Improving the Quality of Life for Bipolar Survivors during the Covid-19 Pandemic in the Bipolar Community of Yogyakarta

Andhita Dyorita Khoiryasdien

Universitas 'Aisyiyah Yogyakarta, Kotagede, Yogyakarta, Indonesia dyortita.kh@unisayogya.ac.id

ABSTRACT

The COVID-19 pandemic has lasted more than a year. This of course has an impact on all aspects of people's lives, both economically, socially and educationally. This impact is certainly also felt by people with mental disorders, one of which is Bipolar sufferers. Just like individuals in general, they also experience a difficult adjustment period in dealing with changes during the COVID-19 pandemic. Moreover, psychologically, their mental condition is clearly different from other individuals. Mentally, bipolar survivors are more susceptible to stress and it is feared that they will experience relapses more often during the COVID-19 pandemic, even though they must continue to do activities, work and carry out their respective obligations. Difficulty accessing health facilities and mental health information during this pandemic has also become a problem for bipolar survivors. This community service provides education related to pharmacology, psychological conditions and effective communication with the aim of bipolar survivors having the information provision in carrying out their daily activities stably. Activities are carried out online through WAG media and zoom meetings. Bipolar survivors respond positively and benefit greatly. As many as 64.86% of survivors admitted that they understood the education delivered very well, and as many as 5.4% admitted that they did not understand because education used online media so that it was less focused. Overall, bipolar survivors can realize the importance of taking medication, stabilize emotions and moods and learn to communicate effectively in daily life.

KEYWORDS Bipolar Disorder; Quality of Life; Covid-19



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1. Introduction

Covid-19 has had an impact both economically, socially, physically and psychologically [1], [2]. Since the Covid-19 outbreak began to spread, economic conditions have worsened, employees, traders, have all been affected [3], [4]. Indiscriminately, both wholesalers have been affected by Covid-19 [5], [6]. The economic sector shows a national loss to Indonesia due to Covid-19 [7]–[9]. Socially, this condition forces us to stay at home, don't need to go out if it's not really important [10]. This also of course brings significant changes [11], [12]. Our society is known as a friendly society, often gathering by holding various activities such as social gathering, PKK, recitation and so on [13]–[15]. This change certainly brings many changes in behavior and the process of social interaction in our society as a whole [16], [17]. Things that we used to be able to do freely, and include things that are ordinary, make us have to be very careful [18], [19]. For example, when greeting [20], [21]. Before this epidemic was rampant, shaking hands was commonplace, but now, we must make it a habit to greet each other without shaking hands and touching [22], [23]. Education is also something that is quite affected [24]. This condition is certainly a stressor for students, parents and teaching staff of course [25], [26]. The impact does not only affect cognition, but also on the psychological condition of students [27], [28]. This change in learning methods causes a decrease in creativity, quality and disruption of psychological conditions [3], [29].

This change requires a lot of adjustments, from the economic sector for example, many people experience layoffs (Termination of Employment), income decreases, business is hampered and so on [5], [30]. This indirectly causes stress. Not to mention the limited social, as well as changes in the teaching

and learning process that requires parents to become teachers. This condition forces parents to take on multiple roles, both as teachers and as parents, but they also have to carry out their obligations to work. This will also be stressful for parents. Therefore, it can be concluded that the conditions due to COVID-19 also have an impact on the deteriorating psychological condition of each person.

Furthermore, another thing that needs to be considered is the psychological condition of people who already have mental disorders. Many people who do not have a history of the disorder experience stress because of this condition, of course this also results in psychological changes for people with mental disorders [31]. One of them is bipolar disorder [32]. People who have bipolar disorder can still carry out their normal activities, they still work, go to school, and do business and carry out other activities [33]. However, in certain phases a bipolar survivor (people who have bipolar) will find it difficult to control himself, usually it begins with a trigger (events that cause an unstable condition) [34].

Bipolar disorder or commonly referred to as a mood disorder has two phases, namely a depressive phase and a mania phase [35]. The depression phase is centered on emotions where a person's emotions are in a very extreme state of sadness, while being very happy and easily stimulated or commonly referred to as a mania condition [36]. Both mania and depression are certainly very dangerous for ODB conditions because during mania, a person can be desperate to do extreme things, while in depressed conditions, an ODB has a high risk factor for suicide [37].

