



COVID 19 IN SASKATCHEWAN months on

Café Scientifique YXE

October 26, 2021

Dr. Nazeem Muhajarine

Director, Saskatchewan Population Health and Evaluation Research Unit (SPHERU)

Professor, Department of Community Health and Epidemiology

University of Saskatchewan

t: 306-966-7940 e: nazeem.muhammad@usask.ca



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

PRINCE ALBERT DAILY HERALD

'The general public does not need to be concerned' – First presumptive case of COVID-19 confirmed in Sask.

Individual recently travelled to Egypt, province says.

By Peter Lazinski · March 11, 2020

Entertainment

Juno Awards cancelled over coronavirus concerns



Festivities had been slated to ramp up in Saskatoon ahead of Sunday's gala

Jessica Wong · CBC News · Posted: Mar 12, 2020 11:27 AM ET | Last Updated: March 12, 2020



The 2020 Juno Awards were slated to take place in Saskatoon on March 15. (Ryan Bolton)

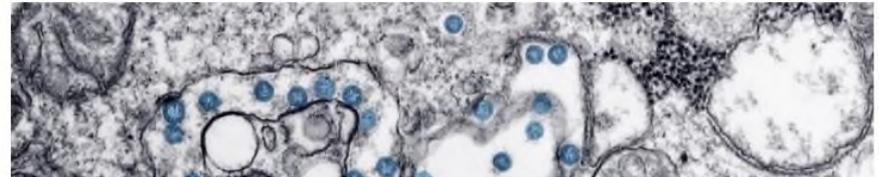
COVID-19 has arrived in Saskatchewan. Be prudent, but don't panic



How bad is it and how bad will it get?



Steven Lewis · CBC News · Posted: Mar 12, 2020 10:27 AM CT | Last Updated: March 13, 2020



SASKATOON STARPHOENIX

Local News

'There's no playbook for this': Junos axed as presumed COVID-19 case confirmed in Saskatchewan

"We are devastated to cancel this national celebration of music, but at this time of global uncertainty, the health, safety and well-being of all Canadians must stand at the forefront of any decisions that impact our communities," Junos organizers said in a statement.

Matt Olson

Mar 13, 2020 · March 16, 2020 · 4 minute read · [Join the conversation](#)

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



Bryan Eneas · CBC News · Posted: Mar 13, 2020 2:15 PM CT | Last Updated: March 13, 2020



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)

er Fund 2020 Business Opinion Sports Arts Life Driving Healthing The GrowthOp Podc

Saskatchewan

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.

Alec Salloum

Mar 12, 2020 · March 12, 2020 · 3 minute read · Join the conversation

SASKATOON | News

COVID-19 concerns prompt U of S to temporarily suspend class, will move courses online

Jonathan Charlton Web Journalist
@J_Charlton | Contact

Published Friday, March 13, 2020 7:30PM CST



REGINA | News

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

CTV News Regina

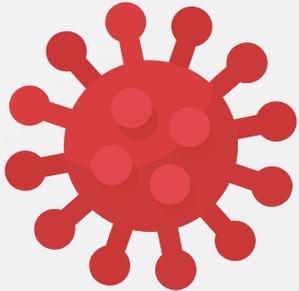


Katherine Hill CTVNewsRegina.ca Senior Digital Content Producer
@KatherineCTV | Contact

Published Monday, March 16, 2020 7:42AM CST
Last Updated Monday, March 16, 2020 5:45PM CST

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+)

**May 3
2021**

- 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)

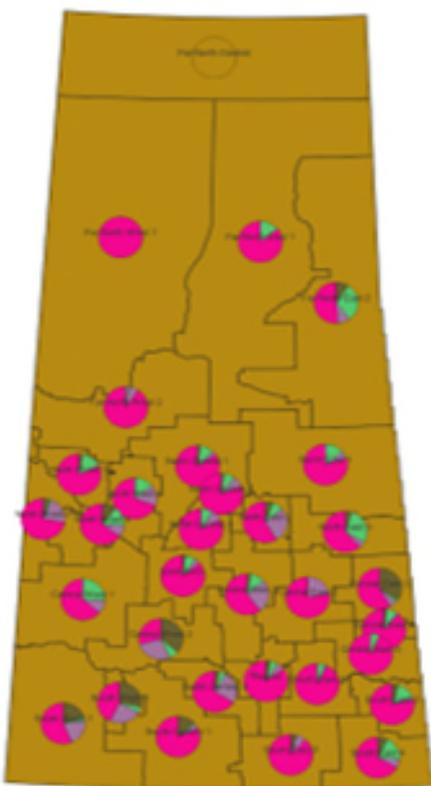
Taking the Pulse of COVID-19 in Saskatchewan

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:

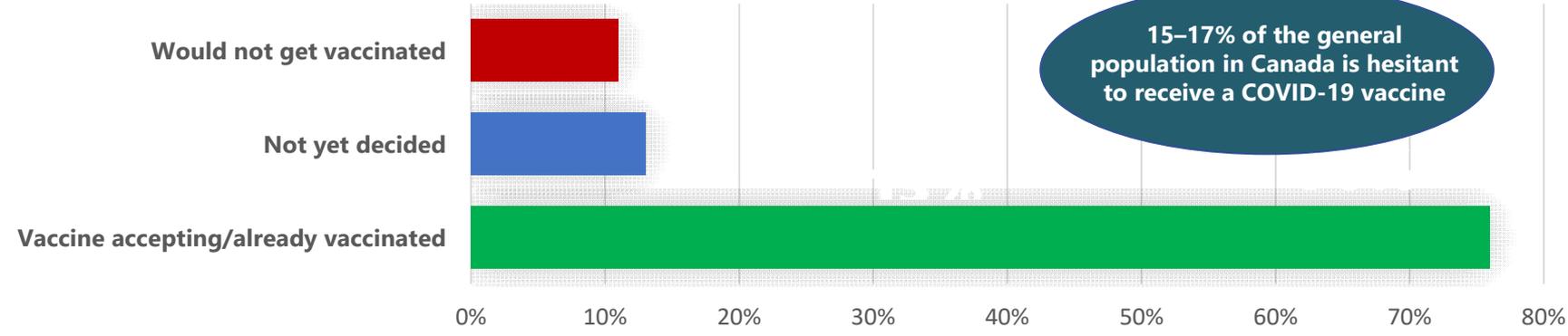
- Dual behaviours of mask-wearing and vaccination intention
- Vaccination acceptance, hesitancy, and refusal by SHA sub-zones
- Perceptions on efficacy of governments' (provincial, national) pandemic response (e.g., public health restrictions, vaccine-rollout)
- Risk exposure and mitigation (e.g., places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



