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Article abstract

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**Results:** The sample (n = 110) was predominantly women (faculty 39/59; [66.1%]; students 46/50; [92.0%]). Most faculty were married/common law (50/60; [84.8%]) and had children at home (36/60; [60.0%]); the opposite was true for most students.

Faculty and students self-reported comparable mental health (40.47±24.26 and 37.62±26.13; respectively). Amongst women, those with vs. without children at home, reported significantly worse mental health impacts (31.78±23.68 vs. 44.29±27.98; respectively, p = 0.032).

**Qualitative themes included:** “Sharing resources,” “spending money,” “few changes,” for those without children at home; “working at home can be isolating,” including the subtheme, “balancing act”: “working in isolation,” “working more,” for those with children at home.

**Discussion:** Amongst women in academia, including both students and faculty, those with children at home have disproportionately worse mental health than those without children at home.

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## Paying the price? Academic work and parenting during COVID-19

### Payer le prix? Conciliation travail universitaire et famille pendant la pandémie de la COVID-19

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#### Abstract

**Introduction:** The shift to remote working/learning to slow transmission of the SARS-CoV-2 virus has had widespread mental health impacts. We aimed to describe how the COVID-19 pandemic impacted the mental health of students and faculty within a health sciences faculty at a central Canadian university.

**Methods:** Via an online survey, we queried mental health in the first four months of the COVID-19 pandemic quantitatively (scale: 1 (most negative)-100 (most positive)) and qualitatively.

**Results:** The sample ( $n = 110$ ) was predominantly women (faculty 39/59; [66.1%]; students 46/50; [92.0%]). Most faculty were married/common law (50/60; [84.8%]) and had children at home (36/60; [60.0%]); the opposite was true for most students.

Faculty and students self-reported comparable mental health ( $40.47 \pm 24.26$  and  $37.62 \pm 26.13$ ; respectively). Amongst women, those with vs. without children at home, reported significantly worse mental health impacts ( $31.78 \pm 23.68$  vs.  $44.29 \pm 27.98$ ; respectively,  $p = 0.032$ ).

Qualitative themes included: "Sharing resources," "spending money," "few changes," for those without children at home; "working at home can be isolating," including the subtheme, "balancing act": "working in isolation," "working more," for those with children at home.

**Discussion:** Amongst women in academia, including both students and faculty, those with children at home have disproportionately worse mental health than those without children at home.

#### Résumé

**Introduction :** Le virage vers le travail et l'enseignement à distance pour ralentir la transmission du virus SRAS-CoV-2 a eu des répercussions étendues sur la santé mentale. Notre étude vise à décrire l'impact de la pandémie de la COVID-19 sur la santé mentale des étudiants et du corps professoral au sein Faculté des sciences de la santé d'une université du centre du Canada.

**Méthodes :** Un questionnaire en ligne a été administré pour récolter des données qualitatives et quantitatives (échelle : de 1 [le plus négatif] à 100 [le plus positif] à l'égard de la santé mentale des participants au cours des quatre premiers mois de la pandémie.

**Résultats :** L'échantillonnage ( $n = 110$ ) était majoritairement composé de femmes (membres du corps professoral : 39/59 ou 66,1 %; étudiantes 46/50 ou 92,0 %). La plupart des répondants du corps professoral étaient mariés ou en union libre (50/60 ou 84,8 %) et avaient des enfants à la maison (36/60 ou 60,0 %). Le contraire était vrai pour la plupart des étudiants. L'état de santé mentale déclaré par le corps professoral et les étudiants était comparable ( $40,47 \pm 24,26$  et  $37,62 \pm 26,13$  respectivement). Parmi les femmes, autant celles qui avaient des enfants à la maison que celles qui n'en avaient pas, ont déclaré que leur santé mentale était nettement moins bonne ( $31,78 \pm 23,68$  contre  $44,29 \pm 27,98$  respectivement;  $p = 0,032$ ).

Pendant l'analyse des données qualitatives, on a identifié les thèmes « le partage de ressources », « les dépenses » et « peu de changements » pour les répondants qui n'avaient pas d'enfants à la maison alors que le thème « le télétravail accentue l'isolement », ainsi que les sous-thèmes « maintien de l'équilibre : travailler en isolement » et « travailler plus » ont émergé pour ceux qui avaient des enfants à la maison.

