Clinical education

Crisis and continuity: Rural health care students respond to the COVID-19 outbreak

Deirdre Jackman [a,*], Jill Konkin [b], Olive Yonge [a], Florence Myrick [a], Jim Cockell [a]

[a] Faculty of Nursing, Level 3, Edmonton Clinic Health Academy, 11405-87 Avenue, University of Alberta, Edmonton, Alberta, T6G 1C9, Canada
[b] Faculty of Medicine & Dentistry, Department of Family Medicine, 2-115A Edmonton Clinic Health Academy, 11405-87 Avenue, University of Alberta, Edmonton, Alberta, T6G 1C9, Canada

ARTICLE INFO

ABSTRACT

The COVID-19 outbreak in Winter (2020) has caused widespread disruption for health sciences students undergoing clinical placements—vital periods of experiential learning that cannot be substituted with distance alternatives. For students placed in rural areas, already coping with isolation, precarious supply chains and shortages of essential personnel, the effects of the COVID-19 outbreak may have far-reaching implications for psychosocial wellness, self-efficacy and clinical judgment. Four nursing and eight medical students ($n = 12$) supplied photographs and commentary documenting the experience of withdrawing suddenly from clinical sites in rural Alberta. Collaborative, thematic analysis revealed continuities between pre- and post-outbreak life, both for the students and their rural hosts. Social determinants of health such as seclusion, environmental hazards, and health-seeking behaviors carried over and compounded the effects of the outbreak on the placement communities and clinical sites. Other continuities included the reliance on technology for clinical and social connectivity, and capitalizing on natural settings to cope with isolation and confinement. Prolonged liminality, lack of closure, and the loss of team identity were the greatest stressors brought on by the suspension of clinical activities. However, the participants felt well equipped to deal with these circumstances through the resilience, adaptability, and community ethos acquired during their placements.

On March 5, 2020, Alberta reported its first confirmed case of COVID-19. Over the subsequent two weeks, large sectors of the provincial economy came to an abrupt halt as public services, schools, retailers, restaurants, tourism, sporting, arts, and entertainment facilities were shuttered—a pattern repeated around the globe. Among the millions of lives disrupted were health sciences students undergoing clinical placements—a vital period of hands-on, experiential learning for which there can be no long-distance alternative (Stokes, 2020). While no one would wish to jeopardize the safety of patients, students and health care providers in hospitals, the experience of being pulled abruptly from an extended, immersive placement was undoubtedly jarring. For nursing and medical students placed in rural and remote Alberta communities—already struggling with tenuous supply lines and shortages of essential personnel—the COVID-19 outbreak could be considered the latest and most dramatic test of resolve, adaptability, and the capacity to draw clinical and holistic insights from a crisis.

Since 2016, our research team has collaborated with consecutive cohorts of nursing and medical students, undertaking placements in rural Alberta, to construct compelling, multimedia stories around the challenges and rewards of rural, clinical education and practice. We use participatory action modalities—photovoice and digital storytelling—to put these students in control of their own narratives, and to help them translate their clinical experiences into knowledge. Our Winter 2020 cohort began much as anticipated, with photographs and commentary around the rural setting; social determinants of health; acclimating to the local community; and being welcomed into the rural, interdisciplinary health care teams. Everything changed in mid-March, when the faculties of nursing and medicine suspended clinical experiences until further notice, while the local hospitals implemented COVID-19 protocols and braced for a potential onslaught of cases. Faced with an early end to our project, we opted instead to present our participants with a new research question: What is the story of withdrawing from a rural, clinical placement in the midst of a public health emergency?

* Corresponding author.
  E-mail addresses: deirdre.jackman@ualberta.ca (D. Jackman), dkonkin@ualberta.ca (J. Konkin), oyonge@ualberta.ca (O. Yonge), flo.myrick@ualberta.ca (F. Myrick), cockell@ualberta.ca (J. Cockell).

1. Background

In Canada, the closest precedent to the current situation was the SARS outbreak of 2003, experienced most acutely in and around the Toronto metropolitan area, with over 14,000 persons quarantined (Cava et al., 2005). Nurses and other frontline health care workers were found to be especially vulnerable to burnout and post-traumatic stress (Brooks et al., 2020; Marjanovic et al., 2007; Maunder et al., 2003; Reynolds et al., 2008). Similar patterns were observed in Taiwan (Bai et al., 2004; Pan et al., 2005) and the People's Republic of China (PRC) (Wu et al., 2009). Amongst the most significant stressors affecting hospital staff during this time were isolation, stigma and anxiety, owing to the risk of infecting others (Brooks et al., 2020; Marjanovic et al., 2007; Maunder et al., 2003; Pan et al., 2005). Maunder et al. (2003) note that even workers not at bedside, such as administrators, or staff taking days off, felt the dissonance of being cut off from the frontline team at a critical time (p. 1249).

