

Research Letter

# Examining Experiences With Menstruation and Glycemic Variability: Content Analysis on Reddit

Kylie Lovett, MPH, CHES, CPH; Beatrice Nkunga; Haley Person; Shristi Bhochhibhoya, PhD, MS

Department of Health, Human Performance and Recreation, University of Arkansas, Fayetteville, AR, United States

**Corresponding Author:**

Shristi Bhochhibhoya, PhD, MS  
Department of Health, Human Performance and Recreation  
University of Arkansas  
155 Stadium Dr  
Fayetteville, AR 72702  
United States  
Phone: 1 (479) 575-2858  
Email: [shristib@uark.edu](mailto:shristib@uark.edu)

## Abstract

Reddit users discussing diabetes report glycemic variability during menstruation and often turn to technology and health care for support; yet persistent gaps in provider guidance and awareness highlight the critical need for integrated care and future research at the intersection of menstrual health and diabetes management.

*JMIR Form Res* 2026;10:e81641; doi: [10.2196/81641](https://doi.org/10.2196/81641)

**Keywords:** social media; diabetes management; Reddit; menstruation; health education

## Introduction

Research has demonstrated that women with diabetes experience fluctuations in glycemic control during various phases of their menstrual cycle; however, existing studies produce conflicting evidence regarding which specific phase contributes most significantly to heightened insulin resistance, ultimately leading to a variability in glycemic control and worsened quality of life due to diabetes than in men [1-3]. Social media research provides valuable insights into health-related experiences and attitudes, particularly for sensitive topics, such as menstruation [4,5]. Platforms like Reddit support anonymity and reduce social desirability bias, often yielding richer in-depth data than traditional surveys [6,7]. Since the early 2000s, engagement in Diabetes Online Communities (DOC) has continued to enable individuals with diabetes to share experiences and engage in peer advocacy [8,9]. This study aims to delve into Reddit DOC users'

experiences with managing diabetes in conjunction with their menstrual cycles, seeking to identify unique perspectives and challenges that may be overlooked in traditional survey methodologies by using five popular diabetes subreddits.

## Methods

### Overview

This study was conducted by scraping posts from the five most populous diabetes-related subreddits with approximately 13,000 to 143,000 members. We used the ExtractoR tool (ExtractoR version 3.0.8.tar.gz, R version 4.4.1) to gather data and subsequently used Microsoft Excel for data analysis. [Table 1](#) shows the inclusion criteria, keywords, and screening process during exploration of posts associated with diabetes-related subreddits.

**Table 1.** Screening of Reddit posts based on the inclusion criteria and keywords related to menstruation.

Inclusion criteria	Keywords	Screening and final sample
<ul style="list-style-type: none"> <li>• Posts from five most popular subreddits of Diabetes (r/diabetes (143,000 members), r/type2diabetes (13,000 members), r/diabetes_t2 (46,000 members), r/diabetes_t1 (68,000 members), and r/Type1Diabetes (43,000 members)</li> <li>• Posts included if they contain menstruation-related “keywords”</li> <li>• Exclusion of any comments or links attached in the comment section</li> <li>• All posts before Jan 1, 2025.</li> <li>• Data extraction timeframe: Feb 1 through Feb 20, 2025</li> </ul>	“menstruation” “menses” “Period” “Ovulation” “bleeding” “hormone” “hormones” “PCOS” “week before” “mother nature” “aunt flow” “cycle”	<pre>                     graph TD                         A[Post from 5 popular subreddits extracted (N=4932)] --&gt; B[scraped for our "keywords" (n=44)]                         B --&gt; C[Final sample coded by two reviewers (n=35)]                         B --&gt; D[Duplicates &amp; irrelevant posts removed (N=9)]                     </pre>

An initial codebook was developed by reviewing 20% of posts to provide a structured framework relevant to the study’s aims. Codes were refined iteratively through team discussion with a distinct definition and organized into themes and subthemes. Two coders then independently applied the finalized codebook to the full dataset. Interrater reliability was assessed using Cohen’s  $\kappa$ . Cohen’s  $\kappa$  is a statistical measure of interrater reliability commonly

used in content analysis and qualitative studies to assess the agreement between two raters on categorical data [10]. Cohen’s  $\kappa$  value greater than 0.70 indicates acceptable reliability [10].  $\kappa$  values are reported for each theme and subtheme in Table 2. Any  $\kappa$  values falling below the threshold of 0.70 were discussed and resolved with the assistance of a third coder, ensuring the accuracy of the coding process and strong interrater reliability.

