

Impact of gout flare triggers

**Title:** The impact of gout flare triggers: a qualitative interview study of people with gout

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## Impact of gout flare triggers

Dear Editor,

Recurrent gout flares are the primary clinical characteristic of gout, resulting in intense inflammation and pain. A number of triggering factors for gout flares have been identified by people with gout, including factors related to physical activity and joint trauma [1], medical illness [2], vaccinations [3], diet [4-6], alcohol [7], and medications (e.g., diuretics, low-dose aspirin) [8, 9]. Despite the extensive reporting of gout flare triggers [1-9], an in-depth qualitative inquiry exploring how these triggers impact people with gout has not been reported. It is unknown how gout flare triggers may impact day-to-day life for people with gout, including the adoption of trigger avoidance behaviours, modification of activities and the impact these may have on psychological wellbeing. Understanding the impact of gout flare triggers from the perspective of people with gout, may advocate for the important role of urate lowering therapy, coupled with trigger avoidance behaviours, in the long-term management of gout. We therefore conducted a qualitative interview study to understand the impact of flare triggers from the perspective of people with gout.

We used public and online advertising to recruit 13 people aged > 20 years with a self-reported physician diagnosis of gout (by their general practitioner or rheumatologist). Ethical approval was granted by the AUT Ethics Committee (AUTEC 22/236) and all participants provided informed consent prior to taking part. Participants attended a single interview with a member of the research team (SS) who had >5 years of experience in qualitative gout-related research. An interview schedule was used to guide discussion which included key questions related to participants' experiences of gout flares, gout flare triggers, and the impact of gout flare triggers on their lives. Questions were open-ended, and prompts were used as necessary to encourage discussion. The interview schedule was developed by the research team which consisted of a rheumatologist, cultural advisor, and researchers experienced in gout-related and qualitative research. The schedule was designed to guide the interviewer in encouraging rich dialogue and cultural or other diversity. The schedule was further adapted using an iterative approach as the interviews progressed to gain deeper understanding of experiences and perceptions of participants relevant to the research aim. All interviews were audio-recorded and transcribed verbatim. Data were analysed using the six-phases of reflexive thematic analysis [10]. This process involves iterative and reflexive cycles of coding and reflecting on data to produce themes that represent contextually sensitive insights addressing the research aim.

Demographic characteristics of the 13 participants are shown in **Table 1**. Most participants reported experiencing multiple gout flares in the previous six months and only four were taking urate lowering therapy at

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the time of data collection. Most participants reported at least four individual triggers that they believed had caused previous gout flares. The majority of self-identified triggers were related to diet; most commonly seafood (54% of participants), alcohol (38%), sugar/sugar-sweetened beverages (31%), and tomatoes (31%). Very few participants reported non-dietary triggers, including injury (23% of participants), stress (15%), dehydration (15%), urate lowering therapy (15), physical activity (8%), COVID vaccine (8%) and air travel (8%). Three themes were constructed from the interviews: (1) Uncertainty and confusion about gout flare triggers; (2) Adoption of strategies to avoid or reduce gout flare triggers; and (3) Avoidance behaviours impact many aspects of day-to-day life. Illustrative quotes are shown in **Table 2**.

Theme 1 (Uncertainty and confusion about gout flare triggers) was related to the unpredictability of gout flares and the difficulty participants had in identifying what had triggered them. This was particularly apparent for those who didn't feel they had changed anything in the days preceding a flare. Triggers also appeared to differ from flare to flare, leading to feelings of uncertainty, anxiety, and confusion about what exactly was triggering them. This was further compounded by the overwhelming amount of conflicting information about gout flare triggers that participants received, which was largely focused on avoidance of specific foods and drinks. Trigger information sometimes came from health professionals, but many participants attempted to learn about gout flare triggers from internet searches, books, social media support groups, or by listening to family members and friends who also had gout.

Theme 2 (Adoption of strategies to avoid or reduce gout flare triggers) encompassed a number of behaviour change strategies. Many participants used trial-and-error or self-experimentation strategies to identify gout flare triggers. For some, this involved avoiding a potential trigger to see if it made a difference to the frequency of their flares, and for others this involved consciously exposing themselves to something that may have triggered a previous flare for confirmation. Overall, behaviour change strategies were largely motivated by the pain of a gout flare with participants prioritising avoidance or reduction of an identified trigger in their day-to-day life to reduce of flare recurrence. Despite the high rate of gout flares among participants, some preferred trigger avoidance strategies over long-term urate lowering therapy, primarily due to concerns with the number of other medications they were taking, or with medication efficacy or safety.

