



## Emergency preparedness amongst university students

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### ABSTRACT

The objective of this study was to examine the level of emergency preparedness among University of Waterloo, Ontario, Canada students. The research examined both purposeful preparedness and coincidental preparedness, students' sense of responsibility, and barriers preventing further preparedness. Information was collected through an online survey, completed by 80 participants, conducted during the Spring 2013 academic term. The study found that the majority of students felt that they were the most important actors in personal wellbeing during the first 72 h post-incident; however, most were not prepared to deal independently with a disaster for the recommended 72 h period. Most students did have basic coincidental preparedness supplies, but not full emergency preparedness kits. The results showed that students do experience barriers limiting further preparedness, which may be alleviated through increased administrative support by the University and other community emergency preparedness agencies.

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### 1. Introduction

Natural disasters are a worldwide phenomenon; over the past 10 years there has been an average financial loss of \$190 billion globally per year from natural catastrophes [12]. Given the extent of loss due to natural disasters, research and practice has been undertaken to address disaster risk reduction and increasing levels of emergency preparedness. However, one population that has been left unstudied is post-secondary university students, a group that is thought to have a lower level of resilience than the general population, in part, due minimal cultures of preparedness [6,7].

The purpose of this study was to examine emergency preparedness of post-secondary university students by evaluating the type and quantity of emergency preparedness supplies the students had in their homes. The relationship between an individual's sense of vulnerability, sense of responsibility, and the availability of preparedness supplies was also examined. Barriers preventing further preparedness, and the role of the University institution, were reviewed to help understand how future preparedness efforts could be improved. It was anticipated that most students inadvertently have emergency preparedness supplies within their homes; however, they are not prepared to handle emergency situations.

By examining the emergency preparedness supplies students coincidentally have in their homes, the results of this research

contribute to the discussion of raising students' resilience to hazards. By raising resilience to hazards, students' vulnerability will be lowered, increasing self-sufficiency when an emergency occurs. This will aid in student safety and will help ease pressure on emergency response personal [6]. This research identifies the gaps in emergency preparedness among students, which can then be addressed in emergency preparedness activities.

The limited literature done on emergency preparedness behavior among post-secondary university students suggests that students are more vulnerable to natural disasters than the general population and are overlooked in preparedness efforts. Students are generally less prepared to deal with emergencies, less likely to have emergency preparedness supplies for 72 h post-disaster, have minimal prior experience and have a lower sense of responsibility [2,6,7,11,17]. However, there is limited scholarly data focused on emergency preparedness related to university students, many of whom are newcomers to their community, with no context specific knowledge or experience of the local hazards. This lack of relevant previous research supports the need to examine emergency preparedness of students at the University of Waterloo in Canada, to develop a better understanding of students' preparedness levels and the barriers preventing them from having all-hazard emergency preparedness supplies suitable for 72 h.

### 2. Literature review

Existing research on student emergency preparedness has focused primarily on post-secondary students in the United States.

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The US Federal Emergency Management Agency [6] found that university students were more vulnerable to disasters than the general population. FEMA also found that students are generally unaware of the risks they face, and that post-secondary institutions have trouble targeting and creating action plans for this population. It was recommended that student groups and family representatives be included in emergency planning [5].

Two studies [2,17] shed some light on the issue of student emergency preparedness or lack thereof. In a study conducted at the University of Texas, students felt that emergency preparedness should be covered in orientation and that students should be provided with checklists on what to include in a 72-h emergency kit [17]. These results align with research done on the University of South Florida campus, where researchers found that the student population, despite their higher levels of vulnerability, were the most overlooked group when compared to other community groups when considering emergency preparedness [2]. This higher level of vulnerability among students was due to low-rent student housing [2], lower income levels, limited experience with disasters and the younger age demographic of university students [11]. Combined, these two studies suggest that students are an overlooked population and that further emergency preparedness efforts need to target this group.