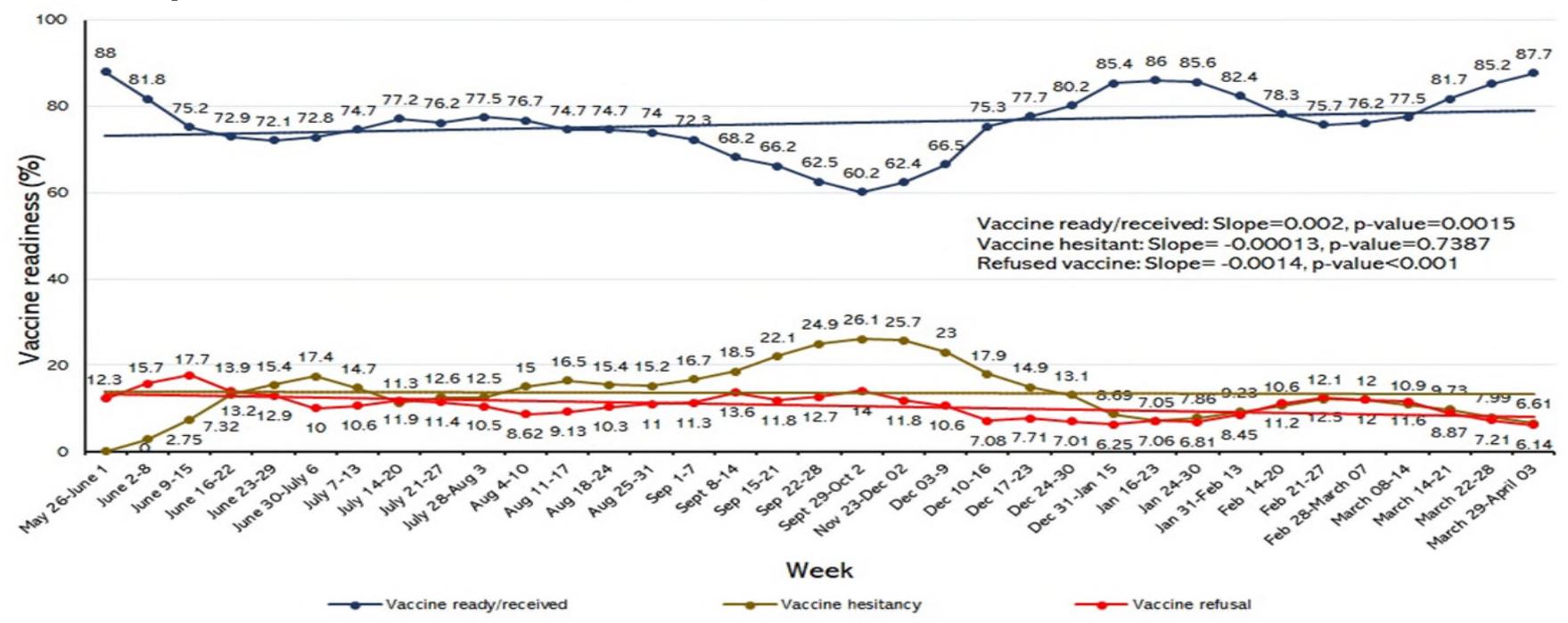
Dual behaviour: mask wearing and vaccine intentions



Vaccine Hesitancy in Saskatchewan January 1-May 3, 2021

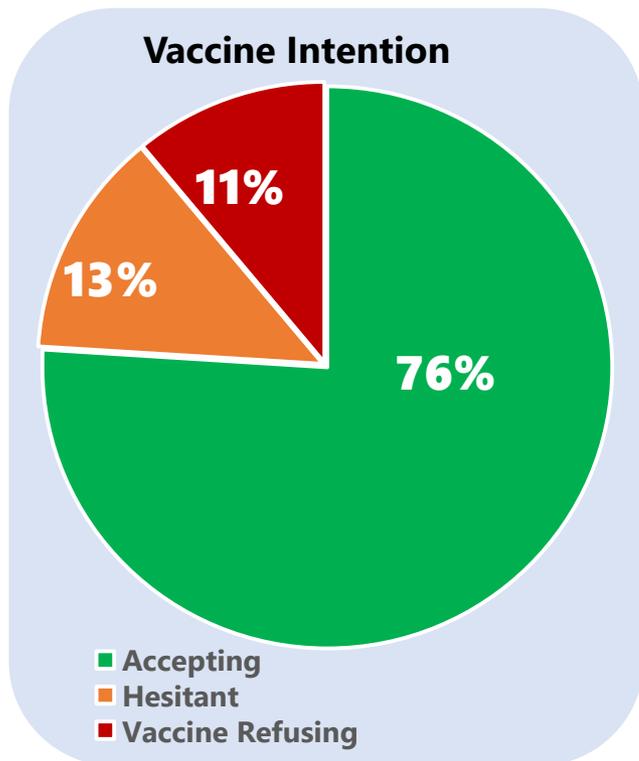


Vaccine uptake in Saskatchewan May 2020-May 2021, Saskatchewan



COVID-19 vaccine hesitancy and refusal in Saskatchewan

n= 9252, SK adults ≥, 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

Most likely to be vaccine hesitant:
women & newcomers
 to Canada

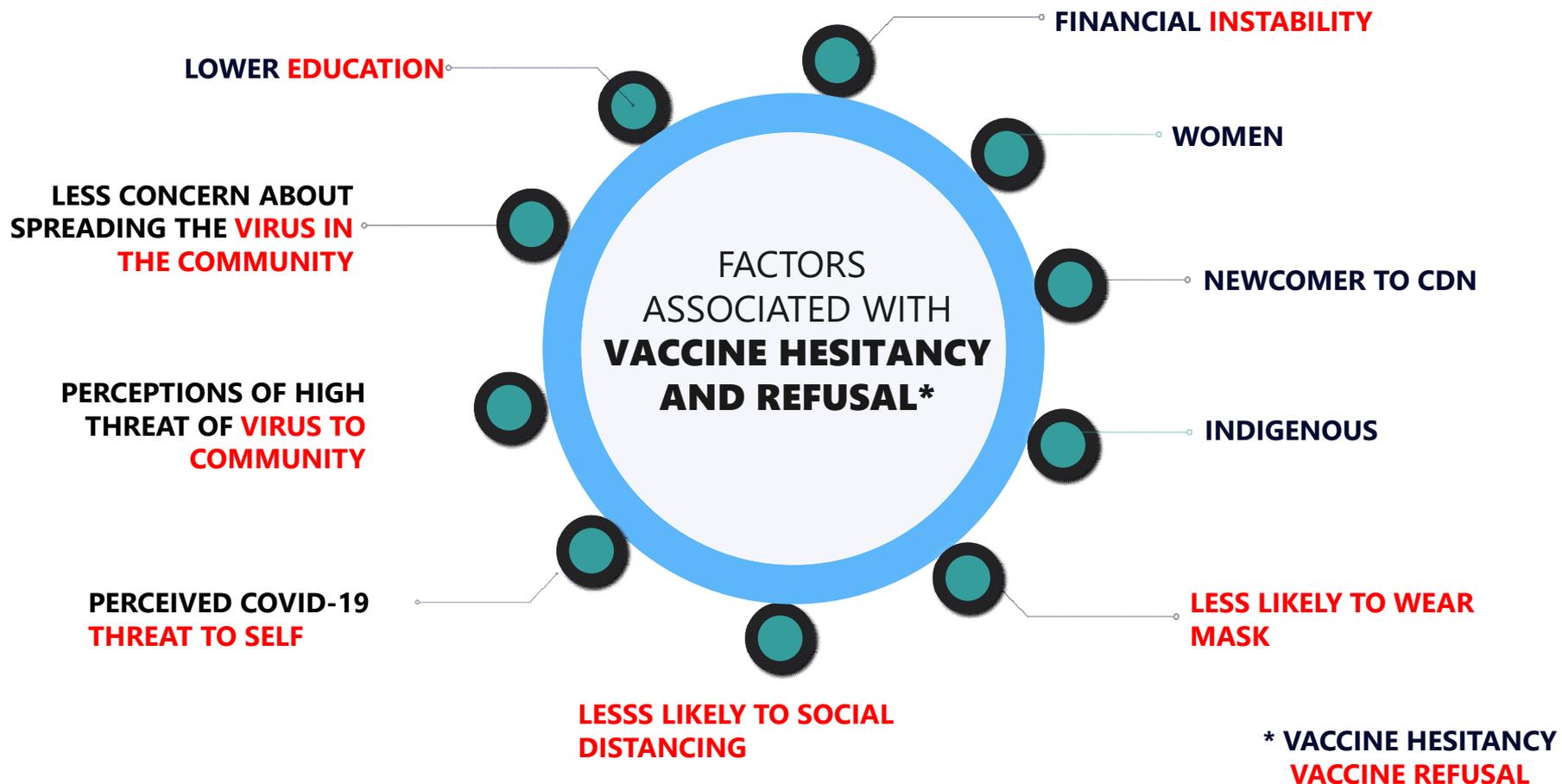
Respondents who **did not plan to be vaccinated** were less likely to wear **face masks** and practice **physical distancing**.



