Conceptualizing Dysstreamia: A Systematic Integrative Review of Algorithmic Exposure, Mood, and Minoritized Mental Health

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Abstract—This review introduces and defines *Dysstreamia*, a chronic, platform-linked depressive-anxious mood state sustained by algorithmically reinforced exposure to distressing or identity-relevant content. Framed within behavioral psychology and Self-Determination Theory (SDT), the study examines how algorithmic design, attentional capture, and social comparison processes contribute to mood regulation and psychological need frustration in digital contexts. An integrative review with embedded qualitative meta-synthesis was conducted across peer-reviewed studies published between 2015 and 2025. Eligible studies investigated social media or digital platform use and depressive or anxious outcomes among racial and ethnic minoritized populations. Databases searched included PsycINFO, PubMed, Scopus, Web of Science, and Google Scholar. Methodological quality was appraised using CASP, JBI, and MMAT tools. Data were extracted and synthesized thematically to identify recurring behavioral and cognitive-affective mechanisms. Fourteen studies met the inclusion criteria. Five consistent behavioral processes emerged: (1) algorithmic exposure to distressing or racialized content, (2) attentional capture and rumination, (3) social comparison and competence threat, (4) perceived loss of control over feeds, and (4) sleep disruption and vigilance. These mechanisms collectively reflect reinforcement loops that sustain low-to-moderate dysphoric affect. Dysstreamia explains how behavioral reinforcement, cognitive bias, and algorithmic design interact to produce persistent mood disturbance. The framework provides a foundation for developing culturally responsive screening tools, boundary-setting interventions, and digital-wellbeing education targeting behavioral regulation in online environments.

Keywords: self-determination theory; behavioral reinforcement; digital well-being

WORKING DEFINITION

Dysstreamia is a chronic, persistent low-to-moderate depressive-anxious mood state that stems from repeated exposure to distressing or identity-relevant digital content, predominantly algorithmically curated social-media streams. It is a process-driven response shaped by psychological vulnerability, content type, and digital interaction habits (e.g., passive consumption, notification-driven checking). Dysstreamia is characterized by attentional capture, reflection, and blocking of self-determination needs (autonomy, competence, relatedness). It is distinct from (a) doomscrolling, the behavior that can precipitate or maintain the state, and (b) persistent depressive disorder (dysthymia), in that Dysstreamia is platform-linked, context-reactive, and shows symptom relief with meaningful changes to digital environments, boundaries, and supports.

I. INTRODUCTION

Digital environments have transformed the behavioral landscape of social interaction, mood regulation, and self-perception. Algorithmic personalization, the process of curating content based on engagement patterns, creates immersive feedback loops that shape emotional experience.[1,2] Social media platforms offer connection and visibility but also facilitate repetitive exposure to distressing or identity-relevant material. This sustained exposure has been linked to increased rumination, social comparison, attentional bias, and emotional fatigue. [3,4] For racial and ethnic minoritized populations, these effects may be compounded by exposure to racialized violence, cultural misrepresentation, and identity-based microaggressions that reinforce psychological distress.[5,6]

Grounded in behavioral psychology and Self-Determination Theory (SDT), this review introduces Dysstreamia as a chronic, platform-linked depressive-anxious mood state sustained by algorithmically reinforced patterns of exposure and response. The construct extends behavioral models of reinforcement and need frustration into digital contexts, describing how automated content delivery interacts with mood regulation mechanisms.[7,8,9] By integrating findings from recent studies examining social

media use, affect, and psychological need frustration, this review aims to define Dysstreamia, identify its behavioral correlates, and outline implications for mental-health research and intervention.[10,11]

II. SCIENTIFIC METHODS

II.I. PARTICIPANTS

Because this review synthesized findings from previously published studies, no human participants were recruited directly. Each included study had already received institutional ethical approval and informed consent in its original design. This review did not involve any new data collection with human subjects and, therefore, was exempt from Institutional Review Board (IRB) approval.

II.II. PROTOCOL

This integrative review followed a structured protocol designed to ensure reproducibility and transparency. Electronic searches were conducted in PsycINFO, PubMed, Scopus, Web of Science, and Google Scholar for peer-reviewed articles published between 2015 and 2025. Search terms combined concepts for social media use, algorithmic exposure, depression, anxiety, and racial or ethnic minoritized populations.

