Wearing-off Effect Towards the End of Treatment Cycles in MS Patients Receiving High-efficacy DMTs – Data from Social Media Listening

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Background

- Symptoms such as fatigue, mobility issues and physical pain towards the end of treatment cycles, generally referred to as wearing-off effect (WOE), have been evaluated in the literature for patients living with multiple sclerosis (PlwMS) receiving infusible disease-modifying treatments (DMTs)^{1,2}
- While studies utilizing clinical and patient-reported outcome (PRO) measures indicate that WOE may not impact disease outcomes³⁻⁶, patients on social media have reported an impact of WOE on their daily life

Objectives

• To explore how various stakeholders (PlwMS, caregivers, health-care practitioners [HCPs] and advocacy • Overall, 277/535 (52%) conversations mentioned WOE-associated symptoms. Fatigue was the most mentioned groups) describe the symptoms, timing, coping strategies, and impact on patients' daily life associated with WOE symptom, followed by mobility issues and physical pain (Figure 2) while being treated with various DMTs (natalizumab, ocrelizumab, ofatumumab, rituximab)

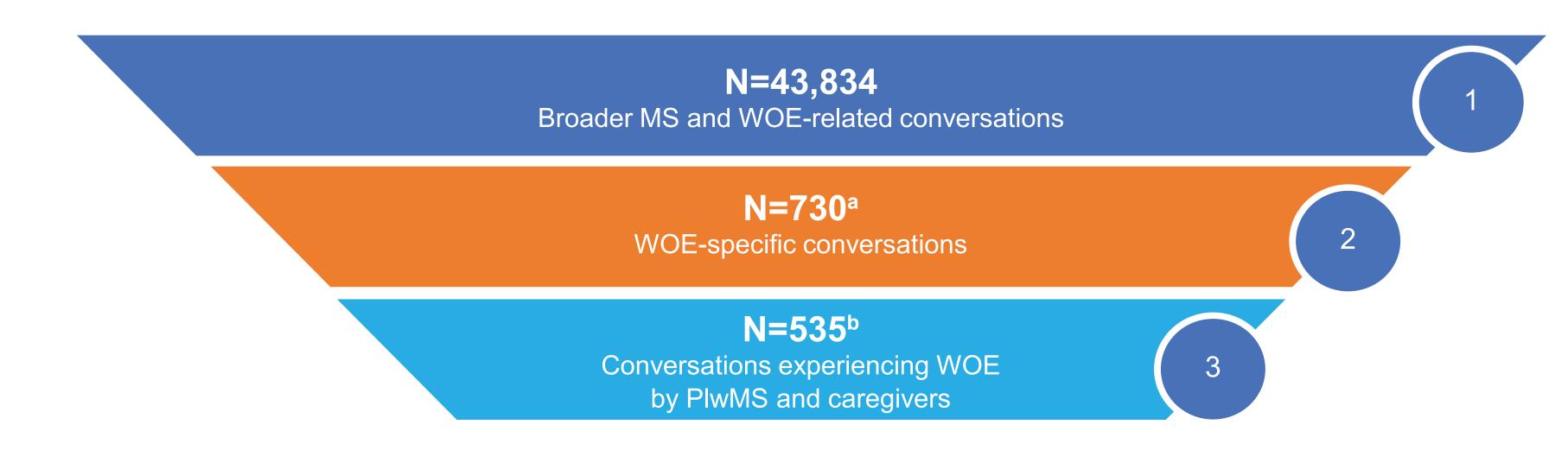
Methods

- Publicly available conversations related to WOE on social media including Reddit, Twitter, blogs, and forums were retrospectively reviewed
- A combination of Brandwatch to locate and aggregate data, in-house analysis tools to categorize and filter data, and manual review of each of these conversations by experienced healthcare analysts to identify trends and outliers was used
- WOE-specific conversations in English and posted between 1 Feb 2020 and 16 Feb 2022, authored by stakeholders including PlwMS, caregivers, HCPs, and advocacy groups were analyzed
- These conversations were collected and categorized based on the author's self-identification within the post content or within public social media biographies
- A specific search term-based funnelling methodology was used to identify the conversations related to WOE. Search methodology involved collecting a wide range of posts that mention disease terms ("MS", "multiple sclerosis") and also mention WOE or symptom related terms ("tired", "worsening", etc)
- All data were presented descriptively, and no statistical analysis was performed

