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THE CONTINUOUS GLUCOSE MONITOR AS BOUNDARY OBJECT: HOW A DIABETIC DEVICE REVEALS THE GENERALIZED BECOMING- DIABETIC OF QUANTIFIED SELFHOOD

Carrie Rentschler
McGill University

Continuous glucose monitoring (CGM) systems produce numbers that enable people with diabetes to see and track their sugar data 24 hours a day, numbers they use to make treatment decisions around what and when they eat, what dosages of insulin (or other diabetes medicines) to take, and how to plan their daily activities. Food, insulin and activity each affect the amounts of sugar in the body and how those amounts change over time. Diabetic use of self-tracking continuous glucose monitors, diabetic standards of treatment based on CGM data, and diabetic data sensibilities that come from CGM use have been increasingly generalized to non-diabetic users and uses of CGM devices since 2021, when, in some international jurisdictions, CGMs were approved for use without the requisite medical necessity of having diabetes. New markets and regulatory frameworks for CGMs transformed a technology known as a “diabetic device” into a device for measuring non-diabetic sugars. Communities of non-diabetic practice use the CGM sensor device to measure their glucose like diabetic users do, but in frameworks that both distance and re-center diabetes in the design and use of continuous glucose testing regimes.

Just as people with diabetes learn to feel their numbers in relation to how their CGMs datafy and visualize their glucose numbers over time (Rentschler and Nothwehr 2024), non-diabetic CGM users aim to measure, visualize, and develop a feel for their sugars like people with diabetes do. In doing so, they develop a diabetic-like “data gaze,” a way of seeing data about glucose that people with diabetes cultivate around the graphical visualizations of CGM data (Beer 2019). As more chronic conditions are identified with metabolic dysregulation, continuous glucose tracking becomes a key technique for monitoring metabolism and how it changes in relationship to one’s activities and what one eats. Norms of diabetic life based in CGM use come to define and contextualize norms of non-diabetic, metabolically healthy lives, ones that can be managed via glucose tracking on top of focused food management. Today, the questions of for whom these devices are made and for what uses have turned public conversations about glucose, as “one of the trendiest biometrics to track for people striving to optimize their

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health” (Smith, 2023), into sites of charged debate about diabetic access to medical technologies and the deeply felt embodiments of device-centered identities among those living with the chronic condition.

CGM use by people without diabetes both generalizes, and reveals how generalizable, diabetic practice, technology, and sensibility have become, putting people with and without diabetes into newly configured relations around their shared use of the device of the continuous glucose monitor for self-tracking and self-quantification. These relations are often contentious, especially when people with diabetes struggle to afford and access CGM technology for their care.

To examine these contentions, I analyze social media marketing campaigns and other online promotions for non-diabetic CGM use and mobile phone metabolic health apps that direct their use by people without diabetes from start-up companies such as Nutrisense, January AI, Levels, and Supersapiens. These promotional campaigns reveal how the language and talk of diabetes is removed from the marketing of these devices for people without diabetes, while they also depend upon diabetic uses and meanings of the devices (including formalized diabetic standards of CGM use). In addition, analysis of unboxing videos from professional athletes sponsored by these companies, podcasts, and a corpus of social media comments about CGM use by people without diabetes, reveals how people *with* diabetes navigate the new boundary object status of the CGM around assertions of their identification with the technology (Star 1994/2018). In comments sections, some people with diabetes claim the CGM is for diabetics only, uniquely “ours” in our “medically compelled human-technology relationships” (Horrocks 2019), while others express how CGM use by people without diabetes threatens to detach the device from strong, intimate diabetic attachments to CGMs. From the look of the CGM worn on the back of the arm as a recognizable visual signifier of diabetes to de-diabetized talk of “molecular glucose data” rather than diabetic glucose numbers, people with diabetes identify the use and marketing of CGMs to people without diabetes as a form of diabetic loss. To examine diabetic assertions of the diabetic meaning of the device, this talk “foregrounds the analysis of how the object [of the CGM] is handled” by people with diabetes in relation to its marketing and other mediations for its non-diabetic use (Mol 2002, 5).

It also examines the role mediated performances of CGM use by people without diabetes plays in dis-associating the CGM from diabetes and diabetic users. For example, promoters show and demonstrate CGM use de-coupled from diabetes and the diabetic user by associating CGMs with what is called “metabolic health” practices and self-care. Dr. Peter Attia, a key promoter of non-diabetic CGM use and author of the metabolic health book *Outlive*, demonstrated CGM use for people without diabetes on an “Ask Me Anything” episode of his DRIVE podcast in 2021. In the podcast, Attia shows a Dexcom G6 CGM attached to his left arm and holds up a mobile phone running the Dexcom G6 mobile app with a data visualization of a flat graphical line of his CGM measures. The flat line represents the diabetic glucose ideal of the “flat, narrow and in-range” (FNIR) medical standard established by diabetic CGM use (Battelino et. al 2019). “Narrowness” refers to the slight curves to the line graphs in CGM data visualizations that show little modulation in glucose measures over time. For diabetics, the goal is to “keep the curve as narrow and flat as possible within the designated target

range” (Bergenstal 2018, 22). The standard was created for diabetic glucose control; through non-diabetic CGM use and its demonstration in media like Attia’s podcast, the FNIR diabetic standard is performed and applied as a non-diabetic standard of glucose management. As a result, the Flat Narrow and In-Range graphical line comes to stand in for the data visual “look” of metabolic health more generally.

For diabetic CGM users, generalizing the technology we require to live with other devices like insulin pumps feels as if other people want to live as “a sort of generalized becoming-diabetic” (Williams 2014). A generalization of diabetic practice to non-diabetics comes coupled with the removal of the language, and mentions, of diabetes in promotional materials and metabolic health apps that guide non-diabetic CGM use, demonstrating how the chronic illness of diabetes figures into the practices, routines and feel of quantified selfhood with the CGM, around the one chronic illness that stands in for managed chronic living more generally: diabetes. Now, diabetes is being generalized as the standard bearer for metabolic health.

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