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The "power few" of missing persons' cases

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Abstract

Purpose – The purpose of this paper is to test the "power few" concept in relation to missing persons and the locations from which they are reported missing.

Design/methodology/approach – Data on missing persons' cases (n = 26,835) were extracted from the record management system of a municipal Canadian police service and used to create data sets of all of the reports associated with select repeat missing adults (n = 1943) and repeat missing youth (n = 6,576). From these sources, the five locations from which repeat missing adults and youth were most commonly reported missing were identified ("power few" locations). The overall frequency of reports generated by these locations was then assessed by examining all reports of both missing and repeat missing cases, and demographic and incident factors were also examined.

Findings – This study uncovers ten addresses (five for adults; five for youths) in the City from which this data was derived that account for 45 percent of all adults and 52 percent of all youth missing person reports. Even more striking, the study data suggest that targeting these top five locations for adults and youths could reduce the volume of repeat missing cases by 71 percent for adults and 68.6 percent for youths. In relation to the demographic characteristics of the study's sample of adults and youths who repeatedly go missing, the authors find that female youth are two-thirds more likely to go missing than male youth. Additionally, the authors find that Aboriginal adults and youths are disproportionately represented among the repeat missing. Concerning the incident factors related to going missing repeatedly, the authors find that the repeat rate for going missing is 63.2 percent and that both adults and youths go missing 3–10 times on average.

Practical implications – The study results suggest that, just as crime concentrates in particular spaces among specific offenders, repeat missing cases also concentrate in particular spaces and among particular people. In thinking about repeat missing persons, the present research offers support for viewing these concerns as a behavior setting issue – that is, as a combination of demographic factors of individuals, as well as factors associated with particular types of places. Targeting "power few" locations for prevention efforts, as well as those most at risk within these spaces, may yield positive results.

Originality/value – Very little research has been conducted on missing persons and, more specifically, on how to more effectively target police initiatives to reduce case volumes. Further, this is the first paper to successfully apply the concept of the "power few" to missing persons' cases.

Keywords Police, Missing, Power few, Repeat missing

Paper type Research paper

Introduction

With the rise of austerity policing in Canada (Huey *et al.*, 2016), there has been significant interest in both policing and academic circles as to the question of how to increase police effectiveness and efficiency at a time when resources are dwindling, but service demands are not (Gravelle and Rogers, 2011). One area where these demands are rising, but research efforts have not maintained pace, is in relation to missing persons' investigations, an aspect of policing that has the potential to be one of the most significant drivers of frontline and investigative policing costs (Statistics Canada, 2018).

If missing persons' cases are resource-intensive, then this is no less the case for repeat missing persons. Repeat missing person investigations involve both adults and youths who have gone missing more than once and can be particularly demanding on police services as they require repeated efforts to locate a missing person, who may or may not wish to be found (Biehal *et al.*, 2003). This phenomenon is especially problematic in Canada, where little is known about who goes repeatedly missing, as well as the locations from which they frequently go missing. It is estimated that approximately 100,000 people are reported missing each year in Canada, with the most recent total being 31,387 missing adults and

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42,233 children and youths for 2018 (Statistics Canada, 2018). Although there are no Canadian estimates for how many times people go missing, international estimates suggest that about 38–50 percent (Tarling and Burrows, 2004; Shalev Greene and Hayden, 2014) or about 34–38 percent (Henderson and Henderson, 1998) of all missing person cases are repeat cases.

Given the high incidence of repeat missing persons, finding a means to reduce the volume of these cases could thus significantly lessen service demands and costs on Canadian police agencies. But where to begin with such an endeavor? To answer this question, this paper offers a preliminary exploration of the phenomenon of repeat missing persons that draws on the idea of crime concentration in terms of place (Weisburd, 2015). More specifically, we employ Sherman's (2007) concept of the "power few" to test whether, when this concept is applied in the context of missing persons' cases, there are some locations from which individuals are much more likely to go missing.

The present study draws on an analysis of five years (2013–2018 inclusive) of Canadian municipal police records of closed repeat missing persons files ($n = 8{,}519$). We begin testing the utility of the "power few" concept by conducting a descriptive overview of these cases to identify the top five locations from which adults and youth repeatedly go missing and to determine to what extent these locations account for the overall volume of missing cases. What our analysis reveals is, as with crime and other community safety-related phenomena, missing person cases tend to cluster around certain types of locations. Based on this, we estimate what demographic and incident factors, as found in police data, are more likely to be associated with repeat missing cases from these locations by employing multiple logistic regression models. In other words, beyond location and concentration at specific location types, we seek to uncover other potential factors that might increase the probability of an individual being reported missing from one of our "power few" locations. Such work, we believe, may help us move away from focusing solely on the "individual" as a potential collection of risk factors for going missing, to rethinking the relationship of people to "risky" places and thus better targeting of prevention efforts.