Prior to the COVID-19 outbreak, opportunities to study the psychosocial effects of quarantine on a large scale were limited. Reynolds et al. (2008) suggest that health care workers bore the brunt of the 2003 SARS outbreak, the 10-day quarantine and its psychological sequelae, in comparison to quarantined members of the general public who did not share their sense of burden and anxiety about infecting others. Wang et al. (2011) found no significant, short-term psychological effects of a seven-day quarantine on undergraduate students during the 2009 outbreak of H1N1 flu in Hangzhou, Zhejiang Province, PRC. By contrast, Cava et al. (2005) found the stress of quarantine was linked to public stigma and the availability of up-to-date information, during the 2003 SARS outbreak in Toronto. The widespread perception that quarantine was "an outdated public health measure … [evoking] images of a bygone era," (p. 398) may have driven anxiety amongst those affected, as well as depressing overall compliance.

As the potential scale of the COVID-19 pandemic was just becoming apparent, Brooks et al. (2020) reviewed the literature on mass quarantine, concluding that its imposition and duration must be weighed against its psychological consequences. Suspense and confusion owing to lack of information—or competing sources of information—are primary lockdown stressors which public health officials must strive to mitigate. Another major area of concern, already playing out in daily headlines, is the effect of seclusion and economic shutdown on individuals already on the socioeconomic margins (Cava et al., 2005). Brooks et al. observe that "coordination for provision of supplies should ideally occur in advance, with conservation and reallocation plans established to ensure resources do not run out" (p. 918). Rural and remote communities, already at the mercy of precarious supply chains, volatile commodity prices and short-staffed hospitals, must be counted amongst the most vulnerable regions as COVID-19 increasingly dominates our public health discourse. In the revenue-driven, US health care sector, the pandemic financial shock alone may drive over 350 rural hospitals out of business (Kacik, 2020).

Whether placed in rural or urban settings, health sciences students confront an equally uncertain future, at least for the short term. The suspension of all clinical learning, especially for students nearing licensure, may engender hopelessness, helplessness, and long-term psychosocial harm (Shaw, 2020). Helplessness —the learned response that "their fate is out of their control" (p. 2) —has the most troubling implications, insofar as it may shatter self-confidence and self-reliance, carefully nurtured over months by preceptors and other staff members in the clinical environment. While many post-secondary institutions are making a hasty (and overdue) shift to distance-learning in nursing (Jowsey et al., 2020) and medicine (Stokes, 2020), pre-licensure students who have completed all but their clinical education face a unique predicament. They must somehow stay focused on their career goals, while shut out indefinitely from the one setting necessary to advance them. Stokes (2020) advocates the responsible integration of senior medical students into health care sites struggling to prepare for

increased patient volumes. In the UK, emergency policy initiatives are already underway to create paid, clinical placements for senior nursing students, as well as re-certifying practitioners who have moved on from their careers in health care (Mitchell, 2020).

2. Methods

2.1. Aims

Since 2016, we have carried out an iterative, participant action research initiative based on a hybridization of photovoice and digital storytelling methodologies. This project, entitled [omitted for blind peer review], was designed 1) to give nursing and medical students co-equal status with the researchers in collection, analysis and dissemination of data pertaining to rural preceptorship; 2) to supplement the experiential learning of health care preceptorships, by giving these students an opportunity to translate their clinical experiences into knowledge through digital media; 3) to give nursing and medical students, placed side-by-side, opportunities for interprofessional learning and democratic dialogue; and 4) to produce research output accessible to educators, students, clinicians and policymakers, as a means of advocating for rural health care careers and policy reform. As the COVID-19 outbreak developed and eventually brought a halt to all clinical rotations in mid-March 2020, we asked participants to focus their remaining data collection and reflections to the experience of withdrawing suddenly from the rural clinical setting, and its immediate aftermath.

2.2. Ethical considerations

Ethical approval for human research was granted by our employing institution's human research ethics board. All participants were apprised of their right to withdraw from the project and gave signed, informed consent, with the understanding that their anonymity could not be guaranteed owing to the nature of photographic data. Pseudonyms are nonetheless employed in this article.

