

1 Title: "A valid mixture of anxiety, despair, rage, grief": Canadian clinician perspectives on
2 climate-related extreme weather impacts and mental health

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23

24 **Abstract**

25 Climate change has been increasingly recognized as a determinant of mental health, yet limited
26 research has examined how mental health care systems and clinicians are perceiving and
27 responding to the impacts. This study explores the experiences of clinicians supporting people
28 with mental health conditions in relation to climate change and extreme weather events (EWEs).

29
30 We conducted a cross-sectional qualitative descriptive study using four virtual focus groups with
31 25 clinicians in Ontario, Canada, representing diverse professional backgrounds. Semi-
32 structured discussions explored clinicians' observations of climate-related impacts on patients,
33 implications for clinical practice, and perspectives on individual- and system-level responses.
34 Transcripts were analyzed using a codebook-based thematic analysis.

35
36 Clinicians reported a range of climate-related mental health impacts on patients, including
37 climate anxiety, existential distress, suicidality, sleep disruption, and agitation during EWEs.
38 Youth and women were perceived as particularly affected, with climate concerns shaping future
39 outlooks and reproductive decision-making. Participants also described physical health
40 vulnerabilities linked to medications, substance use, and social inequities. Clinicians
41 experienced frustration and moral distress, and limited preparedness to address climate-related
42 challenges.

43
44 Clinicians in Canada are already responding to the consequences of climate change within
45 resource-constrained health care systems. Strengthening climate-informed training, addressing
46 social determinants of vulnerability, and supporting clinician wellbeing and readiness are critical
47 steps towards building climate-resilient mental health care.

48 **1. Introduction**

49 The link between changing weather patterns and mental health has received increasing public
50 policy and scientific attention in recent years. In 2022, mental health has been acknowledged for
51 the first time in Canada's National Adaptation Strategy in developing climate-resilient
52 communities [1]. In the same year, the World Health Organization (WHO) published the first
53 policy brief calling for action to address the mental health impacts of the climate crisis [2].
54 Primary studies have consistently identified increased incidence of depression, anxiety, and
55 post-traumatic stress disorders (PTSD) in climate disaster settings, including wildfires [3] and
56 flooding [4]. Epidemiological studies further suggest increased psychiatric presentations to
57 hospitals during extreme temperatures related to self-harm and suicidal behaviours [5],
58 psychosis exacerbation [6,7], and substance use [7].

59
60 Clinicians caring for people with mental health conditions are more than ever facing the burden
61 that climate change directly and indirectly places on their patients and the associated rise in
62 service utilization [8]. In response, a growing body of literature has provided practice-oriented
63 considerations and clinical recommendations for climate-sensitive mental health care, including
64 for nurses [9], pediatricians [10], and emergency medicine clinicians [11]. Professional
65 organizations, including major psychiatric associations, have also issued position statements
66 that recognize climate change as a mental health determinant and urge psychiatrists to engage
67 in mitigation, adaptation, education, and advocacy efforts [12, 13, 14, 15]. In this context,
68 however, additional empirical understanding of how clinicians directly perceive and experience
69 climate-related impacts in their daily practice would provide insights into how mental health-
70 related services can realistically prepare and adapt.

71
72 A small number of research studies have begun to explore clinicians' perceptions of climate
73 change [16, 17]. Existing studies suggest that clinicians generally acknowledge the health

74 implications of climate change, but most commonly identify concerns with physical health
75 conditions such as vector-borne, respiratory, and cardiovascular diseases, and allergic
76 symptoms [18]. Two studies, conducted in the United Kingdom and Turkey, specifically explored
77 perspectives on climate change among clinicians of mental health services [16,19]. Clinicians in
78 both settings reported observing increased exposure to and complexity of climate change-
79 related mental health presentations, ranging from emotional distress to aggressive behaviours,
80 while the Turkish study additionally identified hopelessness, pessimism, and burnout among the
81 clinician workforce [19]. Neither study examined the ways in which clinicians may be better
82 supported in meeting the changing clinical demand.

