emotional and symptoms of disorders that the users of the service are experiencing are the state of social disruption (Gadamer 2018). Even though the psychopathology is measured, the lived experiences of the users are central to the totality of these research findings (Creswell, 2007; Creswell & Clark, 2011).

Results

A total of 50 participants who take part in this study experienced four primary conditions and other conditions. These are identified in the figure below. To enhance this research and circumvent the limitation of the findings, the psychopathology is measured, and the results validate users' experiences. As the figure below shows, 55% of the participants used the service because of depression, 7% say they have insomnia, 32% use the service to deal with their anxiety, 4% for addiction and 2% use the service for other conditions.

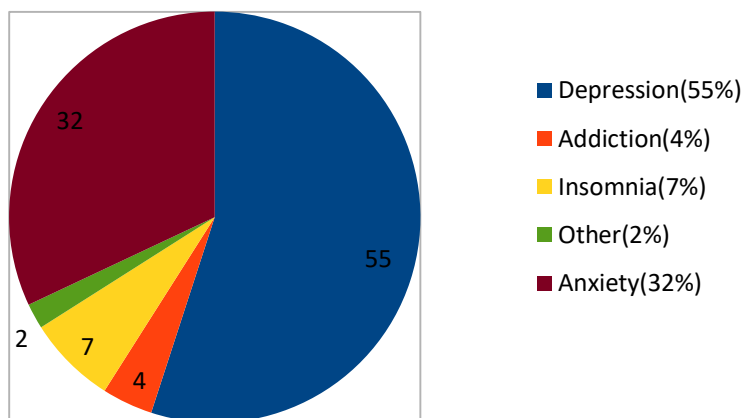


Figure 8.1

The people that are more likely to use the service again were female (85%) than their male counterpart (64%), but the groups are similar concerning the effectiveness of the service. When controlled for gender, male (85%) and female (80%) were more satisfied with the service they receive and record a positive outlook of their conditions. Compared with first-time users of the service, regular users mention service providers as key to their recovery. Participants (18-35 years, n=50) describe depression, anxiety, insomnia and addiction and other conditions as the reason behind the use of the service, issues responsive to neuropsychotherapeutical and cognitive behavioural therapy. About the cost, the participants (68%) seem to be satisfied with the cost while the rest (32%) would prefer the reduction of cost.

Discussion

This research provides insight into Telemental healthcare data which is still unfolding in Ireland. Also, the study opens a space where users can express their personal experiences without judgment. Even though mental disorders are gradually shifting into full-scale integrative approaches, questions remain to be answered in the area of balancing the normative values with robust empirical data (Bamijoko-Okungbaye, Firdosi & Koukoularis 2020). The lived experiences expressed by users of the mental healthcare call for additional implementation of strategies. A critical finding is despite the advancement of technology; users are still struggling to get the right treat-

ment and participants of the healthcare ecosystem are also calling for changes. For example, over 40,000 mental healthcare workers were set to go on strike in Ireland, and over 10,000 people attended a rally in Dublin in support of mental health practitioners (Edwards & Wall, 2019). The issues at hand are safe staffing and safe patient care. If understaffing is a major issue, it is apparent that users of the service are going to suffer immensely. So therefore, success in this domain of Telemental might provide people-driven policies.

This study is also congruous with the research done in the area of philosophy of psychopharmacology, psychiatry, psychology and medicine (Ayob 2013; Bamijoko-Okungbaye 2018; Gungov 2018), that is, positioning the values of all participants in the healthcare ecosystem in line with the empirical data. This study reveals that service-provider with trained mental health practitioners can provide services effectively, thus ameliorating the mental conditions of users. This research also illustrates that the mental health campaign is changing the way users view themselves during recovery and treatment. However, it would be important to continue the campaign to encourage more men to use the service. As the study displays, men were satisfied with the service that they receive based on effectiveness but were more disinclined to use the service in the future. This might be due to the cost of use and stigma associated with mental disorders in men.