**Table 2.** Qualitative themes and example posts associated with diabetes management and menstruation from Reddit.

Code name	Definition	Number of posts	Example posts	Cohen’s $\kappa$
Menstruation	Narratives regarding menstrual cycle, including symptoms, social and emotional experiences	27	1.1. “My periods are usually regular, but after my second [Trulicity] shot, my period came about a week early.” 1.2. “I’m on Mounjaro and Metformin, for both it’s the second week and my period is late.”	0.72
1a. Emotional effects	Self-report or other’s acknowledgment of emotional, psychological, or mental changes that happen during different phases of the menstrual cycle, including anger, sadness, irritability, relief of getting period, told by partner they are acting different, etc	9	1a.1. “I feel so depressed everyday. I can’t sleep, I have anxiety, and my self esteem is extremely low. At times I feel like I hate myself and I feel like I will never be the same after my diabetes diagnosis.” 1a.2. “does anyone else experience PMS <sup>d</sup> even without a period? .I definitely experience PMS (slight bloating, much more sensitive to noises, and I’m much more irritable).”	1.00
1b. Physical effects	Self-report of bodily sensations that happen during or around the time of menstruation. May include headache, cramps, change in appetite, nausea, breast tenderness etc Includes being tired, migraines, not being able to attend work/school, nausea, vomiting, unable to eat, eating disorders	14	1b.1. “ Since starting insulin treatment, I’ve gained a considerable amount of weight., My period is now irregular every month and I have hot flashes and my acne has flared up.” 1b.2. “And my period is incredibly painful with really, really heavy flow. I feel weak overall, it was moderate/normal before.”	0.87
1c. Irregular periods	Self-report of abnormal symptoms of period, such as longer period days, multiple periods in one month, longer menstrual cycle, abnormal spotting, heavy flow, no flow, too frequent or infrequent periods	12	1c.1. “My periods starting becoming less frequent last year, and finally stopped altogether.” 1c.2. “ since starting insulin treatment,my period is now irregular every month and sometimes I don’t get it at all.” 1c.3. “I originally found out I have diabetes because I hadn’t gotten my period for almost three months,…”	0.80
1d. Other hormonal comorbidities	Mentions being told by a health professional they have other medical conditions that coexist with menstruation and diabetes and impact hormonal health. Includes PCOS , Hashimoto’s, thyroid disorders, but not cold, flu, stress, obesity	3	1d.1. “I was diagnosed with Type 1 almost 30 years ago and with PCOS recently ,	0.79