83
84 Although climate change is a global challenge, its form and health impacts can vary widely
85 depending on region [20]. An improved understanding of region-specific perspectives from
86 frontline clinicians would be a critical step toward building a climate-resilient mental health
87 system. Accordingly, the aim of this study is to explore how Canadian clinicians perceive the
88 impacts of climate change and related extreme weather events (EWEs) on people with mental
89 health conditions. To bridge the knowledge gap, we further explore how the clinicians view their
90 own and their institution's roles in addressing these challenges, and what specific
91 recommendations they have in order to inform education practices, resource allocation, and
92 appropriate integration of climate considerations into mental health care.

93

94 **2. Methods**

95 *2.1. Study context*

96 This cross-sectional, qualitative study was conducted in Southern Ontario, Canada. According
97 to the 2023 Ontario Provincial Climate Change Impact Assessment Technical Report, the
98 province has experienced increased mean annual temperature and precipitation over the last
99 decades. Climate models further project continued temperature rises and greater variability in

100 weather patterns, including floods, forest fires, heatwaves, and temperature extremes [21].
101 These conditions have already affected communities across Ontario and are expected to place
102 increasing strain on populational mental health. Southern Ontario, as the most densely
103 populated region of the province and a major hub for healthcare delivery, represents a critical
104 setting to examine how climate-related pressures are experienced by the mental health care
105 system and the clinicians within. Ethical approval of this study was obtained from the Research
106 Ethics Board of the Centre for Addiction and Mental Health (CAMH) (#2024/143), located in
107 Toronto, the largest metropolitan centre in Southern Ontario and Canada.

108
109 Throughout this paper, we define climate change as a long-term phenomenon and EWEs as the
110 proximate conditions through which climate change is experienced in daily life. While extreme
111 heat and cold have always characterized the Southern Ontario climate, climate change is
112 understood to amplify the frequency, intensity, and duration of such events. Clinicians' accounts
113 in this study primarily reflect their experiences of caring for patients during EWEs, which are
114 interpreted within the broader context of a changing climate.

115

116 *2.2. Qualitative approach and research paradigm*

117 Given the limited empirical research examining clinicians' perspectives on climate-related
118 mental health impacts in Canada, we chose a qualitative design using focus groups to capture
119 reflections, emergent concerns, and practice-based insights not easily elicited through
120 quantitative methods. Focus groups were selected specifically to facilitate interprofessional
121 dialogue and collective sense-making around climate-related clinical challenges and responses
122 within mental health care.

123

124 We adopted an approach grounded in a constructivist–interpretivist research paradigm, which
125 assumes that clinicians' understandings of climate change are socially situated and shaped

126 through professional experience, organizational context, and interaction with their patients. It
127 was designed as a companion to a parallel qualitative exploration of how people living with
128 mental health conditions in Ontario experience climate change and EWEs, currently under peer
129 review. The paired studies enable an examination of complementary perspectives on shared
130 system pressures and points of convergence and divergence between service users and
131 providers.

132

133 *2.3 Researcher characteristics and reflexivity*

134 Focus groups were co-facilitated by two researchers (SX and LML) with experience in climate
135 change and mental health research and training in qualitative methods. SX is a practicing
136 psychiatrist, which facilitated familiarity with professional language and care delivery structures,
137 and enabled the use of contextually relevant prompts. The clinical insider position may have
138 shaped assumptions regarding practice norms. LML, a researcher with an advocacy
139 background, brought an external and service-user-oriented perspective to the discussions,
140 including through clarifying questions on implicit clinical assumptions.

141 Both facilitators identify as racialized women. While racial and gender identities may influence
142 rapport, perceived authority, and interactional dynamics in qualitative research, their influence
143 was considered alongside professional roles and institutional positioning. Neither facilitator held
144 supervisory or evaluative roles over participants. However, some participants were professional
145 colleagues within shared clinical settings, which may have influenced group dynamics or
146 constrained expression of dissenting views.

147 Reflexivity during data collection and interpretation was supported through discussions with
148 team members with expertise in lived experience of mental health and addiction (CM) and
149 qualitative patient-oriented mental health research (LDH). Other team members with
150 interdisciplinary expertise in psychiatry, psychology, and public mental health critically reviewed

151 the analyses and manuscript to support nuanced interpretation of clinicians' accounts.