For this reason, policymakers have a chance and duty to support those organizations in creating formal training to inform and educate about value-based treatment. Altogether, the experiences of users can help in establishing cultures of values in Telemental and digital healthcare, consequently reducing the complexity surrounding private policy in the era of digital medicine. Realizing the vertical arrangement of society may help in dealing with the challenges that digital health brings, as others have mentioned the ethical dimensions to be the challenges of the future (Powell, Singh & Torous, 2018).

The methodology approach taken in this study highlights the experiences of users in the era of digital healthcare, considering that users can be vulnerable if their values are not incorporated into the digital treatment. Especially, those patients following algorithmic data to action the necessary treatment steps. The research findings of this study are crucial to the extension of mental healthcare support of the future outlining additional analysis in the domain of clinical values of Telemental healthcare in Ireland and the globe. This data is essential to support countries lacking mental healthcare infrastructure or countries that are struggling to provide cost-efficient mental health service to their citizens. For example, one in four Nigerians are

struggling with mental conditions, and access to mental healthcare is difficult due to lack of investment in the mental healthcare sector (Suleiman, 2016).

The insights derived from this study have significant implications for mental healthcare practitioners and service providers considering their contribution is vital to the outcome of therapy. Thinkers taking a diverse and ecumenical approach to the inquiry of mental health research are helping in circumventing the limitation of mental health case studies, as conceptual clarification is required in research design and real-world practice data. The contributions of thinkers calling for integrative approaches are helping in resolving outstanding issues in the field, especially the development in the area of neuropsychotherapy and cognitive behaviour therapy (Espada Sánchez, González Maestre & Orgilés, 2018; Stein, 1997; Tomasi, 2020). The normative values of the users can be embedded into the digital treatments without diminishing the empirical data of the diagnosis.

The practitioner or functioning app needs to be able to explain specific neuroscientific dimensions to the users if they demand to know the neuroscientific underpinnings of their conditions. So, as a result, the professional development of apps' developers is central to the success of service providers as this research aims to subserve mental health awareness among the populace. Because mental health literate society is an asset in removing the stigma surrounding mental conditions. Providing services that incorporate the values of the patients aid recovery, and in closing the lacunae between the practitioner, and the users of the service.

A series of research has shown that engaging with a practitioner who provides a positive outlook of an illness or a disorder; the user is likely going to master his/her disorder, thus improving practitioner-user relationship (Brody, 2016). There is the hypothesis that states that bio-psycho-social factors could lead to a placebo effect which then affects the neurocircuitry of patients under treatment. As a result, understanding the values of the users is vital to Telemental healthcare. All within the contemporary ampliative understanding of mental condition, as users with severe psychological trauma in the attainment of the psycho-social components of the event, can heal, thus improving their post-traumatic psychology development. That being the case, the connection between the users of service and service providers can contribute to a positive outcome (Tedeschi et al., 2018).

As the stigma surrounding mental condition is winding down in Ireland, people are willing to talk about their lived experiences. The destigmatization campaign must encourage men to seek support if needed, as this research shows, men are more reluctant to seek mental health support. Service providers must recognize the barriers that men face in talking about their

mental conditions. The success seen with women inclination to find help during mental conditions is not just given; typically, they seek psychological support from their family members and friends. The campaign all over Ireland calling for the removal of the stigma has something to do with this trend. The variance in this with men according to this data, is a sign that the campaign must continue and this point should be taken into account during campaign concept plans.

Probably, the call was heeded by policymakers to make Irish mental healthcare more gender-sensitive as it was previously designed to be gender-neutral to enhance equality (Bergin, Wells & Owen, 2012). Evidence suggests that there is a difference in dynamics in how women and men experience mental disorders (WHO, 2020a). The development in the area of genomic medicine also supports this claim. This is precisely where the contemporary ampliative understanding of mental condition comes in because it is apt to deal with the challenges of a pluralistic society. This is also evident in the area of genomic medicine that we cannot base medical policies on neutral grounds given the idiosyncratic setting of our community. For this reason, it is right to say that the results of research should reflect the faces of our society (Devlin, 2018).

