COVID-19 IN SASKATCHEWAN
19 months on

Café Scientifique YXE
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Land Acknowledgement

I want to acknowledge I am a newcomer to these lands. I arrived here in Saskatchewan 30 years ago from land in South Asia, Sri Lanka.

The lands I have made home for most of life now is where First Nations Peoples have been living since time immemorial and where the Métis have established their Homeland.

Immediately made to feel welcomed, I have enormously benefited from people who have come before me, going back thousands of years. I pay my respect to our Indigenous brothers and sisters.

All my relations.
March 9, 2020: The week our world changed
Pivoting the research, protecting from the virus, presenting on zoom: reflections on the pandemic

COVID-19 has arrived in Saskatchewan. Be prudent, but don't panic

How bad is it and how bad will it get?

Juno Awards cancelled over coronavirus concerns

Festivities had been slated to ramp up in Saskatoon ahead of Sunday's gala
The week our world changed
Pivoting the research, protecting from the virus, presenting on zoom: reflections on the pandemic

Saskatchewan

Saskatchewan officials provide COVID-19 update after second presumptive case found in province

Gatherings of over 250 people prohibited, other measures introduced

Dr. Saqib Shahab, Premier Scott Moe, and health minister Jim Reiter will provide an update on the COVID-19 situation in Saskatchewan on Friday afternoon. (CBC)

No cases in Sask. as WHO declares COVID-19 outbreak a pandemic

There have been 204 people tested in Sask. 202 came back negative and two outlying results are still pending but had not been confirmed positive and were not considered presumptive.

Seventh COVID-19 case in Sask.; province announces school closures effective March 20

Published Friday, March 13, 2020 7:09PM CST
Published Monday, March 16, 2020 7:42AM CST
Published Monday, March 16, 2020 5:56PM CST
COVID-19 in Saskatchewan, SPHERU Projects

- Social Contours & COVID-19
- See Us, Hear Us (SUHU)
- COVID-19 & Adult Mental Health in SK
- CoVaRR-Net Pillar 8
Social Contours and COVID-19 in Saskatchewan Survey

OBJECTIVES

1. collect behavioural, perceptual, social, and geographical data (i.e., how we act, think, interact, and move)
2. assign a COVID-19 risk level to people and places over time
3. identify lower-risk and higher-risk areas in our province
4. communicate this information to public health officials and the general public

May 4, 2020

10 rounds of data collection, 10,627 SK adults (18+)

- Cross-sequential survey of Saskatchewan adults (18+)
- Recruitment via CHASR Community Panel and public recruitment (via social media and networks)
- Results weighted by age, gender, and location of residence (Census 2016, Saskatchewan adult population)

May 3, 2021
Taking the Pulse of COVID-19 in Saskatchewan
Results from the Social Contours and COVID-19 in Saskatchewan Survey

- focused, timely research briefs, maps, charts, and key takeaways from Social Contours data
- released in response to current state of the pandemic to inform policy and public discourse
- shared with medical health officers, local health authorities, governments (municipal, regional and national), policy-makers, stakeholders, and the general public

Examples:
- Dual behaviours of mask-wearing and vaccination intention
- Vaccination acceptance, hesitancy, and refusal by SHA sub-zones
- Perceptions on efficacy of governments’ (provincial, national) pandemic response (e.g., public health restrictions, vaccine-rollout)
- Risk exposure and mitigation (e.g., places visited, number of contacts, masking, etc.)
Social Contours and COVID-19 in Saskatchewan

**Vaccine Hesitancy in Saskatchewan** January 1- May 3, 2021

- Would not get vaccinated
- Not yet decided
- Vaccine accepting/ already vaccinated

15-17% of the general population in Canada is hesitant to receive a COVID-19 vaccine

**Vaccine uptake in Saskatchewan** May 2020- May 2021, Saskatchewan

- Vaccine ready/received
- Vaccine hesitant
- Refused vaccine

Vaccine readiness (%) vs Week

- Vaccine ready/received: Slope = -0.00013, p-value = 0.7387
- Vaccine hesitant: Slope = 0.00013, p-value = 0.7387
- Refused vaccine: Slope = 0.00014, p-value = 0.001
COVID-19 vaccine hesitancy and refusal in Saskatchewan