152

153 *2.4. Participant sampling and recruitment*

154 Individuals who delivered direct clinical care to people with mental health conditions in Southern
155 Ontario, Canada were eligible to participate. A broad definition of clinical care was employed, as
156 we recognize that mental health services are delivered across hospital, community, emergency,
157 long-term care, and other practice settings and by a range of regulated and non-regulated
158 health professionals. Eligibility was therefore based on participants' self-identification as
159 clinicians who served, though not necessarily exclusively, people with mental health conditions.
160 Participants were recruited using convenience and snowball sampling strategies between March
161 to July 2025. The research team identified potential participants through existing professional
162 networks and contacted them by email. Recruitment materials described the study purpose and
163 invited clinicians from diverse practice settings to participate, with particular emphasis on those
164 working with groups disproportionately exposed to climate-related risks (e.g., youth, older
165 adults, Indigenous communities, and people experiencing unstable housing). Clinicians were
166 also encouraged to share the invitation with eligible colleagues. All participants provided written
167 informed consent prior to participation.

168

169 *2.5. Data collection*

170 The semi-structured focus group guide used in this study mirrored the patient-facing guide in the
171 companion study and was developed with guidance from the CAMH Lived Experience Research
172 Committee (LERC), composed of mental health service users. Interview questions were refined
173 and piloted with committee members to ensure relevance, clarity, and sensitivity. The guide
174 explored three domains: (1) clinicians' observations of patients' direct and indirect experiences
175 with climate change and EWEs; (2) perceived impacts on patients' mental health, daily

176 functioning, and access to care; and (3) views on clinical- and system-level responses, including
177 adaptations to existing services and the need for new interventions.

178
179 Focus groups were conducted virtually using a secure WebEx platform to facilitate participation
180 across different institutions. Consent for audio-recording was re-confirmed at the start of each
181 focus group, which were transcribed verbatim using WebEx automated transcription and
182 subsequently reviewed and verified for accuracy by LML. All transcripts were de-identified prior
183 to analysis. Focus groups were conducted until sufficient depth and redundancy of perspectives
184 were achieved across sessions.

185

186 *2.6. Data analysis*

187 Transcripts were managed using NVivo 12 and analyzed using a codebook-based thematic
188 analysis approach [22]. Primary coding was conducted by SX and LML, guided by an initial
189 coding framework developed based on the study objectives, focus group guide, and preliminary
190 readings of the transcripts. The framework incorporated both deductive codes aligned with the
191 interview domains and inductive codes grounded in participants' accounts.

192 Coding and interpretation were refined through a series of analytic meetings with CM and LDH.
193 These meetings provided a forum to discuss code definitions and areas of ambiguity or
194 disagreement. Differences in interpretation were explored through dialogue. CM's lived
195 experience expertise played a key role in identifying meanings that warranted greater analytic
196 attention and situating clinicians' accounts in relation to service user experiences. Through
197 iterative revisions of the coding framework, codes were organized into broader themes that
198 reflected recurrent and salient patterns across focus groups.

199 **3. Results**

200 A total of twenty-five (25) participants engaged in four (4) focus group discussions, each lasting
201 approximately 45 to 50 minutes. The participants represented a diverse array of professional
202 backgrounds. The largest professional background represented was physicians (n=12), among
203 whom 8 were psychiatrists, followed by social workers (n=4), nurses (n=3), pharmacists (n=2),
204 program assistants (n=2), an occupational therapist (n=1), and a recreation therapist (n=1). The
205 majority of participants (n=22) were based in academic hospitals in Toronto.

206
207 We identified four overarching themes. First, participants observed climate-related impacts on
208 patients' mental health, ranging from emotional distress to suicidal ideation. Second, clinicians
209 described physical health consequences of EWEs among patients with mental health
210 conditions, particularly where psychiatric treatment, comorbid substance use, and social
211 inequities heightened vulnerability. Third, clinicians shared their own emotional responses
212 arising from providing mental health care in facing increasing climate-related pressures. Fourth,
213 participants reflected on ways they have provided recommendations for change to address
214 climate-related risks within mental health care systems.