Code name	Definition	Number of posts	Example posts	Cohen's $\kappa$
Management	Any mentions of strategies, routines, tools or behavior used to monitor, control, or adapt to the effects of menstruation on diabetes. Includes posts that mentions HbA <sub>1c</sub> values, diet exercise, medications controlling glucose, trial and error, lived experiences. Does not include just symptoms and challenges without references to how they respond or manage them.	21	2.1. "Being 270+ for days now, been drinking honey to get better so it messes up with my glucose, too tired to go for walks." 2.2. "I only had a small smoothie this morning and no lunch. Dinner comes around (literally only a few things), and I take an extra 2 units [of insulin] than I would normally, and I'm STILL spiking"	0.80
2a. Technology	Digital tools, apps, or platforms used to support the management of diabetes. Includes mentions of Insulin pumps (Tandem, Omnipod, Minimed, Medtronic 670G, 660G, 770G, 780G) Continuous Glucose Monitors (CGM, Dexcom, Libre, Freestyle Libre, Libre 6, Guardian, sensor), closed loop systems (usually with a Tandem and Omnipod (O5)), Automated Insulin Delivery Systems (AIDs) other key words include cannula, port, site, infusion set, wires, pump, charts showing glucose numbers, AI pancreas, telehealth, phone apps, frustrations with technology, social media support groups, smart insulin pens.	5	2a.1. "I have a CGM and recently got a pump which has made a huge difference, but I still struggle to manage my glucose levels." 2a.2. "[The user's daughter] is on the O5 (Omnipod 5) and we've already lowered her carb ratios, but, still, she goes low."	1.00
2b. Medical team	References to health care professionals or clinical teams, such as doctors, nurses, PC <sup>c</sup> , DNP <sup>d</sup> , who are involved in the management of diabetes and/or menstruation. This includes both negative and positive experiences or perceptions of while communicating with providers.	11	2b.1. "My doctor just sent in the prescription. This was after monitoring sugars and trying to lose weight in order to conceive." 2b.2. "Doc told me how proud he was of me for turning it around so fast in such a short time." 2b.3. "Diagnosed type 2 diabetic and my doctor increased me from 1 pill of Metformin ER 750mg to 2 pills due to my A1C going up " 2b.4. "I did visit an endocrinologist once for my irregular periods, but they wanted to put me on birth control, which I wasn't comfortable with." 2b.5. " My previous OBGYN and pharmacist scared me out of the contraceptive shot last year and were trying to push the Mirena IUD on me which I am not comfortable with. "	1.00

<sup>a</sup>PMS: Pre-menstrual Syndrome.

<sup>b</sup>PCOS: Polycystic Ovary Syndrome.

<sup>c</sup>PC: Primary Care.

<sup>d</sup>DNP: Doctor of Nursing Practice.

## Ethical Considerations

The University of Arkansas Institutional Review Board classified this study as nonhuman subjects research and exempt from review for involving secondary analysis of existing public data. No identifiable information, such as usernames, timestamps, or links, of participants in public subreddit groups was analyzed. Users' identities were further protected by shortening, masking highly identifiable details, and paraphrasing by substantial alteration of wording and structure of posts to minimize risks of reidentification. Data were stored on secure, access-restricted university servers. This study was supported by the University of Arkansas Honors College.

## Results

Table 1 presents predefined keyword-based inclusion criteria that identified 35 unique posts regarding glycemic control and menstruation.

### Theme 1: Menstruation

Among these 35 posts, 27 posts shared characteristics of the users' menstrual cycles and any alterations they noticed in their menstruation due to diabetes. Many users reported changes in their menstrual cycles following their diabetes diagnosis. Some experienced regular cycles for the first time, while others noted alterations in the frequency or characteristics of their periods, such as changes in flow and cycle length, as shown in example posts in Table 2. Four distinct sub-themes emerged: emotional effects, physical effects, irregular periods, and other hormonal comorbidities, all showing strong interrater reliability.

## Theme 2: Management Strategies

A total of 21 posts discussed management strategies, various routines, behaviors, and tools designed to mitigate the impact of menstruation on diabetes control. Many users reported engaging in physical activity or administering insulin when experiencing elevated blood sugar levels and adjusting their dietary habits according to their menstrual cycle phases. Table 2 shows two key subthemes: Technology and Medical Team, with strong interrater reliability.

## Discussion

Most Reddit users discussed menstruation and diabetes management strategies, particularly blood glucose monitoring and control across menstrual cycle phases. Many described experiencing a range of physical and emotional symptoms while undergoing irregular, prolonged, or frequent periods. Although they did not specify the most challenging phase of the menstrual cycle for glucose control, they noted persistent elevation in blood glucose during a certain phase that affected their physical health (eg, bloating) and mental well-being (eg, irritability). These reports of emotional distress are consistent with prior research demonstrating that cyclical hormonal fluctuations can increase insulin resistance and glycemic variability, creating periods of unpredictability that place significant cognitive and emotional burdens on individuals managing diabetes [1-3].