2.3. Recruitment and sample

In Winter (2020), through purposive sampling, we recruited four, senior baccalaureate nursing students and eight third year medical students, all of whom had opted to undertake clinical placements in rural Alberta. For the nursing students, this entailed a 10-week preceptorship in a rural acute care setting, just prior to graduation. The medical students were already onsite, having begun their 42-week, longitudinal integrated clerkship the previous fall. Nursing and medical students in rural communities but not co-placed with one another were excluded from the sample. Recruitment was carried out by the project manager (not a faculty member) in cooperation with the students' clinical placement coordinators. The project manager delivered a 30-min project orientation, covering photovoice and digital storytelling methodology and ethics, to the four nursing students during classroom time, and to the eight medical students via videoconference link.

The participants (*n* = 12) were placed at acute- and community care sites in four rural Alberta communities, with populations ranging from 3100 to 10,500, between 90 km and 740 km distant from the metropolitan site of the faculties. Two third year medical students and one fourth year nursing student were placed in each community. In addition to practicing in hospitals with 21–54 acute care beds, the students accompanied their preceptors on clinic visits to outlying communities, some barely accessible. The medical students also spent significant time in the community clinics of their preceptors.

2.4. Data collection

The students carried out photovoice and digital storytelling activities in connection with their clinical work. Photovoice data collection began

with a five-week acclimation period, wherein students documented the rural context and community through a minimum of six photographs and attached commentary, posted to a group discussion forum on VoiceThread.com. The project manager facilitated a mid-project teleconference wherein students were able to discuss their photographs in real time. The second and final five-week phase of photovoice—wherein students were to have explored interprofessionalism and clinical-community engagement—was interrupted by the COVID-19 outbreak. Once it became apparent that students would not return to the rural clinical setting, we suggested they complete the project offsite, focusing on the personal and community impact of the public health crisis. A final teleconference was held as originally scheduled, and the four nursing students submitted summative, audio reflections as a means of tying their photographs together into digital stories (medical students were invited but not required to complete this stage).

Once the term was complete for nursing students and their grades had been assigned by nursing faculty, the project manager invited all students to take part in the study by agreeing to submit their photovoice and digital storytelling content to the project dataset, with no further participation required. All co-placed nursing and medical students thereby had the benefit of experiential learning and knowledge translation through the photovoice methodology, without being coerced to take part in the study. We nonetheless obtained the signed consent of all students who contributed photographs and commentary to the VoiceThread.com forum.

2.5. Analysis, validation and dissemination of results

Participant engagement in all stages of research—collection, analysis and dissemination—is a central priority of participant action. The advent of Web 2.0 and user-based content platforms, such as VoiceThread.com, have made the latter two stages much more achievable, particularly where large distances and asynchronous schedules are involved. The group discussion forum and teleconferences provided students and researchers a safe, democratic space to explore issues such as clinical conflict and rural/urban disparities, while building consensus around major themes cutting across the entire dataset. We in turn based our own codebook on these themes.

The hybrid, inductive-deductive approach to thematic analysis outlined by Fereday and Muir-Cochrane (2006) has served us well over multiple cohorts since 2016. Once we built our dataset from the content submitted by participants, we carried out our own substantive coding using NVivo 11, both to test the fittingness of the participant analysis-based codebook, and to augment it with codes arising from our own analysis. This iterative, back-and-forth process of harmonizing themes ultimately brought us to the findings detailed below. Our project output likewise bifurcates into participant-authored digital stories posted to our research site [omitted for blind peer review] and the scholarly articles and conference presentations authored by our research team. In our view, the simultaneous dissemination of participants' narratives with our own findings also provides a ready means for readers to validate the latter, by corroborating and legitimizing them against the former.

2.6. Findings

While the COVID-19 outbreak shows all the hallmarks of a historic, global inflection point, our participants' early reactions have been measured and thoughtful—very much in keeping with the tone and tenor of their pre-outbreak photographs and remarks. They have focused on the continuity of their pre- and post-outbreak lives, and the lives of the host communities with which they have come to identify. Mental discipline, sharpened through clinical and community engagement, has helped them cope with the sudden change in personal circumstances, and it has kept their attention on the wellbeing of others more vulnerable to the pandemic and its psychosocial sequelae.