Missing persons in the Canadian context

Every reported case of a missing person can potentially generate significant demands on police resources. These demands include not only the frontline response, such as information gathering and report writing, but also potential costs of activities associated with the investigative process, such as conducting interviews and executing searches. Other costs related to missing person investigations include the potential deployment of search and rescue teams (Fyfe *et al.*, 2015) and the "combing through" of large quantities of public health or other relevant data, such as bank and telephone records, social media accounts, and so on. These costs are part of what has historically been the "dark figure" of operational policing costs, of which too little has been known (Huey *et al.*, 2016).

Yet, what makes analysis of the operational and other costs associated with missing persons' cases especially challenging in Canada is the limited amount of Canadian research and available data on missing person cases. For example, only within the past four years have public records on missing persons been accessible for data analysis (Statistics Canada, 2018), and despite recent research on missing and murdered Indigenous women (Anderson, 2016; Royle, 2017), there is only a single peer-reviewed study on missing persons in Canada (Kiepal *et al.*, 2012). The lack of existing research on missing persons has also made it difficult for police agencies, who are under increased public scrutiny, to develop evidence-based practices and make informed assessments of risk (Sowerby and Thomas, 2017; Fyfe *et al.*, 2015).

The lack of Canadian research on missing persons poses a problem for a variety of reasons. For example, risk assessments are used to identify the probability of a person going missing, as well as determine the extent of police involvement and allocation of resources

(Eales, 2017; Smith and Shalev Greene, 2015). Without said risk assessments, police are unable to target initiatives that could reduce the overall volume and demand of missing person cases.

Repeat missing persons

Even though individuals who are reported missing multiple times comprise a significant portion of the overall volume of missing person cases (Sowerby and Thomas, 2017), very little is known about the phenomenon of repeat missing persons. Of what is known, much of the research has focused on risk factors. For example, repeat missing persons are typically vulnerable adults and youths who have experienced significant emotional and mental health problems (Holmes, 2017), as well as substance abuse problems (Shalev Greene, 2011). They are known to have histories of family conflict (Whitbeck *et al.*, 1999) and conflict with the law (Shalev Greene, 2011). There is also a range of push and pull factors for a missing incident, such as the need to escape life stressors, relationship breakdown, abuse, or social exclusion (Tarling and Burrows, 2004; James *et al.*, 2008; Kiepal *et al.*, 2012). Additionally, repeat missing incidents are likely to occur when there has been inadequate support or intervention from public services, such as police, social, health, and/or education services following an initial missing incident (Biehal *et al.*, 2003; Hutchings *et al.*, 2019).

International estimates suggest that approximately 38–50 percent (Tarling and Burrows, 2004; Shalev Greene and Hayden, 2014) or about 34–38 percent (Henderson and Henderson, 1998) of all missing person cases are repeat cases. Biehal *et al.* (2003) find most individuals are reported missing three times, although this number increases to six times for individuals who have a history of mental health problems (Sowerby and Thomas, 2017). Interestingly, across both British and Australian samples, an inverse relationship between age and repeat events of going missing has been identified (Biehal *et al.*, 2003; Henderson and Henderson, 1998; Sowerby and Thomas, 2017). In particular, youths are more likely than their older counterparts to go repeatedly missing, with the repeat rate of going missing for youths (18 years and younger) being 59 percent of all cases. Because these estimates have been gathered from British and Australian samples, they are of interest to Canadian researchers, but not necessarily suitable for drawing conclusions within the Canadian context.

Spatial dimensions of repeat missing cases

Concerning repeat missing incidents, one risk factor that is less well known is the spatial dimensions of repeat missing incidents. Given that emphasis is more commonly placed on individual risk factors, this may seem to be an unusual way to view missing person cases. However, there is a wealth of criminological research, including an increasing array of victimology studies, that show how certain types of behaviors are more likely to cluster in select geographic spaces. In other words, crime is concentrated among "repeat places" as much, if not more, than it is among "repeat offenders" (Spelman and Eck, 1989). By similar logic, repeat missing cases are likely concentrated in "repeat places" just as much as they occur among repeat individuals (adults and youths). Thus, understanding the spatial dimensions of repeat missing cases is just as important as understanding their personal, social, and cultural risk factors and is equally likely to yield valuable insights.