Due to students' generally higher levels of vulnerability, lower senses of responsibility for preparedness, and dependence on family members, it was suggested by Edwards [4] that university campuses should prepare for emergencies in a similar way as cities do. The author proposed that universities need an integrated emergency response plan coordinated with the local community to plan for an emergency response and provide mutual aid in times of need. This would include cooperation between the university and surrounding communities for items such as shelter space, equipment, specialized knowledge and food/water stockpiles [4]. It was also recommended that universities use business continuity techniques to plan for potential disruptions in class instruction and facility damage and to have an emergency operations centre stocked and ready for use. To involve students, it was recommended that there be training and exercises that students could participate in Ref. [4].

Diekman et al. [3] found that within the general US population, most households had not followed authorities' suggestions with respect to emergency preparedness activities. Households were found to have a low level of knowledge surrounding emergency preparedness kits, and few had designated and organized emergency preparedness supplies. Similarly, [11] directly compared tornado preparedness among nonstudent renters, nonstudent homeowners and student renters in Pennsylvania, US. The research compared tornado preparedness among the three groups, finding that homeowners were the most prepared for a tornado and secondary events, followed by renters and lastly students. This was partly explained by students' limited experience with disasters, along with students' generally lower levels of disaster preparedness and knowledge. A later study focusing on hurricanes at the University of South Florida found that 58% of students were "not quite ready" for a hurricane despite the fact that 77% of students surveyed had previous hurricane experience [2]. These findings are concerning as it has been documented that students have lower levels of emergency preparedness than the general population [8,11], helping place student preparedness (or lack thereof) into context and strengthening the support of the need of further research into students' lack of preparation.

A final study focusing specifically on university student preparedness in the US was done by Claborn [1]. In this research, it was found that students had lower levels of emergency supplies than the general population; approximately 75% of students had enough blankets, approximately 58% reported that they had a

3-day supply of food, but most concerningly, only 40% had a 3 day supply of drinking water and very few students had access to a landline phone or radio. The research also revealed that the overall level of emergency preparedness, and proportion of homes with a 72 h kit, was relatively low.

Based on this literature review, it is apparent that relatively little is known about specific emergency preparedness of post-secondary students. Little is known about the barriers students face and their base level of preparedness. Preliminary work has been completed within the context of the United States' student population; however, little has been done in context of Canada or other cultures. Based on this, the research below examines the emergency preparedness of students at a Canadian institution in Southern Ontario, the University of Waterloo with a student population of 39,500 [13].

### 3. Study area

The University of Waterloo is a post-secondary university located in Southern Ontario, a region at particular risk for meteorological events such as severe thunderstorms, tornadoes and winter/ice storms. These events have a higher risk of occurring and have been known to cause damage in the Waterloo Region [15]. Due to the likelihood of a meteorological event and other, lower probability, disasters occurring, each resident has been asked by the region's emergency management agency to have an emergency preparedness kit containing supplies such as flashlights, battery operated radios, medical supplies, shelter, water and food for a minimum of 72 h [15]. These personal preparedness kits are meant to help individuals respond to, and remain self-sufficient in the event of a disaster. The items recommended in the emergency preparedness kits are designed to take an all-hazards approach by providing basic, life-sustaining supplies.

The University of Waterloo student population, along with the staff and faculty who are employed by the university, represents a significant proportion of the City of Waterloo's population. The University of Waterloo has four campuses, all of which are located in Southern Ontario. The City of Waterloo has approximately 123,000 residents, while the University of Waterloo's student population on the main campus is over 39,500 students [13]. Of the student population, there is on-campus housing for approximately 6000 students, the majority of whom are in first year [16]. Given the limited availability of on-campus student housing, especially for upper year students, the majority of students live off-campus, indicating the need for comprehensive emergency planning and communication between on-campus and off-campus emergency management organizations.

Given the University of Waterloo's risk for hazardous events and its significant campus population, this study examines the sense of responsibility students living off-campus feel towards emergency preparedness, asking specifically about relevant emergency preparedness items students have in their homes – both purposefully and coincidentally. The relationship between individual sense of vulnerability, sense of responsibility and the availability of preparedness supplies are also examined, along with barriers preventing further preparedness.

### 4. Research methods

The research was carried out using a structured internet based survey ( $n = 114$  total,  $n = 80$  valid surveys) with an inductive, mixed methods approach. The survey consisted of 19 closed ended questions and 1 open ended question, and there was an effort made to identify target students: those who lived off-campus in

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