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

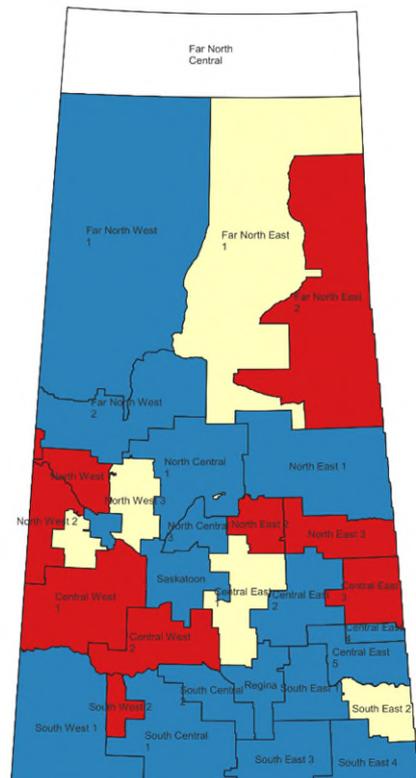
COVID-19 vaccine hesitancy and refusal in Saskatchewan



Changes in rates of vaccine intention, from pre- to post-vaccine rollout

Taking the Pulse (released August 5, 2021)

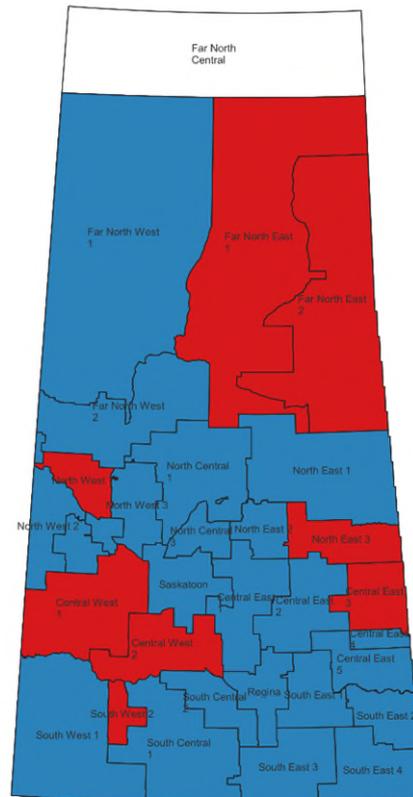
Vaccine Acceptance



% changes in rates of vaccine acceptance (pre and post vaccine rollout)

- Decrease (-50.21% - -7.16%)
- No change
- Increase (9.74% - 323.73%)
- Insufficient sample

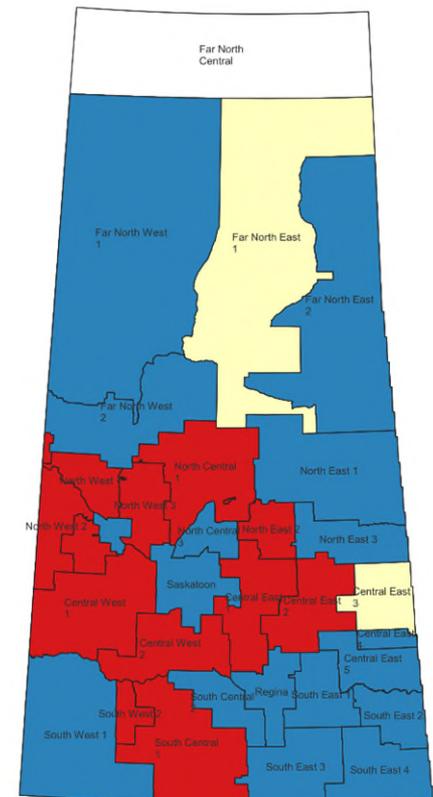
Vaccine Hesitancy



% changes in rates of vaccine hesitancy (pre and post vaccine rollout)

- Decrease (-100.00% - -8.69%)
- No change
- Increase (16.05% - 293.03%)
- Insufficient sample

Vaccine Refusal



% changes in rates of vaccine refusal (pre and post vaccine rollout)

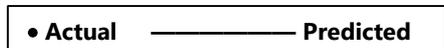
- Decrease (-100.00% - -12.20%)
- No change
- Increase (13.77% - 331.64%)
- Insufficient sample

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)

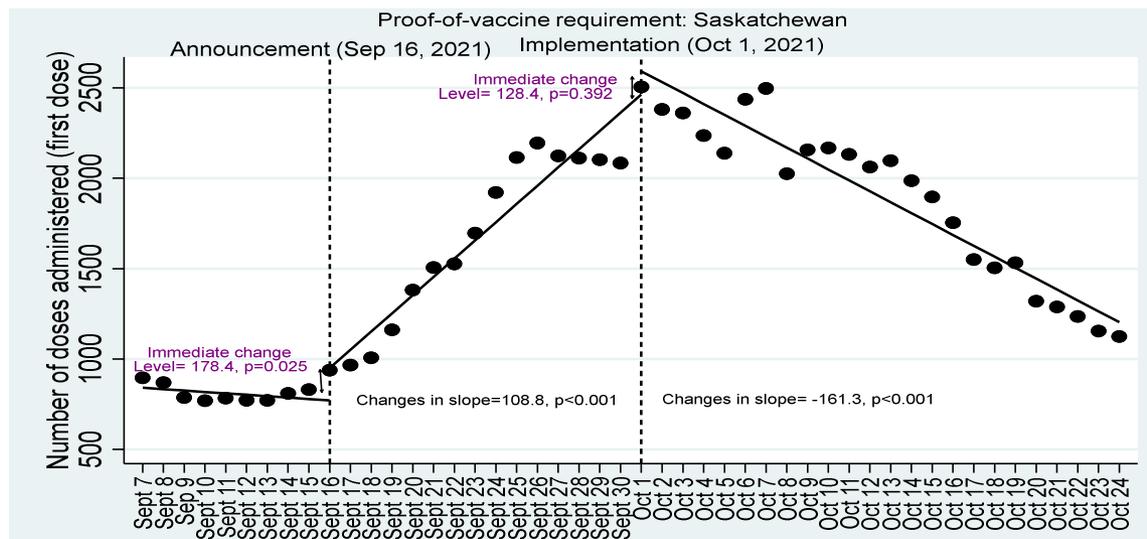
Partial vaccination (1st dose)

