

1 Stakeholder perspectives on the term 'time toxicity' to describe healthcare contact time  
2 associated with cancer treatments

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4 Supplementary Appendices

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Domain 1: Research Team and Reflexivity			
Personal Characteristics			
1	Interview	Which author(s) conducted the interviews or focus group?	One researcher carried out interviews (SS).
2	Credentials	What were the researcher's credentials?	SS is a PhD candidate, holds an MBBS (Hons) and is a Fellow of the Royal Australasian College of Physicians accredited to practice as a Medical Oncologist.
3	Occupation	What was their occupation at the time of the study?	SS is a medical oncologist and PhD Candidate employed at Concord Hospital.
4	Gender	Was the researcher male or female?	SS is male.
5	Experience and training	What experience or training did the researcher have?	SS has experience interviewing patients via his employment and was instructed on qualitative interviewing by JS, who is an experienced psycho-oncology researcher. This included practical training. JS provided additional indirect feedback via review of interview transcripts.
Relationship with participants			
6	Relationship established	Was a relationship established prior to study commencement?	SS had worked professionally with some participants as a trainee or colleague in the same department.
7	Participant knowledge of the interviewer	What did the participants know about the researcher?	Three participants worked in the same department as the interviewer. Other participants were aware of where the

			<p>researchers worked and purpose of the research. It was disclosed that this research would contribute to SS partially satisfying the requirements of a PhD.</p> <p>Participants were self-selected and the existing relationships did not impact on participation.</p> <p>None of the authors participated in interviews.</p>
8	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator?	The PIS declared that the interviewer was conducting this research to partially satisfy the requirements of a PhD.
<b>Domain 2: Study Design</b>			
<b>Theoretical framework</b>			
9	Methodological orientation and theory	What methodological orientation was stated to underpin the study?	Grounded theory was used. An inductive approach to analysis was taken, using thematic analysis, tied to a framework approach. A team-based, reflexive approach was used to coding, using the constant comparison method.
<b>Participant selection</b>			
10	Sampling	How were participants selected?	A purposive sampling strategy was used to select patient and caregiver participants as described in the manuscript. The researchers contacted the treating oncologists to identify potentially suitable patients and caregivers for interview.

			<p>A convenience sample of GI oncologists were recruited through participating sites, email and social media advertising with assistance from the Australasian Gastro-Intestinal Trials Group (AGITG) and Friends of the Sydney Cancer Survivorship Centre (FSCSC).</p> <p>The recruitment period was 5<sup>th</sup> October 2023 to 7 February 2025.</p>
11	Method of approach	How were participants approached?	<p>Patient and caregivers: Oncologists were initially informed of the study via departmental presentation and email invitation. They were encouraged to approach potentially eligible participants during routine clinical encounters. After verbal consent was provided, participants were contacted by a member of the research team.</p> <p>Oncologists at participating sites for the patient/caregiver study were informed of the study via departmental presentation and email invitation. If they wished to participate in the study themselves, they were required to approach a member of the research team.</p> <p>Other oncologist interview participants were recruited via email and social media advertising through the AGITG and FSCSC social media and email newsletters.</p>
12	Sample Size	How many participants were in the study?	45 participants took part in semi-structured interviews.

13	Non-participation	How many people refused to participate or dropped out? Reasons	Participants who were initially approached who did not subsequently participate were recorded in the study database. Reasons for non-participation were not required. This included 3 patients, 1 caregiver, 1 oncologist.
<b>Setting</b>			
14	Setting of data collection	Where was the data collection?	Face-to-face interviews were conducted in a private clinical setting; online-interviews were conducted using Microsoft Teams (NSW Health License).
15	Presence of non-participants	Was anyone else present besides the participants and researchers?	Only the researcher and participants were present.
16	Description of sample	What are the important characteristics of the sample?	Important demographic information is summarised in the manuscript (Table 1).
<b>Data collection</b>			
17	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Semi-structured interview guides were developed by the researchers in consultation with a patient advocate and used during interviews. These were pilot tested in the initial interviews and amended iteratively. No major revisions were required.
18	Repeat interviews	Were repeat interviews carried out?	No repeat interviews were required.
19	Audio/visual recording	Did the research use audio or visual recording to collect the data?	Interviews were audio recorded using Microsoft Teams. Visual data automatically captured during recording was deleted by the researcher prior to transcription.

