

The perception of health with informal recyclers in Buenos Aires, Argentina

by

Eric Norman Olaf Binion
BA, University of Victoria, 2007

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Supervisory Committee

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Supervisory Committee

Dr. Jutta Gutberlet, Supervisor
(Department of Geography)

Dr. Aleck Ostry, Departmental Member
(Department of Geography)

Supervisory Committee

Dr. Jutta Gutberlet, Supervisor
(Department of Geography)

Dr. Aleck Ostry, Departmental Member
(Department of Geography)

Abstract

Globally, millions of individuals subsist by collecting, sorting, and selling recovered solid waste. For most individuals involved, the profession is informal and thus prone to job insecurity, stigmatization, physical danger, and emotional distress. Injuries may push recyclers out of the workforce, which, on a day-to-day salary, could be disastrous to their personal livelihood or dependents. In order to understand how the recyclers perceived their health and physical liabilities, I went to Buenos Aires in 2010 for a six-month period. The study began under a participatory research framework with a recycling cooperative. Unfortunately the cooperative folded, and subsequently, I performed an empirical qualitative study interviewing 21 unaffiliated informal recyclers in downtown Buenos Aires. The study demonstrated that informal recyclers express, through self-rating of their wellness, that they generally feel healthy. Some mentioned that although they are healthy, they do see others who work in the field who may be less healthy than them. The most common pain and discomfort recycler's experienced was situated in their lower back, legs, and feet due to lifting heavy items and lacerations to their hands. The vast majority of participants indicated regular exposure to occupational health hazards, such as medical waste. The findings of this research support the need for further qualitative research with

informal recyclers; public, commercial, and industrial adherence towards source separation; greater cooperation with local governments, recyclers, and recycler run cooperatives; and funding for knowledge awareness campaigns and safety equipment.

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1.0. The introduction

1.1. A precarious livelihood

An assessment of the health implications to informal recyclers is important in implementing alleviations and interventions in order to cope with the precarious nature of operating in the informal sector. Informal recyclers are recognized in a variety of languages. *Waste pickers, scavengers, or Binnners* in English, *catadores* and *carrinheiros* in Brazilian Portuguese, and *cartoneros, recicladores, or recuperadores urbanos* in Argentine Spanish. Regardless of semantics, the overarching term that will be used in this article to signify the occupation will be *informal recycler*. The term will define anyone who operates in the informal sector collecting, sorting, and selling solid waste as a livelihood. (See: Gutberlet, 2009, p.741 for a further definition). Working in a non-wage cash economy, the recyclers face a multitude of health risks while lacking the social and extended health support found in formal work; hence, the importance of reporting the perceptions of health and health risks that affect an estimated 15 million individuals worldwide (Medina, 2008).

Prior research has demonstrated a number of reoccurring health implications that affect individuals operating as informal recyclers. When thematically categorized, these health implications comprise of infection, chemical hazards, musculoskeletal damage, mechanical trauma, and emotional distress. Each theme is broad reaching and incorporates multifaceted variables. The risk of infection may occur from cuts, needlesticks, contaminated medical waste, or ingesting organic waste (Mochungong, 2010; Rendleman & Feldstein, 1997; da Silva *et al.*, 2005; Furedy, 1994; Martin *et al.*, 2007; Porto *et al.*, 2004). Chemical hazards emitted from pesticide and other chemical residues, fuel exhaust, and burning waste increase lead levels in blood and may lead to lung damage and infections

(Sarkar, 2003; Suplido & Ong, 2000; Gomez-Correa *et al.*, 2008; Ray *et al.*, 2004; Romero *et al.*, 2010). Repetitive movements, bending, and heavy lifting lead to perceived musculoskeletal pain (da Silva *et al.*, 2006a; Gutberlet & Baeder, 2008). Mechanical trauma occurs from lacerations due to broken glass, discarded knives, and metal (Hunt, 1996; Gutberlet & Baeder, 2008; Nguyen *et al.*, 2003; Parizeau, 2011; Wilson *et al.*, 2006). Finally, minor psychiatric disorders and social stigmatization affect the emotional wellbeing of the recyclers (da Silva *et al.*, 2006b; Cavalcante & Franco, 2007; Martin *et al.*, 2007; Medeiros & Macedo, 2006; Gutberlet & Baeder, 2008).

In health research, there are two perceptions that a study can utilize. One, the *external view*, that being based on epidemiologists, pathologists, or doctors, and two, the *internal view* of health, based on the participant's own perceptions (Sen, 2002). Research has demonstrated that self-reported health (SRH) perceptions can be a better predictor of personal health than a clinically assessed rating by a physician (Cousins & O'Brien, 1997). Participants whose perceived health is reported to be poor or fair are "two or more times more likely to die in the next several years than are individuals who report very good or excellent health" (Frankenberg & Jones, 2004, p. 441). Subsequently, self-reported health has demonstrated to be a strong predictor of both morbidity and mortality.

Martin *et al.*, (2007) and Parizeau (2011) surveyed and interviewed informal recyclers in Buenos Aires, Argentina. They delved into an overview of health, inquiring to determine the numerous facets of wellbeing, from injuries to hospital wait time. Both studies conclusively demonstrate the health challenges recyclers face while operating in Buenos Aires. Thus, in wanting to build upon these studies, I developed qualitative objectives that would create further depth to the perceptions of health and informal

recycling. Before delving further into the health aspect, I will succinctly summarize the historical context of informal recycling in Argentina and of my fieldwork circumstances which guided the creation of the thesis.

1.2. Argentine palimpsest: dictatorship, neoliberal reform, & Kirchnerism

The historical context is crucial in understanding the present challenges. Some information presented in this section will be expanded upon in Ch.4., particularly cooperative history and related policy.

Decades of financial mismanagement by military dictators and corrupt leaders in Argentina increased national debt levels. The Falklands Island incursion ended the Argentine military dictatorships and facilitated the transition to democracy. Newly elected president Raúl Alfonsín, guided the country into tackling the foreign debt crisis, which was exacerbated by high global interest rates. During the 1980s, Alfonsín attempted to limit hyperinflation by pegging their new currency with the US dollar. However, the drastic decline in global commodity prices dashed hopes of stabilizing the Argentine economy. Carlos Menem was elected into office in 1989 and fully embraced neoliberal structural adjustment measures in order to ameliorate the burgeoning national debt. The International Monetary Fund, the World Bank, and the US Treasury recommended the implementation of privatization, free trade, and foreign direct investment. The country privatized national industries and public enterprises, selling them to domestic and foreign interests (Whitson, 2007). This implement curbed inflation, however, the national debt continued to rise from US\$57.6 billion in 1990 to US 144.5 billion in 2001 (MECON, cited by Whitson, 2007). Privatization in the public sector led to massive layoffs and unemployment

rates officially rose to 25% (Whitson, 2007). The combination of debt and unemployment pushed Argentina into a recession, sparking the beginnings of the turbulent 2001-2002 economic crisis.