Yogyakarta has a special community for people with bipolar disorder, namely the Bipolar Community Yogyakarta (BICARA). This community has only been formed since 2016 and is in alliance with Bipolar Care Indonesia. However, since 2021, this community has been independent and not affiliated with Bipolar Care Indonesia. Currently, the BICARA community has approximately 50 active members who have a bipolar diagnosis. Based on the field survey, most BICARA members are still in the early stages of being diagnosed with bipolar disorder. However, there are some members who have been bipolar survivors for several years [38]. During the COVID-19 pandemic, bipolar survivors admitted that it was difficult to conduct offline consultations due to various restrictions at various clinics, hospitals, and health centers [39]. They are also anxious when they have to come to the hospital for fear of being exposed to covid [40]. So that many community members admit that they have not done routine consultations or can only do tele counseling.

Bipolar survivors also admitted to having difficulty getting medication and consulting about drugs during the covid pandemic [41]. This condition sometimes reduces the survivors' enthusiasm to take medication regularly [42]. This is in line with research that about 42% of 150 people with bipolar disorder in Indonesia complained about the difficulty of getting the drugs they usually take during the Covid-19 pandemic and the lack of health literacy about drugs that have the same effect as the drugs they usually take, so there is no option. another if people with bipolar disorder do not get medication [43]. The results of the drug adherence indicator showed that 12% had a high drug adherence attitude and as many as 88% had a low drug adherence attitude [44]. It was also found that high drug perception decision attitude was 4% and low drug perception decision attitude was 96% [45].

The results of interviews with several bipolar survivors admitted that it was difficult for them to control themselves, especially when there were events that made them uncomfortable, such as the changes that occurred during the COVID-19 pandemic. Even though bipolar survivors need a lot of activities to stay in a stable condition. In order for the condition to remain stable, a bipolar disorder survivor usually regularly does counseling with a psychologist, regularly takes medication, participates in various positive activities such as various psychotherapy, support groups, community meetings and so on. This pandemic condition certainly provides many changes for bipolar survivors. Facing everyday problems sometimes they have to do therapy several times. Plus, at this time they have to adapt a lot to the conditions of the Covid-19 which have a very broad impact, both economically, socially and psychologically. Based on the

explanation above, it shows that the condition of a person who already has a history of mental disorders, especially bipolar, requires a place to be able to continue to maintain his mental health by being given education about psychopharmaceuticals and psychological strengthening. This community service contribution aims to make bipolar survivors better prepared to be able to face changes and be able to manage their emotions, so that bipolar survivors can continue to be active, stable and able to return to being productive as usual.

2. Method

2.1. Preparation

- Coordination with the BICARA management, especially with the head of the Community, especially in the process of implementing the service program.
- Contact the resource person (psychiatrist) to confirm the date of the education.
- Setting up a paid zoom platform to make it easier during the process of community service activities.
- Coordination with the community service team, including students, for the process of making
 posters, registering participants, preparing evaluation forms and others.

2.2. Implementation

In the implementation of this community service activity, the following methods are used:

Lecture Method

The lecture method is carried out with media zoom meetings and discussions via WAG (WhatsApp Group). Even though almost 90% of the participants are in Yogyakarta, the conditions are still not possible to do offline activities. The educational lectures given were 1) information related to bipolar disorder from a psychology and psychiatrist perspective was carried out using WAG media and zoom meetings, 2) psychotherapy that could be applied at home was given through WAG media, 3) psychiatrists' pharmacology education was carried out with zoom meeting media 4) Effective communication is carried out with WAG media. Each participant is required to fill out the attendance list and provide impressions, suggestions and information about understanding the material presented.

Question and Answer Method and Discussion

Question and answer methods and discussions are carried out with zoom meetings and WAG (WhatsApp Group). Participants can ask questions directly or ask questions through the chat column and WhatsApp. For pharmacy education, at the second meeting the participants wrote down the questions that would be asked, so that during the implementation the questions were immediately answered and discussed with the resource persons.

Material in the form of PowerPoint and Video

All implementation processes have been documented and recorded in the media zoom meeting. Materials both in PowerPoint, word and video are sent to WhatsApp Groups so that bipolar survivors can return to listening to videos and practice the material that has been delivered from time to time.

3. Results and Discussion

Community empowerment will take place from May 2021 to July 2021 online. This activity begins with a poster shown in Fig. 1. The picture shows that this community service activity is a way to overcome Bipolar without treatment. The event was held online on Wednesday, July 7, 2021. The first resource person in the event was Mrs. Dr. Ida Rochmawati., M.Sc., Sp.Kj(K) who is a psychiatrist and the second resource person is Putri Endah Wulandari.