20	Field notes	Were field notes made during and/or after the interview?	No field notes were routinely collected.
21	Duration	What was the duration of the interviews?	Participants were advised that interviews would take up to 45 minutes. At 45 minutes, the interviewee was informed of the time and verbal consent was required to continue.  Interviews ranged from 22 to 60 minutes.
22	Data saturation	Was data saturation discussed?	Transcripts were reviewed and coded using the constant-comparative method. A teams based reflexive approach was used to continually assess for data saturation in the overall study (perspectives on healthcare contact time in patients, caregivers, and oncologists).
23	Transcripts returned	Were transcripts returned to participants for comment and/or correction?	To ensure fidelity to the participants' original impressions, transcripts were not returned for review.
<b>Data analysis</b>			
24	Number of data coders	How many data coders coded the data?	Two researchers (SS and EE) coded transcripts independently, as described in the manuscript. Coding schemas were refined iteratively in consultation with JS.
25	Description of the coding tree	Did authors provide a description of the coding tree?	A coding tree is available on request from the authors.
26	Derivation of themes	Were themes identified in advanced or derived from the data?	Themes were derived from the data.

27	Software	What software, if applicable, was used to manage the data?	NVivo 14 for Mac, licensed to the University of Sydney.
28	Participant checking?	Did participants provide feedback on the findings?	No.
<b>Reporting</b>			
29	Quotations presented	Were participant quotations present to illustrate the themes/findings? Was each quotation identified?	Quotations have been presented throughout the manuscript.
30	Data and findings consistent	Was there consistency between the data presented and the findings?	We endeavoured to report the study findings in a clear consistent manner to accurately reflect the data that have been collected.
31	Clarity of major themes	Were major themes clearly presented in the findings?	Yes, major themes are presented in the manuscript.
32	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	All data relating to the development of coding is presented in the manuscript.

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## Supplement 2: Framework Analysis

Transcription	<p>In this study, transcription was carried out by two authors (SS and EE). Transcription was initially performed automatically, using the online transcription service TRINT (<a href="http://www.trint.com">www.trint.com</a>). SS and EE then examined transcripts for accuracy. We were primarily interested in the content of responses, thus, only long pauses, interruptions, non-verbal communication (laughter, crying) were noted within the text. Transcripts were checked for errors by peer review and clarification in regular research meetings.</p>
Familiarisation	<p>Three members of the research team reviewed initial transcripts (SS, EE, JS) to refine the question guide and provide feedback on interview style. SS and EE read and re-read all transcripts and listened to audio-recordings to become familiar with the whole dataset. Initial impressions were recorded using the annotation function in NVivo prior to coding.</p>
Coding	<p>Two members of the research team (SS, Medical Oncologist and PhD Candidate, and EE, Pharmacist and Medical Student) coded the same three transcripts in each cohort before meeting to discuss emergent codes. Codes consisted of short phrases to whole paragraphs describing a particular phenomenon or idea. We used a constant comparative method to ensure consistency of coding, with review by experienced qualitative researchers (JS).</p>
Developing a working analytical framework	<p>SS and EE coded the same three transcripts in each cohort, then met to discuss emergent codes. An initial coding framework was developed in consultation with JS. Disagreements about coding labels were discussed and consolidated, with input from a senior author if needed. A brief description was included in the codebook for consistency. Using this framework, a further three transcripts each were coded, before further meetings to revise and refine the framework. This process was repeated until no new themes were generated, and the final thematic framework was agreed.</p>
Applying the analytical framework	<p>We applied the final analytical framework to each transcript by importing transcripts in QSR NVivo version 14 for Mac and attaching appropriate codes</p>

	from the analytical framework. All authors participated in organising codes into categories reflecting prominent themes within the data set.
Charting data into the framework matrix	A matrix was presented for each theme by abstracting, summarising and charting data for each case and each code within that theme.
Interpreting the data	Thematic analysis was carried out on the data set by reviewing matrices and making connections within and between codes and participants. This process allowed for explorations on how patients, caregivers, and oncologists within our dataset reacted to terminology used to describe healthcare time.