**Discussion :** Parmi les femmes œuvrant dans le milieu universitaire, qu'elles soient étudiantes ou membres du corps professoral, la santé mentale de celles qui ont des enfants à la maison est davantage affectée que celle des femmes qui n'en ont pas.

emergency and ordered non-essential workers to work from home to slow the transmission of Sudden Acute Respiratory Virus 2 (SARS-CoV-2).<sup>1</sup> Shortly thereafter, all public schools were closed to in-person classes. Students engaged in remote, online learning for the remainder of the school year.<sup>1</sup>

Despite the abrupt and unexpected shift to remote work and school, the demands of academia (teaching/learning, research, and administrative duties) persisted. Academic expectations now collided directly with providing childcare and educational supports for children on top of sustaining a household during a state of emergency. Prior to COVID-19, women spent more time than men on child care regardless of the number of hours spent in paid employment.<sup>2,3</sup> Reports started to appear during the COVID-19 pandemic indicating that long-standing sex and gender disparities in academia were becoming compounded in households with children.<sup>4,5</sup> An alarm was sounded that academic women, and particularly those with minor children, were being differentially and profoundly affected by the stay-at-home health orders.<sup>6-8</sup> However, data from academic institutions was lacking about how working at home, on top of household tasks, was differentially impacting the mental health of women and men academics during the initial pandemic work at home period. Labour and income imbalances based on sex and gender are historic, but efforts for corrections are ongoing. The current global health crisis may have a significant impact on the nascent efforts that were being nurtured in academia to correct the imbalances.

To this end, we aimed to estimate the reported impact of the COVID-19 pandemic on the mental health of students and faculty considering gender and children at home, within a health sciences faculty at a central Canadian university.

## Methods

A questionnaire was developed by the authors to evaluate changes in mental and physical health during the lockdown period. The survey used quantitative and qualitative (both open-ended and closed) questions about the lockdown period (March 18-June 30, 2020) using a mixed methods concurrent nested design.<sup>9</sup> involving cross-sectional data collection. Faculty member and students ( $N = 5756$ ) in five colleges (Dentistry, Medicine, Nursing, Pharmacy and Rehabilitation Sciences) within the Faculty of Health Sciences at the University of Manitoba (UM) were invited by email to participate. The survey was accessible between

July 13 to August 31, 2020. All data were collected anonymously through Survey Monkey.<sup>®</sup> Ethics approvals were obtained from the UM Health Ethics Review Board and informed consent was obtained from participants.

Herein, the study population consisted of students (undergraduate, graduate, and post-doctoral fellows) and faculty (assistant professor and higher) within the Rady Faculty of Health Sciences (RFHS) at UM.

Owing to low numbers of individuals (<3) who identified as gender non-binary, the analyses on gender were restricted to those who identified as men or women only. Mental health was self-assessed on a Likert-type scale with the anchors 1=negative impact, 5=no impact and 10=positive impact.

Quantitative data were described using  $n$  (sample), percent (%), mean  $\pm$  standard deviation (SD). Inferential statistics included chi<sup>2</sup>, with statistical significance set at  $p < 0.05$ . Quantitative data were analyzed using Stata<sup>®</sup> 15.1 (College Station, TX). Qualitative data were analyzed thematically.<sup>10</sup>

The first author (JP) led the inductive thematic analysis of the qualitative data<sup>10</sup> with frequent input via virtual meetings, with all authors, who represented a variety of situations during remote working. During a two-phase reading process, qualitative data were read for surface descriptive content and common ideas were organized together. Thereafter, qualitative data were re-read for latent meaning, to gain a more complete understanding of the data. During this second reading, codes were identified and applied to the data line-by-line. During a series of virtual meetings, the authors met to refine and apply the codes across the data. Thereafter, the first author identified and applied themes based on the codes, across all data. Through open and critical discussion, all authors arrived at a consensus on the language of the final themes, presented herein. Semantic validity checks were performed to consider the meaning of different words and phrases within a category. Analysis was ceased when all authors agreed that the data contained no new or additional constructs were conceptualized, and that there were no alternative explanations.<sup>11</sup>

## Results

Our sample ( $n = 110$ ; 50 [45.4%] students) was predominantly women (faculty 39/60; [66.1%]; students 46/50; [92.0%]; Table 1A). All faculty were age 26 and older, and most were married/common law (50/59; 84.8%) and had children at home (36/60; 60.0%), whereas many

students were age 25 years and younger (20/50; 40.0%), less than half were married/common law (22/50; 44.0%) and few had children at home (12/50; 24.0%). Less than half of faculty (13/60; 21.7%) and students (18/49; 36.7%) identified as a member of a racialized group. Most described their work environments as at least adequate. Amongst faculty and students with children at home, 17/29 (58.6%) and 5/12 (41.7%), respectively, quantitatively described that their childcare needs were being met.