Results

- Overall, 43,834 conversations related to broader MS and WOE were identified (Figure 1)
- Of these, 730 conversations were WOE-specific^a and 725 were authored by PlwMS or caregivers
- Of the 730 conversations, 535 were specifically related to experiencing WOE^b

Figure 1. Data from the social listening



^aConversations that mention WOE as potential experience but do not elaborate on personal experience of WOE ^bConversations that mention WOE as potential experience and do elaborate on personal experience of WOE, either past or current MS, multiple sclerosis; HCP, health-care practitioner; WOE, wearing-off effect

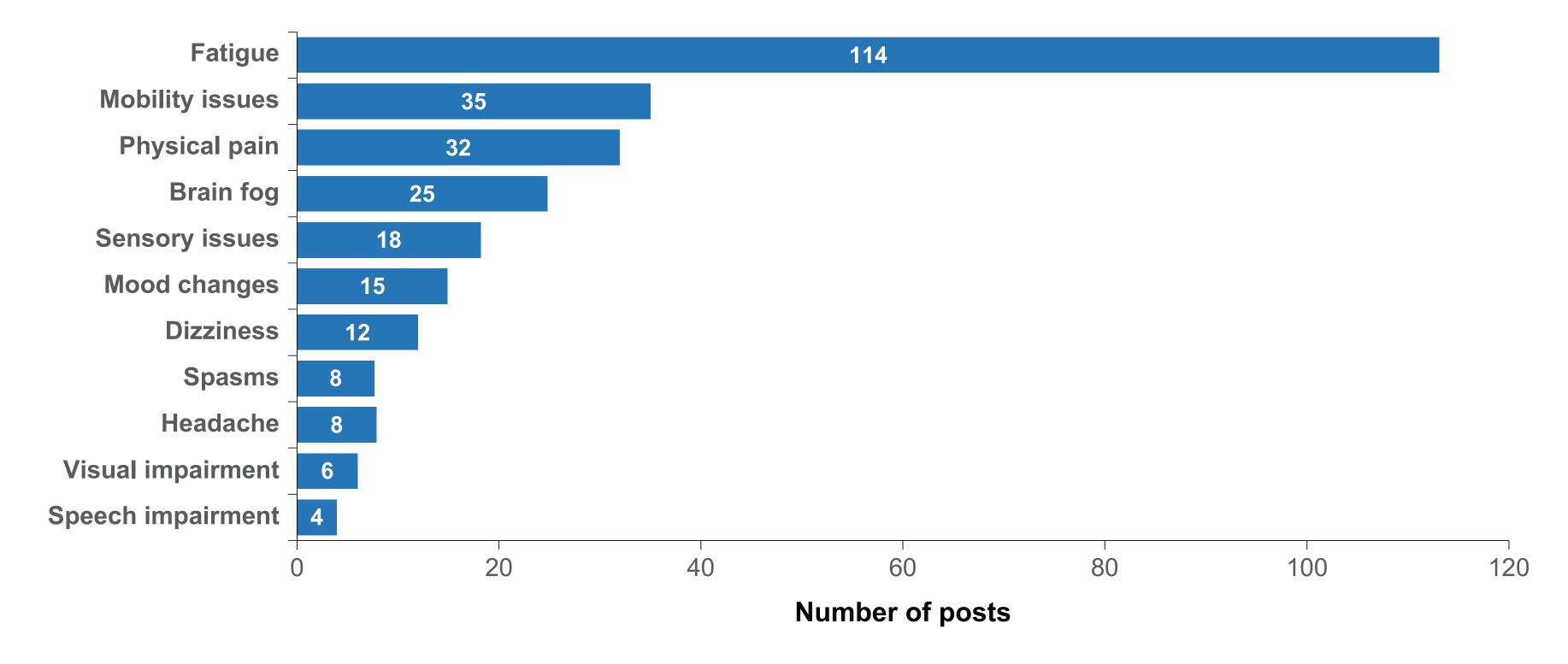
WOE-associated treatments

- Of the 535 conversations authored by caregivers and PlwMS experiencing WOE, 343 conversations (64%) mentioned at least one treatment used by the patient while experiencing WOE; 192 posts referred to unidentified treatments (36%)
- Within the 343 conversations, there were a total of 371 treatment mentions; commonly mentioned treatments were ocrelizumab followed by natalizumab (Data may be influenced by the number of patients using specific DMT)