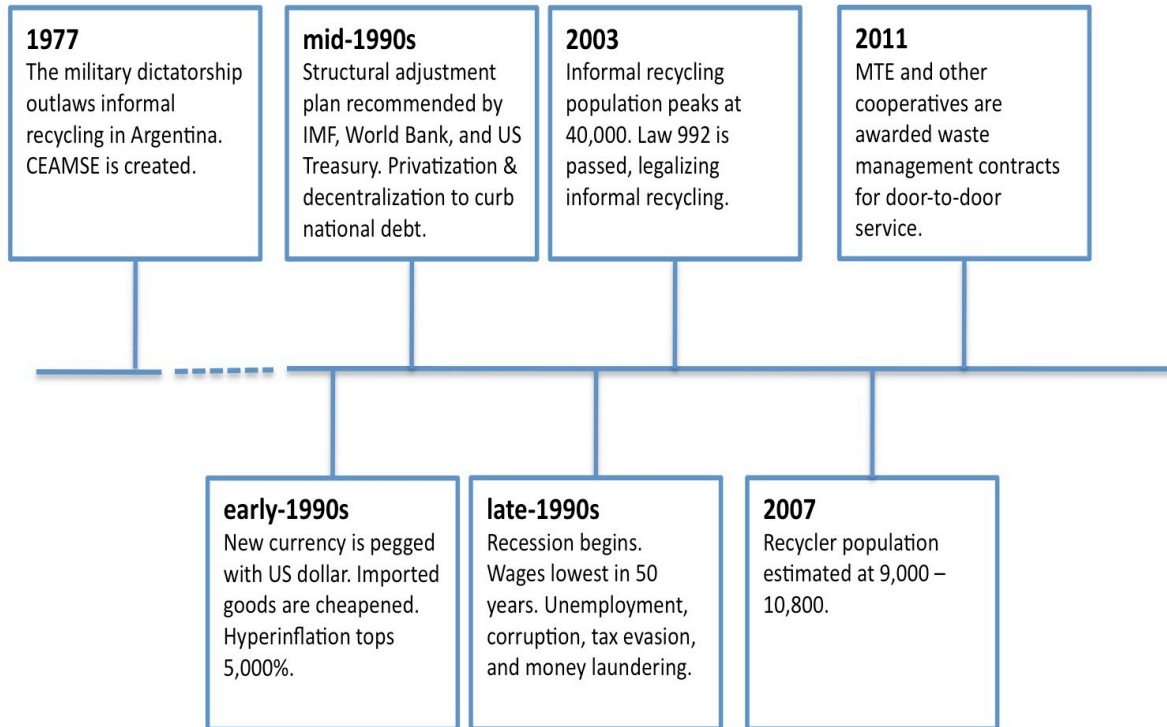


Figure 1.1. A timeline of Argentine informal recycling (Whitson, 2007; Schamber & Suárez, 2007).

A shrinking middle class, lowered wages, and high unemployment created a *new poor*. Argentines began to seek a livelihood in the informal economy. Concurrently, the price of imported items, such as cardboard and metals increased. Argentine industries struggled to purchase raw resources abroad, and thus relied on domestic materials to be recycled and reproduced into new commodities (Schamber, 2009). High unemployment, the wherewithal to operate in the informal sector, and the increase in recyclable resource

prices, created an opportunity for the unemployed. Individuals began to operate in the informal sector, collecting, sorting, and selling discarded cardboard and metals.

At present, the current population is estimated to be closer to 9,000 -10,800 recyclers in the city of Buenos Aires and upwards of 62,000 recyclers in Gran Buenos Aires (Schamber & & Suárez, 2007). The *cartoneros* are not a homogenous population. The term can be loosely translated as *the cardboarders*, or 'one whose livelihood is to collect and sell recovered cardboard, or other recoverables'. They are from a variety of backgrounds such as electricians, former factory workers, unskilled labourers, physiotherapists, public sector and administrative employees (Paiva, 2007). Education levels may range from limited education to university graduates (Paiva, 2007). The informal recyclers in Buenos Aires became a "ubiquitous, hyper-public expression of individual need, community survival, and national crisis" (Whitson, 2011, p.1405). As the recycling population increased, the public could no longer plead ignorant to the situation.

Due to this increasing public awareness two laws were passed, Law 992 (mentioned in detail in Ch.4; Appendix 3) and the Zero Waste Law (*Basura Cero*, Ley 1.854/05; 2005). The Zero Waste Law was enacted in 2006. The objective of the policy is to reduce solid waste to landfills by 30% in 2010, 50% in 2012, and 75% in 2017. Both of these laws facilitated informal recyclers in becoming a crucial and beneficial part of waste management in Buenos Aires (Whitson, 2011). The formal waste management system was recycling 280 tons of waste annually at a cost of 193,000 pesos (CD \$64,330) per ton, while the informal sector was recycling 190,000 tons of waste at a cost of 400 pesos (CD \$130) per ton (Ministerio de Ambiente y Espacio Publico, as cited by Whitson, 2011). Thus, by incorporating the informal sector, the city financially benefits and has thus proceeded to

integrate the informal recyclers and cooperatives with the formal waste management sector. The process is contentious as it is deemed exploitative in nature.

The city receives a service it needs, but cannot truly afford. Thus it is beneficial if someone else does it, preferably free of charge. The recyclers, unless involved with some cooperatives, do not receive any benefits, such as wage labour, job security, social insurance, or pension. In addition, the city can operate a recycling system with far less overhead than a formal municipal collection agency. From a Marxist (1990 [1867]) perspective, solid waste has been commoditized in the capitalist mode of production. The recyclers do not receive full value for these commodities and are also subjugated through their labour-power surplus. Thus, both *the city* and the intermediaries who buy the collected waste exploit the livelihood of the recyclers.

1.3. My story

Upon returning to Buenos Aires in July of 2010, I began networking with local universities and academics in hopes of meeting a cooperative leader. Eventually, I met with two researchers, a professor of Anthropology at the University of Buenos Aires, Sebastien Careno, and his PhD student in the same field, Santiago Sorroche. These individuals introduced me to the recycling cooperative Reciclando Sueños . They had been working alongside Reciclando Sueños for a few years on community-based cooperative research. Simultaneously, other cooperatives were approached without formal introduction. These cooperatives were initially interested, but little developed between myself and the members. Relationships were difficult to maintain due to a variety of assumed reasons, such as former research saturation, 'parachute researchers', poor communication regarding the project objectives, or that the cooperatives were preoccupied. Thus,

Reciclando Sueños became the sole contact. The two co-leaders of the cooperative were interested in developing a photovoice project. We had a few meetings in September, where we discussed the process of the project, the objectives, and the potential outcomes. At this juncture, the cooperative was operating on minimal staff (further described in Ch4.), but were generally optimistic about the initiative. During a meeting in October (Figure 1.1), we discussed the photovoice initiative and I allocated the cameras. Much follow-up occurred, but the project seemed to stall around late-October. In addition, the death of former president Nestor Kirchner forestalled any activity with all cooperatives for nearly a fortnight as the country was in a state of declared national mourning.



Figure 1.2. Taking a drink of mate: A meeting discussing the potentials of photovoice. (left to right): Alberto (cooperative co-leader), Santiago (PhD student from UBA), Marcelo (cooperative co-leader), and myself.

I talked and met with one of the leaders a few more times after. He was constantly dealing with funding challenges and the fiscal management of the cooperative. It was evident, that

a photovoice initiative was no longer the top priority for the cooperative. At this point, I had felt assertive at times. In the end, the cameras were left with the cooperative and I was unable to succeed in working with any other cooperative in Buenos Aires. The challenges encountered were insurmountable and consequently the research methods and objectives had to be revised. Finally, the specific research focus shifted from investigating the health related situation of cooperative members to include health perceptions of independent recyclers.

1.4. Research objectives

The research, as directed by the objectives listed below, worked to explore the health and wellbeing of the informal recycler. The focus was on creating an overall story of the recyclers and their health by examining the perception of health and health related activities from a qualitative perspective. Initially, the research objective was centred on working with recycling cooperatives, however, as mentioned in the research context above, the specific research objective needed to be adjusted to the focus mentioned below. A number of research questions emerged in order to guide the process and create the larger context, as presented here:

- How do informal recyclers perceive their own health? How do they feel? Do they compare their health with others? Do they have reoccurring health implications perceived to be directly related to informal recycling.
- Do the informal recyclers access health care? What are their thoughts on accessing healthcare? Is this access limited?
- Are they in pain? Is the pain perceived to be related to informal recycling? How do they manage this pain?

- Do injuries occur while working in collection and separation? Are there perceived risks with collection and separation?