Of the existing literature on the spatial dimensions of repeat missing cases, the most common finding is that young people in care placement are at higher risk of being among the repeat missing (Bowden and Lambie, 2015). While youths do go missing from private residences (Hayden and Shalev-Greene, 2018), little is known about such occurrences beyond the difficult family lives they might experience (Hutchings *et al.*, 2019). For adults, the locations frequently reported include hospital settings (Bonny *et al.*, 2016) and mental health facilities (Hayden and Shalev Greene, 2018). As with most social problems, reasons for going missing do not occur in isolation, and as such, the reasons for adults going missing from

hospitals and mental health facilities are likely due to a vast array of interrelated social and/or health problems. Unfortunately, because none of this research has been replicated in Canada, very little is known about the spatial dimensions for repeat missing cases in a Canadian context.

The "power few"

Where this study departs from previous research on missing persons is by focusing attention not only on repeat missing persons themselves but also on the spaces from which they go missing. To this end, this paper draws on the concept of the "power few," which is understood in crime and place literature as the small number of locations and/or individuals that produce the most considerable amount of harm (Sherman *et al.*, 1989; Weisburd and Eck, 2004; Weisburd *et al.*, 2012; Sherman, 2007, pp. 299). Whereas the "power few" concept has previously been applied to harm reduction in criminogenic spaces, we employ the "power few" concept to examine if there are a select group of locations adults and youths go missing from more frequently than others in a Canadian municipality. More specifically, we use the "power few" concept to determine if there are locational "hot spots" for repeat missing incidents.

Our rationale for investigating the "power few" locations adults and youths are reported missing from is rooted in years of fairly robust evidence suggesting that hot spot policing is an effective deterrent for crime (Sherman *et al.*, 2014; Ariel and Partridge, 2016). Just as hot spot policing is believed to reduce crime in a given area, we believe that targeting the power few locations repeat missing adults and youths are reported missing from will lessen the degree of harm incurred by them on police resources. How so? Just as crime concentrates in particular spaces, we expect that missing events will also concentrate in specific spaces. This view is not without some empirical support. Results from Hayden and Shalev Green's (2018) UK-based study identified ten institutional locations that accounted for 27 percent of repeat missing reports in a one-year period.

To get a better sense of how the "power few" concept might be useful in the context of missing persons, it might be helpful to demonstrate how it has been employed in other research. For example, in a recent study that applied a "power few" approach, researchers identified four multioccupant buildings that generated the greatest number of violent offenses in a municipality (Bowden and Barnes, 2015, pp. 60). After crime reduction efforts were put in place at these locations, there was an observed reduction in reported violence (Bowden and Barnes, 2015, pp. 61). Other examples of the "power few" include the application of it to topics such as domestic violence (Blad and Ariel, 2015; Robinson, 2017) and prolific offender programs (Hopkins and Wickson, 2013). Thus, we employ the "power few" concept in our analysis and draw on the theory of crime concentration upon which it is based, elucidating how a minority of individuals who go missing from repeat locations generate a majority of harms.

Methodology

Given the exploratory nature of this study, which seeks to identify potential relationships between places, people, and actions for the purposes of building future research, we opted to develop research questions rather than to engage in hypothesis testing. This paper thus addresses the following four research questions:

(1) What are the "power few" places from which repeat missing adults and youths go missing?

(2) What are the demographic characteristics of repeat missing adults and youths?

(3) What are the incident factors for repeat missing cases?

(4) Which demographic characteristics and incident factors are associated with both adults and youths going missing from their respective "power few" places?

Data

Data for this study was extracted from the record management system (RMS) of a municipal police service. Crime analysts at the service searched for all closed missing person reports over five years (2013–2018), as five years is the maximum data retention period for files of this type. This search produced 26,835 records involving individuals who had been reported missing, which included records where the primary role code assigned to a report was 55 ("missing person"), as well as records where the primary role code was something else (i.e. "witness" or "subject") but a secondary role code was missing person. However, for the scope of this paper, we removed all additional files where the primary role code was not 55 or "missing person," resulting in 8,519 missing person cases as our final sample (n = 1,943 adults; n = 6,576 youths).