Supplement 3: Codebook

Theme: Positive Reactions		
Node	Code	Quote
Time as a side-effect of treatment		<p>“I think it is a toxicity, isn't it? It's it's, a burden to the patient. An added issue that the patient has to deal with that they wouldn't otherwise if we didn't do the treatment we're proposing. So I think it's I think it's apt. It's just a bit jargony that's all.” (O-20)</p> <p>“I can definitely relate to that. I think it is, you know, toxic to our time because to be honest, it's all you can think about a lot of the time, you know... the patient and carer.... You're both just thinking about it, talking about it. And it does take up an envelop a lot of your time” (C-7)</p>
Prompts consideration of treatment value		<p>“I think it almost needs to be considered a term alongside treatment toxicity” (O-27)</p> <p>“I that it's kind of important to frame it in that way so that we as health professionals, identify it as being something which has a significantly negative impact on, on our patients” (O-21)</p>

		<p>"I think it's an excellent - like I don't have a problem with the term. I think it's a really important concept for us to think about how much good time we're giving patients." (O-65)</p>
<p><b>Theme: Negative Reactions</b></p>		
<p><b>Node</b></p>	<p><b>Code</b></p>	<p><b>Quote</b></p>
<p>Negatively value-laden</p>	<p>Discounts positive experiences</p>	<p>"I felt it could have been a more moderate terminology for the time involved.. I just don't think that's a good description of how I would describe the time," because, to be honest, so for us up to this point, (patient) has had a really good response. The time involved is neither here nor there. It's been fantastic that (patient) had a response. So it's a positive time in a way." (C-16)</p> <p>"That's very negative, that word toxic...this journey of the patient being sick has actually been mind blowing for us as a family (and) really has brought us together a lot and for the better." (C-45)</p> <p>"I've learned a lot from here. And the people that I've learnt from are, can be the patient next to me, or the staff, or doctors, or whatever. My new bar for life is cancer. That's my new, what is it? New 'normal'? So everything else for there me pales into insignificance." (P-6)</p>

	<p>Implies judgement on patients decisions</p>	<p>I don't find it a burden. And I know I'm here for a reason. I'm just, I'm not here wasting my time. (P-1)</p> <p>"I don't consider it toxic, me coming here. When I come here. It's for me. It's for me to become healthy again" (P-2)</p> <p>"No. No. That's my medication time. Oh no. I'm sure that people would think like that. But I'm not one of them." (P-6)</p>
	<p>Potential for emotional distress</p>	<p>"I think it reflects that it's a disease, like 'toxic'. And, when you say time it, it puts it together like we've only got a certain amount of time before this disease gets us." (C-38)</p> <p><i>"I didn't like the term because I felt it was a negative term and I didn't...think that that was necessary. There's enough negativity with thought processes and mental health anyway, without another term."</i></p> <p>(C-16)</p>
<p>Not intuitive or inaccurate</p>	<p>Abstract or inaccurate meaning</p>	<p>"Time can't be toxic. It's not that the time is toxic. It's (that) the time is lost because... well maybe it's not lost.... There are some articles written by cancer patients who think who say that they have enjoyed every moment in the chemotherapy chair and got to know people and it's changed their life and they've started thinking about life differently" (O-58)</p>

		<p>"I don't know whether it is quite accurate. Toxicity, to my mind, is something like poisoning, which (time) is not. I mean that's just kind of because my profession is words. I'm a stickler for using words with precision." (P-11)</p>
	Overly jargonistic	<p>"I think if you're amongst your medical colleagues that's a term you would use. With everyday people? I think that is just another word that makes it sound even more... more scary. Let's call it something else." (P-6)</p> <p>"I wouldn't imagine any person with lived experience really understands what that means. I think you need to ask cancer patients what words would be better to describe that." (O-58)</p>
	Time is neither positive nor negative	<p>"I don't see it as a toxin, I see it as a trade off." (P-11)</p> <p>"If you don't treat it, you can't do other stuff." (P14)</p> <p>"It's just a sacrifice you have to make." (C-15)</p> <p>"It is just a part of their life. And it's part of what this diagnosis has required them to do with themselves." (O-21)</p>
<b>Theme: Alternative Terms:</b>		
<b>Node</b>	<b>Code</b>	<b>Quote</b>

Positive framing		<p>“Time of independence” (O-56)</p> <p>“Time Investment” (C-12)</p> <p>“Time away from doctors” (O-56)</p>
Value-neutral terms		<p>“Time trade-off” (P-11)</p> <p>“Time commitments” (C-16; O-19; O-20; O-25; P29; P-45)</p> <p>“Time requirements” (O-25)</p>
Negative framing / cost-focused		<p>“Time cost” (P-10; P-11)</p> <p>“Inconvenience of treatment” (O-25)</p> <p>“Time burden” (O-60; O-20)</p>