In addressing the above issues, the thesis will add to the knowledge on informal recycling and health. The scope of the paper is limited to perceptions regarding health.

1.5. Thesis structure

The thesis consists of two manuscripts. Each manuscript is joined by the research objective and is to be viewed as a cohesive unit. Overlap and repetitiveness are therefore unavoidable. Chapter 2 discusses the methodology and research design. This section will clarify and justify my research methods. Chapter 3 is the literature review which was completed during the research process. Currently this review is the most up to date and succinct revision of the literature available on the subject of informal recycling and health. The review creates a greater contextual understanding of the factors which influence the health of informal recyclers and their livelihood. Chapter 4 composes the manuscript based upon my fieldwork completed in Buenos Aires. The chapter details regarding the perceptions of health, risk, and concerns faced by recyclers operating in the city. Chapter 5 concludes the thesis.

2.0. Research methodology and design

The research was qualitative in nature. By being qualitative, I was able to utilize methods that facilitated the revealing and interpreting of the context, the complexities, and the significance of respondent's opinions and lives (Eyles & Smith, 1988). The first half of this section outlines the conceptual framework, consisting of constructivist grounded theory (CGT), which guided the research and justified my actions and responses during fieldwork. This section will inherently intermingle with the methods, as constructivist grounded theory will be referred to when discussing the interview and survey coding. The second half of the section defines which methods were used during fieldwork and will draw upon CGT. The chapter concludes with the limitations of the research.

The conceptual underpinning of my research was fundamental for the development of my study and assisted in creating the parameters necessary for defining the purpose, objective, and methods used in the project. My epistemologies draw from a number of critical geography social theories, such as Marxism, feminism, and post-structuralism. In addition, I have been influenced much by the concepts of political economy and ecology, community-based research, and participatory action research. This description will hopefully enlighten the reader of my personal epistemological and ontological context, while displaying justification for my research.

2.1. Constructivist Grounded Theory

*We are all influenced by our history and cultural context,
which, in turn, shape our view of the world,
the forces of creation, and the meaning of truth.
(Mills et al., 2006, p. 2)*

Grounded theory evolved out of the post-positivist work of Glaser and Strauss (1967). Through stages of coding and identifying concepts and categories, the theory facilitates the researcher in legitimizing their qualitative research, adhering to the subjectivities of the fieldwork, while respecting the knowledge of the participants. Grounded theory proposes methods to acquire data, to analyse and display the data in new ways. The ideological foundation of Constructivist Grounded Theory (CGT) is critical relativism, which proposes that there is no absolute *Truth* and recognizes the existence of multiple truths (Nietzsche, [1873] 1990), perceptions, and multiple realities of subjectivism. Constructivist grounded theory developed through this framework. What changed through the CGT lens was the focus on understanding the power differentials in research-participant relationship (Charmaz, 2011). CGT was utilized as “a systematic approach to social justice inquiry that fosters integrating subjective experience with social conditions in our analyses” (Charmaz, 2011, p. 509). The framework fostered the creation of abstract ideas regarding human agency and structures by locating collective and subjective experiences in order to better understand the structural forces that produce inequity (Charmaz, 2011). In order to adhere to brevity, this section will outline three important facets of CGT that were drawn upon or adjusted for the fieldwork, the treatment of the literature, theoretical sensitivity, and most

importantly, reflexivity. All references to coding are mentioned in the methods section with the appropriate methods.

Traditionally, a grounded theorist would adhere to not reviewing or compiling literature prior to fieldwork (Mills *et al.*, 2006). This evolved from the belief that the researcher can operate as a *tabula rasa*, or blank slate. The concept behind this method is that a researcher would withhold biases, such as confirmation bias, from the research objectives. However, for this research, I agreed with Strauss & Corbin (1998) in actively *interweaving* the literature throughout the process of the fieldwork. I was aware of potential bias, but in order to properly streamline the process of survey and interview guides, I found it necessary to review the literature prior and during fieldwork. Finally, in my opinion, one of the most salient aspects of GCT is how it ties into aspects of power within the research process, knowledge production and other ethical concerns during the research process.

2.1.1. Reflexivity

Researcher power was an overarching concern throughout the fieldwork process. Foucault (2001) defines how such power is “exerted over things and gives the ability to modify, use, consume, or destroy” (p. 337). These *things* can be thought of as the knowledge accumulated from the informal recyclers. Power can be subliminal, and exertion of it is typically not intentional in the research setting. Thus, in order to more accurately understand my role as a research in the Global South, I adhered to the practice of reflexivity. Through the use of a field diary, which will be expanded on later, I developed a number of tenets which I adhered to when completing my field work. These main tenets

involved: defining and respecting the voice of the participants, acknowledging the power dynamics, and accepting my positionality within the landscape of power during the research.

As mentioned prior, when gathering data through participants, I chose to accept that there are multiple truths, and that these truths may differ or contradict each other. Hence, I had to understand my own subjectivities when documenting, analyzing, discussing, and navigating interviews and surveys and I had to respect all voices to the process. Through this development, I viewed the research as a dialogical process, in the sense that both the researcher and the participant structure the research situation (England, 1994). That being the discourse generated expanded and developed based on feedback from one another. In addition to voice, I accepted the idea of agency and power in the process.

I utilized this discursive strategy in order to grasp the understanding of power, particularly in relation to the dynamics between the researcher and the participants. Through this decision, I understood that the true removal of power dynamics is impossible. However, through the use of this *thought tool*, I worked to minimize the entrenched hierarchies which are (re)produced through such fieldwork. The fieldwork can benefit from these consciousness-raising questions (Mills et al, 2005). How does the participant fit into the fieldwork? How do I, the researcher, fit in?

In addition to writing reflexively, I practiced material and corporeal actions which helped to lessen the markers of difference. By investing personally, someone more than just a researcher, it allowed the relationships to foster and to gain more insight into the context of the co-operatives, looking beyond the dichotomy of being an insider or an outsider (Sidaway, 2000). For example, something as simple as sharing yerba mate, the

traditional tea-like drink, helped create rapport with participants. In addition, I worked to be flexible with interviewing and in conversations, allowing the participants to be in control of scheduling and sharing personal details when asked (Mills *et al.*, 2006).

Last, I actively worked to situate and deconstruct my positionality in the field. For example, I became extremely cognizant of institutional and structural privilege and how this interacted with the representation of the participants. In addition, I sought to minimize the over-arching hegemonic process of knowledge creation and knowledge appropriation in both the academic and non-academic landscapes (Rose, 1997). I deemed it necessary to be sensitive with limiting the (re)production and (re)creation of hegemonic postcolonial powers when defining and enacting my methods chosen to accumulate data. These methods were surveys, in-depth interviews, and secondary data sources.

2.2. Survey interviewing

Having in-depth interviews with informal recyclers was deemed challenging. Talking to the independent recyclers was typically only possible during periods of work. I did not feel comfortable in removing time away from someone during their livelihood. Thus, the surveys were deemed beneficial for acquiring data in a faster manner as they could be completed face-to-face while the respondents continued to work, which is typically what occurred. In addition, the surveys were utilized because they were, 1. cost effective, 2. facilitated the gathering of data over a large geographic area with a dispersed population that was difficult to access, and 3. they were flexible when adapted with other mixed methods (McGuirk & O'Neill, 2005). The process for developing the surveys was three-fold: 1. I developed a sampling plan for reaching a large dispersed population, 2. I devised

appropriate questions, and 3. I selected the appropriate mode of delivery (Singleton, Jr. & Straits, 2002). The survey was further refined through the literature review, in addition to support from the supervisor, and advice from local academics. Native Spanish speakers from Argentina proofread the survey for its use of language and dialogue.

