

Space-time Prisms of Carer- Workers (CEs) Juggling Unpaid Care and Paid Work

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TP23 - Work Life Balance

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Outline

- Research Question
- Canadian Context
 - Carer-workers
 - Daily Geographies
- Scoping Review
- Methods
- Results
- Discussion
- Next Steps & Concluding Comments



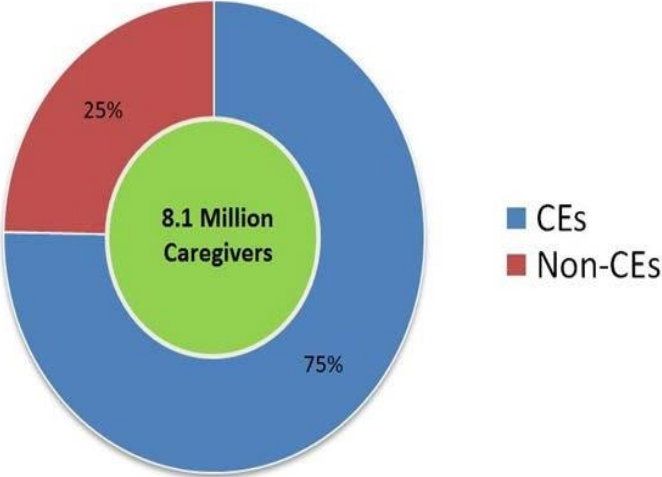
Research Question

How can Geographical Information Systems (GIS), and specifically space-time prism methods, be used to better understand the lived experience of carer-workers?

Carer-workers are engaged in the paid labour market, as well as provide unpaid care to an adult family, friend, neighbour. In Canada, 35% of the workforce is simultaneously managing adult/elder care responsibilities.

Who are Caregiver-Workers (CEs)?