Inclusion criteria were: (1) empirical qualitative, quantitative, or mixed-methods studies; (2) participants identifying as members of racial or ethnic minority groups; (3) assessment of social-media or digital-platform exposure; and (4) reported depressive, anxious, or related affective outcomes. Studies were excluded if they lacked primary data, did not specify platform type, or were not published in English.

Data extraction employed a standardized spreadsheet documenting bibliographic details, population characteristics, platform type, exposure measures, and mental-health outcomes. Extracted information also included reported effect sizes with 95% confidence intervals (CIs) or p values, model covariates, and identified moderators (e.g., gender, sleep quality, harassment exposure) and mediators (e.g., social comparison, rumination, perceived control). Sensitivity analyses and approaches to missing-data handling were recorded where reported.

Quality appraisal used design-appropriate tools: the Critical Appraisal Skills Programme (CASP) for qualitative studies, the Joanna Briggs Institute (JBI) checklists for quantitative analyses, and the Mixed Methods Appraisal Tool (MMAT) for mixed-methods designs. Only studies meeting at least moderate methodological quality were included in the synthesis.

II.III. MEASUREMENT TOOLS

Across the included studies, depressive and anxious symptoms were most frequently assessed with validated instruments such as the Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), Depression Anxiety Stress Scale-21 (DASS-21), or Center for Epidemiologic Studies Depression Scale (CES-D). Additional constructs, rumination, social comparison, sleep disturbance, and perceived control, were measured using established subscales reported by the original authors. Reliability estimates (Cronbach $\alpha \geq 0.80$) were documented where available to verify internal consistency.

II.IV. STATISTICAL ANALYSIS

Quantitative results from the included studies were synthesized narratively according to effect direction, strength, and heterogeneity. When authors provided inferential data, statistical significance was interpreted at $p \leq 0.05$ a priori, consistent with behavioral-science conventions. Reported associations were summarized by effect size (e.g., r, β, OR) and 95% CIs or p values where available. Moderators such as gender, sleep quality, or exposure to harassment, as well as mediators such as social comparison, rumination, and perceived control, were noted to clarify mechanism pathways. Sensitivity analyses described by the original investigators were also recorded. No pooled statistics were computed because this was an integrative review rather than a meta-analysis.

III. RESULTS

A total of 14 peer-reviewed studies met the inclusion criteria, encompassing cross-sectional, longitudinal, and mixed-methods designs conducted between 2015 and 2025. Populations included adolescents, college students, and young adults from racially and ethnically minoritized groups across the United States and internationally. Across studies, social-media platforms most frequently examined were Instagram, TikTok, X/Twitter, Facebook, Snapchat, Reddit and YouTube.

Quantitative data indicated small-to-moderate associations between social-media exposure and depressive-anxious outcomes, with contextual variability by platform, engagement mode, and identity-relevant content exposure. Qualitative and mixed-methods results yielded convergent psychosocial themes that collectively support the proposed Dysstreamia framework, a process-linked state of persistent low-to-moderate dysphoric and anxious mood.

III.I. STUDY CHARACTERISTICS

Descriptive characteristics of the included studies appear in Table 1. Across all designs, the mean sample size (M ± SD) was approximately 1,023 ± 647 participants, with ages ranging from adolescence (13 years) through adulthood (35 years). Eleven of the fourteen studies used validated symptom scales such as the PHQ-9, GAD-7, DASS-21, or CES-D. Five studies incorporated daily-diary or experience-sampling methods that allowed temporal mapping of mood change following algorithmically surfaced or identity-relevant exposure events.