\( n = 9252, \ SK \ adults \geq, \ 9 \ rounds \ of \ data \ collection, \ May \ 4, \ 2020-\ April \ 3, \ 2021 \)

Factors that decreased the likelihood of both vaccine refusal and hesitancy:
- perceiving COVID-19 to be more of a threat to one’s community
- believing that one had a higher risk of illness or death from COVID-19

Factors that increased the likelihood of vaccine refusal and hesitancy:
- lower education level
- financial instability
- Indigenous status
- not being concerned about spreading the coronavirus

Conclusion: While many Canadians have voluntarily and eagerly become vaccinated already, reaching sufficient coverage of the population is likely to require targeted efforts to convince those who are resistant or unsure. Identifying and overcoming any barriers to vaccination that exist within the socio-demographic groups we found were least likely to be vaccinated is a crucial component.

*PLOS ONE* (publication forthcoming): COVID-19 vaccine hesitancy and refusal and associated factors in an adult population in Saskatchewan, Canada: Evidence from predictive modelling, Nazeem Muhajarine, Daniel A. Adeyinka, Jessica McCutcheon, Kathryn Green, Miles Fahlman, Natalie Kallio

Respondents who **did not plan to be vaccinated** were less likely to wear **face masks** and practice **physical distancing**.

Most likely to be vaccine hesitant: **women & newcomers to Canada**
COVID-19 vaccine hesitancy and refusal in Saskatchewan

Factors associated with vaccine hesitancy and refusal:

- Lower education
- Less concern about spreading the virus in the community
- Perceptions of high threat of virus to community
- Perceived COVID-19 threat to self
- Less likely to wear mask
- Less likely to social distancing
- Financial instability
- Women
- Newcomer to CDN
- Indigenous

*Vaccine hesitancy vaccine refusal
Changes in rates of vaccine intention, from pre- to post-vaccine rollout
Taking the Pulse (released August 5, 2021)
COVID-19 vaccination rates and proof of vaccination policies in Saskatchewan

Interventions: proof of vaccination policy announcement (September 16, 2021) and implementation (October 1, 2021)

Partial vaccination (1st dose)

Dose counts are 7-day moving averages, lag 1

- Actual ——— Predicted

Pre-intervention slope = -7.8, p=0.266
Slope (announcement phase)=100.96, p<0.001
Slope (implementation phase)= -60.36, p<0.01

Full vaccination (2nd dose)

Dose counts are 7-day moving averages, lag 1

- Actual ——— Predicted

Pre-intervention slope= 18.6, p=0.078
Slope (announcement phase)=37.7, p<0.001
Slope (implementation phase)= -1.0, p<0.8153
Pause for a quick summary

→ Social Contours and COVID-19 study has yielded a wealth of actionable (public health) data. Chief of them is ongoing data on COVID vaccination in Saskatchewan.

→ Vaccine intent (acceptance, hesitancy and refusal) as reported by people was dynamic, reflecting the pandemic stages and what we knew about vaccine development, availability and administration.

→ Vaccine hesitancy ↔ refusal is a continuum. In Saskatchewan, proportion of population who are vaccine hesitant/refusing may be higher than in other provinces/territories.

→ Social position, place, perceptions (trust, vaccine safety and development, threat of the virus, vulnerability, concern for community) and behaviour are key reasons why vaccine is accepted, hesitant or refusing.

→ Proof-of-vaccination policies applied to settings and activities work to increase uptake, both among first-dose and second-dose takers. However, it appears to not sustainable among harder-to-reach hesitators or refusers.
**Research question:** What is the impact on mental health of children and youth (8-18 years) and their needs for services in Saskatchewan?