Fig. 1. One of the Posters for the Community Service event

The community activity event was conducted online with two resource persons. The first resource person, Mrs. Dr. Ida Rochmawati., M.Sc., Sp.Kj(K) with the title Pharmacotherapy for Bipolar Life-Long Course shown in Fig. 2. The picture shows that Mrs. Dr. Ida Rochmawati., M.Sc., Sp.Kj(K) came from Wonosari Hospital, Gunungkidul, DIY.



Fig. 2. Implementation of Psychopharmacology Education

The second resource person is Mrs. Zahro Varisna Rohmadani, S.Psi., M.Psi., Psychologist which is shown in Fig. 3. The picture shows that Ms. Zahro Varisna Rohmadani, S.Psi., M.Psi., Psychologist brings Therapy material religion to improve mental health.



Fig. 3. Implementation of Religious Therapy Education

The following are the results of the evaluation of the usefulness and level of understanding of the community service programs that have been carried out. Based on the results of a survey through Google Form, it showed that all participants who took part felt that the education provided was beneficial. This can be seen from Fig. 4. The figure shows that there are 37 participants who have participated in this activity. This activity was very beneficial for 37 participants.

Benefits of Education

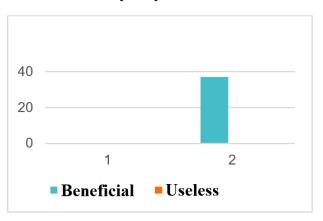


Fig. 4. Benefits of Education

Furthermore, based on the level of understanding shown in Fig. 5. The figure shows that of the 37 participants who attended as much as 64.86% understood very well what was conveyed, while 5.4% admitted that they did not understand.

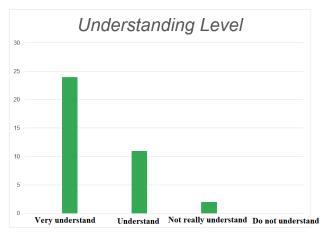


Fig. 5. Level of Understanding

Participants who do not understand because it is difficult to focus when listening to the material through the zoom meeting. Even so, most of the participants were quite able to understand, asked a lot of questions and discussed. In the implementation of education using the WAG (WhatsApp Group) media, from 51 community members, many actively responded, but there were also some members who did not respond during the implementation due to other activities such as work or unstable mood conditions making it impossible to follow the discussion.

Overall the material provided provides benefits for community members. Based on the data collected, participants said that this education was really needed by them considering that access to direct offline consultations is quite difficult at this time, getting a lot of information without having to go out of the house, feeling enlightened, being aware of continuing to seek treatment and doing psychological therapy, knowing types of drugs, can get to know other bipolar survivors and build communication and support in the community. Furthermore, participants gave suggestions that educational events could be held regularly and discussed more specific disorders such as schizoaffective disorder.

4. Conclusion

Based on the community service that has been carried out, it can be concluded that community service activities at the Bipolar Community Yogyakarta provide many benefits, especially for bipolar survivors in obtaining information about bipolar disorder, medications, and effective communication. So, bipolar survivors can continue to be empowered and work during the pandemic. Community service activities to improve the quality of life for Bipolar Survivors went well and smoothly. The material provided is right on target and provides many benefits.

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Conflict of Interest

The authors declare no conflict of interest.

References

- [1] W. Wang et al., "Economic evaluation for mass vaccination against COVID-19," *J. Formos. Med. Assoc.*, vol. 120, no. 250, pp. S95–S105, Jun. 2021, doi: 10.1016/j.jfma.2021.05.020.
- [2] D. M. Dawoud and K. Y. Soliman, "Cost-Effectiveness of Antiviral Treatments for Pandemics and Outbreaks of Respiratory Illnesses, Including COVID-19: A Systematic Review of Published Economic Evaluations," *Value Heal.*, vol. 23, no. 11, pp. 1409–1422, Nov. 2020, doi: 10.1016/j.jval.2020.07.002.