2.7. It felt like handling gold

George, a nursing student placed 240 km northeast of the nearest metropolitan center, took a picture of an IV bag (Fig. 1) during his first few weeks onsite. The bag, he explained, contained platelets needed by a patient with a rare clotting disorder, and it had taken three and a half days for three units to arrive from the city. "It felt like handling gold, because they were so valuable," George recalled. "It's so hard to get, out in [rural] community … It really impressed upon me how easy it is to take for granted the resources that are available to you, when you're working in a large center." The IV picture resurfaced during our COVID-19 discussion, when supply chains had suddenly taken on new significance. "I don't think people are lining up to donate blood at the clinic right now," said George. "It takes six units of donated blood to create one unit of platelets. And this man had to receive three."

Beyond the clinical setting, distance, remoteness and infrastructure were already prominent social determinants of health, well before pandemics entered the current public discourse. Bradley, a medical student placed in northern Alberta, 450 km from the nearest city, photographed an ancient barge crossing a river (Fig. 2), 3 h' drive further east—the only access to a First Nations (Indigenous) reserve where his preceptor conducted an outreach clinic. "For a community of nearly 4000 people, this barge, that fits at most two regular-size vehicles, is the main use of transport," he remarked. "This leads to frequent, very long line-ups in and out of the community, and keeps goods very expensive, perpetuating a cycle of poverty." Shortages and inflated prices—now daily stressors for most Canadians—are nothing new to such communities, all but cut off from the supply chains we have taken for granted until recently. Even less remote communities were hit hard by the recent spate of panic buying. Linda (nursing) photographed empty shelves at the local Sobey's—the only grocer for 90 km—commenting, "It's not like in the city, when I go grocery shopping. *Oh, Costco ran out of this—I'll check the Safeway by my house* … It's just not there, so you're out of it for however many days, until it gets re-stocked." Linda's

Fig. 1. Platelets.

Fig. 2. A barge.

Fig. 3. Emissions.

prescription refills," recalled Sophia, a nursing student. "This led to an increase in wait time, and some people even would leave the emergency department waiting room, or become upset with us, even though we were taking care of more acute or ill patients." As news of the pandemic first hit, these behavioural patterns intensified. "We saw a large influx of patients presenting with influenza-like illness, and I believe this was because of misinformation in the media, and the need for reassurance from a health professional," said Sophia. George (nursing) observed the same panic in his placement site: "A lot of the people who came in with [influenza-like illness had] almost anxiety-induced symptoms. And so it kind of started to overload the healthcare team with cases that weren't really cases. Just because there was so much misinformation, at the beginning especially."

Other longstanding rural habits proved hard to break in the age of COVID-19. Social distancing runs contrary to small-town community ethos, where everyone knows everyone else. After a brief stop in the city, Sophia returned to her hometown (population 10,000) only to find herself struggling to adjust. "In the city, I was aware of how people will circle around each other to maintain that distance, but that almost didn't apply to people living rurally. The warnings are there for a reason; I just didn't realize how difficult it would be to follow them." At last, she resorted to hiking in the mountains (Fig. 4) as a way of keeping her distance and her mental equilibrium.

observations were a timely reminder that, for rural residents with limited mobility and/or food security, the hoarding instincts of their fellow townspeople might have perilous implications.

2.8. Stuff that's floating around in the air

Aside from seclusion, other rural, social determinants of health were seen to carry over from pre-to post-pandemic, where they compounded its effects. From the outsets of their placements, students observed that influenza-like illness and other respiratory symptoms were common amongst rural clients. "A lot of people are farmers, and there is all the stuff that's floating around in the air," said Murray, a medical student. "Obviously lung issues, or COPD, or asbestosis, or other stuff, are really well-seen and probably over-represented here, in hospitals and rural communities. I don't see that changing any time soon." Both Leia (nursing) and Lyle (medicine) photographed emissions from the local pulp and sawmill in a neighbouring town (Fig. 3); "It seems like almost every patient some days, in some way, is connected to one of the lumber mills in the area here, and it's a huge part of the community," said Lyle.

Even before COVID-19, the perceived volume of patients presenting in the local emergency room, with non-urgent respiratory complaints, concerned at least one participant. "I found that the emergency department was being taken advantage of as a walk-in clinic, and had many people coming in with cough and cold-like symptoms, or for

Fig. 4. Social distancing.