Dose counts are 7-day moving averages, lag 1



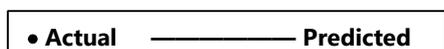
Pre-intervention slope= -7.8, p=0.266
 Slope (announcement phase)=100.96, p<0.001
 Slope (implementation phase)= -60.36, p<0.01

Dose counts are 7-day moving averages, lag 1

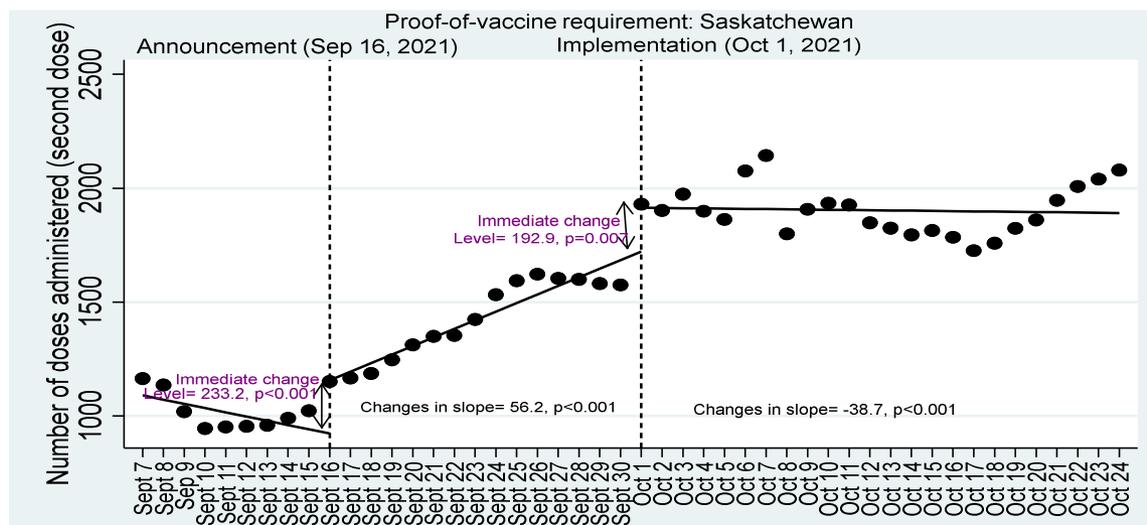


Full vaccination (2nd dose)

Dose counts are 7-day moving averages, lag 1

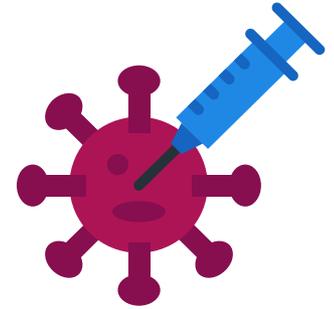


Pre-intervention slope= 18.6, p=0.078
 Slope (announcement phase)=37.7, p<0.001
 Slope (implementation phase)= -1.0, p<0.8153



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** \longleftrightarrow **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.



See Us, Hear Us



Children, youth, and families in Saskatchewan coping with mental health during the first year of the COVID-19 pandemic

Research question: What is the impact on mental health of children and youth (8-18 years) and their needs for services in Saskatchewan?

P R E V A L E N C E • I M P A C T • C O P I N G • S E R V I C E N E E D S

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

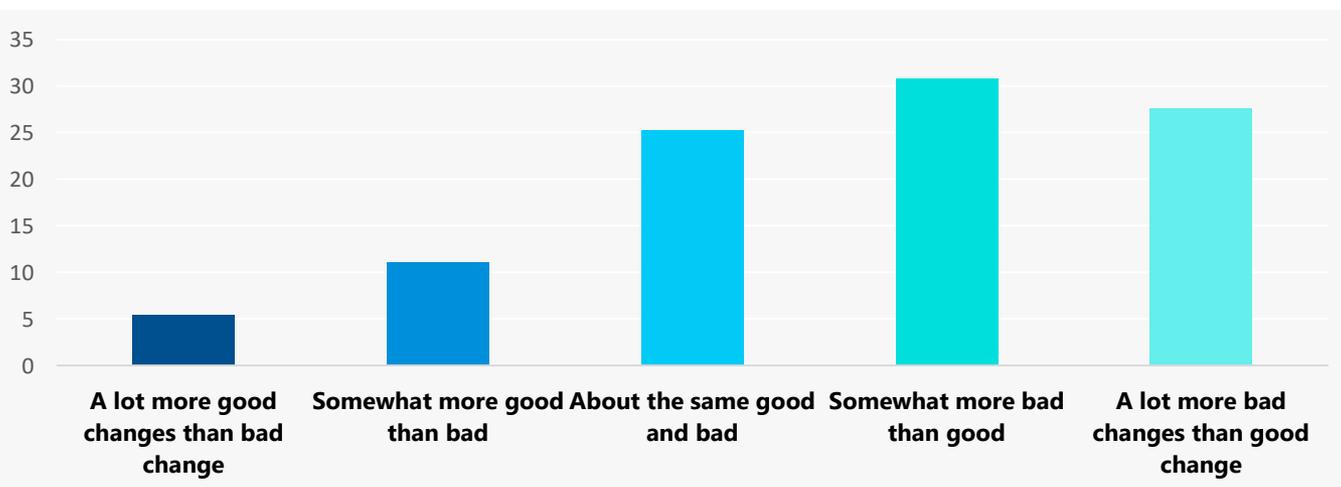
- interviews with children/youth and parent/caregiver dyads
- interviews on mental health and physical activity with participants from SUHU 1.0 survey
- data collection to begin in November 2021
- funded by RUH Foundation