Table 1. Demographic data (Section A) and mental health impacts of conducting academic work at home (Section B)

Section A. Demographic Data				
Variable	Faculty (n = 60)		Students (n = 50)	
	n	%	n	%
Role				
Undergraduate student	-	-	20	40.0
Graduate student or post-doctoral fellow	-	-	30	60.0
Assistant professor	30	50.0	-	-
Associate professor	17	28.3	-	-
Full professor	13	21.7	-	-
Age group				
<25	0	0.0	20	40.0
26-50	31	52.5	28	56.0
51+	28	47.6	2	4.0
Gender				
Men	21	33.9	4	8.0
Women	39	66.1	46	92.0
Married/common law	50	84.8	22	44.0
Self-identifies as member of racialized group*	13	21.7	18	26.7
Children at home	36	60.0	12	24.0
Childcare needs being met	17	58.6	5	41.7
Home work environment at least adequate	49	83.4	36	73.5
Section B. Mental Health Impact				
Overall	Faculty		Students	
	n	Mean (SD)	n	Mean (SD)
Mental health	60	40.47 ± 24.26	50	37.62 ± 26.13
By gender				
Men	20	37.35 ± 19.51	4	49.25 ± 13.89
Women	39	41.49 ± 26.53	46	36.61 ± 27.08
All women respondents				
Amongst women, by children at home	n		Mean (SD)	
No children at home	48		44.29 ± 27.98	
Children at home	37		31.85 ± 23.68*	

With consideration to the mental health impacts of conducting academic work at home, faculty, and student overall scores, of 40.47 (SD 24.26) and 37.62 (SD 26.13), respectively, did not differ significantly ( $p=0.56$ ; Table 1B). Likewise, no significant differences were found by gender for faculty; a similar comparison amongst students was not possible due to low numbers of student respondents who identified as men. Amongst women (both students and

faculty) with children at home, corresponding scores were 33.48 (SD 5.09) and 28.67 (SD 5.82), which did not differ significantly ( $p=0.59$ ). However, compared to women with no children at home, women with children at home reported significantly worse mental health impacts of conducting academic work at home (44.29; SD 27.98 vs. 31.78; SD 23.68;  $p = 0.032$ ).

Qualitatively, we identified three themes (Figure 1). Theme 1, **“Sharing resources, spending money”** regardless of home set-up captures participants’ qualitative descriptions of struggling to find suitable space to do professional work. In this theme participants reported incurring substantial costs to create a satisfactory home-work environment. Both faculty and students described working in a make-shift *“office in my bedroom”* or *“go[ing] to work sitting on my bed,”* and having to share devices between multiple people. One faculty member who identified as a woman noted that her *“two school aged children got the desk and dining room table. I worked out of my bedroom and set up a table in there.”* Although faculty and students had worked at home prior to the pandemic, the shift to working exclusively at home was nonetheless challenging.

In contrast, Theme 2, **“Few changes, other than being at home full time,”** captures how a minority – largely, but not exclusively, composed of those without children at home - preferred to work at home, noting that they experienced less interruptions and had time for physical activities and hobbies. *“Few disruptions at home so conducive for completing work uninterrupted. The exchange of ideas and synergies missing from everyone working at home”.*

Regardless of perceptions of their home environment, Theme 3, **“Working at home can be isolating”** persisted across faculty and students. Students reported feeling *“very out of it mentally [and] anxious about all the changes that were happening”* Both faculty and students described feeling *“disconnected”* from their colleagues and *“siloeed”* in the work activities.

Faculty and students who had children described strikingly similar challenges, as noted in the subtheme to Theme 3, **“The “balancing” act: working in isolation, working more.”** This theme reflects the isolation of working from home, amidst the constant presence of children and the demands of family life. Whereas many describe this isolation in relation to not seeing colleagues and students face-to-face, others extended this sense of isolation to include how they felt isolated from colleagues without children at home, and from their departments which were

not perceived to provide the flexibility necessary to work with children at home.