2.9. Leaders in our community

While the reluctance to distance may be a rural public health hazard for the time being, our participants have been unanimous in pointing to community solidarity as the greatest asset in their rural placements. Pictorially, they connected this solidarity with agencies and services familiar to most Canadians, but having an outsized role in rural community leadership. Leia (nursing) photographed the loading dock of the local food bank (Fig. 5), commenting, "To me this represents what rural context is all about … it demonstrates how close-knit and interconnected rural communities are, as they all support and help each other." She moreover observed that cashiers at the local grocer frequently invited her to make food bank donations, further evidence of a community ethos unique to the rural setting, and a shared responsibility to take care of those most vulnerable in times of crisis.

Participants also highlighted the leadership role of rural hospitals and health care practitioners in promoting holistic community wellness, both through healthy, active lifestyle choices (all the participants spent a significant portion of their downtime at the local fitness centers, outdoor recreation facilities and backwoods trails) and exemplifying community values. Linda (nursing) photographed a promotion for Pink Shirt Day (Fig. 6), an anti-bullying campaign spearheaded by the hospital: "I just remember specifically seeing the hospital administration and managers put [this] out, kind of push us to participate and be leaders in our community—to open that door for other people in the community to also participate." As COVID-19 broke out, these communities were predisposed to turn to their health care providers for guidance.

2.10. I don't know what to do with myself

For the students, rural preceptorships were as much about constructing identities as acquiring clinical skills. Not only did participants become personally invested in the health care teams with whom they
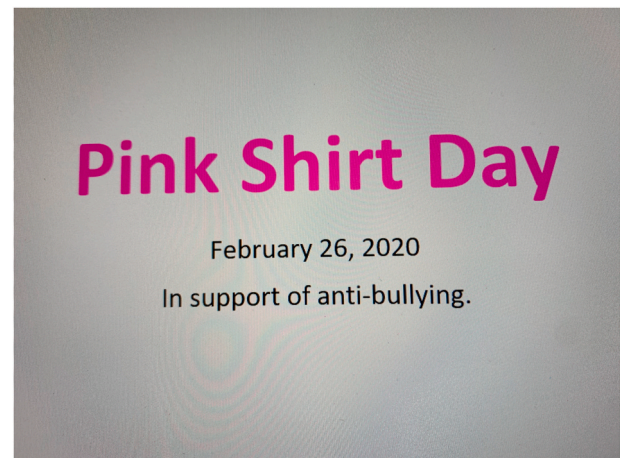

Fig. 6. Pink shirt day.

worked, but they also developed affective attachments as community insiders. Abrupt and unceremonious withdrawal was difficult. "I feel robbed of experiencing that placement to the end," acknowledged Sophia (nursing). "I hadn't prepared mentally or emotionally to leave the people I met behind, and when I got back [home] it was almost hard to enjoy being back with friends and family." Participants who took part in the final, photovoice teleconference all agreed that the denial of fulfilment—so close at hand—was most frustrating. "That was what we were building up to, and then it's just suddenly being cut off, and there's no closure," Leia (nursing) remarked. "I built relationships with [my preceptors]. I liked working with them, and we just expected that we were going to have longer to work together." While the nursing faculty agreed to waive the few remaining shifts for each nursing student, it was small comfort for Leia. "I feel like going through—graduating—we didn't do the full thing, right? It doesn't feel completed."

For many participants stuck at home, complying with provincial social-distancing orders, this lack of fulfilment has been compounded with the struggle to find purpose. Suddenly being out of the loop at a critical juncture, after weeks or months on placement, amounts to a kind of psychosocial limbo. "I don't really know what's going on at the hospital because I haven't been in there for a week now, which feels very weird," said Bradley (medicine). The shock of disconnection was heightened by the perception that their placement settings were rapidly transforming into unfamiliar places. Linda (nursing) recalled, "After I packed, I went to drop my key at the admission desk. I noticed they were also doing the full [personal protective equipment] at the door, screening everyone who came in." Furthermore, the indefinite length of provincial restrictions on post-secondary institutions and clinical sites has left some students with the sense they have regressed to a more dependent, directionless stage of life. "Today, my parents are gone to work, and I'm just sitting at home, trying to do some schoolwork; and I don't know what to do with myself, 'cause I'm used to being very busy," said Leia (nursing). Studying for the postponed provincial nursing licensure exam; term papers; photovoice; reading; baking and housework are a few ways students have sought to occupy their time. Cognizant of the strain on themselves, they speculated on the wider implications of quarantine on public wellness. "It makes me wonder what kind of impact this pandemic will have on people's mental health, physical health, financial situations, and general trust in one another," Sophia (nursing) remarked.