The survey was applied to 21 recyclers between November 24th and 30th, 2010 in three different neighbourhoods of Buenos Aires (see Figure 2.1). The regions had been decided prior to each evening, factoring in known locales of recycler congregation, areas of solid waste drop off, and neighbourhoods that were deemed safe. The recyclers were approached between 1900hrs and 0100hrs. The time was chosen as curb side waste could not be placed out legally until 1900hrs. During these hours, recyclers were regularly seen working in larger numbers than during the day. By 0100hrs, most recyclers were finishing their work day and usually dispersed from the area. The surveys were administered on the sidewalk where the recyclers were operating.

The respondents contacted during the survey were chosen by convenience as they were approached due to accessibility and willingness to participate in the study. In total, 21 recyclers were approached and interviewed. The number of recyclers approached was decided by budget, resources, time, data triangulation, and saturation. The participants were approached based on purposive sampling, and according to the following inclusion criteria: 1. Currently working as informal recycler in the street; 2. age of 18 years or older; 3. Spanish speaking; and 4. agreed to be interviewed. The survey interviews ranged from five to fifteen minutes. The overall response rate was 100% as no one approached did not wish to be part of the survey, however some recyclers did not have enough time to finish

the entire survey. The majority of the recyclers were pleased to talk with me and there were no issues with regards to confrontation or interrogating questions.



Figure 2.1. Map of study site. The map highlights the three *barrios* of Buenos Aires. Microcentro is combined to Montserrat and San Nicolás. The map also shows Reciclando Sueños to the southwest of the city, in the district of La Matanza.

The surveys were conducted in person, face-to-face in the street, accompanied by a trained research assistant. The research assistant was utilized as a means of clarifying

colloquial mistranslations, for moral support, and for extra note taking while I could take note of context and of non-verbal gestures (McGuirk & O'Neill, 2005). Participants were notified that their information would be used for research and therefore they had to confirm verbal consent prior to discussion. The survey was conducted verbally. This was beneficial, as all questions were open-ended, and further explanations or expressions could be elicited for more reflection while the survey was being completed (McGuirk & O'Neill, 2005). The survey was created to include basic open-ended questions in an attempt to remove any extraneous material that would only complicate or compromise the amount of data collected (Parfitt, 2005). The participants were offered no incentives to participate.

All survey data was inputted in Spanish and translated into English. The data was then reviewed in both languages. The inquiries were standardized, elucidating open-ended and non-threatening questions (see Appendix 1). The questions were read exactly as written. The research assistant recorded the answers on paper, while the author wrote field notes, delved into the inquiries, and documented verbatim statements. Some participants chose not to answer certain questions, such as expanding on issues with traffic and automobile related accidents or underlying health issues they had which they said were not related to informal recycling. Reasons for participants not answering were not sought after. Shadowed data, a technique used to investigate how participants perceived colleagues or peers relative to them was utilized in some cases in order to reveal comparisons between the participant and how they observed or perceived the health of their peers.

2.3. In-depth interviews

Interviews are necessary in accessing further reflections on opinions, beliefs, events, and personal experiences (Dunn, 2005). The interviews were semi-structured, thus taking on conversational forms and varying due to differences in participant interests, opinions, and life experiences (Valentine, 2005). Policy directors, nurses, other co-operative leaders, and government workers at MTE were contacted through *snowballing*. The government workers are assigned by the city of Buenos Aires to assist with administration and logistics for the cooperative. They also go out in the evenings with the recyclers to monitor the services, paying attention to cleanliness post-collection. Interviews with co-operative leaders and members took place at *Reciclando Sueños* in San Justo. Unrecorded conversations and interviews took place before and after the unforeseen economic fold of the co-operative, which will be discussed in further detail in Chapter 4. The author was introduced to the co-operative through researchers from the *Universidad de Buenos Aires*. In total, there was an in-depth interview with a co-operative member at RS, two interviews with co-operative leaders of RS and MTE, two interviews with policy directors, and one interview with a public hospital nurse. Names used in the article have been changed to protect the identity of the participants. A complete list of interviews can be seen in Chapter 4.

The interviews took place between August 2010 and December 2010. Interviews were conducted in Spanish and were done at a time and space of convenience for the participant. All interviews were audio or video taped and field notes were recorded. Participants were guaranteed confidentiality. The interviews ranged in time, typically 20 to 60 minutes. The interviews with *professionals* in their field were not used as a means of *fact*

checking but as a way of creating the various perspectives surrounding this study, hence constructing a contextual framework. A fluent Spanish speaking research assistant attended the meetings in order to assist in recording notes and clarify translation issues. Participants within the government were directors, and thus needed no permission for interviews. The co-operative member had permission from the leaders to perform an interview during working hours. The interviews were generally unstructured, however some open-ended questions were brought forth. Please see Appendix 2 for an example of a guide. The guides were extremely flexible, as I allowed the conversation to flow naturally, but the guide allowed the discussion to be directed back to specific themes using primary questions (Dunn, 2005). The interview with the policy directors took place in their ministry offices, located in the Microcentro. The nurse was interviewed in a café downtown. The leaders and member of the informal recycling co-operative were interviewed in the recycling co-operative.

CGT theory facilitated my guidance in emphasizing the situations, events, and definitions of the participants through multi-level coding (Charmaz, 2002). The data was coded in two steps. The first step involved initial or open-coding, which fostered analytic decisions about the data (Charmaz, 2002). The second step was selective coding, which involved taking the most frequent codes and synthesizing them to conceptualize the data (Charmaz, 2002). A native-Spanish speaker listened to the in-depth interviews and proof-read the subsequent transcriptions. Ultimately, I completed the final interpretation of all the data. The final interpretation that takes place in the results and discussion were responses from the raw data and are used to illustrate the situation.

2.4. Secondary data, participant observation, and the field diary

This paragraph outlines the development of research context through secondary data, participant observation, and field diaries. Secondary data was used for the literature review and the research manuscript. Part of this data was gathered through government and NGO surveys, statistics from previous research in Buenos Aires (Parizeau, 2011), news reports from Buenos Aires, and public sector planning, law, and policy documents from the City of Buenos Aires. The use of secondary data was beneficial as it provided contextual data for the research. The use of secondary data helped create a more rich understanding and description of what was occurring and why. Newspapers, although not heavily drawn upon in the research write up, were used to gauge public opinion and linear progress with public policy.

In addition to secondary data, participant observation was utilized as a means of further context development. I practised overt observation. This process involved observing and conversing with recyclers from cooperatives while they were working. In this situation, the recyclers were well aware that they were being monitored while I was present (Cook, 2005). Moreover, I practised covert observation. I would go on nightly walks for most of October and November. These walks were apparently for exercise reasons, but allowed observations to take place and rapport to develop between familiar informal recyclers and myself in the Microcentro area of Buenos Aires. These walks created more depth to my knowledge of the situation. Subsequently, these results were not utilized within this thesis as the experiences witnessed were solely subjective and would be mere

personal perception of the events which took place before me. These walks, along with other meetings, were recorded in the field diary.

The researcher performed a daily field diary which helped to situate the objectivity of the field work (Rose, 1997). The diary was completed daily and recorded the events, persons involved, facts observed, and conversations witnessed. The field diary entries were utilized as a means of recording thoughts, questions, and issues raised during interviews and informal discussions with members of the project. Table 2.1., below, demonstrates all interviews and survey respondents involved in the fieldwork.