Once all data were extracted into *Excel* files and anonymized, separate data sets were created for repeat missing adults (n = 704), those aged 22 and above, and youths (n = 4,676) those aged 21 and below, who had been reported missing three or more times between 2013 and 2018. We used three or more missing reports as the inclusion criteria for the data sets to select repeat and habitual/chronic missing persons who place the most significant demand on police resources. Although repeat missing persons could be classified as anyone who is reported missing two times or more, we collectively agreed to set the inclusion criteria to three or more reports as two missing incidents was too low given the scope of the paper.

Each data set was then organized by the unique codes relevant to each missing person (i.e. PIN), which contained a range of demographic and incident factors pertaining to their repeat missing incidents. Some of the information available includes their complete history as a missing person, as well as comprehensive, detailed data such as gender, race, and age categories, probable cause for going missing, health characteristics, and the locations from which they were reported missing. All cases with missing values were removed from the sample through list-wise deletion. Given the large sample size and a very small percentage of missing data, the authors determined imputation techniques were not warranted. After this, to increase reliability, all coding was independently verified, and any potential coding errors or disagreements were flagged and resolved through discussion.

Coding and variables

To explore the "power few" places in which repeat missing reports are generated from data provided from the service's RMS, the data were manually coded through Excel. Demographic characteristics coded included the race, age group, and gender of the missing persons. For race, the categories were White, Aboriginal, Black, and other race classifications, such as Middle Eastern, East Indian, and Asian. Age groups were produced based on the pre-existing categories of age created by the police services RMS system, with the exception of those aged 8 and under. The 0–8 years old group was collapsed into one category from three categories (0–3, 4–5, and 6–8 years old) as there is only one report generated by someone within this age range from 2013 to 2018. Lastly, for demographic characteristics, gender was coded as male or female. Health characteristics were coded based on any available information pertaining to disabilities, mental illnesses, physical and mental abilities, addictions, and other such health information. This resulted in the following categories: drug/alcohol dependency, medical dependency, mental disability/senile, possibly suicidal/mental illness, other (i.e. those who were classified as Autistic or being pregnant), and none/unknown. One's history of going missing was classified as either repeat or habitual/chronic, given that our inclusion criteria placed only those who went missing multiple times within our data set. Lastly, probable

cause was coded based on the categories created by the RMS, which are runaway, wandered off/lost, and none/unknown.

To generate a power few list of places, once addresses were counted, a list of the five most frequently reported addresses was created for each data set. After this, we created a binary dummy variable regarding the top five addresses for each respective data set, where each repeat missing case was coded as either being reported as missing from one of these top five addresses or not being reported from these places.

Analytic strategy

To understand the "power few" places for repeat missing adults and youths, we examined who goes missing from the top five addresses in each sample, respectively. To do this, we used binary logistic regression to estimate the probability of going missing from these locations based on the previously mentioned covariates. Given that the outcome variable is binary in nature, where "0" = not missing from a "power few" place and "1" = missing from a "power few" place, the use of a linear probability model violates standard OLS assumptions. As such, logistic regression is appropriate. In the results, we provide two models; first, for the adult data set and second, for the youth data set. As there is a large difference in the sample sizes for each data set because of the overrepresentation of youth in repeat missing reports, we run separate models for both adults and youths to better estimate who is more likely to go missing from the "power few" places.

Results

The "power few" places

Table I provides an overview of the "power few" places, or top five locations, adults and youths repeatedly went missing from in this sample. Our analysis reveals that the top five addresses associated with the repeat missing adults account for 71 percent (n = 500) of all reports of this type (n = 704). In other words, five places alone are associated with 71 percent of all adult repeat missing incidents. A similar rate is observed for the youth data set, which finds that the top five addresses most cited for repeat missing youth account for 68.6 percent (n = 3,208) of all youth repeat missing reports (n = 4,676). Examining this further, we compare the frequency with which these addresses are associated with all missing adult and youth reports from this City. We find that the "power few" places for adults are associated with 45.4 percent (n = 882) of all adult missing person reports and 51.8 percent (n = 3,409) of

	Location type	Repeat missing records	%	All missing records	%
Adults		704	100.0	1,943	100.0
	1. Hospital	261	37.1	334	17.1
	2. Hospital	80	11.4	192	9.9
	3. Shelter	58	8.2	138	7.1
	4. Hospital	58	8.2	109	5.6
	5. Shelter	43	6.1	109	5.6
Total		500	71.0	882	45.4
Youth		4,676	100.0	6,576	100.0
	1. Group home	789	16.9	851	10.0
	2. Group home	779	16.7	827	9.7
	3. Group home	651	13.9	692	8.1
	4. Group home	620	13.3	648	7.6
	5. Group home	369	7.9	391	4.6
Total		3,208	68.6	3,409	40.0

Table I. "Power few" places (per site) and the frequency associated with adult and youth repeat missing reports

all youth missing person reports (n = 6,576). As can be seen further, the most common location types for adults to go missing from are hospitals and shelters, and for youths, all the location types are notably group homes.