Caregiver Distribution Population in Canada



Daily Geographies

Space-time Tensions

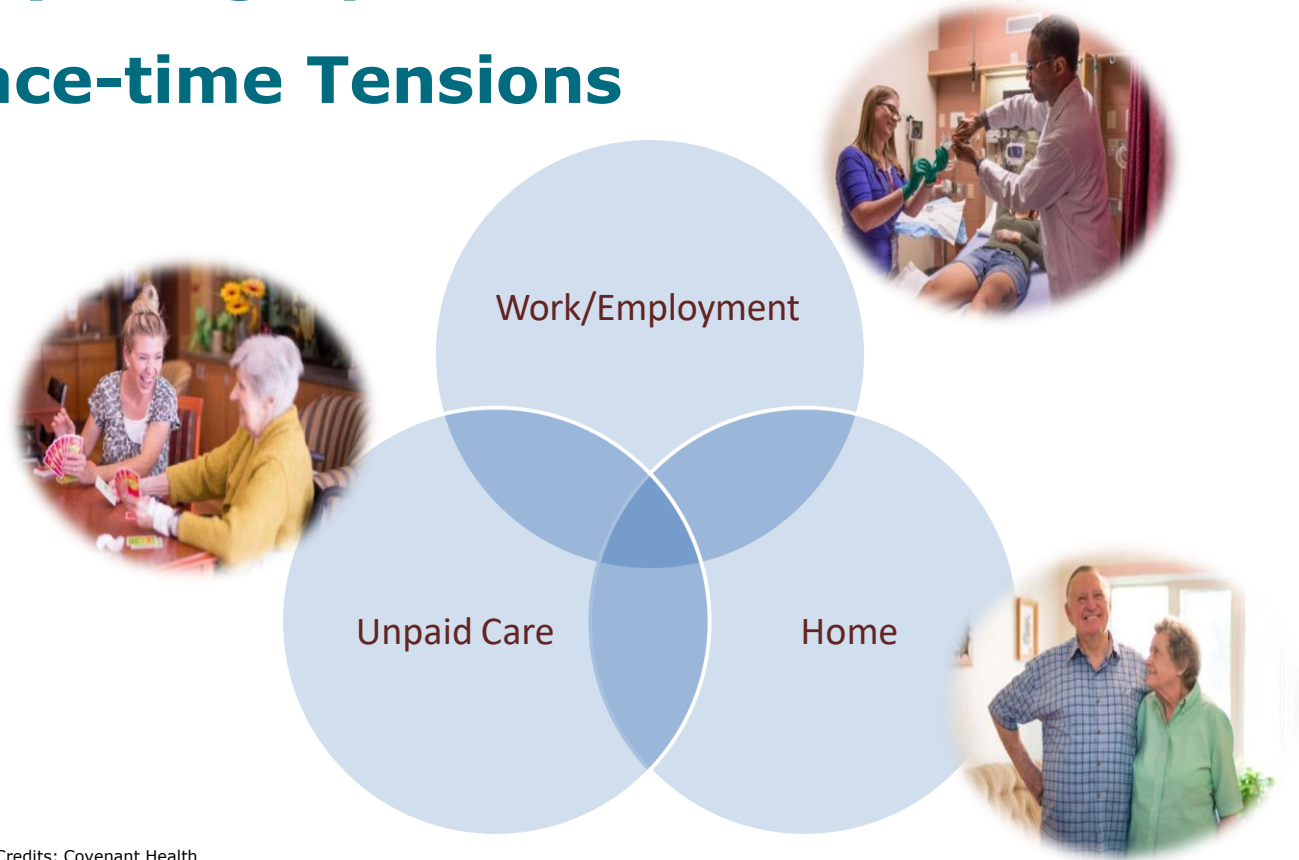


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Carer-Workers Experience Negative Impacts



Employees are feeling the strain

19% of worker-carers experience physical and emotional health challenges



15% reduce their work hours



40% take time off work or leave early



6% leave the workforce



26% take a leave of absence from their job



10% turn down job opportunities



Scoping Review

The following question was asked: *“What GIS methods have been used to examine paid and unpaid care work?”*

Results were limited (n=6), with few papers addressing:

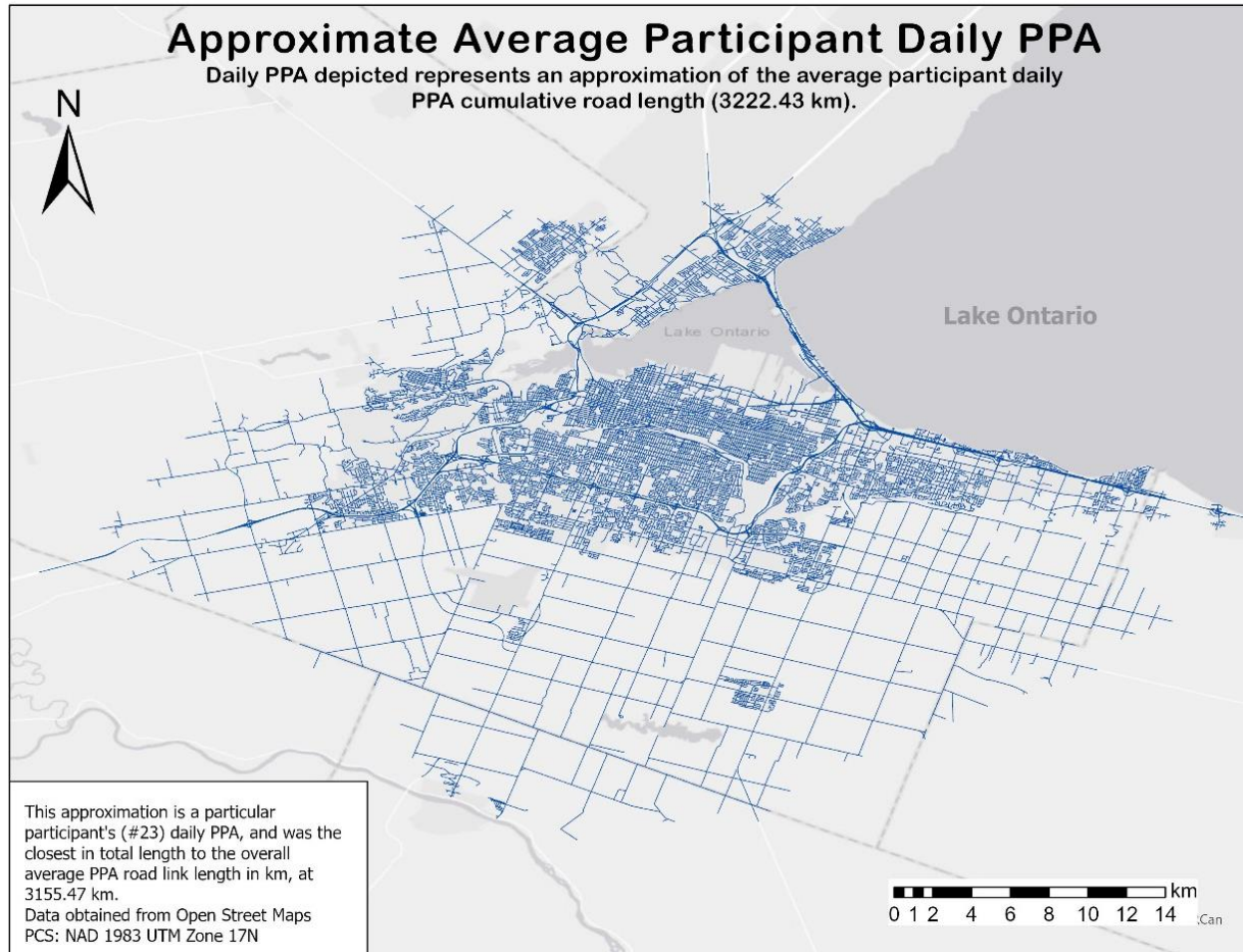
- distribution of potential unpaid carers
- time paid carers travel between locations
- unpaid carers mental health
- spatiality of gender roles, such as caring, from a feminist perspective
- **carer-worker travel behaviour & space-time constraints**