Surveys		
Locale (n)	Gender (n)	Age (n)
21 respondents in: <ul style="list-style-type: none"> • Microcentro (11); Nov 24, 2010 • Caballito (5); Nov 25, 2010 • Palermo (5); Nov 30, 2010 	<ul style="list-style-type: none"> • male (18) • female (3) 	<ul style="list-style-type: none"> • 20-29 (7) • 30-39 (6) • 40-49 (7) • over 50 (1)
In-depth interviews		
<ul style="list-style-type: none"> • one co-operative member from <i>Reciclando Sueños</i> (referred to in the text as “Pablo”); Nov 8, 2010 • two city appointed managers from <i>Movimiento de Trabajadores Excluidos (MTE)</i>; Nov 18, 2010 • one public hospital nurse from the <i>Hospital de Infecciosas "F. Muñiz"</i>, City of Buenos Aires; Nov 23, 2010 • the Director of Hospital Waste, (Department of Environment and Public Space), City of Buenos Aires; Nov 23, 2010 • the Director of Urban Recycling, (DGREC - Department of Environment and Public Space), City of Buenos Aires; Nov 29, 2010 		

Table 2.1. Research sample

3.0. The effects of handling solid waste on the wellbeing of informal and organized recyclers: A review of the literature

3.1. Abstract

Previous research has identified health issues in the formal, regulated solid waste collection sector, located primarily in the global North. Conversely, less information is available with regard to the health predicaments of informal, unaffiliated and organized recyclers, operating in regions of the global South. Estimated at 15 million people operating globally, informal recyclers perform a vital public service while working individually or within cooperatives (Medina, 2008). This review assesses, discusses, and compiles the physical and emotional health issues of individuals who are operating in this stigmatized sector. The study highlights the self-assessed and observed health risks. Findings were coded into a number of reacquiring themes: chemical hazards, infection, musculoskeletal damage, mechanical trauma, emotional vulnerabilities, and environmental contamination. The review showcases the encouraging significance of working as a member in a recycling cooperative as a means of alleviating health issues. The findings suggest the need for further qualitative research with informal recyclers and solid waste policy enforcement with public, commercial, and industrial cooperation in source separation. *Key words:* informal recycling; occupational health; health perceptions; risks; policy; cooperatives; literature review; solid waste

3.2. Introduction

Informal recycling, a ubiquitous activity, is defined as individuals collecting, separating, classifying, and selling solid waste as a means of subsistence or supplementation of income.

The solid waste is recovered from residential, commercial, and industrial sectors. The occupational title is linguistically diverse, identified colloquially in Brazil as the *catadores* or *carrinheiros*, in Argentina as the *cartoneros* or *recuperadores urbanos*, as Binnars in North America, or as the *Zabaleen* in Egypt. Consequently, the term “informal recycler” used in this review will generalize all individuals involved in the informal solid waste recovery sector, which employs an estimated 15 million individuals (Medina, 2008). Solid waste, viewed as a salient resource, can subsequently be extracted as a source of income and as a means of sustaining a livelihood. This livelihood is operated as an unregulated public service that is performed under precarious or hazardous working conditions. Hence, solid waste, which would typically accrue in landfills or be incinerated, is commoditized, creating further use as a recycled or reused good. The people involved in the activity construct their livelihood on resource recovery, mostly unassisted, and without adequate health protection measures in place. However, some recyclers in countries such as Brazil and Argentina mobilize to form cooperatives. The cooperatives allow collection, separation, and commercialization of the materials recovered from the solid waste stream in an organized and equitable fashion.

The knowledge that solid waste may pose a serious risk to both the environment and human health is well known (Medina, 2005). Investigations from Denmark have demonstrated how sanitation workers in the regulated sector of waste management were 5.6 times more likely to incur a workplace injury and were 1.5 times more inclined to contract a waste-related occupational disease in comparison to the national average (Cointreau, 2006; Poulsen *et al.*, 1995). A subsequent study in Canada demonstrated how employees in formal recycling plants reported higher job-related illnesses and injuries

more often than other sectors (Lavoie & Guertin, 2001). As a result of these inherent risks associated with the regulated waste-management sector in high-income countries, there has been discourse with regard to the unregulated informal recycling and solid waste management sectors.

Owing to the demonstrated formal waste-management risks, ethnographic studies have established the process of defining health and occupational risks associated with informal recycling. A majority of these studies have applied mixed method approaches, utilizing standardized surveys, invoking perceptions through interviews and focus groups, using researcher observation, or comparing national referents. The studies with informal recyclers and health have been completed worldwide, particularly in Brazil (Gutberlet & Baeder, 2008), Vietnam (Nguyen *et al.*, 2003), the Philippines (Suplido & Ong, 2000), Argentina (Martin *et al.*, 2008; Parizeau, 2011) and South Asia (Hunt, 1996; Sarkar, 2003). Further research in global North regions have yielded similar results, such as in the United States (Rendleman & Feldstein, 1997) and in Canada (Gutberlet *et al.*, 2009). Only a few investigations, such as in India (Parveen *et al.*, 2005) and in Brazil (da Silva *et al.*, 2006a; 2006b), have performed quantitative analytic approaches using national and regional census information and community referent groups in order to determine reoccurring health problems of informal recyclers based on comparisons of individuals in similar socioeconomic status.

3.3. Objective

This article summarizes the literature on the subject of informal recycling and the reported health risks—both observed and perceived—by the recyclers themselves. There has been

some research undertaken in order to determine the overall health and occupational risks of informal recycling. However, this research bridges a 20-year divide of knowledge and has never been systematically brought together. Hunt¹⁸ published a brief review, yet there has been much data accumulated since, particularly emanating from Latin America. This literature review is an accumulation of existing studies, followed by a collection of the nascent work being developed by researchers particularly in the South.

3.4. Methods

The qualitative and systematic review included a search of the online electronic databases Academic Search Elite, EBSCO, and SCIEDIRECT. Each database was searched from its inception through January 2011. University library searches were utilized to further access books, journals, and media. The review consists of articles published in peer-reviewed English, Spanish, and Portuguese journals. Key words used in the search included but were not limited to: waste pickers, scavenger, recycler, informal waste, recycling, perceived health, risks, occupational health, policy, hazards, and environment. Relevant references from the bibliographies of identified papers were analyzed. There are numerous articles with regard to the health of sanitation workers in regulated sectors in low-, mid-, and high-income nations. Only a few of these articles were chosen to exemplify the above-average risk of regulated waste-management workers. The articles chosen were deemed to be the leading works in their field. This report does not discuss specific epidemiological and toxicological diseases associated with informal recycling, as it would go beyond the scope of this review. Last, the paper includes some original insights and research that have been carried out by both authors of this article.

3.5. Results

Medina (2000) revealed that informal recyclers at one dumpsite in Mexico City were reported to have a life expectancy of merely 39 years, whereas the typical Mexican life expectancy at birth was 72 for males and 77 for females (Figures are for 2006; WHO 2006). An ensuing study in India found that children involved in informal recycling had a 2.5 times higher potential of morbidity than the national average (Cointreau, 2006). A 1981 study of the Zabaleen exemplified the mortality rate of infants at a rate of 240 deaths per 1,000 live births when the national average at the time was 98 deaths per 1,000 live births (Cointreau, 2006). Furthermore, in Vietnam, 51% of recyclers rated their health as poor, or worse than what they considered typical to the national average (Nguye *et al.*, 2003). The lifespan of the informal recyclers, the risk of childhood death, the larger-than-average infant mortality rate, and the perception of being unhealthier than nonrecyclers raises a salient concern with regard to occupational health issues surrounding informal recycling: Is the drastically shortened lifespan—the injuries, accidents, deaths—a direct outcome of the informal occupation or is it a result of the variables of inhabiting a marginalized socioeconomic living standard?