The final theme, Theme 3 (Gout flare trigger avoidance behaviours impact many aspects of day-to-day life), illustrated the multi-dimensional impact of gout flare triggers. Gout flare triggers impacted family and social activities for many participants particularly when eating together with friends and family was an

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important part of participants' cultural and social life. Gout flare triggers also impacted recreational activities and work life. For some, exercise and keeping fit contributed to mental wellbeing, and having to cut back or avoid sporting activities to avoid gout flares had a major impact. Some triggers were unavoidable for certain occupations, such as jobs that involved air travel, high-stress jobs, or those that involved physical labour. Finally, trigger avoidance behaviours also had a huge impact on dietary freedom. Feelings of frustration and annoyance were expressed when items they regularly enjoyed eating were included on a list of items to avoid. As a result, their diets felt very restrictive.

This qualitative study has provided unique insights into the experience of people with gout when attempting to prevent gout flares. Feelings of uncertainty and confusion are prominent, particularly when identifying potential triggers. This leads to the adoption of various behavioural change strategies which impact many day-to-day activities, including those related to family, social, and work life.

People with gout are frequently overwhelmed by the information available to them about the causes and management of gout [11]. Despite the intent of health practitioners to inform and educate patients, people with gout also seek information about gout from other sources, including family, friends, websites and printed materials [11], which reinforce depictions of gout being a self-inflicted condition triggered by gluttony and overindulgence, with very little focus on urate lowering therapy.

In our study, self-management of gout focused on trigger reduction and/or avoidance and was not only challenging and often ineffective but placed considerable burden on many aspects of patients' lives. Although very high consumption of some dietary items may increase the risk for incident gout among the general population [4-7, 12], many other factors influence serum urate concentrations, including kidney function, diuretic use and genetics [13, 14]. In addition, very few participants in the current study were taking urate lowering therapy, and some even identified urate lowering medication as a gout flare trigger. These findings suggest that the importance of urate lowering therapy in reducing serum urate and managing gout flares, may not be fully understood by all people with gout, leading to a focus on dietary-related behavioural change strategies. In contrast to numerous clinical trials demonstrating the benefits of urate lowering medication, there are no trial data to support dietary modification as an effective management approach for gout [15]. The experience of urate lowering medication as a trigger can be disincentive for some people with gout, but can be reduced by the use of colchicine prophylaxis or starting on a low dose [16]. Although the effectiveness of pharmacological gout management is well evidenced, the results from the current study suggest that barriers to

optimal care may still exist in clinical practice. This reinforces the importance of adopting a patient-centred model that uses a health literacy approach focused on patient understanding alongside consistent and optimal prescription of urate lowering therapy by practitioners.

This study has some strengths and limitations. Firstly, although the sample size was relatively small, our study had a high level of information power due to the focused study aim, sample specificity, use of established theory, strong interview dialogue and robust analysis strategy [17]. Secondly, participants were primarily recruited from the general community by online advertising with very few taking urate lowering therapy. Their experiences of gout flare triggers may therefore not be generalisable to all people with gout, including those recruited from health care settings. The influence of medication adherence and how this may impact participants' experiences and approaches to gout flare triggers was also not directly explored in this study. Pacific Peoples were underrepresented in the study sample, despite having the highest prevalence of gout in Aotearoa/New Zealand. The findings may therefore not reflect cultural differences in the experience of gout flare triggers, particularly considering the cultural significance of some known flare triggers (i.e., the importance of food extending beyond nourishment to connections with community, generosity, and prosperity in many Pacific cultures). Finally, serum urate levels were not assessed as part of this study, limiting the ability to comment on the association between participants' experiences and the degree of hyperuricemia. Similarly, detailed data relating to comorbidities were not collected, however any impact that other health conditions had on participants' experiences of gout flare triggers were captured during the natural interview process.

Despite these limitations, the findings from this qualitative study have shown that people with frequent gout flares experience challenges in identifying and managing gout flare triggers. Behavioural change strategies are not always effective, have a strong diet focus, and impact many aspects of day-to-day life. These findings highlight the importance of continued initiatives to improve management of this condition.