Clearly the intersection of GIS and caring remains largely untapped.

Methods

- Global Positioning System (GPS) data for 15 carer-workers participants from various municipalities within the Greater Toronto Hamilton Area
 - collected over a period of 12 months between June 2017 and 2018
- Along with GPS-tracked data of participant positions over the course of 3-7 days – participants were asked to complete a travel diary
 - diaries detailed each trip's purpose, start/end locations, & the travel time between locations
 - diaries were analyzed to determine fixed and flexible activities for Potential Path Area (PPA) generation
 - **a PPA is the area of all potential paths (roads) available to the user (driver) from point A to point B within a particular time budget**

Potential Path Area



Methods

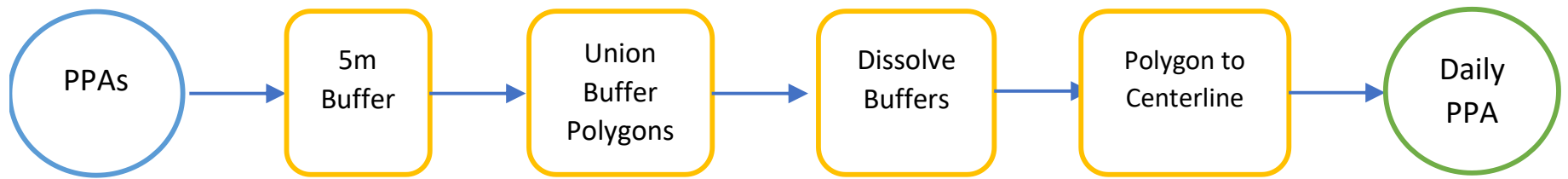


Figure 1: Schematic of PPA aggregation process.

Results

Table 2: Carer-worker
Demographic Data

Participants	15
<i>Male</i>	4
<i>Female</i>	11
Age	
<i>18 – 30</i>	1
<i>31 – 35</i>	1
<i>36 – 40</i>	2
<i>41 – 45</i>	2
<i>46 – 50</i>	2
<i>51 – 55</i>	3
<i>56 – 60</i>	2
<i>61 – 65</i>	1
<i>Did not indicate</i>	1
Ethnicity	
<i>Caucasian (White)</i>	7
<i>Black/African</i>	1
<i>Southeast Asian</i>	4
<i>Chinese</i>	3
Marital Status	
<i>Married or Common Law</i>	8
<i>Divorced or Separated</i>	1
<i>Single</i>	4
<i>Widowed</i>	1
<i>Did not indicate</i>	1
Education	
<i>High School Diploma</i>	1
<i>College/GCEP</i>	1
<i>Undergraduate/Bachelor's Degree</i>	4
<i>Graduate Degree</i>	8
<i>Did not indicate</i>	1