- [3] F. Syed and A. Ullah, "Estimation of economic benefits associated with the reduction in the CO2 emission due to COVID-19," *Environ. Challenges*, vol. 3, p. 100069, Apr. 2021, doi: 10.1016/j.envc.2021.100069.
- [4] Z. Desson, L. Lambertz, J. W. Peters, M. Falkenbach, and L. Kauer, "Europe's Covid-19 outliers: German, Austrian and Swiss policy responses during the early stages of the 2020 pandemic," *Heal. Policy Technol.*, vol. 9, no. 4, pp. 405–418, Dec. 2020, doi: 10.1016/j.hlpt.2020.09.003.
- [5] M. Murakami et al., "Associations of the COVID-19 pandemic with the economic status and mental health of people affected by the Fukushima disaster using the difference-in-differences method: The Fukushima Health Management Survey," SSM Popul. Heal., vol. 14, p. 100801, Jun. 2021, doi: 10.1016/j.ssmph.2021.100801.
- [6] S. Gautam, S. Setu, M. G. Q. Khan, and M. B. Khan, "Analysis of the health, economic and environmental impacts of COVID-19: The Bangladesh perspective," *Geosystems and Geoenvironment*, vol. 1, no. 1, p. 100011, Feb. 2022, doi: 10.1016/j.geogeo.2021.100011.
- [7] M. R. Hossain, S. Chakma, F. Tasnim, and Z. Zahra, "Socio-economic predictors of public understanding of the COVID-19 pandemic," *Heliyon*, vol. 7, no. 6, p. e07255, Jun. 2021, doi: 10.1016/j.heliyon.2021.e07255.
- [8] M. F. Rahmadana and G. H. Sagala, "Economic resilience dataset in facing physical distancing during COVID-19 global pandemic," *Data Br.*, vol. 32, p. 106069, Oct. 2020, doi: 10.1016/j.dib.2020.106069.
- [9] E. Ogundepo et al., "An exploratory assessment of a multidimensional healthcare and economic data on COVID-19 in Nigeria," *Data Br.*, vol. 33, p. 106424, Dec. 2020, doi: 10.1016/j.dib.2020.106424.
- [10] M. Roberts, "Tracking economic activity in response to the COVID-19 crisis using nighttime lights The case of Morocco," *Dev. Eng.*, vol. 6, p. 100067, 2021, doi: 10.1016/j.deveng.2021.100067.
- [11] H. Inegbedion, "Impact of COVID-19 on economic growth in Nigeria: opinions and attitudes," *Heliyon*, vol. 7, no. 5, p. e06943, May 2021, doi: 10.1016/j.heliyon.2021.e06943.
- [12] S. A. Sarkodie, M. Y. Ahmed, and P. A. Owusu, "COVID-19 pandemic improves market signals of cryptocurrencies—evidence from Bitcoin, Bitcoin Cash, Ethereum, and Litecoin," *Financ. Res. Lett.*, vol. 44, p. 102049, Jan. 2022, doi: 10.1016/j.frl.2021.102049.
- [13] P. van der Merwe, A. Saayman, and C. Jacobs, "Assessing the economic impact of COVID-19 on the private wildlife industry of South Africa," *Glob. Ecol. Conserv.*, vol. 28, p. e01633, Aug. 2021, doi: 10.1016/j.gecco.2021.e01633.
- [14] D. Zala, I. Mosweu, S. Critchlow, R. Romeo, and P. McCrone, "Costing the COVID-19 Pandemic: An Exploratory Economic Evaluation of Hypothetical Suppression Policy in the United Kingdom," *Value Heal.*, vol. 23, no. 11, pp. 1432–1437, Nov. 2020, doi: 10.1016/j.jval.2020.07.001.
- [15] M. Nový and J. Nováková, "Impact of the COVID-19 Pandemic on Construction Companies in the Czech Republic," *Procedia Comput. Sci.*, vol. 196, pp. 717–723, 2022, doi: 10.1016/j.procs.2021.12.068.
- [16] R. Molina-Torres, O. Nolasco-Jáuregui, E. E. Rodriguez-Torres, B. A. Itzá-Ortiz, and L. A. Quezada-Téllez, "A comparative analysis of urban development, economic level, and COVID-19 cases in Mexico City," *J. Urban Manag.*, vol. 10, no. 3, pp. 265–274, Sep. 2021, doi: 10.1016/j.jum.2021.06.007.
- [17] L. Martínez et al., "The hardships of the poorest during the COVID-19 pandemic: Data about the socioeconomic conditions and governance of informal workers," *Data Br.*, vol. 40, p. 107728, Feb. 2022, doi: 10.1016/j.dib.2021.107728.
- [18] Q. Zhang and Q. Tong, "The economic impacts of traffic consumption during the COVID-19 pandemic in China: A CGE analysis," *Transp. Policy*, vol. 114, pp. 330–337, Dec. 2021, doi: 10.1016/j.tranpol.2021.10.018.
- [19] C. A. Ackley, D. J. Lundberg, L. Ma, I. T. Elo, S. H. Preston, and A. C. Stokes, "County-level estimates of excess mortality associated with COVID-19 in the United States," SSM Popul. Heal., vol. 17, p. 101021, Mar. 2022, doi: 10.1016/j.ssmph.2021.101021.
- [20] M. R. Keogh-Brown, H. T. Jensen, W. J. Edmunds, and R. D. Smith, "The impact of Covid-19, associated behaviours and policies on the UK economy: A computable general equilibrium model," SSM Popul. Heal., vol. 12, p. 100651, Dec. 2020, doi: 10.1016/j.ssmph.2020.100651.
- [21] J. Piñeiro-Chousa, M. Á. López-Cabarcos, L. Quiñoá-Piñeiro, and A. M. Pérez-Pico, "US biopharmaceutical companies' stock market reaction to the COVID-19 pandemic. Understanding the concept of the 'paradoxical spiral'