Demographic characteristics of repeat missing adults and youths

Table II provides a demographic overview of the individuals in the repeat missing adults (n = 704) and youths (n = 4,676) data sets. As can be seen further, males and females comprise roughly equal parts in the adult data set, but females outnumber males in the youth data set at a ratio of 2:3. Aboriginal adults and youths are disproportionately represented given that they represent only 2.97 percent of this City's population but 16.6 percent (n = 117) and 18.6 percent (n = 869) of the adult and youth reports, respectively. A similar rate is observed when looking at the Aboriginal adults (n = 20, 15.8 percent) and youths (n = 50, 17.5 percent) who comprise the volume of repeat missing reports. Individuals categorized as Black are also overrepresented in the repeat missing adult reports, as they represent only 2.97 percent of this City's population, but 7.5 percent (n = 53) of the volume of reports.

With respect to age, the majority of adults reported missing are between the ages of 22–29 (n = 50, 39.7 percent) and 30–49 (n = 48, 38 percent), and the majority of youths are between the ages of 16–17 (n = 139, 48.8 percent) and 14–15 (n = 1,875, 40.1 percent). Interestingly,

		Repeat missing individuals		Volume of reports	
		Adults	Youths	Adults	Youths
Total		126	285	704	4,676
Gender					
	Female	67	156	355	2,953
	Male	59	129	349	1,723
Race					
	White	91	205	497	3,414
	Aboriginal	20	50	117	869
	Black	8	18	53	252
	Other	3	11	23	124
	Unknown	4	1	13	17
Age group (Years)					
	00–08	/	1	/	1
	09–11	/	4	/	96
	12–13	/	19	/	199
	14–15	/	108	/	1,875
	16–17	/	139	/	2,375
	18–21	/	14	/	130
	22–29	50		277	/
	30–49	48		337	/
	50–65	14		42	/
	Over 65	14		48	/
Health characteristics					
	Drug/alcohol dependency	25	8	137	128
	Mental disability/senile	56	7	312	108
	Mental illness/suicidal	3	5	19	88
	Medical dependency	3	/	14	/
	Other	6	9	35	144
	None/unknown	33	256	187	4,208

Table II. Demographic characteristics of repeat missing individuals and volume of reports, 2013–2018

adults who are between the ages of 30–49 go missing seven times on average, which is higher than the repeat rate for those in the younger adult category (22–29 years) who go missing five times on average. Another notable finding is that youths between the ages of 16 and 17 are responsible for more than half of all repeat missing reports (n = 2,375, 50.1 percent). Although some information about health characteristics was available in the reports, the "none/unknown" category is the most common category for youths (n = 4,208, 90 percent). In contrast, the most frequent health concern for adults is "mental disability/senile" (n = 312, 44.3 percent).

Incident factors for repeat missing cases

Table III provides an overview of the incident factors regarding those individuals included in the data sets. In total, 126 adults and 285 youths are responsible for 5,380 reports. In relation to all closed missing persons' files (n = 8,519) from this City between 2013 and 2018, the repeat rate for going missing is 63.2 percent. This is not surprising given that many of the adults and youths in the sample are characterized as "habitual/chronic" missing people. We find the most common cause for repeatedly going missing is "runaway" for both adults (n = 416, 59.1 percent) and youths (n = 4,084, 87.3 percent), although the "unknown" category is also common.

The range of repeat missing reports for adults is 3–49 (n = 704) and 3–144 (n = 4,676) for youths, with youths reported missing more times on average. Additionally, the majority of adults (n = 113, 89.7 percent) and youths (n = 156, 54.7 percent) are reported missing between 3 and 10 times. However, a substantial minority of repeat missing reports for youth stem from the 11–20 (n = 56, 19.7 percent) and 21 or more (n = 73, 25.6 percent) categories, whereas only a small number of reports for adults are generated in these categories: 6.3 percent (n = 8) or 4 percent (n = 5), respectively. Notably, over one-quarter of the entire youth sample has been reported missing 20 or more times (n = 73, 25.6 percent) and just 18 individuals are responsible for 30.7 percent (n = 1,436) of the repeat reports in the youth data set, given that 15 youths went missing 50–99 times and three went missing 100–144 times.