Attempting to identify and remove the occupational health risks from hazards associated with living in marginal or impoverished socioeconomic conditions is an arduous task as there may be an inordinate amount of variables that affect the health of informal recyclers. Gutberlet (2008) demonstrates that many of the recyclers live under precarious housing conditions, often without reliable water or sewage access. In da Silva *et al.*, (2005) it was found that the majority of recyclers lived in substandard housing, having little or no

running water, and at times were lacking electricity. Recyclers may spend the night on the streets guarding collected waste, thus exposed to adverse weather conditions (Carrasco & Goodstadt, 2009). More so, the period of time between direct contact and manifestation of a disease, or other chronic illness, may be unknown, or if known, may be classified wrongly (Van Eerd, 1996). These points of contention bring forth credibility and bias quandaries associated with research and demonstrates how operating with a control group is not without its own set of problems. Nevertheless, the studies reviewed conclusively reveal that informal waste collection does negatively affect wellbeing. These findings were demonstrated through observation and self-assessment.

A few studies included in this review are presented in Table 1. These studies were chosen to demonstrate the immense global breadth of informal recycling and the health implications. These and other samples have been reviewed and classified into six subthemes, which will be addressed: chemical hazards, infection, ergonomic and musculoskeletal damage, mechanical trauma, emotional wellbeing and vulnerabilities, and environmental contamination. Evidently, a number of themes coalesce, but for sake of organization and convenience, they have been left in the most relevant category. Finally, this report addresses the benefits of operating within a cooperative when recycling and will conclude with recommendations for alleviating hazards.

Author(s) (publishing year)	Country	Sample of additional researchers working in the region	Method	(n)	Associated symptoms and other findings
Parizeau (2011)	Argentina	Martin <i>et al.</i> , (2007)	Surveys Interviews	397 30	Traffic accidents, broken bones, cuts from glass and metals found in the trash, tiredness and fatigue, burns, aches and pains, breathing problems, circulatory problems, diseases and infections.
Gutberlet & Baeder (2008)	Brazil	Velloso <i>et al.</i> , (1997/1998), Porto <i>et al.</i> , (2004), da Silva <i>et al.</i> , (2006a/2006b), Sousa & Mendes (2006), Santos (2008), Tremblay & Gutberlet (2010)	Surveys	47	Self-reported body pain and soreness in back, legs, shoulders, and arms; lacerations to the hands, along with ulcers, high blood pressure, influenza, and bronchitis
Hunt (1996)	India	Sarkar (2003), Kunisue <i>et al.</i> , (2004), Ray <i>et al.</i> , (2004), Parveen & Faisal (2005)	Interviews	100	Worm infestation, upper respiratory tract infection, lymph node enlargement, suspected tuberculosis, xerophthalmia, and dental caries
Nguyen <i>et al.</i> , (2003)	Vietnam	Gunn & Ostos (1992), Suplido & Ong (2000)	Interviews	41	Back pain, coughs, headaches, stomachaches, sore muscles, and rashes; nearly all respondents suffered cuts to hands, feet, and limbs
Rendleman & Feldstein (1997)	USA	Lavoie (2005), Tremblay (2007), Gutberlet <i>et al.</i> (2009)	Surveys	96	Lacerations, infections, needle sticks, and blunt trauma

Table 3.1. A sample of studies on the health, hazards, and vulnerabilities of informal recyclers.

3.5.1. Chemical Hazards

Chemical exposure is associated with physiological poisoning and dermatitis injuries, such as burns and respiratory illnesses. The injuries include sudden or long-term exposure to toxic chemical substances. Industrial, pharmaceutical, and hospital waste may or may not be regulated in a number of countries. Hence, these toxic chemicals can differ widely according to their composition and region. Furthermore, protective measures, such as

safety equipment and governmental policy vary greatly. High levels of lead have been found in the blood of recyclers working in landfills, leading researchers to associate their work with an increased bioaccumulation (Suplido & Ong, 2000; Sarkar, 2003). Lead and dioxin related-compounds were discovered in higher concentration within the breast milk of women neighbouring landfills of recycler communities (Carranza *et al.*, 2002; Kunisue *et al.*, 2004). In addition to lead, mercury, and cadmium are of serious concern (Cuadra, 2005). While collecting, informal recyclers may occupy landfills or city streets, where, in addition to unknown chemical solvents, they may be inhaling burning waste or vehicle and heavy machinery emissions. There have been numerous documented self-reported respiratory ailments, such as decreased lung function, lung infections, and eye irritation as a result of diesel fuel exhaust and burning waste (Gomez-Correa *et al.*, 2008; Ray *et al.*, 2004). The constant exposure to exhaust is thought to be correlated with a higher level of bronchitis reported by recyclers (Gutberlet & Baeder, 2008), as well as headaches and nausea (Carranza *et al.*, 2002).

An example of failed policy with regard to chemical waste mismanagement is the Goiânia accident. In 1987, radioactive poisoning occurred in the city Goiânia, Brazil, when recyclers dismantled nuclear medicine equipment used in a hospital, which was carelessly discarded as waste. The recyclers took this material home to be sorted and dismantled, allowing radiation to leak and infect themselves, their families, and their friends. The event led to four deaths and radioactive contamination of 249 other individuals (IAEA, 1988). In addition to radioactive hospital waste, pharmaceutical rejects may be illegally disposed of in landfills or left in the streets to be picked or sorted through by children (Gunn & Ostos, 1992). In some countries, such as Brazil, recyclers work directly on landfills, collecting

recyclable and recoverable materials. These landfills may contain hazardous hospital waste. Recyclers can occasionally make more money buying and selling these pharmaceuticals. Such medical waste is concurrently a catalyst for infection.

3.5.2. Infection

Pathological waste may be generated by the improper disposal of medical waste, solid household waste, human waste, and decaying organic matter. Typically working without adequate protection, recyclers inadvertently come into contact with a variety of biological side-products to waste. These biological hazards can be classified by contamination via viruses, fungi, protozoa, and other bacteria. Infections may occur by direct contact with biological pathogens, such as hepatitis-B. Mishandling solid waste, such as medical waste and syringes, is one of the higher perceived occupational threats for the informal recycler (Martin *et al.*, 2007). Notwithstanding, there is limited knowledge of long-term data with regard to infections and correlation with occupation, lifestyle, and precarious living conditions. An example of this was the research conducted in the United States that encountered one confirmed case of hepatitis- B and a potential case of HIV thought to have been contracted by an accidental needle stick (Rendleman & Feldstein, 1997). Determining whether the virus was acquired through informal recycling or lifestyle is the unknown factor.

In Metro Manila's main dump site, 974 children were examined, 24% of which had chronic cough, 25% wheezing, and 19% a shortness of breath (Cointreau, 2006). At the same dump site ten years earlier, out of 750 informal recyclers, 70% had upper-respiratory ailments (Cointreau, 2006). These respiratory diseases range from tuberculosis,

pneumonia, asthma, and bronchitis (Port *et al.*, 2004). A similar study in Managua, Nicaragua, demonstrated that waste-picking children exhibited a decrease in lung function and wheezing due to a higher exposure to particulates (Romero *et al.*, 2010). Kennedy *et al.* (2004) discovered that individuals working in bottle return stores were exhibiting similar respiratory ailments. They found that there was measurable inhalable particulate matter, including fungus and endotoxins (toxic substances released from the cell wall when Gram-negative bacteria are damaged or destroyed). The study concluded that these ailments, which showed signs of nasal infections and acute chest symptoms, were associated with endotoxins derived from decaying waste growing in bottles, which is consistent with other studies (Romero *et al.*, 2010; Malmros *et al.*, 1992). These toxic reactions are thought to be caused by endotoxins and substances excreted by Gram-positive and Gram-negative bacteria (Van Eerd, 1996). The study by Kennedy *et al.* (2004) reiterates the perceived risks from biological contamination, as modelled by other studies which cite respiratory ailments as being a leading complaint perceived by informal recyclers (Gutberlet & Baeder, 2008; Nguyen *et al.*, 2003).