A few students have been fortunate enough to find clinical roles in one form or another, post-outbreak. Kristen (medicine) mentioned, "they're trying to get med students doing the contact tracing … so I'm going to try to join in with one of the groups." This work, while minimally employing the skillset of a third year medical student, is nonetheless vitally important in pandemic control, and Kristen seemed

Fig. 5. Loading dock.

grateful to have found a way to contribute. Other medical and nursing students, mindful of the burden on healthcare providers, were organizing a babysitting service as we were concluding our data collection. And Leia (nursing) had already leveraged her nursing studies into a paid, student position at her small, hometown hospital months earlier (Fig. 7). "I'm actually at work right now, today, because they needed me," she put in during our final teleconference. While her duties did not afford the same broad, clinical coverage as the preceptorship, the job was a welcome source of purpose, and a link between her pre- and post-pandemic life.

2.11. Isolation, confinement and coping

Leia's undergraduate nursing role illustrates that Alberta's rural hospitals have made do with auxiliary and casual help long before the COVID-19 outbreak, and it is one example of many post-outbreak continuities pointed out by the students, pertaining to challenges and coping capacities. Technological connectivity and virtual gathering spaces have been used to support rural, clinical work for years, and the onsite assets impressed the students in their sophistication, Bradley (medicine) photographed the Telehealth station in his placement setting (Fig. 8), commenting, "It's hard to [overstate] how much this has revolutionized rural health care in Canada … I will keep Telehealth in my mind throughout my practice, whether or not I work in a rural community, and remember how important a difference it can make." A few weeks later, he found himself speculating on the same technology as a last resort to continue his involvement in clinical experiences: "There's some hope right now that we might be able to participate in a Telehealth perspective, but it's really unsure right now if that's gonna work, or what educational validity or service that will be." Linda (nursing) also noted wryly that she used FaceTime (Fig. 9) to stay connected with her friends and their pets during her rural placement, little suspecting she would continue relying on the same technology once she returned home.

Fig. 8. Telehealth.

Fig. 9. FaceTime.

Fig. 7. A paid student position.

Isolation and confinement are common stressors during prairie winters. During their placements, the students often capitalized on nearby, natural settings to make the most of the season and cope with separation from friends and family—a strategy which carried over into

their post-outbreak routines. "I went for walks while [on placement], to get out of my house and get some fresh air," said Linda. "I am fortunate enough to live near the river valley in Edmonton, where I can continue to do this" (Fig. 10). Over the course of her community clerkship, Kristen (medical) built a social circle around her enjoyment of outdoor fitness: "A couple of nurses and I run in the mornings. It's a pretty keen group for 6 a.m. winter runs, but we usually cut it off … below −30 [centigrade]." While she keenly missed this interaction upon her return home, she found a creative way to maintain her fitness regimen *and* the social element attached to it, as she explained with a picture of the frozen-over Glenmore Reservoir (Fig. 11). "My friend and I are doing a physical distancing stair set. We are on the phone and both start at the bottom together. My stair set in Calgary is shorter than her stair set in Edmonton … so I have to do squats at the top of my stairs until she gets to the top of the stairs in Edmonton. Then we chat while we are walking down."

3. Discussion

As of this writing, in early May 2020, Alberta's rural hospitals appear to have been spared the worst-case scenario—a surge of critical COVID-19 cases beyond capacity. The medical students are slowly being reintegrated into the clinical environment. In the coming months and years, the global, psychosocial aftermath of the outbreak on frontline health care workers will no doubt be compared and contrasted with the recent outbreaks of SARS, H1N1, and Ebola, with many calls for policy reform. We could well expect to see a spike in post-traumatic stress amongst nurses and physicians in the hardest-hit regions (Bai et al., 2004; Brooks et al., 2020; Marjanovic et al., 2007; Maunder et al., 2003; Pan et al., 2005; Reynolds et al., 2008; Wu et al., 2009). This is not to suggest that rural communities and hospitals in Alberta are insulated from the effects of the pandemic. Physician and nurse attrition—already a major concern in the wake of recent cutbacks—may accelerate with the inevitable crash of the provincial economy (Bellefontaine, 2020). As public funds

Fig. 11. The glenmore reservoire.

become increasingly scarce, our province may be at risk for a wave of rural hospital closures (Kacik, 2020). And as our data illustrate, rural and remote areas are already among the hardest hit by pandemic-related disruptions to supply lines, which may prove fatal for the most vulnerable community members.