Factors predicting going missing from the "power few" places

To estimate who is more likely to go missing from the top five addresses in the youth and adult sample, Table IV highlights the findings for the logistic regression models. In the youth

		Repeat missing individuals		Volume of reports	
		Adults	Youths	Adults	Youths
Total		126	285	704	4,676
Number of times missing					
	3–49	126	267	704	3,240
	50–99	/	15	0	1,035
	100+	/	3	0	401
History classification					
	Repeat	58	46	323	839
	Habitual/chronic	68	239	381	3,837
Probable cause					
	Runaway	75	249	416	4,084
	Wandered/lost	10	2	51	28
	None/unknown	41	34	237	564

Table III. Incident factors for repeat missing individuals and volume of reports, 2013–2018

	Adults	Youths
Race (Ref = White)		
Aboriginal	1.716	0.680***
	(0.511)	(0.067)
Black	0.986	1.990***
	(0.353)	(0.326)
Other	0.531	0.294***
	(0.212)	(0.064)
Female (=1)	0.808	12.546***
	(0.172)	(0.996)
Age (Years)	0.709**	1.058
	(0.084)	(0.041)
Health characteristics (Ref = None)		
Drug/alcohol dependency	0.748	1.039
	(0.220)	(0.249)
Medical dependency	0.999	N/A
	(0.699)	
Mental disability/senile	0.629	0.813
	(0.162)	(0.183)
Possibly suicidal/mental illness	0.430	0.650
	(0.235)	(0.177)
Other	0.662	0.481***
	(0.292)	(0.096)
History (Ref = Repeat)	1.391	2.823***
	(0.266)	(0.268)
Probable cause (Ref = None/Unknown)		
Runaway	1.839**	1.211
	(0.365)	(0.136)
Wandered off/lost	0.418*	0.667
	(0.147)	(0.306)
Constant	5.534***	0.207***
Log likelihood	−361.155	−2,201.880
Pseudo *R*-squared	0.081	0.250
Number of observations	704	4,676

Note(s): Standard errors are in parentheses below parameter estimates. Reference categories for "Age" are aged 4–11 for youth and 22–29 for adults. *$p < 0.05$; **$p < 0.01$; *** $p < 0.001$ (two-tailed tests)

Table IV.
Logistic regression predicting who goes missing from the "power few" places

sample, those who are documented as Black, female, and habitual/chronic missing people are significantly more likely to disappear from the top five addresses. These covariates are significant at the 0.001 level. To expand on this, Black youth are 1.990 times more likely to go missing from these addresses when compared to White youth. This highlights that Black youth are at a disproportionately higher risk of going missing multiple times from these locations. The odds of going missing from the top five addresses is 12.546 times higher for females when compared to males. What this suggests is that for every one missing event involving a male youth from these top five addresses, there are almost 13 reports generated for female youth. Those who are documented as habitual/chronic runaways have a 2.823 times higher chance of going missing from the top five addresses than those categorized as repeat runaways. This is expected as, given the classifications of the missing by this police service (no previous history, repeat, or habitual/chronic), those who go missing enough to be classified as habitual/chronic are assumed to be at an increased risk of generating more reports of going missing from these places. As such, this highlights that those who go missing from the top five places are more likely to go missing enough times to be classified as

habitual/chronic missing people. In contrast, youth who are Aboriginal or categorized as "other" (i.e. Middle Eastern or Asian) when compared to youth who are White, as well as those who are noted as having "other" health characteristics when compared to those with no/no known health concerns, are significantly less likely to go missing from these locations. That is, Aboriginal youth are 0.680 times or are 32 percent less likely to go missing from the top five addresses when compared to White youth, despite being disproportionately represented among the repeat missing sample. As well, those classified as "other" for race are 0.294 times or are 70.6 percent less likely to missing from the power few places. Lastly, those coded as having "other" health concerns are 0.481 times or 51.9 percent less likely to go missing from the top five addresses in the youth sample.