Microorganisms and organic dust present other pathogens, such as bacteria, yeasts, protozoa, and intestinal diseases like, worms, flukes, and viruses (Hamer, 2003). *Toxoplasma gondii*, a parasite which may lead to severe infection during pregnancy, is typically acquired through food contamination. The parasite antibodies were discovered in recyclers operating in Durango City, Mexico (Alvarado-Esquivel *et al.*, 2008). Diseases such as typhoid fever, tuberculosis, dysentery, poliomyelitis, malaria, and various skin disorders have been identified in Manila in informal recycling communities (Medina, 2000). Economic hardship occasionally pushes recyclers to consume recovered food, risking

stomach infections and parasites (Martin *et al.*, 2007; da Silva *et al.*, 2005; Porto *et al.*, 2004; Furedy, 1992). Food poisoning may cause diarrhoea, parasite infection, and nausea. Furthermore, stomach infections are common, as recyclers inadvertently come into contact with human and animal excreta (Gutberlet & Baeder, 2008; Nguyen *et al.*, 2003; Sarkar, 2003; Gomez-Correa *et al.*, 2008). One such study found that the incidence of acute diarrhoea was ten times greater in informal recyclers than in the general population.³ In stool samples taken from children working in Manila, it was confirmed that 98% had parasites, either *Trichuristrichiura*, *Ascarislumbricoides*, or both (Cointreau, 2006). Furthermore, proximity and contact with flies as a consequence of infestation led to a higher correlation of diarrhoea in children (Boadi & Kuitunen, 2005). Other diseases, such as plague and leptospirosis may be present from the exposure of rodent urine (Cointreau, 2006; Gutberlet & Baeder, 2008; Dallagnol & Fernandes, 2007; Santos, 2008; Miller *et al.*, 1982). Helminths, such as schistosomiasis were prevalent in Egyptian recyclers (Miller *et al.*, 1982). In Colombia, recyclers perceived themselves as having a higher proportion of infectious diseases, such as acute diarrhoea and respiratory infections than neighbouring populations (Gomez-Correa, 2008). In addition to infection, recyclers must be weary of the physical toll inflicted upon their musculoskeletal system.

3.5.3. Ergonomic and Musculoskeletal Damage

Ergonomic injuries consist of musculoskeletal illness, the direct result of repeatedly moving and lifting heavy objects, such as carts and bags filled with solid waste. These issues may lead to sprains, fatigue, muscle pain, and back problems. In Brazil, a study demonstrated how informal recyclers are prone to squatting, vibration, awkward postures,

and repetitive movements (da Silva *et al.*, 2006). Frequent kneeling occurs while sorting and collecting solid waste and is thus associated with lower-extremity pain (da Silva *et al.*, 2006). In the regulated sector of waste management, heavy lifting leads to higher rates of back and shoulder pain, lumbar disc prolapse, disorders of the neck, tendon disease, and increased pulmonary ventilation (Kennedy *et al.*, 2004). Formal solid waste workers in Brazil report injuries that are consistent with the informal workers, such as cuts, sprains, or breaks to the lower limbs, followed by upper limbs, including the hands, and the spine (Robazzi *et al.*, 1997). All informal recyclers interviewed in the studies by Gutberlet and Baeder (2008) and Nguyen *et al.* (2003) reported some sort of pain or discomfort in the limbs and back. Further reports from a US study on formal sanitation workers revealed that arthritis was four times more common in sanitation workers than for general labourers (Cointreau, 2006), which coincides with self-assessed reports from informal recyclers in Brazil (Gutberlet and Baeder, 2008). da Silva *et al.* (2006) prepared a quantitative analytic approach using a comparison study between informal recyclers and a control group from the same socioeconomic standing. They found that back pain incidences were similar with individuals from the same population, but still higher than that of the general population. Children working on a waste disposal site in Nicaragua complained of upper- and lower-extremity pain that was correlated to them jumping onto moving dump trucks as they proceeded to the landfill (Cuadra, 2005). Long days, repetitive movements, heavy lifting and loading present itself as short-term pain and discomfort. However, what is currently unknown, is the long-term musculoskeletal physical effects on the body over a lifetime of such manual labour. In addition to ergonomic risks, recyclers deal with mechanical accidents on a daily basis.

3.5.4. Mechanical Trauma

These hazards to informal recyclers consist of cuts, blunt trauma, fractures, falls, lacerations, and traffic accidents (Gutberlet & Baeder, 2008; Parizeau, 2011; Porto *et al.*, 2004; Kennedy *et al.*, 2004; Santos, 2008). Recyclers work at all hours of the day, collecting in the streets or at landfills. In Buenos Aires, the majority of the recyclers operate in the evening, thus putting them at risk of working in the streets while it is dark. Traffic accidents were demonstrated as being high as a perceived risk for informal recyclers in both Argentina (Martin *et al.*, 2007) and Brazil (Cavalcante & Franco, 2007; Gutberlet & Baeder, 2008). Pursuing this further, informal recyclers, who work around landfills, are exposed to high risks of accidents during their work. In Vietnam, for example, it was cited that the community knew of two recyclers who had been buried accidentally in the landfill that year and that another individual had been killed in an accident with a garbage truck (Nguyen *et al.*, 2003). Recyclers at dump sites in Brazil furthered these concerns with knowledge of injured and killed recyclers (Sousa & Mendes, 2006). Frequent accidents caused by trucks and tractors are reported by the local recyclers, which are constantly moving the waste deposits at the landfill *Gramacho*, which serves the metropolitan region of Rio de Janeiro (Gutberlet & Tremblay, 2010). Similarly, 17% of the recyclers in Vietnam mentioned being involved in either a minor or major collision with garbage trucks (Nguyen *et al.*, 2003). The perceived and real threat of vehicular accidents is justified.

Recyclers often prefer to work barehanded, as it allows for greater tactility, necessary for quickly sorting paper and plastics. They tend to tear open bags of waste or dig quickly through bins in order to find specific items, such as cardboard, paper, aluminium cans, or plastics. This task is risky as the waste may contain broken glass,

construction materials, or hospital waste, such as syringes. In tropical areas, informal recyclers may wear shorts and T-shirts, thus having little to no protection for their arms or legs (An *et al.*, 1999). At times, recyclers acquire discarded gloves from hospitals, which they wash and then reuse in a futile attempt to remove the risk of chemical burns and infection (Dallagnol & Fernandes, 2007; Mochungon, 2010). In Brazil, recyclers occasionally wear gloves, but complain that they are still useless to needle punctures or cuts from glass (Medeiros & Macedo, 2006). Indeed, a lack of safety equipment leads to a common occurrence of lacerations to the hands, arms, and legs (Gutberlet & Baeder, 2008). Small cooperatives, that may be operating on micro credit in combination with inadequate local government resources, have difficulty providing employees gloves, masks, or other safety-related equipment. Moreover, studies inquired as to how waste pickers deal with injuries, typically lacerations. Martin *et al.* (2007) discovered in Buenos Aires, that recyclers were unwilling to seek professional medical care, even if it was free of charge, and in some cases, when asked, the response was that they did not know where the nearest health care provider was located. Only 32% of the recyclers in Colombia went to see the doctor when they were ill, citing lack of health coverage to be the issue (Gomez-Correa *et al.*, 2008). Further answers ranged from doing nothing about the injury, finding rags in the trash to wrap around cuts, using lemon juice, or licking at the wound (Nguyen *et al.*, 2003). In Portland, medical records confirmed that the majority of recyclers arriving with lacerations had cuts in such poor states that medical officials were often unable to stitch them (Rendleman & Feldstein, 1997).

Regardless of high- or low-income countries, the informal recyclers appear to wait too long before seeking medical help thus increasing the likelihood of infection (Martin *et*

al., 2007; Rendleman & Feldstein, 1997; Gutberlet *et al.*, 2009). In light of this, studies in South Asia exemplified how health waste was picked and then sold to informal medical practices. Recyclers who were injured collecting medical waste, and who could not afford suitable medical care, would go to unscrupulous doctors who employ used medical equipment, pharmaceuticals, and syringes (Appleton & Mansoor, 2000). Although informal recyclers may have access to health care, it may be impossible to receive the care, as at times, they are requested to take work off, which is not fiscally feasible when living on day to day pay (Koehs, 2004). Undoubtedly, the issue of medical care can be deemed a social issue, a lack of knowledge of hazards, and an absence of medical opportunities.