Our participants' photographs and comments reveal how abrupt disconnection from the healthcare frontline, at a critical moment, may itself be disruptive and traumatic (Reynolds et al., 2008). Preceptorship is a time of capacity-building for self-reliance, clinical confidence, and interprofessional identity. Shaw (2020) draws attention to the vulnerability of trainees whose sense of self-efficacy hinges on positive clinical experiences and reinforcement by other team members. The COVID-19 outbreak has had the effect of undercutting these experiences, pushing students back to watching passively from the sidelines. The longer this situation is drawn out, the more cause we have for concern that months of clinical gains may be compromised. Meaningful roles in public health support—such as contact tracing and casual relief—are already making a significant difference for some of our participants' sense of purpose. It seems reasonable to expand such opportunities for the nursing students who are just short on their qualifying, clinical hours (Mitchell, 2020; Stokes, 2020), especially in understaffed rural acute care settings.

Several students were prescient in drawing attention to onsite, distance-treatment and learning resources such as Telehealth, weeks before COVID-19 became a reality. In this regard, many rural health care sites have been ahead of the curve, integrating such technologies into daily practice over years of development. As clinical science educators rush to implement online components into their curricula, it is telling that much of the relevant research comes from Australia and New Zealand—global leaders in educational and clinical connectivity with rural and remote locations (Jowsey et al., 2020). However, the limits of this technology are such that the completion of clinical objectives for our participants, in the current circumstances, appears implausible.

For our participants, the pandemic quarantine has resulted in a state of prolonged liminality, with no clear resolution in sight. Evans and Kevern (2015) note that degree programs in the health sciences—and especially clinical placements—are liminal spaces wherein students transit between one identity and another. "Socialisation into a professional role is itself a rite of passage and includes a period of personal challenge, uncertainty and adjustment," the authors observe, moreover raising concerns regarding "the personal cost of this process for the student, and also the risk that they might avoid the challenge by dropping out; by retreating into the communitas of the student group; or by 'going through the motions' without properly internalizing the role they are required to adopt" (p. 5). Our data suggest that extending this fragile state of crisis indefinitely, without the closure of a summative

Fig. 10. The river valley.

experience or a ceremonial farewell (such as celebrating with the staff) leaves students feeling unfulfilled, helpless (Shaw, 2020) and less certain of their status, at a time when they would normally be preparing to re-enter society as newly minted health care professionals.

Communitas is the fellowship that arises among co-travelers in the transitional, liminal landscape (Barton, 2007; Evans and Kevern, 2015). Notwithstanding Evans and Kevern, (2015) caution that undergraduate communitas may distract from the ultimate goal of professional caregiver status, the concept has become crucial as our participants—indeed, all persons confronting uncertain futures as a result of COVID-19—seek to cope with their circumstances. Seclusion, confinement and suspense, intrinsic to quarantine life (Cava et al., 2005; Brooks et al., 2020), were daily realities confronted by the students during their rural placements, and they coped through forms of communitas, such as FaceTime with peers and subzero runs with fellow interprofessional team members. Even solitary outdoor activities, such as backwoods hiking, were connected with a sense of social solidarity, as students felt they were buying into the values of their host communities (Hansen-Ketchum et al., 2011). Simply put, rural placements improved the students' capacities for technological and metaphysical connectivity, which continue to serve them as they navigate the suspenseful, unfamiliar territory of a global pandemic.

4. Conclusion

Amongst allied health caregivers, the Classes of 2020 and subsequent years will build practices shaped by their COVID-19 experiences, for better or worse. Lingering anxiety over status, and the sense of a clinical education cut short, may weigh on their interprofessional relationships and clinical judgment. Alternatively, their practices may benefit from the reflexive abilities to adapt, to empathize, to capitalize on circumstance, and to retain a holistic perspective in times of crisis. The data from our 2020 photovoice cohort suggest that rural placements—even left unfinished—equipped nursing and medical students to handle their post-outbreak situations with equanimity and solidarity. As Alberta's rural communities and hospitals confront post-outbreak, existential threats from shortages, elimination of services, and precipitous socioeconomic decline, this generation of caregivers should be welcomed and supported as a key asset.

Funding

Declaration of competing interest

The authors have no conflicts of interest to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.nepr.2020.102892.