In the adult sample, those who are classified as runaways are significantly more likely to go missing from the top five addresses for adults when compared to none/unknown probable cause explanations. Specifically, the odds of going missing from these places for those in group are 1.839 times higher when compared to this with none/unknown probable cause explanations, which is significant at the 0.001 level. In contrast, those reported as wandered off or lost are 0.418 times, or 58.2 percent, less likely ($p < 0.05$) to go missing from the top five addresses for adults. Older adults/the elderly are also significantly less likely to be reported as missing from these places. These findings indicate that for every one year increase in age, a missing adult is 0.709 times or 29.1 percent less likely to go missing from these locations when compared to those who are 22–29 years old. What this suggests is that younger adults are significantly more likely to go missing from the "power few" places in comparison to older adults. No other predictors emerged as significantly related being reported as missing from the top five addresses in the adult sample.

To compare the youth sample to the adult sample, it appears as though White youth and adults are the most likely, as well as Black youth, to go missing from the top five places where missing reports are generated from. That is, overall, White people are at a disproportionately higher risk of going missing from the "power few" places repeatedly. Gender did have an effect for the youth sample, whereby females are almost 13 times more likely to go missing from these locations; however, this covariate is not significantly related to the chances of going missing from these places for adults. A young person's age is not significantly related to the odds of going missing from the top five youth locations, but, in contrast, the adults' age is, as the older the adult is, the less likely they are to go missing from the top five adult addresses. We can then conclude that youth and younger adults, White people and Black youth, and female youth are the most at risk for going missing multiple times from the top five addresses in each data set.

Discussion

The present study offers preliminary support for the view that we need to consider the spatial dimensions of repeat missing incidents. In particular, our study uncovers ten addresses (five for adults; five for youths) in the City from which this data was derived that account for 45 percent of all adults and 52 percent of all youth missing person reports. Even more striking, our data suggest that targeting these top five locations for adults and youths could reduce the volume of repeat missing events by 71 percent for adults and 68.6 percent for youths. We also identify some demographic and incident factors that predict both adults and youths go missing from these locations. We provide an overview of our most salient findings in what follows and contextualize them within the available literature.

As discussed earlier, the five locations in the adult data set and five locations in the youth data set could reduce the volume of repeat missing cases by 71 percent and 68.6 percent, respectively. This is significantly higher than a UK place-based study on repeat missing persons, which found that ten institutional locations accounted for 27 percent of repeat

missing reports in a one-year period (Hayden and Shalev Greene, 2018) and suggested that targeting these locations could have a myriad of protective effects for individuals at risk of going missing from these locations. Similar to Hayden and Shalev Green (2018), it was discovered that the most common location types for both adults and youths to go missing from are institutional locations, such as hospitals and shelters for adults, and group homes for youths.

Through extending our analysis, we show that missing persons generally do not go missing at random or from arbitrary locations, but rather from select addresses that house certain types of spaces that vulnerable people are more likely to inhabit. In particular, we found that adults who are classified as runaways are significantly more likely to be reported missing from the "power few" adult places and adults who "wander off or lost" are significantly less likely to go missing from these "power few" places. As shown, young adults are at a greater risk of going missing from these locations in comparison to their middle- and older-aged counterparts. For youths, those who are documented as Black, female, and habitual/chronic missing people were found to be significantly more likely to go missing from the "power few" youth places. In contrast, youth who are Aboriginal or coded as "other" (i.e. Middle Eastern, East Indian, or Asian) are significantly less likely to go missing from these locations, as well as those who have "other" health concerns such as Autism.

In relation to the demographic characteristics of our sample or adults and youths who repeatedly go missing, we found that female youth are two-thirds more likely to go missing than male youth. This is not surprising as existing literature suggests that female youth go missing more often than male youth both within and outside of Canada (Statistics Canada, 2018; Collins *et al.*, 1993; Patterson, 2007). Additionally, we found that Aboriginal adults and youths are disproportionately represented among the repeat missing. In particular, they are overrepresented by 14–16 percent of this City's population. Although this is surprising for youths, it is not for adults as there is a growing body of literature on missing and murdered Indigenous women in Canada (Anderson, 2016; Royle, 2017). We also observed that youths between the ages of 14–15 and 16–17 are responsible for almost 90 percent of repeat missing youth reports. Although other studies indicate that a large share of the repeat missing reports originate in one's teenage years, to our knowledge, there are no other studies that demonstrate such high incidence rates (Patterson, 2007; Biehal and Wade, 2000; Hayden and Goodship, 2013).