Service providers must possess the tools to effectively deal with users from diverse background as the data show that 1 in 8 people in Ireland hail from abroad (McGarry, 2015).

Acknowledging this and also incorporating their values into the treatment and research design, is a way to promote inclusion, and part of the experience will be to have culturally competent service providers. How the digital mental health app will achieve this, remains to be seen, it will require further research and development, hence the direct request to service providers. The data in this area that is, minority mental health research and immigrants mental health studies in Ireland are currently not deep enough to make a predictive outlook to the future. Hopefully, additional researches will follow suit that seek to incorporate a diverse population into the research design to enhance more inclusive policies and people-driven care.

Moreover, in Ireland getting service should be made a lot easier for youth, the roadblock in getting help ranges from not well-thought-out policies and discontinuity of care across the spectrum coupled with dissatisfaction and protest of practitioners, adding to the existing challenges (McMahon et al., 2018). Supplementary resources will be required to change the flow of the existing situation.

Limitations of the Research

The robustness of this study is that it examines the effectiveness of 'Telemental health and mental health apps' use from users' angles using qualitative and also psychometric tools to screen participants, by so doing, we were able to determine the clinical threshold of their conditions. The target was not to compare the data demographically but to answer the three questions posed in this research. We were surprised by the insight derived when the genders were compared.

However, purposive criterion-based approach comes with a host of challenges, that is, selecting groups that are representing some, but not all users of Telemental healthcare and app users in Ireland. This imbalance may also affect these findings; we should be cautious about generalizing the findings to the populace considering the role that motivation plays when participants answer questions. The results of this study do not provide absolutism stance. Instead, offer diverse valid explanations giving voice to the users and achieved a genuine understanding of their lived experiences in coping with mental conditions, this is within the framework of contemporary ampliative understanding of mental conditions. The role that motivation plays in answering research questions is an area for further research which is not the goal of this study.

Conclusion

This research validates our central hypothesis that Telemental Health and mental health apps are here to stay, and they can be useful depending on service-provider. Reducing the actual cost might increase accessibility as this study shows. As mental healthcare treatments are moving outside of the hospitals and clinics, there is the urge to integrate the present framework into the digital model, and the "How" question remains a puzzle to be solved.

As this research shows that the configuration of the current healthcare approach is not yet ready to be anchored, expecting a smooth embedment is currently out of the equation, as we notice with the COVID-19 pandemic. Our traditional healthcare infrastructures are not ready to deal with the challenges of pandemic and climate change. Simultaneously, there is an opportunity to improve existing traditional care settings by expanding digital mental healthcare. By so doing, we take the pressure off the clinics and hospitals, allowing practitioners to focus on more severe cases. There seems to be an option to integrate, which will entail disrupting and investing

in the existing infrastructure or the digital mental healthcare advancement continues its rise requiring the technology to take its course.

Yes, patients have been empowered through the effectiveness of the digital model validated by this research consistent with other studies (LeGris, 2001; O'Connor, 2019). Sometimes, challenging times do present golden opportunities, countries with lack of infrastructure to deal with mental conditions taking into consideration the staggering number of over 400 million people around the globe suffering from mental disorders, making it one of the leading causes of debilitation (WHO, 2020b). Those regions must now take the initiative, rise to the occasion and implement effective digital healthcare and cost-efficient services that are accessible to those who need the assistance; it is time for people-driven actions. Any remedy to change the existing traditional healthcare approach will entail macro, meso and micro grassroots-people-driven policies. Future studies will determine whether we would contact our apps' developers or healthcare practitioners for a medical malady.