Most users reported challenges of diabetes management during menstrual hormonal changes, along with the co-occurrence of other hormonal disorders, such as polycystic ovarian syndrome and thyroid disease. Furthermore, users shared

diverse management strategies to address their diabetes, ranging from leveraging technology to seeking support from medical professionals. Some users' posts referenced consultations with medical professionals regarding diabetes and menstruation-related issues, but did not provide further details on the perceived benefits of these interactions. However, some users report insufficient guidance from health care providers on managing the intersection of diabetes and menstrual abnormalities, contributing to mental stress and reinforcing prior evidence that gaps in clinical guidance led to trial-and-error in diabetes management.

This study is one of a limited body of work that examines Reddit posts at the intersection of people's menstrual and diabetes management experiences, and some limitations are to be noted. Anonymous posts from Reddit users discussing menstruation and diabetes limit our ability to explore the gender identity and reproductive stages of the users, thereby restricting the generalizability of the results. Additionally, this study offers a snapshot of posts, eliminating the comments associated with them that were publicly available at the time of the analysis.

Our findings reveal a complex relationship between menstruation and diabetes management discussed by Reddit users, highlighting challenges in managing the intersecting hormonal conditions, which may imply a greater need for menstruation-informed care. Future studies should delve deeper into people's personal experiences relating to diabetes and menstruation, and how they can be supported with comprehensive health education to manage their health challenges associated with menstruation and diabetes management.

## Acknowledgments

The authors thank the anonymous Reddit users who engaged in detailed conversations on diabetes management and the menstrual cycle.

The authors declare the use of generative AI in the research and writing process. According to the GAIDeT taxonomy (2025), the following tasks were delegated to GAI tools under full human supervision:

- Proofreading and editing
- Summarizing text to decide if they needed to be further investigated
- Adapting and adjusting emotional tone

The GAI tool used was ChatGPT version 5.

Responsibility for the final manuscript lies entirely with the authors.

GAI tools are not listed as authors and do not bear responsibility for the outcomes.

## Funding

The study is supported by the University of Arkansas Honors College Research Team Grant.

## Data Availability

The data used in this study were collected from publicly available Reddit posts using ExtractoR. Researchers can replicate the data by using the mentioned filter words.

## Authors' Contributions

Conceptualization: KL, SB

Formal analysis: BN, HP, SB

Funding acquisition: KL, SB

Investigation: BN, HP

Methodology: BN, HP, SB

Supervision: KL

Writing - original draft: KL

Writing - review and editing: SB

### Conflicts of Interest

None declared.