SUHU 2.0 Quantative

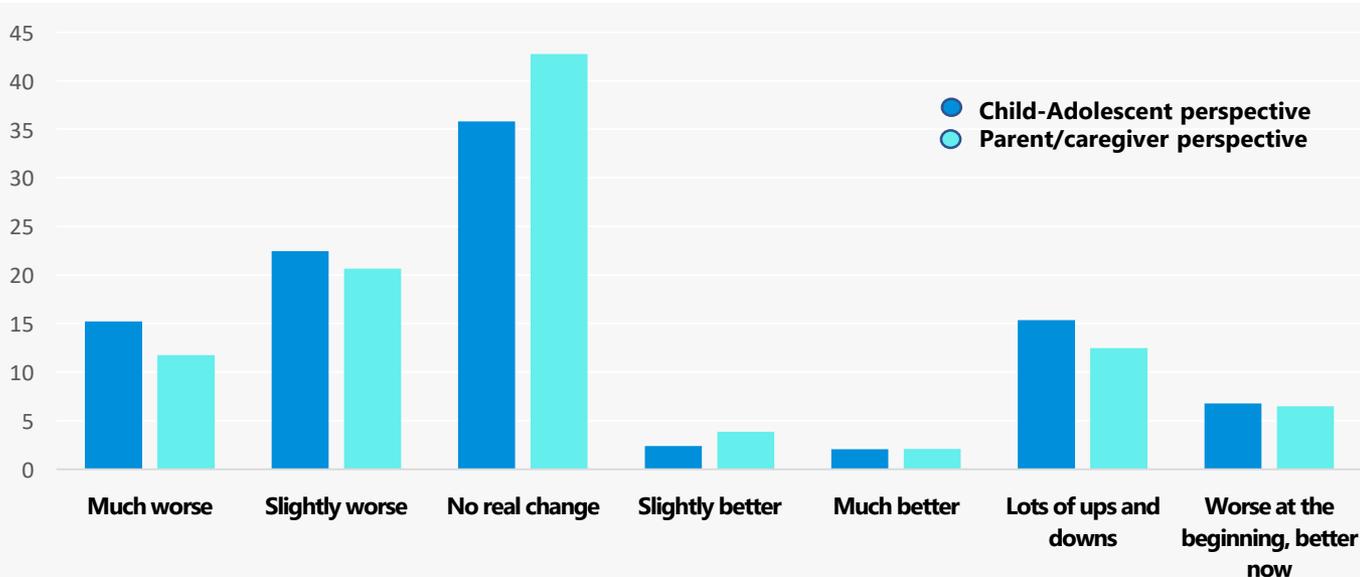
- measuring mental health and well-being impacts two years into the pandemic
- online/telephone survey of children/youth and parent/caregiver dyads + focus on underrepresented groups
- data collection to begin in January/February 2022
- funded by CIHR

PIs: Drs. Nazeem Muhajarine and Tamara Hinz

Impact of COVID-19: Life changes



Impact of COVID-19: Change in overall mental health



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% >= \$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%

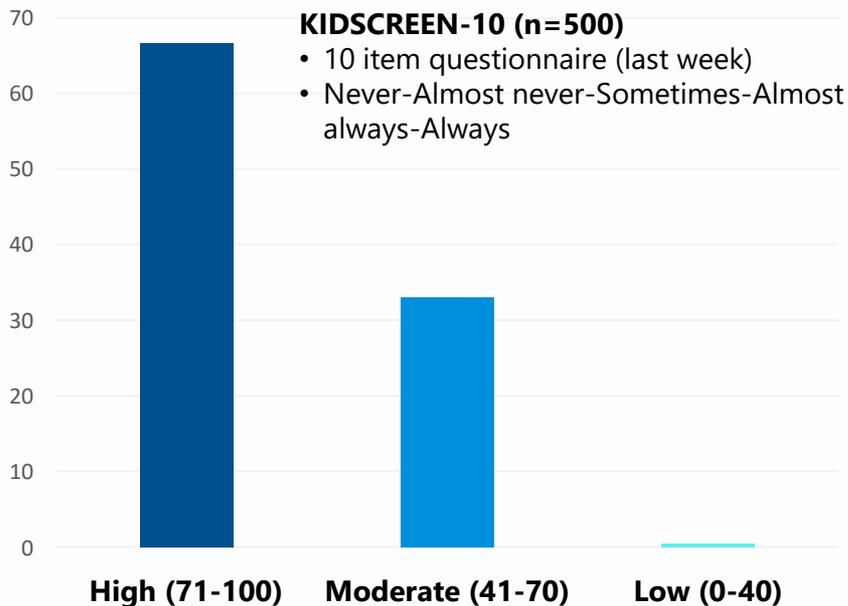
Ethnicity (n=488)

- 73% white
- 9% Indigenous
- 8% Asian.
- 8% others
- 1% Black.
- 0.3% Hispanic/Latino



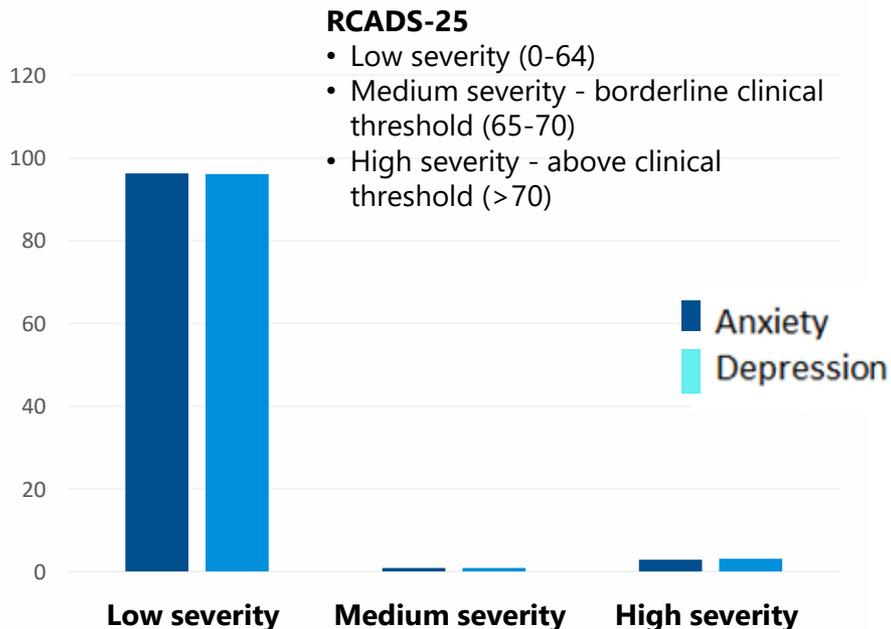
Impact of COVID-19: Quality of Life

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

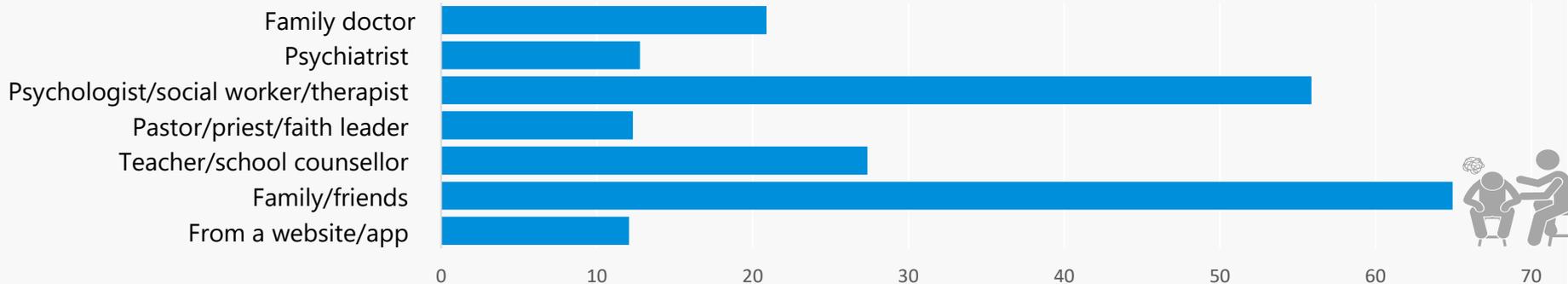


Anxiety and Depression

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



Where are they getting help from?