In relation to incident factors for going missing repeatedly, we find that the repeat rate for going missing is 63.2 percent and that both adults and youths go missing 3–10 times on average. International estimates suggest that the rate of repeat missing is 34–50 percent (Tarling and Burrows, 2004; Shalev Greene and Hayden, 2014; Henderson and Henderson, 1998), yet we find a relatively high repeat rate of missing incidents. This being said, this high repeat rate is for just one city and may not be generalizable to all of Canada. Concerning how many times individuals are reported missing, we find some consistency with international rates (Biehal *et al.*, 2003; Sowerby and Thomas, 2017). However, notably, we find three youths in our sample are reported missing 100+ times, with one youth being reported missing 144 times. Results reveal that "running away" is the most documented probable cause for both adults and youths going missing, which is consistent with research outside of Canada suggesting most youths are runaway youths (Biehal and Wade, 2000; Hayden, 2017) and many adults go missing "intentionally" (Biehal *et al.*, 2003; Holmes, 2017). Lastly, the most frequent health concern for adults was discovered to be "mental disability/senile," which is consistent with existing literature suggesting that a growing number of adults go missing due to cognitive impairments, such as dementia, in relation to global population aging (Woolnough *et al.*, 2017).

Taken together, our results suggest that, just as crime concentrates in particular spaces and among specific offenders, missing incidents also concentrate in particular spaces and among particular people. Drawing on Sherman's (1995) article on the "criminal careers of

places," it is worth noting his observation that there are four hypotheses that can explain how some spaces become criminogenic:

(1) *The patron hypothesis*, which explains high crime rates as being generated by criminal patrons who are attracted to a particular setting;

(2) *The management hypothesis*, which suggests that management practices – whether good or poor – result in spaces in which crime and disorder are more or less likely;

(3) *The behavior setting hypothesis* is a multifactorial approach that combines individuals, rules and their enforcement, time, space, and objects into a veritable melange that can produce or deter crime and disorder;

(4) And Sherman's *neighborhood hypothesis*, which places emphasis away from a single location toward larger, local environmental factors.

In thinking about repeat missing persons, the present research offers support for viewing these concerns as a *behavior setting issue* – that is, as a combination of demographic factors of individuals, as well as contextual factors of organizations. Adults and youths who go missing from these "power few" places are likely to do so because they find themselves in such locations as a result of social and/or health factors and these locations either (1) provide the impetus for them to leave or (2) have surveillance procedures in place to notify the police when an individual has gone missing.

Conclusion

In this paper, we employed a "power few" approach to elucidate how a minority of individuals who go missing from repeat locations produce a majority of strain on police resources. In particular, we find that some demographic and incident factors are significantly related to going missing from these "power few" locations and that concentrating prevention efforts to these "power few" places could reduce the volume of repeat missing cases by approximately 70 percent for both adults and youths. To be precise about the policy implications of this research, we shared the results from this study with the police service from which this data was collected and are working closely alongside them to determine how to target prevention efforts in these locations. Based on the results offered in this study, we believe focusing prevention efforts on both these high-risk places, and the individuals who go missing from them will have a deterrent effect. In particular, we believe that a "total systems" or multifactor approach such as that theorized in the behavior setting hypothesis by Sherman (1995) will reduce the volume of repeat missing person reports within these "power few" locations, but also for other potentially at-risk individuals who are in similar circumstances. Thus, like Robinson (2017, p. 646), we believe that any effort aimed at identifying any "power few," along with investments in resources aimed at reducing the harms produced by or to them, "will pay dividends in terms of harm reduction."

Our study is not without several limitations. First, we have to rely on the accuracy of police reports, which are not immune from error (Malm *et al.*, 2005). Like Brimicombe (2016), we find that police data is often imperfect due to several factors, such as coding errors, as well as missing information. This was especially common for individuals who had a higher degree of repeat missing events and is consistent with qualitative findings from Sowerby and Thomas' (2017) study, which suggests police acknowledge some degree of complacency in dealing with repeat missing cases, especially those involving youths. They suggest this is likely due to the burden repeat missing episodes on police services. Lastly, our study is also limited in its generalizability and representation, given that our sample only focused on one municipality, and to be reported missing, one must be missed from someone or somewhere.

Despite these limitations, our analysis advances the literature in four meaningful ways: First, we describe some demographic characteristics of repeat missing adults and youths. Second, we describe some incident factors for repeat missing cases which to our knowledge has not been done in Canada to date. Third, we identify the top five locations from which adults and youths repeatedly go missing. Fourth, we identify significant demographic and incident factors that may help us to better predict which adults and youths may be most at risk for repeat missing reports from these locations.

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