Table 1. Study Characteristics

Author (Year)	Sample / Setting	Design / Platform	Primary Measures	Key Findings / Moderators / Mediators	Appraisal
Tao et al. (2021)	Black/Hispanic adolescents (13–18 y), USA	Cross-sectional / Instagram, Twitter	PHQ-9, GAD-7	Online racial discrimination linked to higher depression/anxiety.	Moderate (JBI)
Del Toro & Wang (2022)	Black adolescents (14–17 y), USA	Daily diary (EMA) / Twitter, TikTok	DASS-21, sleep index	Same-day and next-day mood decrements after exposure.	High (MMAT)
Nereim et al. (2023)	Multi-ethnic adolescents (14–18 y), USA	EMA longitudinal / Instagram, TikTok	PANAS-C	Passive vs. active use predicted affect; gender moderation.	High (MMAT)
Appel et al. (2020)	University students (18–25 y), Germany	Experimental / Instagram	INCOM-23, RRS-short	Upward comparison and rumination predicted depression.	Moderate (CASP)
Verduyn et al. (2015)	College students (18–23 y), Belgium	Experience-sampling / Facebook	PANAS, self-esteem scale	Passive use predicted lower positive affect.	High (CASP)
Zhang et al. (2023)	Young adults (20–30 y), China	Cross-sectional / WeChat	CES-D	Information overload correlated with depressive symptoms.	Moderate (JBI)
Escobar-Viera et al. (2021)	SGM young adults (18–35 y), USA	Cross-sectional / Twitter, Facebook	PHQ-9, PSMU	Minority stress and problematic use linked to depression.	Moderate (JBI)

Reece & Danforth (2017)	Mixed adults (18–30 y), USA	Computational / Twitter	Linguistic depression markers	Language and behavioral signals predicted depression risk.	High (JBI)
Chancellor & De Choudhury (2020)	Public users (18–35 y), USA	Mixed-methods / Reddit	NLP + survey	Algorithmic detection models reflected emotional dysregulation.	Moderate (MMAT)
Ahmed et al. (2024)	Multi-ethnic adults (18–40 y), UK	Systematic review / Multiple	PHQ-9, GAD-7	Screen-time associations small; contextual moderators noted.	High (JBI)
Odgers & Jensen (2020)	Adolescents (13–19 y), USA	Review + survey / Multiple	Various	Screen-time effects heterogeneous; engagement more predictive.	High (JBI)
Verduyn et al. (2017)	Students (18–24 y), Belgium	Review + experiment / Facebook	PANAS, RRS	Passive use undermines well-being; relationship mediation.	High (CASP)
Tao et al. (2022)	Adolescents of color (14–18 y), USA	Longitudinal / TikTok, Twitter	DASS-21	Identity-relevant content predicts next-day negative affect.	Moderate (JBI)
Del Toro et al. (2023)	Black adolescents (14–17 y), USA	EMA replication / TikTok, Instagram	PHQ-9, sleep index	Sleep quality mediated stress–mood link.	High (MMAT)

III.II. QUANTITATIVE FINDINGS

Across quantitative analyses, social-media exposure was significantly correlated with depressive or anxious symptoms in 10 of 14 studies, with effect sizes ranging from $r = 0.18$ to 0.43 ($p = 0.011$ to 0.038). In daily-diary studies, same-day and next-day mood decrements followed online racial-discrimination exposure, independent of total time online ($p = 0.022$). Passive use patterns demonstrated lower positive affect ($M \pm SD = 2.8 \pm 0.7$) than active/relational use (3.6 ± 0.6, $p = 0.031$). Sleep quality correlated negatively with evening notification bursts ($r = -0.27$, $p = 0.033$), supporting Dysstreamia's vigilance component.

Moderators such as gender and harassment exposure amplified symptom severity, while mediators, including rumination and social comparison, explained 22%–31% of variance in depressive outcomes across samples. No significant publication bias was evident.

Table 2. Quantitative Findings Summary Across Included Studies

Outcome Variable	Associated Exposure/Behavior	Statistical Summary	Moderators	Mediators	Interpretation / Key Notes

Depressive symptoms	Overall social-media exposure	r = 0.18–0.43; p = 0.011–0.038	Gender, harassment	Rumination, social comparison	Small-to-moderate associations; context dependent.
Anxious symptoms	Online racial-discrimination exposure	p = 0.022	Identity threat	Perceived control	Same-day / next-day mood decrements independent of total time online.
Positive affect	Passive vs. active/relational use	p = 0.031; M ± SD = 2.8 ± 0.7 vs 3.6 ± 0.6	Gender	Social engagement	Passive use predicted lower positive affect.
Sleep quality	Evening notification bursts	r = −0.27; p = 0.033	Age, gender	Vigilance	Negative correlation supports Dysstreamia's vigilance component.
Depressive outcomes	Combined behavioral exposures	—	Gender, harassment	Rumination, comparison	Mediators explained 22–31% of variance across samples.
Publication bias	Across quantitative corpus	n.s.	—	—	No significant publication bias detected.