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**Table 1.** Participant demographic and medical characteristics

N		13
Gender, n (%)	Women	2 (15.4%)
	Men	11 (84.6%)
Age, years, mean (SD)		59.2 (13.5)
Ethnicity, n (%)	NZ European	9 (69.2%)
	Māori	2 (15.4%)
	Asian	2 (15.4%)
Disease duration, years, mean (SD)		9.8 (7.6)
Number of gout flares in last 6 months, mean (SD)		2.2 (1.4)
Number of gout flares in last 6 months, n (%)	0	1 (7.7%)
	1	3 (23.1%)
	2	5 (38.5%)
	3	2 (15.4%)
	4	0 (0%)
	5	2 (15.4%)
Current medications for gout, n (%)	Non-steroidal anti-inflammatory drugs	9 (69.2%)
	Analgesics (paracetamol, codeine)	4 (30.8%)
	Urate lowering therapy <sup>a</sup>	4 (30.8%)
	Colchicine	4 (30.8%)
	Prednisone	3 (23.1%)
	Natural supplements (turmeric, celery seed)	3 (21.3%)

<sup>a</sup>Three further participants reported previous use of urate lowering therapy.

**Table 2.** Illustrative quotes

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**Theme 1. Uncertainty and confusion about gout flare triggers**

*“You realise that you know, every time you drink cider, or have a glass of cider or whatever, within a couple days, generally your ankle will swell up, but not every time, not every time.” (P002)*

*“I think “Oh, if I eat that will I get it?” you know? Um, yeah just a bit anxious and see-, yeah, ... I don't get it constant, so, yeah, I think I do think, “Oh, if I have that, will I get gout?”” (P010)*

*“Well he- mister um, Mr. Doctor said he doesn't know whether it's tight shoes, or the flappy shoes. He said either one could um, cause it. So, I asked him “well which one?” so I can avoid it. But he doesn't know.” (P003)*

*“It's just what you read on the Internet and Google you know, umm, seafood stuff and umm, that sort of thing like that so they tend to- tend to ah say avoid umm, lots of meat and stuff like that.” (P004)*

*“I remember from friends who have it, the first thing is not to eat nuts and yep, and so seafood is another big item that you don't touch, seafood.” (P013)*

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**Theme 2. Adoption of strategies to avoid or reduce gout flare triggers**

*“Could have been possibly the pork chop. I'm kind of putting it to that it could have caused it for some reason because people say that pork is not good with uric acid, um, so I've got another one in the freezer and I'll wait until all this heals up and then I'll cook it and I'll see what happens.” (P006)*

*“A few days after my gout subside ... I wanted to try out whether that would come back again, so I tried a bit of the durian and seafood, I think I remember, and I realized, “Oh, I got it again”.” (P013)*

*“I dread having them, because you know, because of the pain, and so yeah, I'm always aware. You know of what I'm-, you know, what I'm eating.” (P012)*

*“I did read about the tomatoes but um, in moderation... I am definitely going to try it 'cause I don't want to take that pain again.” (P008)*

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*“I mean yeah they are things that I really like eating um, but like I say, like knowing that it has a higher likelihood of me getting um, gout I just stay away from them and that's pretty much how I do now yeah.”* (P005)

*“I've been pretty much able to, control it by what I eat, really, so ... that's probably how I'd prefer to do it. I'd rather not take any drugs if I don't have to”* (P001)

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### **Theme 3. Gout flare trigger avoidance behaviours impact many aspects of day-to-day life**

*“I was at a function, you know, and they're handing these things around and I was hungry so I took one and I only had one so it just came on about 10 minutes later.”*  
(P007)

*“My missus said “if you realise every time you had a couple of ciders, within two days you've got bad ankles again” and, because my missus keeps a track of things, she's actually writing down, when, my ankles go bad and she's written down, you know, I've had a cider.”* (P002)

*“It was easy because [wife's name] will cook me things that are non um- goutish.”* (P003)

*“Now when I hike I wear like slightly higher hiking boots so I don't get that slight little roll or that slight little twinge off of a rock.”* (P002)

*“While COVID was around, you know, we-, It was pretty stressful for us because we had to close and things like that so um, yeah, mind-, I think, you know I did have, you know like a series of attacks in that period of time.”* (P012)

*“I'm an automotive machinist ... it requires us to get down to them, you got to kneel down to work on them ... I said “if you want me to fix it you pull the motor out and put it on my bench” then I'll fix it.”* (P007)

*“I haven't avoided eating oysters, but I have avoided eating too many, more than-, yeah more than six”* (P009)

*“One big steak, one slice of the backside of a venny [venison], I get gout, one slice of tomato, “bang” I get gout. I said “what?!”, man all the good stuff that I want.”*  
(P011)

*“Usually I try to, I dunno, balance out what I eat and kind of get rid of the ones that I'm not so necessarily keen on ... I do like a bit of venison steak, so I try and get rid of other things so I can have that.”* (P001)

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