WOE-associated symptoms

• Fatigue was also the number one reported symptom across treatments

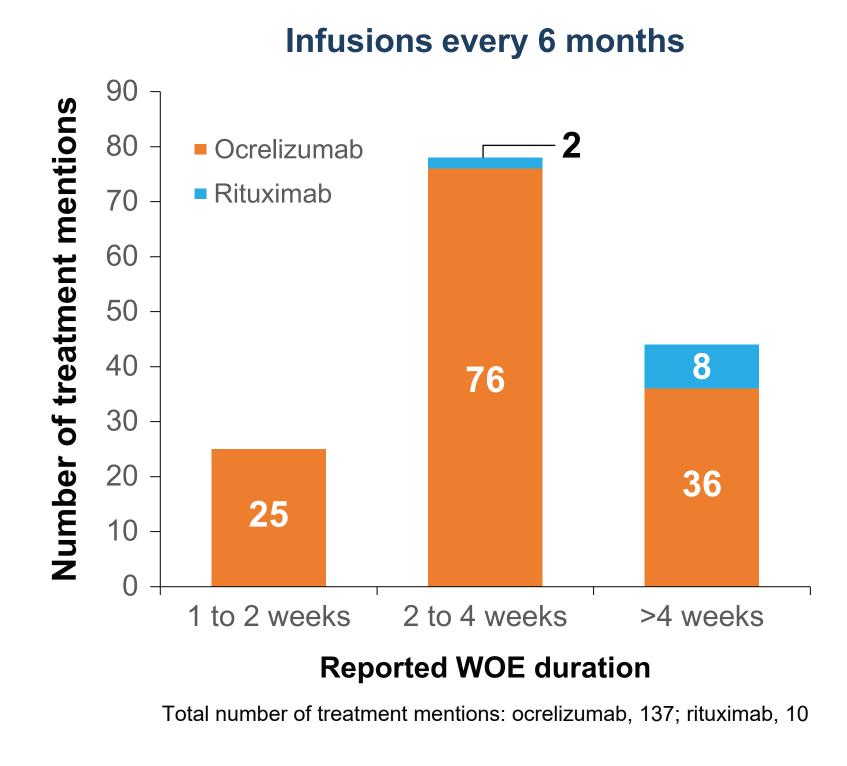


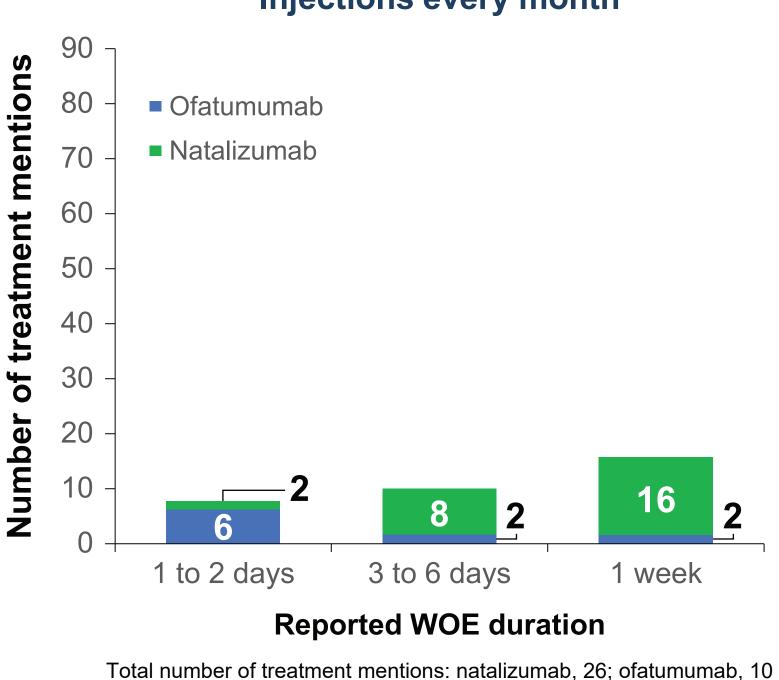


WOE-associated duration

• Caregivers and PlwMS experiencing WOE and specifying their treatment reported a wide variety of WOE durations (Figure 3)

Figure 3. WOE durations by treatment