**Prevalence • Impact • Coping • Service Needs**

**SUHU 1.0 Quantitative**
- online/telephone survey of children/youth and parent/caregiver dyads
- recruitment via CHASR Community Panel and SK School Divisions
- data collected March-July 2021 from 504 dyads (1,008 individuals)
- funded by MHRC and SHRF

**SUHU 1.0 Qualitative**
- interviews with children/youth and parent/caregiver dyads
- interviews on mental health and physical activity with participants from SUHU 1.0 survey
- data collection to begin in November 2021
- funded by RUH Foundation

**SUHU 2.0 Quantitative**
- measuring mental health and well-being impacts two years into the pandemic
- online/telephone survey of children/youth and parent/caregiver dyads + focus on underrepresented groups
- data collection to begin in January/February 2022
- funded by CIHR

PIs: Drs. Nazeem Muhajarine and Tamara Hinz
SUHU 1.0 Quantitative – Preliminary Results (8-18 years)

**Impact of COVID-19: Life changes**

- **Demographics**
  - **Age** (n=510)
    - 47% ages 8-11
    - 34% ages 12-15
    - 19% ages 16-18
  - **Gender** (n=500)
    - 45% girls
    - 52% boys
    - 3% other gender
  - **Household Income** (n=387)
    - 53% $\geq$ $100,000$
    - 26% $50,000-99,999$
    - 19% $20,000-49,999$
    - 3% < $20,000
  - **Place of Residence** (n=235)
    - mid-size town/city: 29%
    - rural: 32%
    - Regina: 9%
    - Saskatoon: 29%
  - **Ethnicity** (n=488)
    - 73% white
    - 9% Indigenous
    - 8% Asian
    - 8% others
    - 1% Black
    - 0.3% Hispanic/Latino

**Impact of COVID-19: Change in overall mental health**

- **Child-Adolescent perspective**
- **Parent/caregiver perspective**

- **Much worse**
- **Slightly worse**
- **No real change**
- **Slightly better**
- **Much better**
- **Lots of ups and downs**
- **Worse at the beginning, better now**
Impact of COVID-19: Quality of Life
Responses based on last 7 days (Surveyed between March-July 2021)

KIDSCREEN-10 (n=500)
- 10 item questionnaire (last week)
- Never-Almost never-Sometimes-Almost always-Always

Anxiety and Depression
Responses based on last 7 days (Surveyed between March-July 2021)

RCADS-25
- Low severity (0-64)
- Medium severity - borderline clinical threshold (65-70)
- High severity - above clinical threshold (>70)

Where are they getting help from?

- Family doctor
- Psychiatrist
- Psychologist/social worker/therapist
- Pastor/priest/faith leader
- Teacher/school counsellor
- Family/friends
- From a website/app
Pause for a quick summary

→ SUHU 1.0 is a 'work-in-progress.' We have the opportunity here, in Saskatchewan, to describe children and youth’s (8-18 yo) experiences of mental health, coping, and impact on well-being during COVID-19—in-depth as well dynamically.

→ SUHU sample, recruited March to July 2021, is representative of the families and children in Saskatchewan.

→ 59% children/youth said changes to their lives due to COVID were somewhat or a lot more bad than good. Only 16% said the changes were somewhat or lot more good than bad.

→ 37% children/youth said that change on overall mental health was much or slightly worse during Covid (vs 4% who said slightly or much better). 15% reported lots of ups and downs. For another 7%: worse at the beginning, but now has gotten better.

→ Self-reported 7-day prevalence of anxiety and depression as measured by KIDSCREEN and RCADS-25 were low.

→ Family and friends, therapist/psychiatrist, teacher/school counselor, and family doc, in that order, are those who kids turned to for help.
Adult mental health and COVID-19 in Saskatchewan

- Data collected as part of ongoing national surveys on mental health during COVID-19, conducted by Pollara Strategic Insights, sponsored by the Saskatchewan Health Research Foundation (SHRF).
- Data collected from 576 (August 2020), 577 (February 2021), and 590 (June 2021) adult Saskatchewan residents, respectively. Stratified sample, age, sex, and place weighted for analysis.