215
216 *3.1. Observed mental health consequences of climate-related stressors*

217 Participants described their experiences with a range of strong emotions expressed by their
218 patients. Some observed that their younger patients more readily discuss climate change-
219 related stressors during outpatient mental health encounters, and are grappling with “*deep*
220 *existential questions around stability... with a valid mixture of anxiety, despair, rage, grief*”
221 *[ID#1]*. Another participant gave an example of a young patient expressing that climate change
222 significantly impacted her mental health, leading her to contemplate suicide as an extreme
223 means to compensate for overpopulation and overconsumption, a theme echoed in the online
224 communities she frequented. Participants discussed that climate change may be

225 disproportionately impacting youth mental health, considering young people’s greater access to
226 climate-related information and heightened perceptions of threat to their future wellbeing:

227

228 *“I think the unique aspect is that they’re young so that climate change has a specific*
229 *meaning for them – their future. And how we address the climate now reflects on how*
230 *much we value the younger generation.” [ID#2]*

231

232 In addition to young people, participants observed the emotional impact of climate change on
233 their women patients. Multiple participants described their women patients’ reluctance to have
234 children due to the prevailing sentiment that *“the world is...[approaching] doomsday” [ID#3]:*

235

236 *“I find just in general, some of the women I’ve worked with and even my own*
237 *experience... People are hopeless about what’s going to happen in this world... The*
238 *next generations to come. Is it worth it even having kids to potentially put them through*
239 *such extreme events of climate change?” [ID#4]*

240

241 Among the general adult population, participants noted observing sleep difficulties related to
242 extreme heat, which can have downstream negative effects on cognitive and emotional
243 regulation abilities and contribute to apathy and fatigue. Participants working with older adults
244 observed extreme heat-related agitation and confusion among patients with dementia.

245

246 *3.2. Observed physical health consequences among patients with mental health conditions*

247 Participants emphasized that while EWEs affect many populations, physical health risks were
248 particularly salient among patients with mental health conditions due to the effects of psychiatric
249 medications, comorbid substance use, and social circumstances that complicate risk
250 recognition, prevention, and follow-up. They discussed heat-related risks of antipsychotic

251 medications that their patients are often prescribed. One participant recalled a specific incident
252 of heat stroke likely compounded by medication side effects:

253

254 *“[During] a heatwave period, a patient who was on lithium and clozapine...they went out*
255 *on a terrace and they actually ended up passing out... As a result of that, they no longer*
256 *wanted to take their medication” [ID#5].*

257

258 During extreme cold, participants recounted seeing frostbite-related presentations to emergency
259 departments, and in extreme cases required amputation. One participant shared a confluence of
260 challenges with extreme cold, chronic pain, medication adherence, and overdose risks faced by
261 their patients with addictions:

262

263 *“Patients with chronic pain, who will talk about how their joints are more painful when it’s*
264 *cold or they’re worried about falling and so they end up missing doses of methadone,*
265 *and as a result, you’d need to have their dose dropped or sometimes even restarted...*
266 *There is a correlation with people having more severe overdose presentations in the*
267 *context of severe cold weather. I’ve had patients who had overdosed, but because they*
268 *had been out in the very cold weather, they had even worse health outcomes and then*
269 *they could go to ICU.” [ID#6].*

270

271 Participants acknowledged that the physical health and mortality risks linked to climate change
272 disproportionately impact their patient populations facing social and structural inequities,
273 including those who are economically disadvantaged, Indigenous peoples, and patients with
274 severe mental illnesses. They are concerned that these patients often have “no control over
275 their physical environment” [ID#7], with many who live without air conditioners, lack access to
276 clean water supplies, or face housing insecurity and homelessness.

277

278 *3.3. Clinician distress from climate-related constraints*

279 Participants described frustration, anger, and powerlessness emerging from their routine mental
280 health practice, as they encountered patients whose climate-related vulnerabilities and extreme
281 weather exposures exceeded what could be addressed within their existing clinical roles and
282 resources. Several participants explained the tension between their professional responsibility
283 and the limits of available resources, noting the difficulty of supporting patients who experience
284 compounded vulnerabilities. As one participant said:

285

286 “When I think about climate change, which in my view is something that is preventable;
287 knowing that my patients, who are already dealing with so much, [receive] the highest
288 burden of these structural vulnerabilities...It's very frustrating” [ID#6].