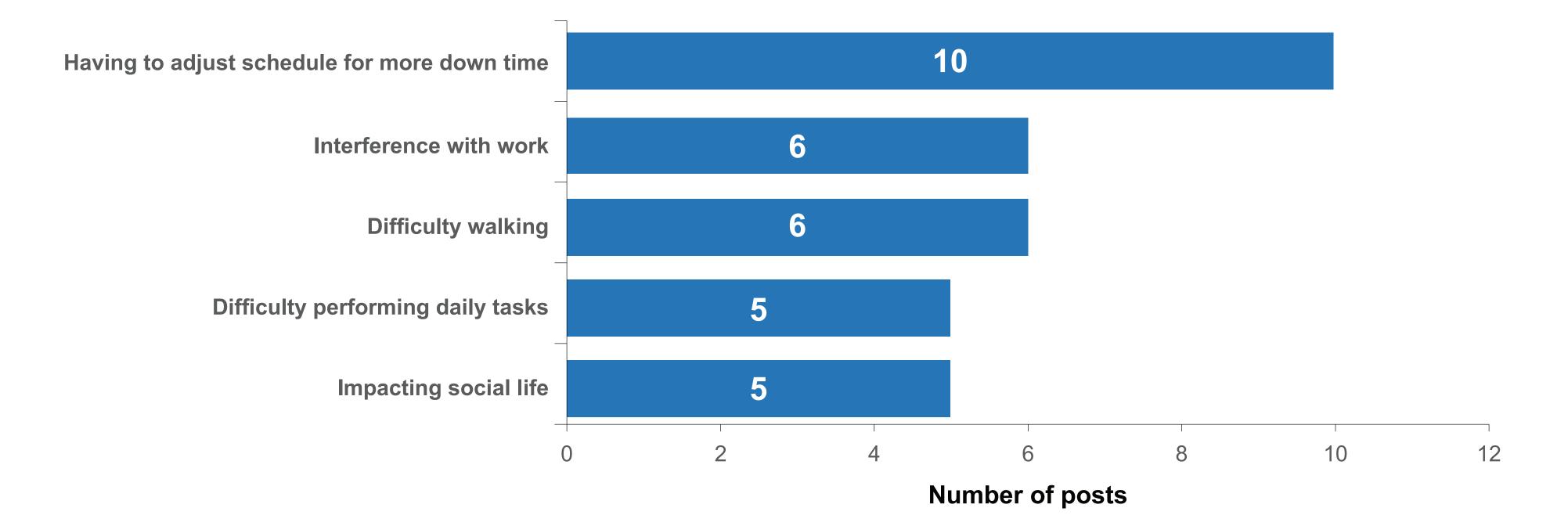
Injections every month

- WOE duration was mentioned a total of 183 times within 172 posts
- Among 6-month interval DMTs, 2-4 weeks of duration was most commonly mentioned for ocrelizumab and over a month for rituximab
- Of the monthly-injection interval DMTs, 1 week duration was commonly mentioned for natalizumab and 1-2 days for ofatumumab