References

Bai, Y., Lin, C., Chen, J., Chue, C., Chou, P., 2004. Survey of stress reactions among health care workers involved with the SARS outbreak. Psychiatr. Serv. 55 (9), 1055–1057. https://doi.org/10.1176/appi.ps.55.9.1055.

Barton, T., 2007. Student nurse practitioners –a rite of passage? The universality of Van Gennep's model of social transition. Nurse Educ. Pract. 7, 338–347.

Bellefontaine, M., 2020. April 30. Alberta Premier Jason Kenney Starts Second Year in Office Dealing with 3 Crises. Retrieved May 21, 2020 from cbc.ca.

Brooks, S.K., Webster, R.K., Smith, L.E., Woodland, L., Wessely, S., Greenberg, N., Rubin, G.J., 2020. In: The Psychological Impact of Quarantine and How to Reduce it: Rapid Review of the Evidence. Lancet, vol. 395. North American Edition, pp. 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8, 10227.

Cava, M.A., Fay, K.E., Beanlands, H.J., McCay, E.A., Wignall, R., 2005. The experience of quarantine for individuals affected by SARS in Toronto. Publ. Health Nurs. 22 (5), 398–406.

Evans, C., Kevern, P., 2015. Liminality in preregistration mental health nurse education: a review of the literature. Nurse Educ. Pract. 15, 1–6.

Fereday, J., Muir-Cochrane, E., 2006. Demonstrating rigor using thematic analysis: a hybrid approach of inductive and deductive coding and theme development. Int. J. Qual. Methods 5 (1), 1–13. https://doi.org/10.1177/160940690600500107.

Hansen-Ketchum, P.A., Marck, P., Reutter, L., Halpenny, E., 2011. Strengthening access to restorative places: findings from a participatory study on engaging with nature in the promotion of health. Health Place 17, 558–571.

Jowsey, T., Foster, G., Cooper-Ioelu, P., Jacobs, S., 2020. Blended learning via distance in pre-registration nursing education: a scoping review. Nurse Educ. Pract. 44, 1–10. https://doi.org/10.1016/j.nepr.2020.102775.

Kacik, A., 2020. Rural hospitals face dire financial picture, with many at risk of closing. Mod. Healthc. 50 (15), 6.

Marjanovic, Z., Greenglass, E.R., Coffey, S., 2007. The relevance of psychossocial variables and working conditions in predicting nurses' coping strategies during the SARS crisis: an online questionnaire survey. Int. J. Nurs. Stud. 44 (6), 991–998.

Maunder, R., Hunter, J., Vincent, L., Bennett, J., Peladeau, N., Leszcz, M., Sadavoy, J., Verhaeghe, L.M., Steinberg, R., Mazzulli, T., 2003. The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. CMAJ (Can. Med. Assoc. 168 (10), 1245–1251.

Mitchell, G., 2020. Former and future nurses step up in coronavirus battle. Nurs. Times 116 (4), 10–11.

Pan, S., Feng, M., Wu, M., Chiu, T., Ko, N., 2005. Voices from the frontline: nurses' impact and coping during the 2003 SARS outbreak in southern Taiwan. J. Evid. -Based Nurs. 1 (2), 149–156.

Reynolds, D.L., Garay, J.R., Deamond, S.L., Moran, M.K., Gold, W., Styra, R., 2008. Understanding, compliance and psychological impact of the SARS quarantine experience. Epidemiol. Infect. 136 (7), 997–1007.

Shaw, S.C.K., 2020. Hopelessness, helplessness and resilience: the importance of safeguarding our trainees' mental wellbeing during the COVID-19 pandemic. Nurse Educ. Pract. 44, 1–2. https://doi.org/10.1016/j.nepr.2020.102780.

Stokes, D.C., 2020. Senior medical students in the COVID-19 response: an opportunity to be proactive. Acad. Emerg. Med. 27 (4), 343–345. https://doi.org/10.1111/acem.13972.

Wang, Y., Xu, B., Zhao, G., Cao, R., He, X., Fu, S., 2011. Is quarantine related to immediate negative psychological consequences during the 2009 H1N1 epidemic? Gen. Hosp. Psychiatr. 33 (1), 75–77. https://doi.org/10.1016/j.genhosppsych.2010.11.001.

Wu, P., Fang, Y., Guan, Z., Fan, B., Kong, J., Yao, Z., Liu, X., Fuller, C.J., Susser, E., Lu, J., Hoven, C.W., 2009. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. Can. J. Psychiatr. 54 (5), 302–311.