*I have no private space (family of five at home). And no childcare. This experience has really reduced my engagement in graduate studies. My goal now is completion, whatever way possible as soon as possible. Lack of work space. Lack of childcare. Lack of time. Significant emotional distress in March/ April as part of being a frontline COVID worker while needing to separate from my family to complete my coursework (Am I going to get sick and make my family sick? Will someone I love or myself die because of my work? If yes, why am I spending my limited spare time/sleeping time/ healthy time finishing this paper?).*

This theme was identified amongst both students and faculty with children. Similar perceptions were echoed by students with children at home.

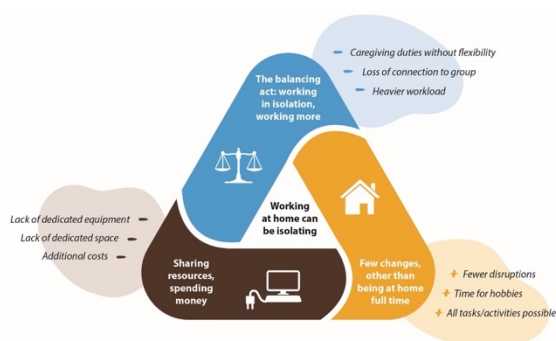


Figure 1. Qualitative themes identified on the mental health impacts of working from home

## Discussion

In the present study, approximately half of both faculty and students quantitatively reported that their childcare needs were met during the early lockdown period of the pandemic. However, the qualitative data poignantly describes the mental health impact of the duality of remote working/studying and caring for children learning remotely. These are important findings as the pandemic continues to influence the work/learning environment.

The survey was administered during an unprecedented time and therefore we endeavored to work around a number of limitations. We acknowledge that the sample size is low. The representation of men and women on faculty (48.6%/51.3%) is fairly even. However, in our study women faculty members were over represented (66%). The same is true for women students who made up 65.3% of those enrolled in 2021 but 92% of student participants

in the study. Importantly, women with children took the time to respond to the survey despite the demands on their time and negatively impacted mental health. This is exceedingly important given the lockdown was not a one-time occurrence. Additional lockdowns and partial lockdowns (only a small percentage of faculty and students were allowed on campus) occurring through the third and fourth waves of the pandemic. We were also not able to analyze the data beyond binary men/women identifiers given the low representation of these individuals in our sample. In 2021, seventeen people declared a gender identity other than a man or woman. From an equity, diversity and inclusion lens, the findings herein point toward the possibility that the impact will be felt for quite some time by equity-deserving groups.

Existing scoring methods for evaluating mental health asked participants to rate their mental health whereas our study specifically asked about the effects of the COVID-19 lockdown on mental health.<sup>12</sup> The existing scoring methods did not offer the range of mental health impacts (from negative to positive) that we chose to assess. We therefore designed and used a new instrument to allow participants to rapidly evaluate the mental health impact of the COVID-19 lockdown. Because of the urgency of administering the survey during the lockdown period, we were not able to validate the survey instrument.

We acknowledge a lack of quantitative consideration to clinical duties of students and faculty, a low response rate from participants who identified as men and that the sample may be composed of those most affected by the pandemic. We also suppressed data on tenure due to low sample sizes.

The global health crisis has emphasized sex and gender inequities existing in science and medicine.<sup>4</sup> It is anticipated that the pandemic will continue to take a mental toll particularly on women with children.<sup>12,13</sup> Academic institutions could re-think how space is used on campuses with flexible working and learning spaces and where practical, working from home offices should have access to financial supports for caregiving, career flexibility including shortened work days, time-banking and policies for prohibiting emails in the evenings and weekends.<sup>14</sup> Other efforts to support women scholars should include access to on-site childcare, leniency in expectations for coursework, reduced research and service should be offered without penalty, faculty evaluation frameworks should consider the impact of COVID-19, changes in promotion criteria so that caregiving responsibilities and

breaks in productivity do not have a negative impact, grant applications from early career women scholars should be prioritized for internal review. Supports might include confidential monitoring by human resources using online surveys to assess mental health, dedicated professionals to provide individualized interventions and other creative mental well-being supports are needed. Additional supports will be necessary for students such as access to counsellors, connections with others such as if there are family centres on campus offering parenting support groups, town halls and other dialogues to connect students from equity deserving groups. A website containing updates on supports and recordings of most recent information is found to be helpful.

## Conclusions

COVID-19 public health orders in Manitoba disproportionately affected the mental health of women scholars who have young children. To retain women with young children in the health sciences, the mental costs need to be considered as societal not personal issues. Canadian universities need to be aware of and create appropriate structures to eliminate these disparities.

**Conflicts of Interest:** The authors declare no real or perceive conflicts of interest in relation to this work.

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