289

290 Participants had ongoing concern for their patients' immediate safety and well-being, particularly
291 during periods of extreme cold. One social worker recalled encountering individuals who “[beg]
292 for a place to stay overnight that's safe and warm”, emphasizing the responsibility hospitals bear
293 in supporting these patients. Another participant added, “I have clients that live through the
294 winter outside... When I know that it's -30 [degrees Celsius] ... I do worry even if they're not
295 under my care” [ID#8].

296

297 *3.4. Recommendations for change*

298 Participants' recommendations for change spanned four domains: communication with patients
299 about climate-related risks, adaptations within routine clinical practice to mitigate EWE
300 exposure, clinician preparedness to engage with these issues, and patient-centred advocacy
301 and system-level responses.

302

303 3.4.1. Patient-facing counselling and psychoeducation

304 Participants highlighted patient-facing communication and provision of climate-related health
305 information as foundational strategies for supporting patients during EWEs. They recommended
306 standardized, actionable guidance to help them cope with climate-related health risks, including
307 psychoeducation resources on adaptive behaviours and psychotropic medication side effects.
308 Examples participants provided include “action plans” during EWEs, such as protective
309 behaviours on how to stay cool, or where to find safe cooling or warming centres.

310 As noted above, participants described concerns that certain medications, particularly
311 antipsychotics, can disrupt thermoregulation, leaving patients less able to perceive heat or
312 recognize the need to hydrate or cool down. Temperature extremes may also affect the stability
313 and effectiveness of medications, underscoring the importance for physicians and pharmacists
314 to provide explicit counselling during prescription and medication dispensing. Participants
315 observed that assumptions embedded in routine care, such as instructions to store medications
316 at “room temperature”, may be increasingly insufficient in the context of more frequent and
317 intense EWEs:

318 *“Pharmacists or healthcare providers... may not talk about climate impacts on*
319 *medication. They might say things like keep at room temperature... [but] if there is an*
320 *extreme condition and your medication is exposed to that temperature, what can you*
321 *do? Do you have to throw it out?” [ID#9]*

322 3.4.2. Clinical practice adaptation

323 Clinicians described adaptations within routine mental health practice aimed at reducing
324 patients’ exposure to EWE risks and supporting their mental health and daily functioning. These
325 strategies spanned individual clinical decisions, team-based interventions, and community-level
326 supports.

327

328 At the individual clinical level, participants highlighted proactive adjustments in care. For
329 example, a few physicians considered being "more liberal in prescribing puffers" [ID#10] to
330 enable patients to engage in outdoor activities even during poor air quality and to identify other
331 healthy coping strategies. Participants also discussed modifying discharge timing, allowing
332 patients to remain in the facility during EWEs, particularly for those lacking safe housing. These
333 decisions were often balanced against institutional constraints such as bed availability and
334 safety concerns.

335

336 Participants also emphasized team-based or outreach strategies to reach vulnerable patients.
337 One team maintains a list of patients who may be "isolated" or have difficulty accessing
338 temperature-controlled spaces, and contacts them during EWEs. Case management teams may
339 assist patients in "[putting] away their winter clothes in the summer time" [ID#11], supporting
340 people who may struggle to recognize temperature-related risks.

341

342 Some participants described broader community-level programs as models for building
343 resilience. One cited a European initiative connecting older adults with volunteer agencies,
344 healthcare providers, and government organizations to build social networks and safeguard
345 those most susceptible to extreme heat and other environmental conditions.

346

347 *3.4.3. Clinician preparedness: knowledge, confidence, and emotional readiness*

348 In addition to patient-facing resources, there was a notable desire among participants to attend
349 training and acquire additional knowledge to improve their capacity to support their patients
350 more effectively. As one participant explained:

351

352 *“I'd like to know what available resources are there... I would like to have a better*
353 *knowledge about how I can help support clients or get them connected. I know how*
354 *climate affects me so I can only imagine how it affects people who might be in a crisis”*
355 *[ID#12].*

356
357 Beyond knowledge, participants underscored the importance of self-awareness, including
358 recognizing and reflecting on their own emotional responses to climate change. This preparation
359 may enable them to be “less afraid” [ID#13] to facilitate opportunities for patients to articulate
360 their perspectives, especially on potentially sensitive or politically charged topics. Participants
361 acknowledged that patient perspectives may go unexpressed and recommended clinicians to
362 open up conversations with patients about how climate change might be affecting them:

363
364 *“If we were to ask more of these questions [about climate change] ... or give space,*
365 *would we find out that...there's more of [our clients] who are quite concerned about this*
366 *and then we're just not aware of it because they have not shared that with us*
367 *spontaneously for us to even think about?” [ID#12]*

368

369 3.4.4. Patient-centred advocacy and system-level responses

370 Participants described advocacy as initiatives that address the social and environmental
371 conditions that shape vulnerability among people with mental health conditions. They discussed
372 the need to increase the availability and accessibility of safe cooling or warming spaces, and to
373 provide financial support or equipment such as fans and air conditioners for individuals facing
374 structural disadvantage, in recognition that these efforts may be necessary extensions of mental
375 health care in the context of EWEs.

376

377 Several participants referred to existing social support programs, including the Ontario Works
378 and Ontario Disability Support Program (ODSP), which provide eligible individuals with
379 coverage for an air conditioner when prescribed by a health care provider. Participants noted
380 that these programs may be under-utilized and suggested that greater clinician awareness
381 could meaningfully reduce individual climate-related health risks for patients.

382

383 Several participants situated advocacy efforts within a broader recognition that climate-related
384 risks cannot be addressed solely at the level of individual patient care. As one participant
385 shared:

386

387 *I view [health risks associated with climate change] as a societal issue other than an*
388 *individual patient issue, whereas psychiatry and mental health has been very focused on*
389 *the individual patient issues. And the idea that we can heal people when everything*
390 *around us is unhealthy, actually is a broken paradigm to me, right? We actually need the*
391 *healing, part of the healing has to be about changing the larger structures [ID#14].*

392

393 **4. Discussion**

394 This study is the first qualitative study in Canada to examine clinicians' perspectives on how
395 climate change and associated EWEs are experienced in mental health care. Across 25
396 clinicians from diverse professional backgrounds, the participants discussed the impact of
397 climate change on their patients and practice, observing clinical presentations that encompass
398 negative psychological and physical sequelae among different patient subpopulations, as well
399 as their own emotional burden of managing these climate-related presentations. Participants
400 identified gaps within the current mental health system and proposed several solutions. These
401 findings suggest that climate change is already operating as a place-based and system-level

402 determinant of mental health care, and shapes both the types of presentations seen in clinical
403 settings and the constraints under which care is delivered.

404
405 Clinicians in this study perceived that youth and women in their practice were more likely to
406 report climate-related anxiety and psychological stressors, which has been supported by
407 previous epidemiological studies. For example, a national survey of 1000 Canadian youth aged
408 16 to 25 showed that 78% of them have experienced negative effects of climate change on their
409 mental health [23]. Our participants highlighted that their young patients are worried about the
410 disproportionate impact of climate change on their future, as more climate-related adverse
411 events are expected to occur during their lifetime. For young women in particular, climate
412 anxiety also plays a role in family planning, and associated concerns about bringing children
413 into an unstable climate. Previous studies have suggested that young women are also more
414 prone to developing PTSD after adverse climate events, such as in the case of Hurricane Maria,
415 compared to young men [24]. These patterns highlight how climate-related distress is not
416 uniformly distributed and reflects differences in perceived future risk and social positioning, with
417 implications for how mental health services identify and respond to vulnerabilities. Screening
418 protocols and gender-focused tools may become increasingly relevant components of youth
419 mental health care. Some standardized tools are in process of being validated for youth climate
420 anxiety in a Canadian setting, such as the Climate Change Anxiety Scale-Short Form [25].

421
422 Clinicians also reported a range of climate-related medical presentations, including sleep
423 disruptions during heat events, worsening of agitation in patients with dementia, and heat-
424 related decompensation in patients taking antipsychotic medications. Existing epidemiologic
425 evidence supports these observations, including aggressive incidents on psychiatric wards on
426 heat days (>30 °C) [26], as well as decreased time of sleep and increased difficulties with falling
427 asleep [27]. In addition, a study of patients with schizophrenia found that patients on

428 haloperidol, zuclopenthixol, and clozapine specifically were at higher risk of mortality compared
429 with patients on other medication regimens during heat related events, due to a combination of
430 disease severity, anticholinergic properties intrinsic to the antipsychotic medications, and the
431 common practice of co-prescribing anticholinergic and antipsychotic medications [28]. These
432 findings indicate that climate-related health risks are mediated through existing mental health
433 treatment pathways and care environments. There is a need for further research aimed at
434 mitigating heat-related risks in patients prescribed antipsychotics. Accessible patient education
435 about such risks may be a practical starting point, though further research on the effectiveness
436 of such interventions in reducing heat-related mortality remains limited and requires further
437 study.