### References

1. Brown SA, Jiang B, McElwee-Malloy M, Wakeman C, Breton MD. Fluctuations of hyperglycemia and insulin sensitivity are linked to menstrual cycle phases in women with T1D. *J Diabetes Sci Technol*. Oct 14, 2015;9(6):1192-1199. [doi: [10.1177/1932296815608400](https://doi.org/10.1177/1932296815608400)] [Medline: [26468135](https://pubmed.ncbi.nlm.nih.gov/26468135/)]
2. Diaz C. JL, Fabris C, Breton MD, Cengiz E. Insulin replacement across the menstrual cycle in women with type 1 diabetes: an in silico assessment of the need for ad hoc technology. *Diabetes Technology & Therapeutics*. Nov 1, 2022;24(11):832-841. [doi: [10.1089/dia.2022.0154](https://doi.org/10.1089/dia.2022.0154)]
3. Göbl CS, Brannath W, Bozkurt L, et al. Sex-specific differences in glycemic control and cardiovascular risk factors in older patients with insulin-treated type 2 diabetes mellitus. *Gend Med*. Dec 2010;7(6):593-599. [doi: [10.1016/j.genm.2010.11.003](https://doi.org/10.1016/j.genm.2010.11.003)] [Medline: [21195359](https://pubmed.ncbi.nlm.nih.gov/21195359/)]
4. Kjærulff EM, Andersen TH, Kingod N, Nexø MA. When people with chronic conditions turn to peers on social media to obtain and share information: systematic review of the implications for relationships with health care professionals. *J Med Internet Res*. Apr 17, 2023;25(1):e41156. [doi: [10.2196/41156](https://doi.org/10.2196/41156)] [Medline: [37067874](https://pubmed.ncbi.nlm.nih.gov/37067874/)]
5. Mael-Ainin M, Bouet PE, Voillot P, et al. Using social media data to assess the impact of infertility on French patients' quality of life: retrospective observational study. *J Med Internet Res*. Jun 13, 2025;27:e68094. [doi: [10.2196/68094](https://doi.org/10.2196/68094)] [Medline: [40513033](https://pubmed.ncbi.nlm.nih.gov/40513033/)]
6. Chan GJ, Fung M, Warrington J, Nowak SA. Understanding health-related discussions on Reddit: development of a topic assignment method and exploratory analysis. *JMIR Form Res*. Jan 29, 2025;9:e55309. [doi: [10.2196/55309](https://doi.org/10.2196/55309)] [Medline: [39879094](https://pubmed.ncbi.nlm.nih.gov/39879094/)]
7. Valdez D, Mena-Meléndez L, Crawford BL, Jozkowski KN. Analyzing Reddit forums specific to abortion that yield diverse dialogues pertaining to medical information seeking and personal worldviews: data mining and natural language processing comparative study. *J Med Internet Res*. Feb 14, 2024;26:e47408. [doi: [10.2196/47408](https://doi.org/10.2196/47408)] [Medline: [38354044](https://pubmed.ncbi.nlm.nih.gov/38354044/)]
8. Litchman ML, Edelman LS, Donaldson GW. Effect of diabetes online community engagement on health indicators: cross-sectional study. *JMIR Diabetes*. Apr 24, 2018;3(2):e8. [doi: [10.2196/diabetes.8603](https://doi.org/10.2196/diabetes.8603)] [Medline: [30291079](https://pubmed.ncbi.nlm.nih.gov/30291079/)]
9. Hilliard ME, Sparling KM, Hitchcock J, Oser TK, Hood KK. The emerging diabetes online community. *Curr Diabetes Rev*. 2015;11(4):261-272. [doi: [10.2174/1573399811666150421123448](https://doi.org/10.2174/1573399811666150421123448)] [Medline: [25901500](https://pubmed.ncbi.nlm.nih.gov/25901500/)]
10. McHugh ML. Interrater reliability: the kappa statistic. *Biochem Med (Zagreb)*. 2012;22(3):276-282. [Medline: [23092060](https://pubmed.ncbi.nlm.nih.gov/23092060/)]

### Abbreviations

**DOC:** Diabetes Online Communities

**PCOS:** polycystic ovarian syndrome

*Edited by Javad Sarvestan; peer-reviewed by Allison Hughes, Katarina Braune; submitted 31 Jul.2025; final revised version received 16.Feb.2026; accepted 17.Feb.2026; published 27.Mar.2026*

*Please cite as:*

*Lovett K, Nkunga B, Person H, Bhochhibhoya S*

*Examining Experiences With Menstruation and Glycemic Variability: Content Analysis on Reddit*

*JMIR Form Res 2026;10:e81641*

*URL: <https://formative.jmir.org/2026/1/e81641>*

*doi: [10.2196/81641](https://doi.org/10.2196/81641)*

© Kylie Lovett, Beatrice Nkunga, Haley Person, Shristi Bhochhibhoya. Originally published in JMIR Formative Research (<https://formative.jmir.org>), 27.Mar.2026. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work, first published in JMIR Formative Research, is properly cited. The complete bibliographic information, a link to the original publication on <https://formative.jmir.org>, as well as this copyright and license information must be included.