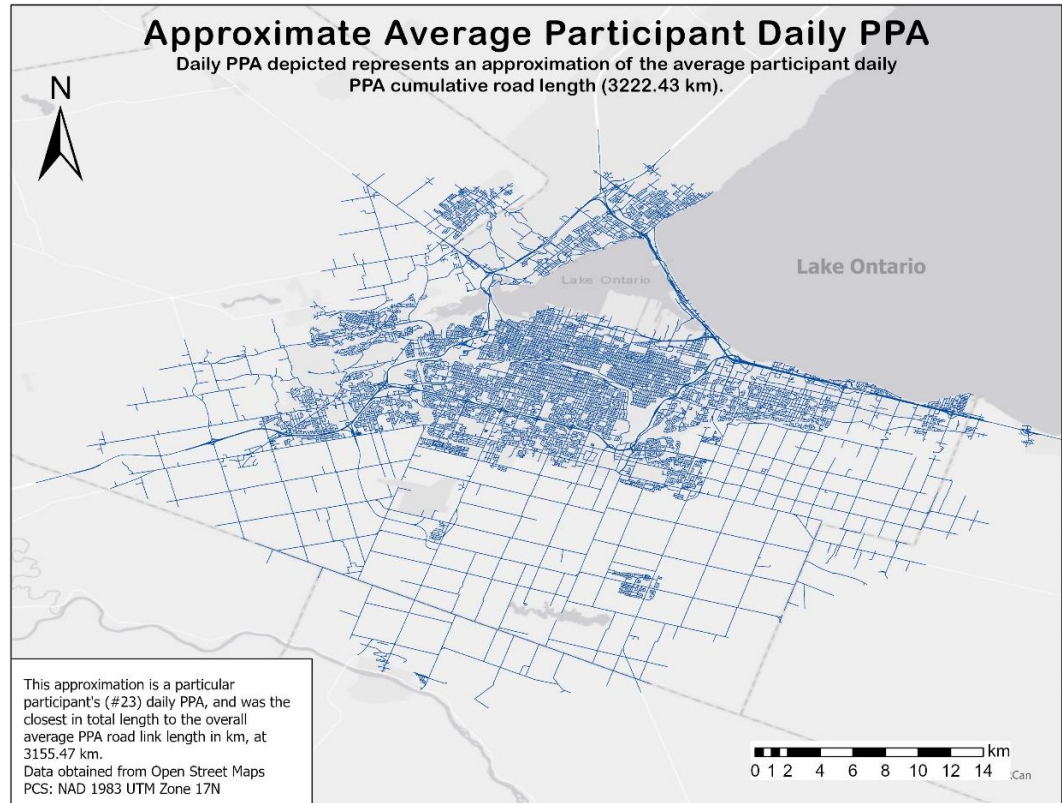
Table 3: Aggregate Caregiver-Worker Daily PPA details

** Note: certain participants chose not to respond to this demographic question, and thus have not been included in this section of the analysis.

Demographic	Avg. Daily PPA Cumulative Road Link Length (km)	Number of participants in this criterion	Std. Deviation	Significance of demographic mean difference (α)
<i>Male</i>	3534.04	2	557.44	0.531
<i>Female</i>	3097.79	5	1149.85	
<i>White</i>	2629.41	3	1158.73	0.224
<i>Non-White</i> (<i>Black/African/Southeast Asian/Chinese</i>)	3667.20	4	668.22	
<i>Under 51</i>	2678.77	3	846.69	0.228
<i>Over 51</i>	3630.18	4	980.76	
<i>Less than Graduate Degree</i>	2726.62	2	662.14	0.351
<i>Graduate Degree</i>	3420.76	5	1089.09	
<i>Under \$100 000</i>	3314.06	3	918.28	0.868**
<i>Over \$100 000</i>	3140.01	3	1438.47	

Figure 2:

Example of one male participant's aggregated daily PPA, in line format, using Open Street Map's Road Network.



Discussion

- these preliminary results of less than half of the sample indicate potential differences in PPA size (in road link length)
 - male carer-workers having a larger PPA size than female carer-workers
 - non-white carer-workers have comparatively larger PPA size than white
 - older carer-workers (over the age of 51) having a larger PPA size than younger carer-workers (under the age of 51)
 - education level presents potential differences between Graduate Degree earners and those with less than a Graduate Degree
- all these results do not represent statistically significant differences – with small sample and subsample degrees of freedom
- these results suggest that variability by these SES variables is likely significant

Next Steps & Concluding Comments

- Once all 15 cases are fully analyzed, we will have a better understanding of these differences
- GIS research examining unpaid care work is in its inception
- Opportunities exist in PPA analysis, trip chaining, and access analysis
- both the temporal and the spatial aspects of unpaid care are important to understand given the space-time tensions that carer-workers experience in managing their multiple roles
- Relieving the space-time tensions through carer-friendly workplaces is important to sustain carer-employees in both their roles, i.e.
 - Flexwork or staggered start/end work days
 - Telework or remote work
 - Parking spot location
- Further, these tensions may be relieved through transport policy that prioritizes carer-workers, through dedicated shared lanes (with buses, carpools, etc.)



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