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

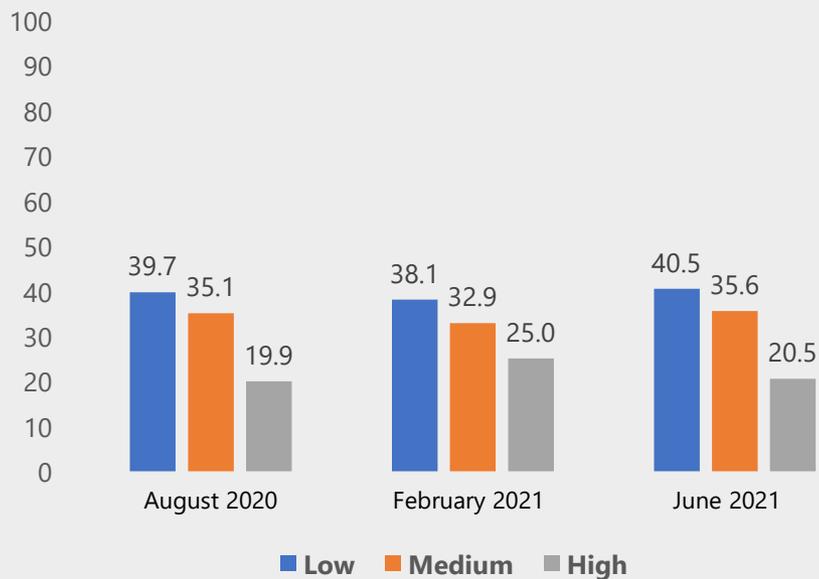
- Data collected as part of ongoing national surveys on mental health during COVID-19, conducted by Pollara Strategic Insights, sponsored by the Saskatchewan Health Research Foundation (SHRF).
- Data collected from 576 (August 2020), 577 (February 2021), and 590 (June 2021) adult Saskatchewan residents,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



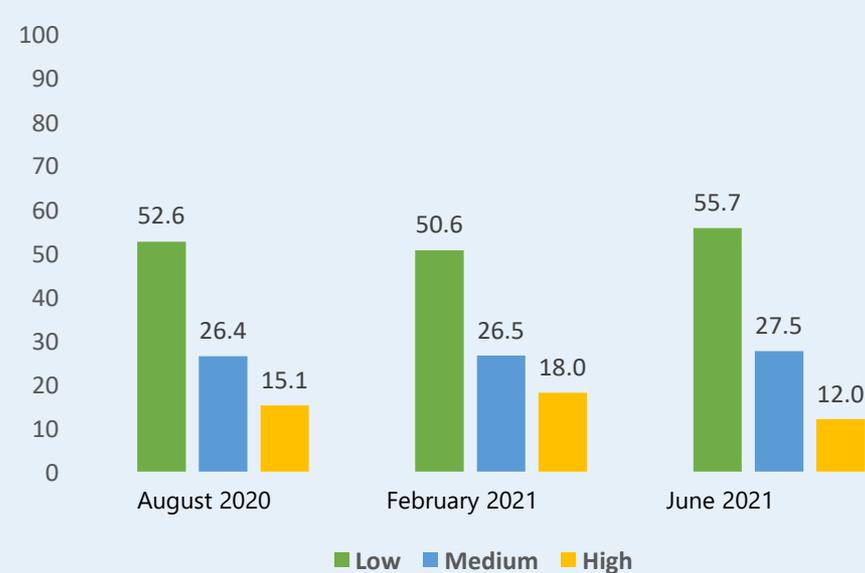
Self-reported prevalence of anxiety, depression in Saskatchewan adults

Wave 1 (August 2020 n=576); 2 (February 2021 n=577); and 3 (June 2021 n=590)

Prevalence of level of anxiety, by wave



Prevalence of level of depression, by wave



HIGH ANXIETY AND HIGH DEPRESSION

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

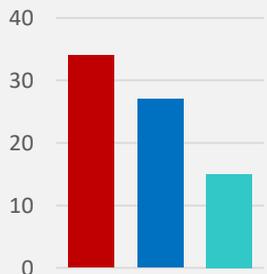


24%

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

ANXIETY

most likely to be experienced by



YOUNGER
compared to
OLDER



WOMEN
30%



MEN
17%

WOMEN
compared to
MEN



WOMEN
18%



MEN
15%

DEPRESSION



17%

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



33%

those negatively
affected by
WINTER



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

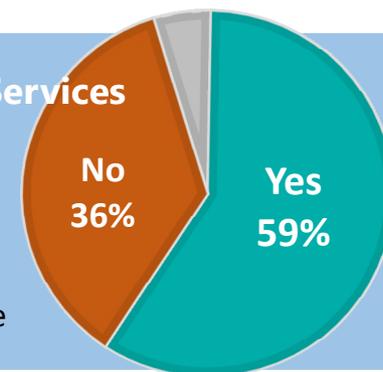
vs **34%** before COVID



Continuing to Access Services since COVID

86%

who responded "yes" were 18-54 years of age



Mental health services accessed	6 months		11 months	
	Before COVID	Since COVID	Before COVID	Since COVID
One-to-one in-person with mental health professional	23.0%	6.6%	25.0%	7.5%
One-to-one virtually via online (video chat) with mental health professional	4.5%	4.7%	3.1%	4.3%
One-to-one virtually via verbal phone calls with mental health professional	5.0%	5.7%	3.6%	6.2%
One-to-one virtually via text messaging with mental health professional	2.3%	1.3%	1.2%	1.7%
Family doctor/GP	10.6%	4.5%	11.6%	6.9%
Group treatment/therapy	2.2%	0.7%	2.1%	0.9%
Trained peer support	1.6%	0.8%	0.4%	0.4%
Other mental health supports	4.0%	1.0%	3.6%	1.9%
Needed mental health supports, but did not access any such supports	5.2%	10.0%	6.9%	12.1%
Did not need mental health supports (and did not access any)	56.2%	67.2%	56.3%	63.4%

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

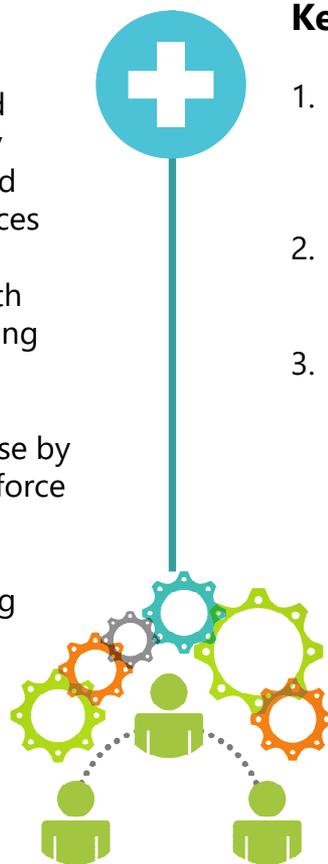
May 26-27, 2021

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.