438
439 Clinicians reflected that climate change amplifies existing social and structural inequities,
440 including lack of access to stable housing, air conditioning, and clean water. They expressed
441 helplessness, frustration, and concern for their patients. Similar findings of a significant
442 emotional toll on clinicians in the context of climate change have been reported internationally.
443 For example, in a study of nurses in Turkey, they reported moral distress in providing care in
444 climate crisis with limited resources, as well as burn-out in times of climate-related extreme
445 weather events, which were associated with higher patient volumes [19]. These experiences
446 suggest that climate change represent an emerging source of health system strain with
447 implications for workforce sustainability and clinician wellbeing. A psychoeducation healthcare
448 community intervention after hurricane Maria for healthcare professionals showed
449 improvements in post-traumatic and secondary traumatic stress [29]; however, limited research
450 has been done on supporting health care providers with regards to climate change and climate-
451 related adverse events.

452

453 Participants stressed the importance of developing practical tools to guide discussions about
454 climate change within mental health care. Clinicians have observed that patients may hesitate to
455 raise environmental concerns during mental health encounters, highlighting the importance of
456 creating clinical environments that invite and legitimize these discussions. Previous studies
457 among physicians have suggested that they worry about discussing these topics, as they can
458 create a sense of fear or powerlessness for the clinicians, and that they tend to prefer action-
459 oriented conversations instead [30]. This discomfort may also be compounded by inadequate
460 knowledge in the topic. Surveys conducted from 2817 medical schools globally suggested that
461 only 15% have incorporated climate change content into medical curricula [31]. As
462 recommended by participants, further education and training around climate change and mental
463 health is also needed, with more focus on useable resources tailored to their field. This can
464 increase clinicians' comfort levels with these topics and allow them to revisit their own fears and
465 biases, and hence become better equipped to navigate climate-related discussions.

466 Clinician advocacy efforts, such as prescribing air conditioners, were identified as an additional
467 way to assist patients in the context of social inequities. While access to air conditioning can
468 alleviate acute concerns on an individual basis, mass use of air-conditioning contributes to
469 greenhouse gas emission and can accelerate climate change [32]. Moreover, people who are
470 homeless or do not have stable housing would not be able to install individual devices. Some
471 experts have suggested taking cool showers before bed [33] or even heat acclimatization
472 routines through physical exercise to help individuals prepare for heat events [34]. Similarly, our
473 clinician participants discussed promoting the use of puffers or inhalers, whereas there is a
474 growing body of research suggesting the carbon impact of these types of medications [35]. The
475 tension points to the need for context-sensitive clinical decision-making that balances immediate
476 patient safety with longer-term environmental impact.

477

478 Several limitations should be considered when interpreting our findings. Participants were
479 mostly recruited from tertiary academic centres located in Toronto, which may miss the
480 experience of community mental health providers and health settings in other regions across the
481 province. As such, the findings may reflect an urban and resource-rich care context, which may
482 differ from experiences in rural or under-resourced settings. We did not collect or analyze
483 demographic characteristics of participants, and were therefore unable to examine whether
484 factors such as gendered professional roles or career stage shaped perceptions of climate-
485 related challenges. In addition, due to the snowball sampling, clinicians in the study were more
486 likely to be aware of and attuned to climate change than the average mental health workforce.
487 Lastly, because this study examines clinicians' perspectives, patients themselves may hold
488 different views on the types of mental health care needed in the context of climate change.

489

490 **5. Conclusions**

491 Climate change is increasingly shaping the context in which mental health care is delivered in
492 Canada. This study highlights how clinicians are encountering climate-related distress, symptom
493 exacerbations, and worsening inequities among patients with mental health conditions. The
494 findings contribute empirical insight into how mental health care systems may better recognize
495 and respond to climate-related challenges.

496

497

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