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- from a sustainability perspective," *Technol. Forecast. Soc. Change*, vol. 175, p. 121365, Feb. 2022, doi: 10.1016/j.techfore.2021.121365.
- [22] C. Karakosta, Z. Mylona, J. Karásek, A. Papapostolou, and E. Geiseler, "Tackling covid-19 crisis through energy efficiency investments: Decision support tools for economic recovery," *Energy Strateg. Rev.*, vol. 38, p. 100764, Nov. 2021, doi: 10.1016/j.esr.2021.100764.
- [23] G. C. Barron et al., "Safeguarding people living in vulnerable conditions in the COVID-19 era through universal health coverage and social protection," *Lancet Public Heal.*, vol. 7, no. 1, pp. e86–e92, Jan. 2022, doi: 10.1016/S2468-2667(21)00235-8.
- [24] O. Traoré, O. S. Combary, and Y. d. D. Zina, "Households' basic needs satisfaction during the Coronavirus disease 19 (COVID-19) pandemic in Burkina Faso," *Heal. Policy OPEN*, vol. 3, p. 100060, Dec. 2022, doi: 10.1016/j.hpopen.2021.100060.
- [25] P. Hashmi, S. Fahad, H. Naqi Khan, M. Zahid, A. Sadruddin, and S. Noordin, "Covid-19 pandemic: Economic burden on patients with musculoskeletal injuries in a tertiary care hospital of LMIC; retrospective cross sectional study," *Ann. Med. Surg.*, vol. 60, pp. 5–8, Dec. 2020, doi: 10.1016/j.amsu.2020.09.049.
- [26] A. Werikhe, "Towards a green and sustainable recovery from COVID-19," Curr. Res. Environ. Sustain., vol. 4, p. 100124, 2022, doi: 10.1016/j.crsust.2022.100124.
- [27] G. Golar, A. Malik, H. Muis, A. Herman, N. Nurudin, and L. Lukman, "The social-economic impact of COVID-19 pandemic: implications for potential forest degradation," *Heliyon*, vol. 6, no. 10, p. e05354, Oct. 2020, doi: 10.1016/j.heliyon.2020.e05354.
- [28] F. Liu, D. Kong, Z. Xiao, X. Zhang, A. Zhou, and J. Qi, "Effect of economic policies on the stock and bond market under the impact of COVID-19," *J. Saf. Sci. Resil.*, vol. 3, no. 1, pp. 24–38, Mar. 2022, doi: 10.1016/j.jnlssr.2021.10.006.
- [29] Y. Qian and W. Fan, "Who loses income during the COVID-19 outbreak? Evidence from China," Res. Soc. Stratif. Mobil., vol. 68, p. 100522, Aug. 2020, doi: 10.1016/j.rssm.2020.100522.
- [30] N. P. Mishra et al., "Global impacts of pre- and post-COVID-19 pandemic: Focus on socio-economic consequences," Sensors Int., vol. 1, p. 100042, 2020, doi: 10.1016/j.sintl.2020.100042.
- [31] K. W. Miskowiak, J. Mariegaard, F. S. Jahn, and H. L. Kjærstad, "Associations between cognition and subsequent mood episodes in patients with bipolar disorder and their unaffected relatives: A systematic review," *J. Affect. Disord.*, vol. 297, pp. 176–188, Jan. 2022, doi: 10.1016/j.jad.2021.10.044.
- [32] J. Gilden et al., "Bipolar episodes after reproductive events in women with bipolar I disorder, A study of 919 pregnancies," *J. Affect. Disord.*, vol. 295, pp. 72–79, Dec. 2021, doi: 10.1016/j.jad.2021.08.006.
- [33] D. Antolín-Concha et al., "Suicide mortality and use of psychotropic drugs in patients hospitalized due to bipolar disorder: A Finnish nationwide cohort study," *J. Affect. Disord.*, vol. 277, pp. 885–892, Dec. 2020, doi: 10.1016/j.jad.2020.09.016.
- [34] D. Xu et al., "Fast growth of highly ordered porous alumina films based on closed bipolar electrochemistry," *Electrochem. commun.*, vol. 119, p. 106822, Oct. 2020, doi: 10.1016/j.elecom.2020.106822.
- [35] M. Manchia et al., "Corrigendum to 'Translating big data to better treatment in bipolar disorder a manifesto for coordinated action [European Neuropsychopharmacology (2020) 36, 121–136]," *Eur. Neuropsychopharmacol.*, vol. 44, pp. 121–122, Mar. 2021, doi: 10.1016/j.euroneuro.2021.01.001.
- [36] J. Macoveanu, V. Damgaard, C. V. Ott, G. M. Knudsen, L. V. Kessing, and K. W. Miskowiak, "Action-based cognitive remediation in bipolar disorder improved verbal memory but had no effect on the neural response during episodic memory encoding," *Psychiatry Res. Neuroimaging*, vol. 319, p. 111418, Jan. 2022, doi: 10.1016/j.pscychresns.2021.111418.
- [37] S. Yamasaki et al., "A Genetic modification that reduces ON-bipolar cells in hESC-derived retinas enhances functional integration after transplantation," *iScience*, vol. 25, no. 1, p. 103657, Jan. 2022, doi: 10.1016/j.isci.2021.103657.
- [38] S. Karthikeyan et al., "Inflammatory markers, brain-derived neurotrophic factor, and the symptomatic course of adolescent bipolar disorder: A prospective repeated-measures study," *Brain. Behav. Immun.*, vol. 100, pp. 278–286, Feb. 2022, doi: 10.1016/j.bbi.2021.11.020.