CoVaRR+Net **Coronavirus Variants Rapid Response Network**

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

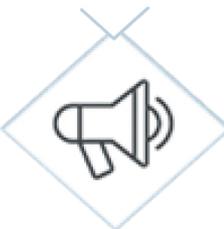
SBARs Currently On The Go

- 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)

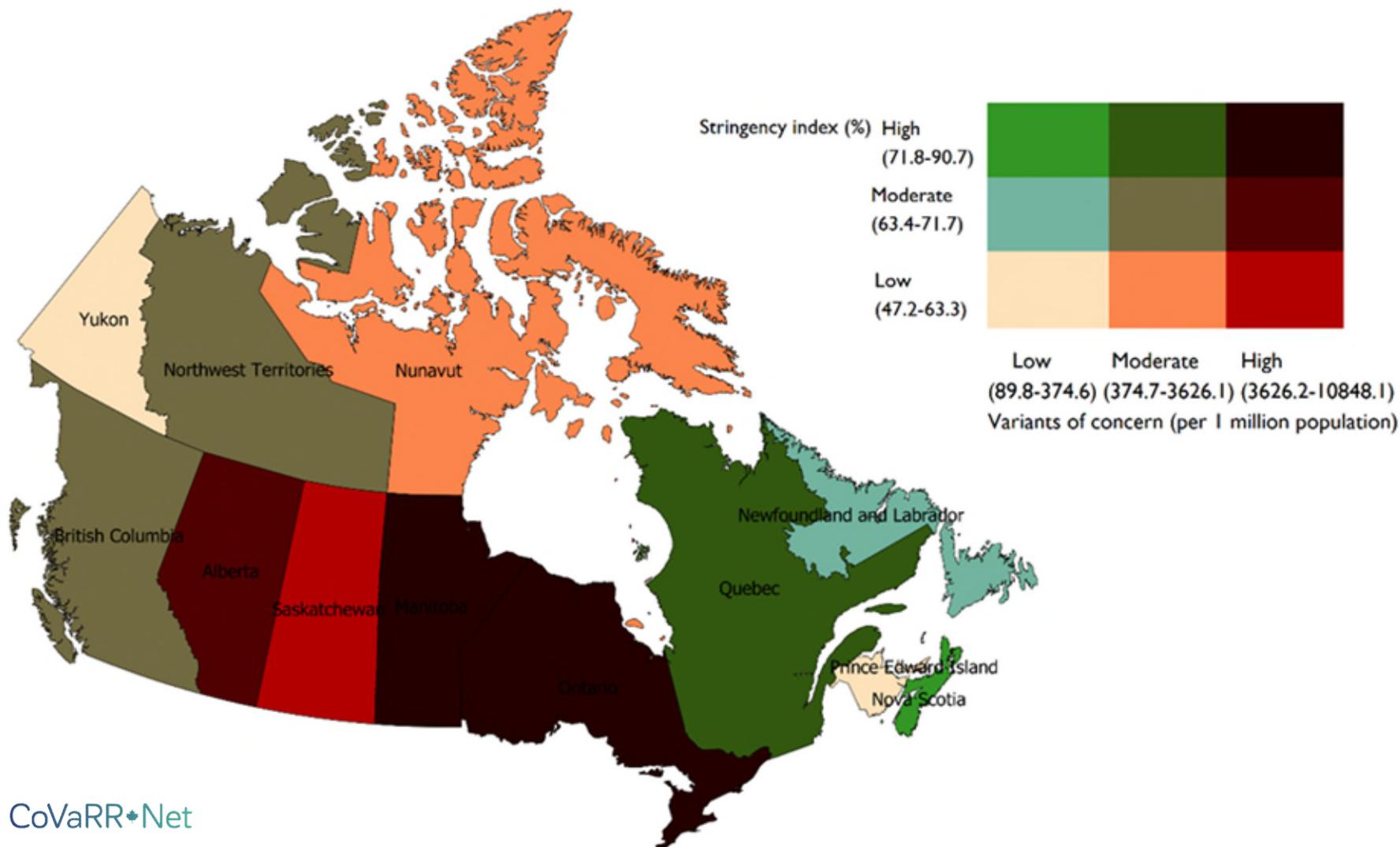


Completed SBARS

- Vaccine Administration – Booking and Tracking; Vaccine Allocation and Distribution; Vaccine Hesitancy
- Vaccine Breakthrough; Election Campaign; Election Voting; Halloween & COVID

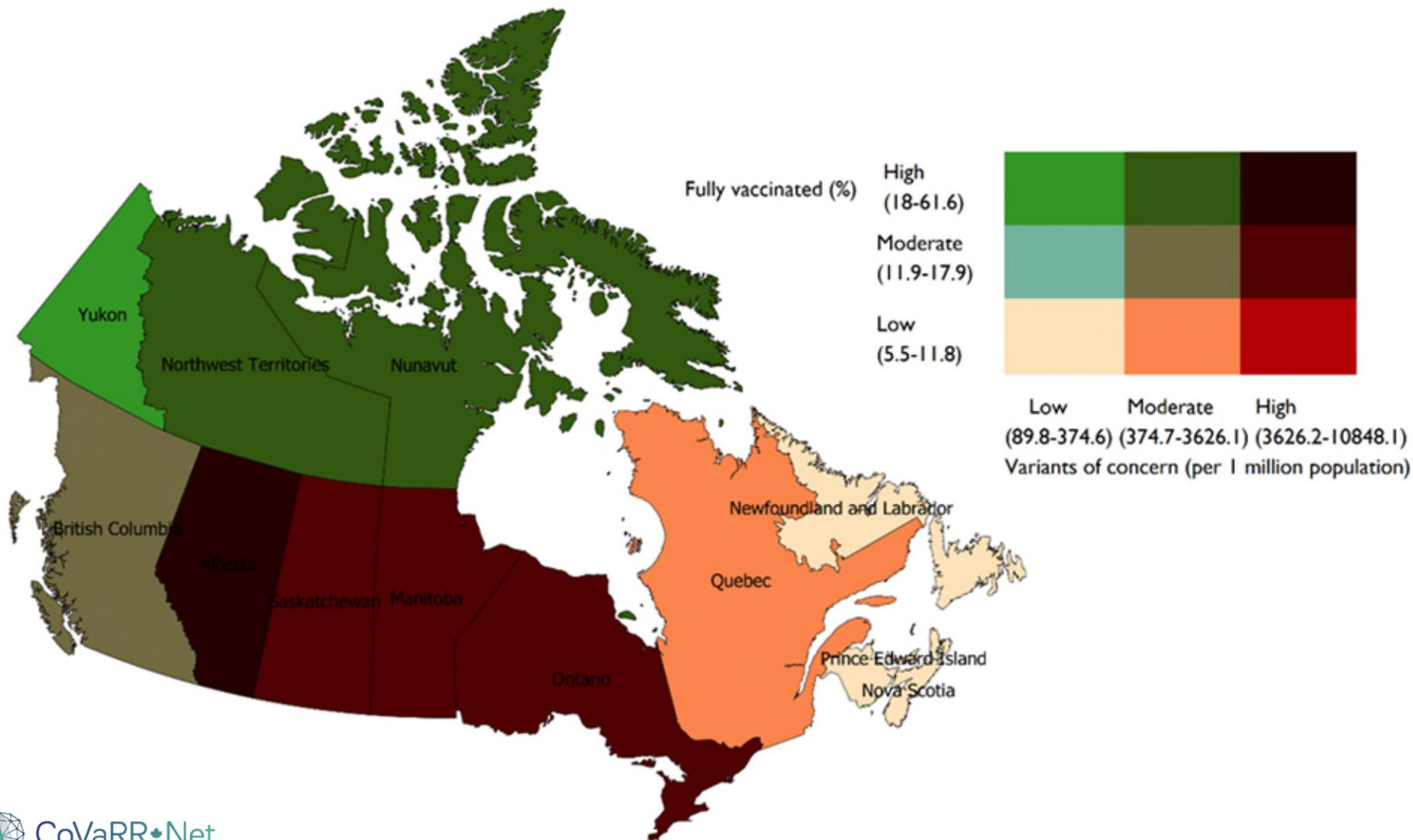
Association between variants of concerns and stringency measures, Canada