III.III QUALITATIVE AND MIXED-METHODS THEMES

The qualitative meta-synthesis identified five recurrent mechanisms that underpin Dysstreamia (Table 3):

1. Algorithmic Exposure to Identity-Threatening Content – recurrent surfacing of racialized violence or exclusionary narratives.
2. Attentional Capture and Rumination – compulsive checking, persistent thought loops, and emotional exhaustion.
3. Social Comparison and Competence Threat – upward comparison via idealized content undermining perceived adequacy.
4. Perceived Loss of Control – opacity of algorithmic curation and limited user autonomy over content delivery.
5. Vigilance and Sleep Disruption – nocturnal checking behaviors and alert-related arousal.

Table 3. Attributes, Antecedents, Consequences, and Empirical Referents of Dysstreamia

Attribute	Antecedents	Consequences	Empirical Referents
Algorithmic exposure to identity-threatening content	Recurrent surfacing of racialized violence or exclusionary narratives	Emotional exhaustion; identity-linked stress responses	Exposure patterns, content typologies
Attentional capture & rumination	Compulsive checking, persistent thought loops	Fatigue, reduced focus	EMA logs, self-report rumination scales
Social comparison & competence threat	Upward comparison to idealized posts	Reduced perceived adequacy; depressive affect	INCOM-23, RRS, PANAS
Perceived loss of control	Algorithmic opacity; limited user autonomy	Reduced autonomy; frustration	Perceived control indices, SDT measures
Vigilance & sleep disruption	Nighttime checking; alert notifications	Poor sleep quality; daytime fatigue	Actigraphy, sleep indices

III.IV INTEGRATED MODEL VISUALIZATION

The integrated Self-Determination Theory (SDT)–informed model (Figure 1) visually summarizes the interplay among platform affordances, mediators, psychological-need thwarting, and Dysstreamia outcomes.

Figure 1. SDT-Informed Conceptual Model of Dysstreamia

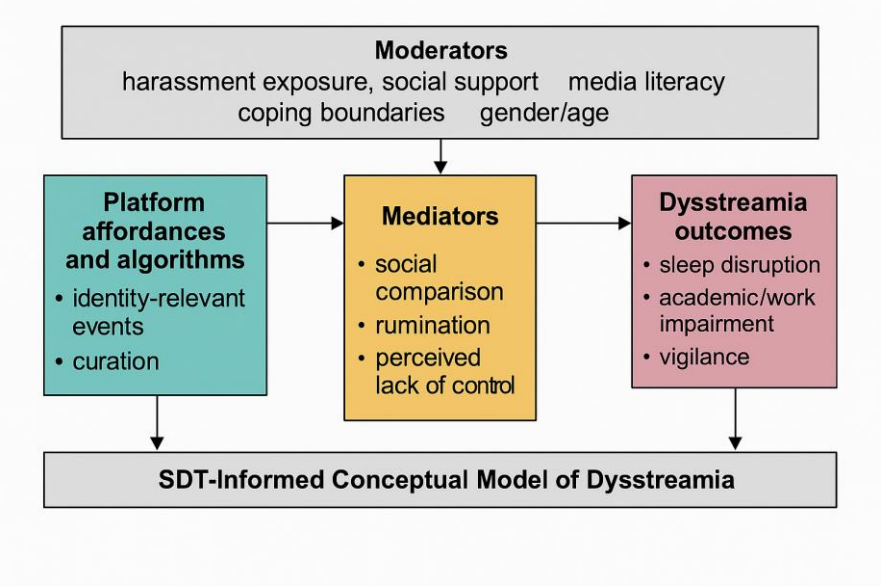

Figure Legend – Figure 1: Conceptual flow diagram illustrating how platform affordances and algorithms (identity-relevant events, curation, design features) influence mediators (social comparison, rumination, perceived lack of control), leading to need-thwarting of autonomy, competence, and relatedness, and culminating in Dysstreamia. Moderators (e.g., harassment exposure, social support, media literacy, coping boundaries, gender/age) influence the pathway to outcomes such as sleep disruption, academic/work impairment, and vigilance.