References

- Ayob, G. (2013). Getting the personal perspective into view. *Philosophy, Psychiatry, & Psychology*, 20(2), 127-130. <https://doi.org/10.1353/ppp.2013.0031>
- Bamijoko-Okungbaye, A. (2018). Does Charlie gard deserve to be taken off life support? *Postmodern Openings*, 9(1), 7-21. <https://doi.org/10.18662/po/02>
- Bamijoko-Okungbaye, A. (2019). Depression: Rebalancing Neuroessentialist Data. *Dialogues in Clinical Neuroscience & Mental Health*, 2(4), 243-253. <https://doi.org/10.26386/obrela.v2i4.137>
- Bamijoko-Okungbaye, A., Firdosi, M. & Koukoularis, D. (2020). Gaming disorder: A contemporary ampliative account. *BRAIN. Broad Research In Artificial Intelligence And Neuroscience*, 11(1), 01-13. <https://doi.org/10.18662/brain/11.1/11>
- Bastien, C. (2001). Validation of the insomnia severity index as an outcome measure for insomnia research. *Sleep Medicine*, 2(4), 297-307. [https://doi.org/10.1016/s1389-9457\(00\)00065-4](https://doi.org/10.1016/s1389-9457(00)00065-4)
- Bauman, S. & Rivers, I. (2015). *Mental health in the digital age*. Springer Link. <https://doi.org/10.1057/9781137333179>
- Bergin, M., Wells, J. S. & Owen, S. (2012). Towards a gendered perspective for Irish mental health policy and service provision. *Journal of Mental Health*, 22(4), 350-360. <https://doi.org/10.3109/09638237.2012.714513>
- Brody, H. (2016). Beyond mind and body. *Perspectives in Biology and Medicine*, 59(2), 276-282. <https://doi.org/10.1353/pbm.2017.0012>

- Cohen, A. B. & Martin, S. S. (2020). Innovation without integration. *npj Digital Medicine*, 3(1). <https://doi.org/10.1038/s41746-020-0220-z>
- Creswell, J. W. & Clark, V. L. (2011). *Designing and conducting mixed methods research*. SAGE.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. SAGE.
- Derra, C. (2017). Die Originalform Der Progressiven relaxation von Edmund Jacobson. In C. Derra (Ed.), *Progressive Relaxation* (pp. 39-52). Springer. https://doi.org/10.1007/978-3-662-54248-4_2
- Devlin, H. (2018, October 8). Genetics research 'biased towards studying white Europeans'. *The Guardian*. <https://www.theguardian.com/science/2018/oct/08/genetics-research-biased-towards-studying-white-europeans>
- Edwards, E. & Wall, M. (2019, February 9). Tens of thousands rally in support of nurses in Dublin. *The Irish Times*. <https://www.irishtimes.com/news/ireland/irish-news/tens-of-thousands-rally-in-support-of-nurses-in-dublin-1.3788291>
- Espada Sánchez, J. P., González Maestre, M. T. & Orgilés, M. (2018). Substance use in Spanish adolescents: The relationship between depression and social support seeking. *Health and Addictions/Salud y Drogas*, 18(2), 27. <https://doi.org/10.21134/haaj.v18i2.337>
- Gadamer, H. (2018). *The Enigma of health: The art of healing in a scientific age*. John Wiley & Sons.
- Green, E. & Green, A. (1977). *Beyond biofeedback*. Delacorte Press.
- Green, E., Green, A. & Walters, E. (1970). Progress of cybernetics. In J. Rose (Ed.), *Proceedings of the first international Congress of cybernetics*. Gordon & Breach.
- Guest, G., Bunce, A. & Johnson, L. (2006). How many interviews are enough? *Field Methods*, 18(1), 59-82. <https://doi.org/10.1177/1525822x05279903>
- Gungov, A. L. (2018). *Patient safety: The relevance of logic in medical care*. Ibidem Press.
- HSE, Ireland. (2020). Mental health services. *HSE.ie*. <https://www.hse.ie/eng/services/list/4/mental-health-services/>
- Hughes, J. C. & Fulford, K. (2005). Hurly-burly of psychiatric ethics. *Australian & New Zealand Journal of Psychiatry*, 39(11-12), 1001-1007. <https://doi.org/10.1080/j.1440-1614.2005.01717.x>
- Ibáñez, V., Silva, J. & Cauli, O. (2018). A survey on sleep questionnaires and diaries. *Sleep Medicine*, 42, 90-96. <https://doi.org/10.1016/j.sleep.2017.08.026>
- Idemudia, E. S. (2014). Associations between demographic factors and perceived acculturative stress among African migrants in Germany. *African Population Studies*, 28(1), 449. <https://doi.org/10.11564/28-1-499>