Supplement 4: Coding Matrices According to Participant Demographics

	Critiques of time 'toxicity'		Supportive Perspectives	
(n)	Number of files (number of codes)	Exemplar Quote	Number of files (number of codes)	Exemplar Quote
<b>Cohort: Patient (20)</b>	<b>18 (46)</b>	<i>That's not a fair term. It's not toxic. I don't - I don't understand what they were thinking." (P-14)</i>	<b>6 (11)</b>	<i>"you're pretty right. It takes up your time. The time you got left...it'd be alright if them drugs were super effective" (P-35)</i>
<b>Cohort: Carer (10)</b>	10 (31)	<i>"I didn't like the term because I felt it was a negative term and I didn't...think that that was necessary. There's enough negativity with thought processes and mental health anyway, without another term." (C-16)</i>	2 (3)	<i>I think that's a really interesting term and I think it's an important thing to discuss, particularly when something is so ongoing (C-7)</i>
<b>Cohort: Oncologist (15)</b>	12 (29)	<i>"there are patients who actually love coming and spending time in the cancer centre.... So (I) don't think it's toxic, right? It's time impacts. Impacts on time of treatment, (some of) which may actually be necessary." (O-63)</i>	9 (20)	<i>"I think "time toxicity" is fine. It's evolved, it is internationally there, it's there to stay. But I think there's an opportunity to catch the positive in a way that actually if it receives widespread acceptance, is really helpful to the patient discourse." (O-58)</i>

<b>Gender: Female (22)</b>	20 (61)	<i>"Going through the actual treatment itself, is (hesitates) We just think it's giving us life." (C-37)</i>	7 (11)	<i>"I think it's an excellent - like I don't have a problem with the term. I think it's a really important concept for us to think about how much good time we're giving patients." (O-65)</i>
<b>Gender: Male (23)</b>	20 (45)	<i>Yeah, it's it's, it's quite strong. You know, the word toxicity...S ometimes we meet good people over at the hospital like so she had a one friend who has a similar treatment with her. C-13</i>	10 (23)	<i>"I think it's a great term....I think it almost needs to be considered a term alongside treatment toxicity." (O-27)</i>
<b>Education: Non-tertiary (24): Primary/High school, Diploma.</b>	23 (61)	<i>"I don't consider it toxic me coming here. It's like this when I come here. It's for me. It's for me to become healthy again." (P-2)</i>	5 (9)	<i>"I think it gives a bit of.... Almost bluntness....this is what it is - it's not a great thing, but we know that. Whereas if it was another word, it might fluff over the fact of.... it's not really somewhere where you go in feeling super happy." (P-17)</i>
<b>Education: Tertiary (21): Bachelor, Masters, Doctorate, or Medical Degree (all oncologists)</b>	17 (45)	<i>"It's just a sacrifice you have to make. So. Yeah, I just I haven't really dwelled on it because otherwise you could kind of go down a bit of a tunnel of like, feeling, I guess, deeply frustrated. So it is what it is. Could be worse." (C-15)</i>	12 (25)	<i>"you know, it's a negative term, obviously "toxicity". But I guess that that focuses the mind on the fact that it is important to minimise that as much as possible for these patients. So I don't know that it's a bad way to describe it." (O-53)</i>
<b>Location: Metropolitan (24)</b>	21 (51)	<i>"You don't end up what, you don't really want to come up with lots of different terms that explain the same thing. Um, and you don't really want to</i>	13 (26)	<i>"If something's really only going to add a more potential benefit in terms of longevity, but you're going to spend all of</i>

		<i>overcomplicate or over medicalised, um, uh, different situations as well.” (O-18)</i>		<i>that sitting in a chemo chair. I think it's really important to be upfront about that with people.” (P-44)</i>
<b>Location:</b> <b>Regional (20)</b>	19 (55)	<i>“I believe the treatment of course is toxicity. I don't really see it as making our life... It's more up to the person how toxic (it is) to your life.... I'm actually finding a lot of positivity with everything.” (P-23)</i>	4 (8)	<i>“I that it's kind of important to frame it in that way so that we as health professionals, identify it as being something which has a significantly negative impact on, on our patients” (O-21)</i>