- [39] M. C. Waight, B. M. Wiles, A. C. Li, and M. M. Saba, "Bipolar Radiofrequency Ablation of Septal Ventricular Tachycardia Facilitated by an Intramural Catheter," *JACC Case Reports*, vol. 3, no. 8, pp. 1119–1124, Jul. 2021, doi: 10.1016/j.jaccas.2021.05.010.
- [40] W. L. Teh et al., "Prevalence and correlates of bipolar spectrum disorders in Singapore: Results from the 2016 Singapore Mental Health Study (SMHS 2016)," *J. Affect. Disord.*, vol. 274, pp. 339–346, Sep. 2020, doi: 10.1016/j.jad.2020.05.032.
- [41] M. Igarashi et al., "Acute and long-term results of bipolar radiofrequency catheter ablation of refractory ventricular arrhythmias of deep intramural origin," *Hear. Rhythm*, vol. 17, no. 9, pp. 1500–1507, Sep. 2020, doi: 10.1016/j.hrthm.2020.04.028.
- [42] G. E. Doucet, D. C. Glahn, and S. Frangou, "Person-based similarity in brain structure and functional connectivity in bipolar disorder," *J. Affect. Disord.*, vol. 276, pp. 38–44, Nov. 2020, doi: 10.1016/j.jad.2020.06.041.
- [43] Y. S. Liu, S. Chokka, B. Cao, and P. R. Chokka, "Screening for bipolar disorder in a tertiary mental health centre using EarlyDetect: A machine learning-based pilot study," *J. Affect. Disord. Reports*, vol. 6, p. 100215, Dec. 2021, doi: 10.1016/j.jadr.2021.100215.
- [44] H. M. Schreyer and T. Gollisch, "Nonlinear spatial integration in retinal bipolar cells shapes the encoding of artificial and natural stimuli," *Neuron*, vol. 109, no. 10, pp. 1692-1706.e8, May 2021, doi: 10.1016/j.neuron.2021.03.015.
- [45] J. L. Kalman et al., "Genetic risk for psychiatric illness is associated with the number of hospitalizations of bipolar disorder patients," *J. Affect. Disord.*, vol. 296, pp. 532–540, Jan. 2022, doi: 10.1016/j.jad.2021.09.073.