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)



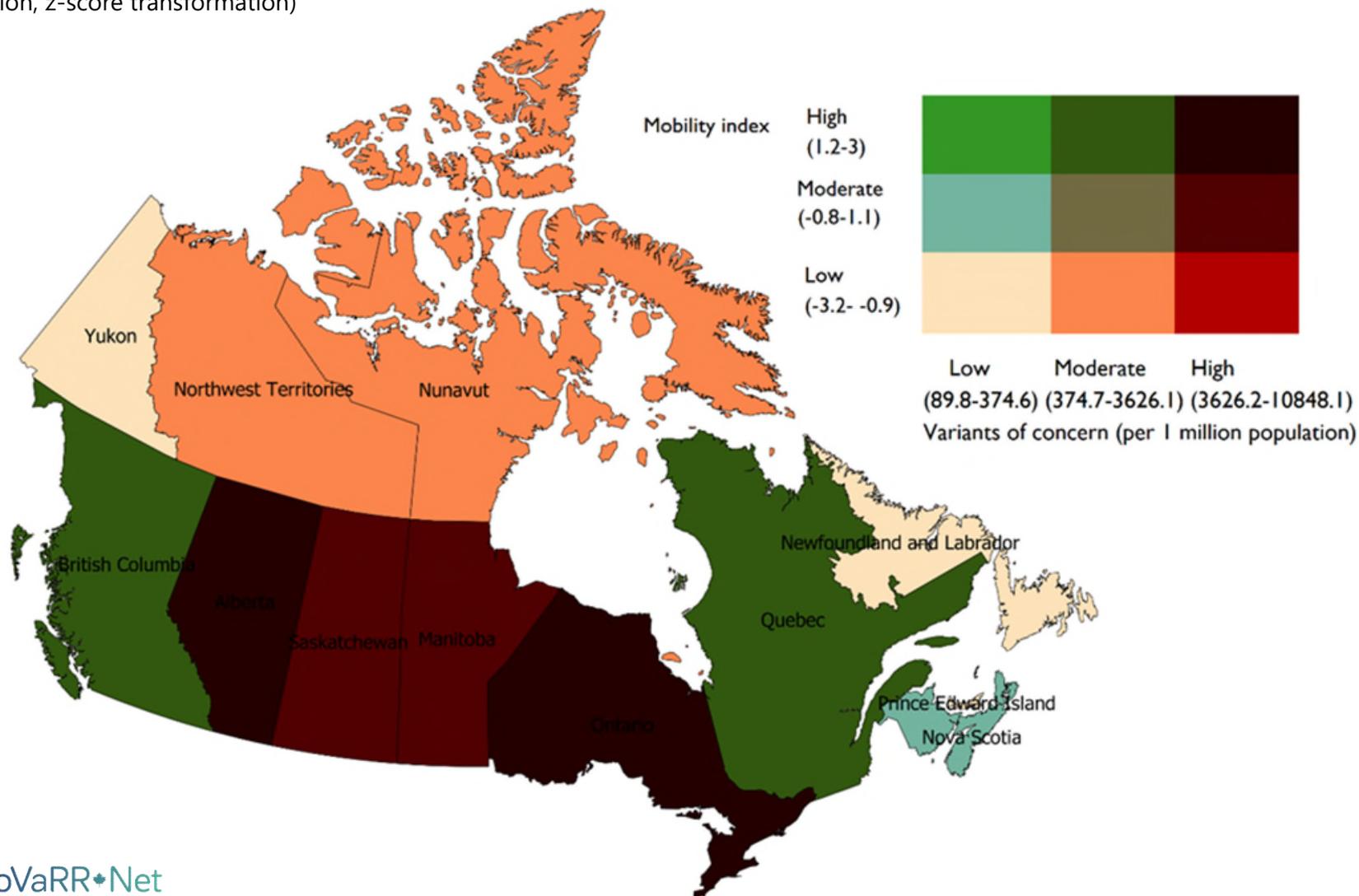
Association between variants of concern and two doses of COVID-19 vaccine, Canada

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)





CoVaRR-Net



www.covarnet.ca

#covarnet

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
 Bonnie Jeffrey, Professor, Social Work, University of Regina
 Christa Jurgens, Community Council/EGADZ Saskatoon Downtown Youth Centre
 Cory Neudorf, Professor, Community Health and Epidemiology, University of Saskatchewan
 Daniel Adeyinka, Postdoctoral Fellow, Community Health & Epidemiology, University of Saskatchewan
 Emma Hamid, Resident, Psychiatry, , University of Saskatchewan
 Fady Sulaiman, Medical student, College of Medicine, University of Saskatchewan
 Isabelle Dena, PhD student, Community Health & Epidemiology, University of Saskatchewan
 Jessica McCutcheon, Survey Research Manager and Specialist, CHASR, , University of Saskatchewan
 Kathryn Green, former Faculty, Community Health & Epidemiology, , University of Saskatchewan
 Lloyd Balbuena, Faculty, Psychiatry, University of Saskatchewan
 Mariam Alaverdashvili, Research Facilitator, Psychiatry, , University of Saskatchewan
 Marin Habbick, Queens University Visiting Research Intern, University of Saskatchewan
 Michelle Stewart, Associate Professor, Justice Studies, University of Regina

Miles Fahlman, Researcher, HACAN Consulting Ltd
 Natalie Kallio, Research Officer, SPHERU, University of Saskatchewan
 Nazeem Muhajarine, SPHERU Director and Professor, Community Health and Epidemiology, University of Saskatchewan
 Nuelle Novik, Associate Professor, Social Work, University of Regina
 Sabbir Ahmed, Masters student, Community Health and Epidemiology
 Senthil Damodharan, Faculty, Psychiatry, University of Saskatchewan
 Shelby Rowein, Social Policy Researcher, CoVaRR-Net, University of Saskatchewan
 Stuti Munshi, MPH student, School of Public Health, University of Saskatchewan
 Tamara Hinz, Psychiatry, University of Saskatchewan
 Thuy Le, Research Officer, Psychiatry, University of Saskatchewan
 Tom McIntosh, SPHERU Co-Director and Professor, Politics and International Studies, University of Regina
 Vaidehi Pisolkar, PhD student, Community Health & Epidemiology, University of Saskatchewan
 Vithusha Coomaran, Medical student, College of Medicine, University of Saskatchewan
 Wendie Marks, Research Officer, CoVaRR-Net, University of Saskatchewan
 and many more partners, collaborators, community council members, and knowledge users.





COVID 19 IN SASKATCHEWAN

months on 

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

VISIT:

SPHERU COVID-19 Projects: <https://spheru.ca/covid-19/mainpage-covid-19.php>

- Social Contours and COVID-19: <https://spheru.ca/covid-19/socialcontours/covid-19.php>
- Adult Mental Health and COVID-19 in Saskatchewan: <https://spheru.ca/covid-19/socialcontours/covid-19.php>
- 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://covarnet.ca/>

CONTACT:

Dr. Nazeem Muhajarine

Director, SPHERU

Professor, Department of Community Health and Epidemiology

University of Saskatchewan

t: 306-966-7940

e: nazeem.Muhajarine@usask.ca