Impact of WOE on patients' daily life

• Of the 343 conversations authored by PlwMS and caregivers experiencing WOE and specifying their treatment, 32 (9%) conversations mentioned a negative impact on the daily life of patients such as need for more down time, interference with work, and difficulty in walking (Figure 4)

Figure 4. WOE-associated impact on patients' daily life activities



WOE – Conversation themes and coping mechanisms

- Of the 343 conversations authored by caregivers and PlwMS experiencing WOE and specifying their treatment conversations revolved around solutions against WOE (Figure 5), as well as support and information exchange (Figure 6)
- Mostly, patients on infusions every 6 months discussed solutions against the WOE more often than patients with monthly treatment
- Of the conversation that revolved around solutions against WOE (n=83), switching to other DMT was the coping mechanism most mentioned by patients, followed by reducing intervals between infusions

Figure 5. WOE – Conversation themes – Solution oriented

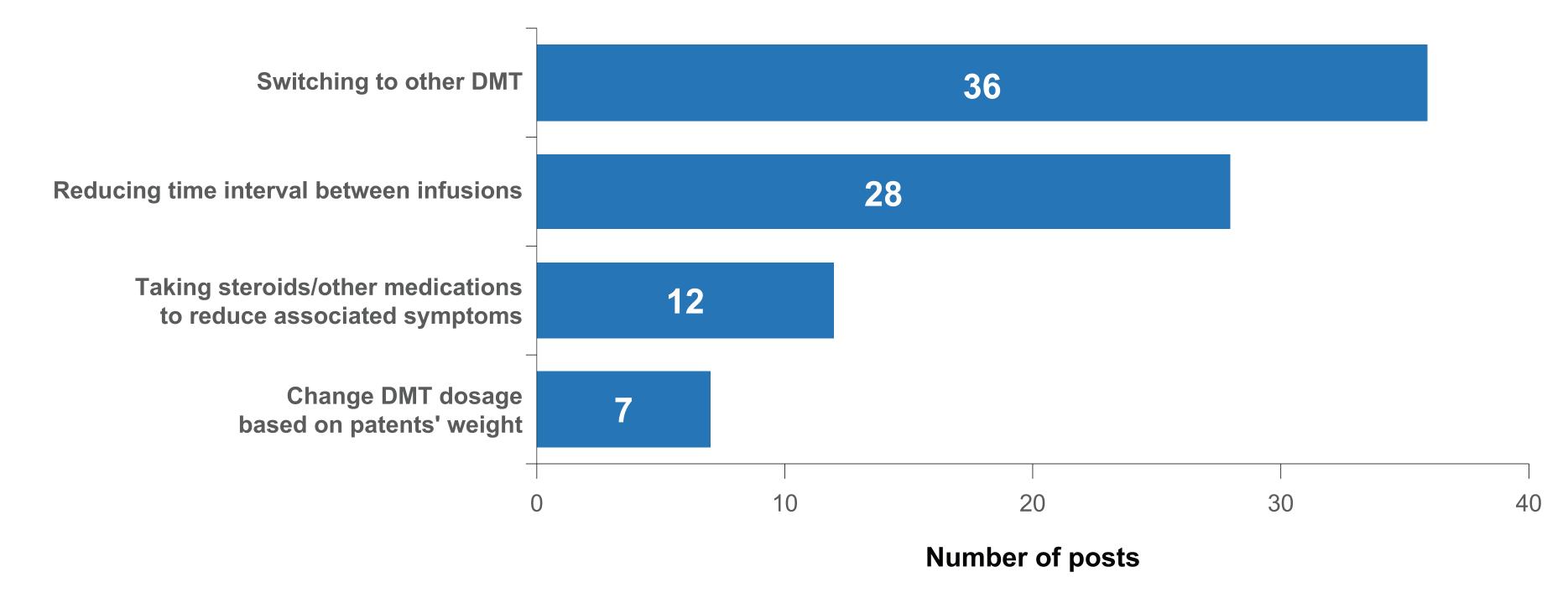
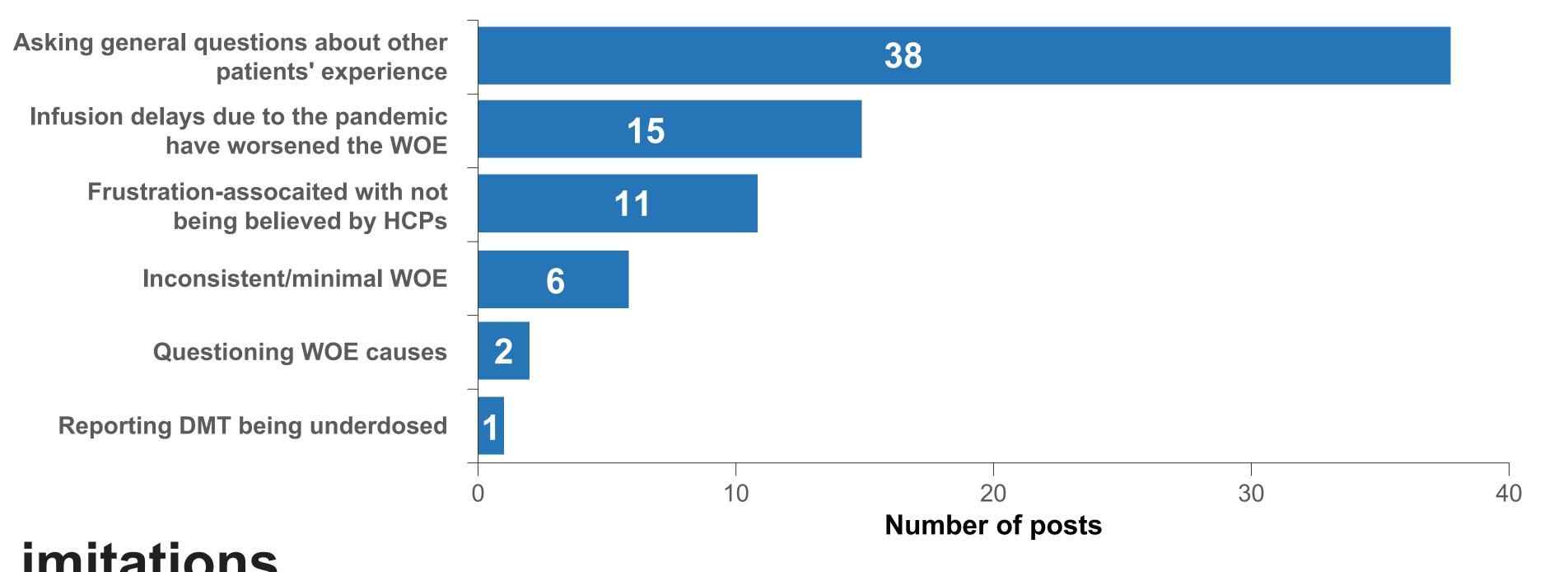




Figure 6. WOE – Conversation themes – Support-based conversations



Limitations

- Limitations of social media listening include susceptibility to misinformation, potential for bias (certain types of patients may be more motivated to interact on social media than others), relative lack of socioeconomic and demographic information, and a risk of duplication of data among the population⁷
- Data presented for various DMTs may be influenced by differing durations of DMTs in the market and number of patients using specific therapy

Conclusions

- This exploratory study of social media conversations found mentions of WOE by patients receiving DMTs was common, as were reports of WOE-related symptoms impacting patients' daily life
- Switching to other DMTs was the most common mentioned coping mechanism
- Further research is required to understand the impact of WOE on PlwMS and the potential gap between HCP and patient perceptions/awareness of WOE

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