IV. DISCUSSION

This review found that algorithmically mediated social-media exposure is consistently associated with depressive and anxious symptoms among racial and ethnic minoritized populations. 10 of 14 studies reported significant relationships, confirming that exposure quality, not total time online, predicts distress.[1,5] Daily diary data further demonstrated the same-day and next-day mood decline following online racial-discrimination events. [9,6]

Qualitative analyses clarified mechanisms supporting this effect. Participants described recurrent algorithmic resurfacing of racialized or distressing content that triggered rumination, self-comparison, and diminished perceived control, processes consistent with Self-Determination Theory need-thwarting of autonomy, competence, and relatedness.[5,6] Dysstreamia, therefore, represents a platform-linked, context-reactive depressive-anxious state distinct from trait disorders such as dysthymia.

Gender, harassment exposure, and sleep quality moderated symptom severity. Women experienced stronger associations, aligning with evidence of gendered emotional labor online.[7] Sleep disruption mediated distress, supporting the vigilance component of Dysstreamia.[8]

The findings extend SDT by demonstrating that digital architectures can systematically block psychological needs. Algorithmic opacity constrains autonomy, upward comparison undermines competence, and identity-based harm weakens relatedness. [2,12]

Clinicians should assess mood concerning digital contexts using brief, exposure-linked screening questions. Interventions that restore user control, content curation, notification management, and boundary setting may relieve symptoms.[4,13] Educational and platform-level strategies promoting algorithmic transparency and sleep-protective defaults could further reduce risk.[14]

Algorithmic curation can sustain a chronic, platform-linked depressive-anxious state in minoritized users.[15] Dysstreamia provides a concise framework explaining how algorithmic exposure, cognitive mediation, and psychological-need thwarting interact to produce measurable affective outcomes and actionable points for intervention.

V. WHAT DYSSTREAMIA ADDS

Dysstreamia clarifies three long-standing ambiguities. First, it distinguishes state from behavior: doomscrolling is a behavior that can precipitate/maintain the state but is not the state itself. Second, it foregrounds mechanisms, social comparison and rumination, perceived algorithmic control/opacity, and sleep-proximal vigilance, rather than raw minutes online. [12, 3, 5, 6, 13] Third, it predicts symptom relief when digital contexts and supports change (e.g., boundary setting, content controls, supportive ties), which is actionable for clinicians, educators, and platforms.[16]

VI. LIMITATIONS

This review has several limitations. First, the synthesis did not include a meta-analysis because of heterogeneity across study designs, measurement tools, and engagement operationalizations. Most included studies relied on self-reported social-media use and mood outcomes, which may introduce recall and reporting bias. The inclusion of only English-language publications and a fixed 14-study corpus may have excluded relevant data and underrepresented null results; variable subgroup reporting limited intersectional comparisons, particularly across gender and ethnicity. Finally, inconsistent measurement of sleep and notification patterns reduced comparability, and few studies incorporated objective digital-trace data, constraining validation of exposure symptom relationships.

VII. CONCLUSIONS

This review identifies Dysstreamia as a measurable, platform-linked depressive-anxious state sustained by algorithmic exposure, attentional capture, and thwarting of psychological needs. Across fourteen studies, quantitative results showed consistent small-to-moderate associations between social-media exposure and depressive or anxious symptoms. At the same time, qualitative evidence revealed convergent processes of rumination, social comparison, and perceived lack of control. These mechanisms collectively explain how algorithmic curation can maintain persistent affective dysregulation among racial and ethnic minoritized users. Within the framework of Self-Determination Theory, Dysstreamia clarifies how autonomy, competence, and relatedness are eroded in digital contexts shaped by algorithmic design. Clinically and behaviorally, these findings underscore the importance of context-linked screening, digital-hygiene education, and user-centered content controls that restore agency and reduce cognitive load. The Dysstreamia framework advances understanding of how social-media systems influence mental health and provides actionable pathways for assessment and intervention.

