

Bipolar disorder is an illness characterized by financial instability and risky decision-making.

How can open banking data support existing contexts of caregiving in managing these risks?

Supportive Fintech for Bipolar Disorder

Jeff Brozena¹ Johnna Blair¹ Dahlia Mukherjee² Erika FH Saunders² Thomas Richardson³ Mark Matthews⁴ Saeed Abdullah¹

¹ Pennsylvania State University, USA

² Penn State College of Medicine, Hershey, PA, USA

³ University of Southampton, United Kingdom

⁴ University College Dublin

Background

Bipolar disorder (BD) is strongly associated with financial instability [5]. Symptomatic periods in BD often manifest in poor financial decision-making. For example, 70% individuals with BD have reported impulsive spending during hypomania [3]. Problematic financial behaviors during symptomatic periods can lead to serious long-term financial instability, which can severely impact the quality of life for individuals with BD and their care partners. Maintaining financial stability is a critical challenge to ensure the long-term wellbeing for individuals with BD.

However, there remains a knowledge gap regarding how idiosyncratic, context-driven, and illness-specific factors impact financial decision-making in BD. Furthermore, the lack of granular, in-situ assessment methods is a key challenge against developing just-in-time and personalized interventions focusing on financial stability for this population. Given the importance of financial stability for individuals with BD, this remains a serious knowledge gap with broad practical and societal implications.

Methods

Given the sensitivity of personal financial data, we initially sought to establish acceptance and privacy concerns regarding the use of financial data as an objective behavioral marker in BD. We conducted an online factorial vignette survey (N=500; US Prolific) to collect data from individuals with BD.

We used a factorial vignette approach to assess level of comfort with a set of hypothetical scenarios. We systematically varied three factors in our vignette experiment to explore differences in comfort across 18 total scenarios involving intervention actors, contexts, and timing.

Factors and levels contained in our factorial vignette experiment.

Factor	Levels
Actors	Clinicians Care partners Banks
Intervention Context	Share spending details Planning & bugeting 48-hour spending restriction
Mood State	During a mood episode During stable mood

We chose to include only third-party actors, opting to exclude self-management as a possibility. Our prior survey deployment [2] demonstrated a high level of comfort when sharing financial data for self-management.

We included a number of explanatory variables as well to explore relationships between clinical and financial topics. Clinical history variables included bipolar diagnostic subtype (i.e., BD-I, BD-II, etc.), whether the individual had ever been hospitalized, and whether they had a psychiatric advance directive in place. Financial history variables included whether the individual has considered or declared bankruptcy, whether they have asked care partners for help managing finances, their primary financial goal, and if they have used a Buy Now/Pay Later service. We also collected the Big Five Personality Inventory [4] and Consumer Financial Protection Bureau Financial Well-being Scale [1].

Results

actors	context	moodstate	Mean	Median	SD
banks	planning_budgeting	mood	3.81	4.00	3.20
banks	planning_budgeting	stable	4.26	4.00	3.18
banks	restrict_spending_48	mood	2.74	2.00	2.96
banks	restrict_spending_48	stable	1.81	0.00	2.54
banks	share_spending	mood	2.88	2.00	2.96
banks	share_spending	stable	3.16	2.00	3.03
carepartner	planning_budgeting	mood	5.95	6.00	2.96
carepartner	planning_budgeting	stable	5.94	6.00	2.94
carepartner	restrict_spending_48	mood	4.58	5.00	3.22
carepartner	restrict_spending_48	stable	2.98	2.00	2.98
carepartner	share_spending	mood	5.41	6.00	3.06
carepartner	share_spending	stable	5.06	5.00	3.12
clinicians	planning_budgeting	mood	5.40	6.00	3.00
clinicians	planning_budgeting	stable	5.29	6.00	3.03
clinicians	restrict_spending_48	mood	3.74	4.00	3.10
clinicians	restrict_spending_48	stable	2.58	2.00	2.81
clinicians	share_spending	mood	5.03	6.00	3.12
clinicians	share_spending	stable	4.63	5.00	3.08

References

[1] Measuring financial well-being: A guide to using the CFPB Financial Well-Being Scale. Retrieved August 30, 2022 from <https://www.consumerfinance.gov/data-research/research-reports/financial-well-being-scale/>

[2]

Jeff Brozena, Johnna Blair, Thomas Richardson, Mark Matthews, Dahlia Mukherjee, Erika F.H. Saunders, and Saeed Abdullah. 2024. Supportive Fintech for Individuals with Bipolar Disorder: Financial Data Sharing Preferences to Support Longitudinal Care Management. (2024).

[3] Kathryn Fletcher, Gordon Parker, Amelia Paterson, and Howe Synnott. 2013. High-risk behaviour in hypomanic states. *Journal of Affective Disorders* 150, 1 (August 2013), 50-56. <https://doi.org/10.1016/j.jad.2013.02.018>

[4] Beatrice Rammstedt and Oliver P. John. 2007. Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality* 41, 1 (February 2007), 203-212. <https://doi.org/10.1016/j.jrp.2006.02.001>

[5] Thomas Richardson, Megan Jansen, and Chris Fitch. 2018. Financial difficulties in bipolar disorder part 1: Longitudinal relationships with mental health. *Journal of Mental Health* 27, 6 (December 2018), 595-601. <https://doi.org/10.1080/09638237.2018.1521920>