Self-reported prevalence of anxiety, depression in Saskatchewan adults

Wave 1 (August 2020 n=576); 2 (February 2021 n=577); and 3 (June 2021 n=590)
Adult mental health and COVID-19 in Saskatchewan

HIGH ANXIETY AND HIGH DEPRESSION
first 11 months of COVID-19 in Saskatchewan (March 2020 to February 2021)

24% experiencing 'HIGH' ANXIETY (score of 8-10 out of 10-point scale)

WOMEN 30%
MEN 17%

17% experiencing 'HIGH' DEPRESSION (score of 8-10 out of 10-point scale)

WOMEN 18%
MEN 15%

most likely to be experienced by

YOUNGER compared to OLDER

those negatively affected by WINTER

33%
22%
Access to mental health services
first 11 months of COVID-19 in Saskatchewan (March 2020 to February 2021)

#### Seeking Mental Health Care since COVID

21% of Saskatchewan respondents reported accessing services from a mental health professional

34% before COVID

#### Continuing to Access Services since COVID

86% who responded “yes” were 18-54 years of age

<table>
<thead>
<tr>
<th>Mental health services accessed</th>
<th>6 months Before COVID</th>
<th>6 months Since COVID</th>
<th>11 months Before COVID</th>
<th>11 months Since COVID</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-to-one in-person with mental health professional</td>
<td>23.0%</td>
<td>6.6%</td>
<td>25.0%</td>
<td>7.5%</td>
</tr>
<tr>
<td>One-to-one virtually via online (video chat) with mental health professional</td>
<td>4.5%</td>
<td>4.7%</td>
<td>3.1%</td>
<td>4.3%</td>
</tr>
<tr>
<td>One-to-one virtually via verbal phone calls with mental health professional</td>
<td>5.0%</td>
<td>5.7%</td>
<td>3.6%</td>
<td>6.2%</td>
</tr>
<tr>
<td>One-to-one virtually via text messaging with mental health professional</td>
<td>2.3%</td>
<td>1.3%</td>
<td>1.2%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Family doctor/GP</td>
<td>10.6%</td>
<td>4.5%</td>
<td>11.6%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Group treatment/therapy</td>
<td>2.2%</td>
<td>0.7%</td>
<td>2.1%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Trained peer support</td>
<td>1.6%</td>
<td>0.8%</td>
<td>0.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Other mental health supports</td>
<td>4.0%</td>
<td>1.0%</td>
<td>3.6%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Needed mental health supports, but did not access any such supports</td>
<td>5.2%</td>
<td>10.0%</td>
<td>6.9%</td>
<td>12.1%</td>
</tr>
<tr>
<td>Did not need mental health supports (and did not access any)</td>
<td>56.2%</td>
<td>67.2%</td>
<td>56.3%</td>
<td>63.4%</td>
</tr>
</tbody>
</table>
COVID-19: Effects of Social Factors on levels of anxiety and depression
June 2021 (n=590)

- **Gender, ethnicity, income, and employment** were associated with levels of anxiety and depression levels (i.e., were statistically significant, p-value <0.05)
- **Unemployment** was significantly associated with anxiety levels (p=0.03). This result suggests that financial security is a concern during periods of uncertainty such as the COVID-19 pandemic.
- Those who needed mental health support and received, or those who needed it but didn’t receive, since COVID-19 began were more likely to experience higher level of anxiety or depression.
- Those who reported no pre-existing adverse mental health, or in their families, were less likely to experience anxiety or depression during the COVID-19 pandemic.
- Vaccine status was not statistically associated with anxiety or depression levels.

- Social demographic factors considered: gender, age, location of residence, ethnicity, employment, and income
- Independent variables: Baseline mental health status (Pre-COVID anxiety or depression in you or your family), changes in frequency of alcohol consumption or cannabis use since the outbreak, mental health support since outbreak, and COVID-19 vaccine status.
- Outcome variables: anxiety & depression levels since outbreak of COVID-19
**World Café Event**  
**May 26-27, 2021**

SPHERU researchers convened a gathering of approximately 30 individuals from the mental health sector to discuss the impact of the COVID-19 pandemic on the mental health of Saskatchewan adults, focusing on the MHRC SK data. Using a World Café methodology, we begin to chart a research-informed course forward for post-pandemic mental health services in the province.