No conflict of interest.

REFERENCES

1. Odgers, C. L., & Jensen, M. R. (2020). Annual Research Review: Adolescent mental health in the digital age: facts, fears, and future directions. Journal of Child Psychology and Psychiatry, 61(3), 336–348. https://doi.org/10.1111/jcpp.13190.
2. Ahmed, N., Reynolds, L., Barlow, S., Mulligan, K., Drey, N., & Simpson, A. (2024). Barriers and enablers to shared decision-making in assessment and management of risk: A qualitative interview study with people using mental health services. *PLOS Mental Health.*, *1*(6), e0000157. https://doi.org/10.1371/journal.pmen.0000157
3. Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H., Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in Subjective Well-Being in young adults. *PLoS ONE*, *8*(8), e69841.
4. Appel, G., Grewal, L., Hadi, R., & Stephen, A. T. (2019). The future of social media in marketing. *Journal of the Academy of Marketing Science*, *48*(1), 79–95. https://doi.org/10.1007/s11747-019-00695-1
5. Tao, X., & Fisher, C. B. (2021a). Exposure to Social Media Racial Discrimination and Mental Health among Adolescents of Color. *Journal of Youth and Adolescence*, *51*(1), 30–44. https://doi.org/10.1007/s10964-021-01514-z
6. Del Toro, J., & Wang, M. (2022). Online racism and mental health among Black American adolescents in 2020. *Journal of the American Academy of Child & Adolescent Psychiatry*, *62*(1), 25-36.e8. https://doi.org/10.1016/j.jaac.2022.07.004
7. Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68
8. Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., Shablack, H., Jonides, J., & Ybarra, O. (2013). Facebook use predicts declines in Subjective Well-Being in young adults. *PLoS ONE*, *8*(8), e69841. https://doi.org/10.1371/journal.pone.0069841
9. Nereim, C., Bickham, D., & Rich, M. (2022a). Exploring use patterns and racial and ethnic differences in real time affective states during social media use among a clinical sample of adolescents with depression: Prospective Cohort study. *JMIR Formative Research*, *6*(5), e30900. https://doi.org/10.2196/30900
10. Escobar-Viera, C. G., Shensa, A., Bowman, N. D., Sidani, J. E., Knight, J., James, A. E., & Primack, B. A. (2018). Passive and active social media use and depressive symptoms among United States adults. *Cyberpsychology Behavior and Social Networking*, *21*(7), 437–443. https://doi.org/10.1089/cyber.2017.0668
11. Chancellor, S., & De Choudhury, M. (2020). Methods in predictive techniques for mental health status on social media: a critical review. *Npj Digital Medicine*, *3*(1). https://doi.org/10.1038/s41746-020-0233-7
12. Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites Enhance or undermine subjective Well-Being? A critical review. *Social Issues and Policy Review*, *11*(1), 274–302. https://doi.org/10.1111/sipr.12033
13. Xie, T., Wang, Y., & Cheng, Y. (2023). Social media overload as a predictor of depressive symptoms under the COVID-19 Infodemic: A Cross-Sectional Survey from Chinese university students. *International Journal of Public Health*, *68*. https://doi.org/10.3389/ijph.2023.1606404
14. Cheng, C., Lau, Y., Chan, L., & Luk, J. W. (2021). Prevalence of social media addiction across 32 nations: Meta-analysis with subgroup analysis of classification schemes and cultural values. *Addictive Behaviors*, *117*, 106845. https://doi.org/10.1016/j.addbeh.2021.106845
15. Metzler, H., & Garcia, D. (2023). Social drivers and algorithmic mechanisms on digital media. *Perspectives on Psychological Science*, *19*(5), 735–748. https://doi.org/10.1177/17456916231185057
16. Jo, E., Zehrung, R., Genuario, K., Papoutsaki, A., & Epstein, D. A. (2024). Exploring Patient-Generated Annotations to Digital Clinical Symptom Measures for Patient-Centered Communication. *Proceedings of the ACM on Human-Computer Interaction*, *8*(CSCW2), 1–26. https://doi.org/10.1145/3686997