- Cullen, P. (2018, November 22). *The Irish Times*.
<https://www.irishtimes.com/news/health/ireland-has-one-of-the-highest-rates-of-mental-health-illness-in-europe-report-finds-1.3707073>
- Jacobson, E. (1938). *Progressive relaxation*. University of Chicago Press.
- Kan, K. K. (2008). *Validation of the insomnia severity index, Athens insomnia scale and sleep quality index in adolescent population in Hong Kong*. Open Dissertation Press.
- Kroenke, K., Spitzer, R. L. & Williams, J. B. (2001). The PHQ-9. *Journal of General Internal Medicine*, 16(9), 606-613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
- LeGris, J. (2001). Nurse Telehealth care reduced depressive symptoms and improved functioning. *Evidence-Based Mental Health*, 4(2), 49-49.
<https://doi.org/10.1136/ebmh.4.2.49>
- McGarry, P. (2015, December 18). Almost one in eight living in Ireland hail from abroad. *The Irish Times*. <https://www.irishtimes.com/news/social-affairs/religion-and-beliefs/almost-one-in-eight-living-in-ireland-hail-from-abroad-1.2471339>
- McLellan, A. T., Luborsky, L., Woody, G. E. & O'Brien, C. P. (1980). An improved diagnostic evaluation instrument for substance abuse patients. *The Journal of Nervous and Mental Disease*, 168(1), 26-33.
<https://doi.org/10.1097/00005053-198001000-00006>
- McMahon, J., Ryan, F., Cannon, M., O'Brien, G., O'Callaghan, M., Flanagan, R., O'Connor, K., Chambers, D., Byrne, S. & McGorry, P. (2018). Where next for youth mental health services in Ireland? *Irish Journal of Psychological Medicine*, 36(3), 163-167. <https://doi.org/10.1017/ipm.2018.12>
- O'Connor, S. (2019). Tele-health-monitoring may decrease emergency room visits and hospitalisation in patients with COPD. *Evidence Based Nursing*, 23(1), 18-18. <https://doi.org/10.1136/ebnurs-2019-103080>
- Patton, M. (1990). *Qualitative evaluation and research methods* (2nd ed.). Sage.
- Powell, A., Singh, P. & Torous, J. (2018). *The complexity of mental health app privacy policies: A potential barrier to privacy* (Preprint).
<https://doi.org/10.2196/preprints.9871>
- Rowland, S. P., Fitzgerald, J. E., Holme, T., Powell, J. & McGregor, A. (2020). What is the clinical value of mHealth for patients? *npj Digital Medicine*, 3(1), 4. <https://doi.org/10.1038/s41746-019-0206-x>
- Spitzer, R. L., Kroenke, K., Williams, J. B. & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder. *Archives of Internal Medicine*, 166(10), 1092. <https://doi.org/10.1001/archinte.166.10.1092>
- Stein, D. J. (1997). *Cognitive science and the unconscious*. American Psychiatric Pub.

- Suleiman, D. (2016). Mental health disorders in Nigeria: A highly neglected disease. *Annals of Nigerian Medicine*, 10(2), 47. <https://doi.org/10.4103/0331-3131.206214>
- Tedeschi, R. G., Shakespeare-Finch, J., Taku, K. & Calhoun, L. G. (2018). *Posttraumatic growth. Theory, research and applications*. Routledge.
- Tomasi, D. L. (2020). *Critical neuroscience and philosophy: A scientific re-examination of the mind-body problem*. Springer Nature.
- WHO. (2020a). Gender and women's mental health. *WHO | World Health Organization*.
https://www.who.int/mental_health/prevention/genderwomen/en/
- WHO. (2020b). Mental disorders affect one in four people. *WHO | World Health Organization*.
https://www.who.int/whr/2001/media_centre/press_release/en/