**Four key themes emerged:**

1. The system was unprepared for the extent and duration of the pandemic and could not easily adjust service delivery modes and this exposed gaps between community mental health services and the health care system.
2. Because of the attention given to mental health issues there may be an opportunity for changing public perceptions of mental health and its centrality to overall health.
3. Existing inequalities in society were made worse by the pandemic and how those inequalities reinforce and overlap in specific populations was more apparent.
4. The “pivot” to new ways of working, interacting with each other, and accessing public services meant there were significant issues in getting timely, accurate information to people.

**Key takeaways:**

1. There is a need to keep pushing to **break down silos** inside government (e.g., between departments) and between the government, the health system, and communities.
2. We need to **sustain and nurture partnerships** and initiatives that arose **inside** different **communities** during the pandemic.
3. The key elements of any **service redesign** should be **flexibility** and **innovation** to ensure the right service is in the right place for the right people.
   a. This can only work with high levels of **intersectoral cooperation** and collaboration.
   b. This requires **focus on the patient/client** rather than on the service provider/service organization.
   c. This approach is better equipped to deal with the **intersectionality** of the economic and social determinants of health highlighted in the pandemic’s unequal impacts across communities, populations, and the province.
Pillar 8: Public Health, Health Systems and Social Policy Impacts

Studying the impacts of the variants on public health, our healthcare system, and on social policy and reporting these findings to decision-makers and government officials.

**Public Health**
- VOC Expert Panel Meetings
  - Who – provincial and local public health unit representatives
  - Topics discussed: knowledge needs, vaccine hesitancy, back to school
  - When – Monthly meetings

**Health System**
- Network request to create a policy document on potential impacts of molnupiravir
- Canadian wastewater database has been softly launched

**Social Policy**
- SBARs Currently On The Go
  - Proof of Vaccination in School Settings
  - COVID-19 Testing, Tracing, & Isolation in School Settings

**Best Practice VOC Research Project**
- Determining how schools might contribute to outbreak scenarios – survey-based data collection from provincial and local public health units
- Assessing vaccine rollout - NAO collaboration using policy data in four pilot provinces (BC, SK, ON, NS)

**Completed SBARS**
- Vaccine Administration – Booking and Tracking; Vaccine Allocation and Distribution; Vaccine Hesitancy
- Vaccine Breakthrough; Election Campaign; Election Voting; Halloween & COVID
Association between variants of concerns and stringency measures, Canada

Stringency index (University of Oxford Govt Response Tracker): composite measure of 20 indicators (e.g., school and workplace closures, restrictions on public transport, cancellation of public events, stay-at-home policies, travel restrictions, contact tracing, face coverings)
Association between variants of concern and two doses of COVID-19 vaccine, Canada

Vaccine coverage rates (two doses) retrieved from the Government of Canada website.
Association between variants of concern and mobility index
Mobility index (people’s compliance with PH measures) – Google maps app (PCA—singular value decomposition method—for data reduction, z-score transformation)
COVID-19 in Saskatchewan – SPHERU Projects

Thanks to our committed, multidisciplinary, bi-university research team members!

Aisha Sajid, Masters student, Public Health, University of Saskatchewan
Alanna DeCorby, Researcher, Social Work, University of Regina
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Fady Sulaiman, Medical student, College of Medicine, University of Saskatchewan
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and many more partners, collaborators, community council members, and knowledge users.

Funders
COVID-19 IN SASKATCHEWAN

More information on SPHERU’s COVID-19 in Saskatchewan research projects

VISIT:

• See Us, Hear Us: Children, youth, and families in Saskatchewan coping with mental health during the COVID-19 pandemic: https://spheru.ca/covid-19/childrenmentalhealth/about-childmentalhealth.php
CoVaRR-Net: https://covarrnet.ca/

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