3.5.5. Emotional Wellbeing

Social issues encompass malnourishment, undernourishment, low education, high birth rates, physical and emotional abuse, no training of basic health care and first aid, a lack of access to health care facilities, and precarious living arrangements. Furthermore, access to clean sources of water and sanitation for informal recyclers can be as much of a problem in the global North as in the global South (Rendleman & Feldstein, 1997; Gutberlet *et al.*, 2009; Parizeau, 2006). Social stigma and marginalization create unnecessary stress. The public may perceive the informal recyclers in a variety of ways; some assist the recyclers by pre-sorting their materials from the garbage or by providing food, while others socially exclude and marginalize them (Martin *et al.*, 2007). The insecurity, coupled with social exclusion, perceived shame and humiliation, leads to a higher self-assessed degree of vulnerability (Martin *et al.*, 2007; Cavalcante & Franco, 2007; Medeiros & Macedo, 2006). Constant occupational threats, such as being robbed, harassed, or bullied are mentioned as

problems by informal recyclers (Gutberlet *et al.*, 2009; Parizeau, 2006). Admittedly, the precariousness of work, the stigmatization, and the lack of financial security can lead to stress (Sousa & Mendes, 2006). Recyclers in Guatemala reported avoiding health clinics and hospitals when injured or sick as they feared discrimination (Garcia & Duque, 2002). Granted, stigmatization may form a self-fulfilling prophecy with the self-perception of recyclers. When inquired in Kathmandu, Nepal, 73% of informal recyclers revealed that they would not wash their hands with soap upon returning home after work and that 65% would not change out of their work clothes (Cointreau, 2006). These examples highlight that the social stigma attached with working in a dirty job and the self-perceived reiteration continue to the home, where people lose the sense of dignity with being clean.

Kennedy *et al.* (2004) identified additional factors of high psychosocial stress of recycling and sorting, which they deemed to have been contributing to fatigue, nausea, and headaches. Stress-related symptoms, such as ulcers, high blood pressure, and stomach problems were self-assessed by informal recyclers (Gutberlet & Baeder, 2008; Sarkar, 2003). In Brazil, the majority of recyclers did not perceive a major health change between their previous and current activity; yet, 31% cited specific health issues, such as recurring high blood pressure and ulcers that had commenced since becoming a recycler (Gutberlet & Baeder, 2008). A subsequent study in Brazil demonstrates that patterns of minor psychiatric disorders occurred 44.7% more in recyclers than within the average neighbourhood referent group, signalling signs of depression and anxiety (da Silva *et al.*, 2006b). Consequently, this was hypothesized to be because of constant injuries and monotonous work (da Silva *et al.*, 2006b). Recyclers in Buenos Aires self-reported depression, anxiety, and nervousness in the prior year (Parizeau, 2011).

As mentioned, recyclers may consume food from the waste, risking infection. Further nutrition issues are addressed as social problems. According to Sarkar (2003), malnutrition, infant growth retardation, and anaemia are more prevalent in individuals and families that work in informal recycling; however, this study is not conclusive because control group studies in similar low-income areas were not conducted. Oppositely, improper nutrition can also lead to obesity, as demonstrated in BMI comparisons with recyclers in Colombia (Gomez-Correa *et al.*, 2008). Recyclers living in communities near landfills, or collecting in the streets, may at times, need to bring along their children due to a lack of social support. Therefore, it is not uncommon to witness young toddlers to pre-teen children working with or alongside their guardians (Gunn & Ostos, 1992). It is known that intensive working environments and heavy lifting at a young age can have life-long negative effects on general health (Frings-Dresen, 2005), or may have growth stunting effects (Gunn & Ostos, 1992). Positively, the act of informal recycling removes and challenges the waste stream that would typically allow waste to be deposited, buried, or incinerated. This aspect of recovering resources makes informal recyclers important players in the global challenge of environmental stewardship, addressing consumption, and raising awareness on recycling. However, certain parts of the environment can be affected by informal waste collecting, depending on how the materials are collected, sorted, and transported.

3.5.6. Environmental Contamination

Admittedly, by now, one can agree that solid waste and informal recovery have direct negative effects on the physical and emotional health of those who work in the recovery of

those materials. Nevertheless, the long-term effects of working with solid waste in certain environments may affect not only the individual's health, but also the environmental health of the surrounding community. Mishandling waste allows the waste stream to propagate into other areas, such as in the previously mentioned Goiânia accident. It may degrade environmental conditions, clogging sewers, creating stagnant water, and thus producing breeding grounds for pathogenic organisms, facilitating the spread of diseases vectors such as dengue (Cointreau, 2006; Boadi & Kuitunen, 2005; Birley & Lock, *nd*). As waste is collected, it is sorted in situ, or in specific sorting areas, such as depots, recycling centers, cooperatives, or even in homes. Recyclers may move collected waste to be sorted, leaving it placed on river banks or in vacant lots, thus risking human health and further degrading the environment (Medina, 2008). As is the case with rural to urban migration or populations of unemployed or underemployed individuals, they often lack the resources to buy property and may become illegal squatters in areas close to landfills or marginalized areas with waste disposal (Gutberlet & Hunter, 2008). Therefore, waste may inadvertently be brought into the community or homes of the recyclers, creating potential health implications. Indeed, waste is transported, along with all negative aspects of it, such as chemical and biological pathogens, and therefore needs specific care when handled and transported.

Moreover, incorrect storage of organic waste can create dangerous molds, toxins, and gases, such as methane (Cointreau, 2006), which can put these locations (often households or organizations, such as cooperatives) in danger. Animals, such as livestock, birds, or rats, may feed on waste at landfills or informal dump sites, thus potentially transmitting diseases, such as trichinosis and taeniasis, which is spread by pigs (Cointreau,

2006). Insects, such as ants and lice, compete with rats, snakes, dogs, and vultures for scrap and territory at dump sites (Garcia & Dunque, 2002). Hence, untreated and unregulated waste-streams have the potential to create and continue to spread infectious diseases to informal recyclers and their immediate community (Hamer, 2003). The possibility of hazardous impacts from landfills in high-and low-income countries has repeatedly become a matter for scrutiny. Findings that demonstrate the spread of increased risks of adverse health issues, such as certain cancers, from landfills have been discredited through biases and numerous confounding factors regarding variables, thus the absolute danger of living in the vicinity of a landfill is still disputed (Vrijheid, 2000). However, there is generally verified literature that points to self-reported symptoms of headaches and general fatigue of individuals living near landfills (Vrijheid, 2000). Likewise, at a landfill in Rio de Janeiro, only 27.4% of the recyclers believed that the landfill generates environmental problems for the surrounding communities and workers (Porto *et al.*, 2004). In summary, terminal diseases, such as cancer, have long latency periods. As a result of this, it would be extremely difficult to correlate various types of cancer with periods of time when individuals have worked or lived near landfills, especially in lower-income areas. Further research in toxicological and epidemiologic studies are necessary (Vrijheid, 2000).

3.5.7. Health and the Cooperative

A number of initiatives worldwide have led to the self-organization of informal recyclers. Forming cooperatives, recyclers are able to create advantageous situations, legitimatizing and formalizing their employment, empowering their members with decision making, and generating greater selling power with direct negotiations with the industries. The various

networks of organized recyclers, as they have been formed in Latin America, have created a conjoined voice for the recyclers when discussing policy matters with local and regional governments. Furthermore, cooperatives strengthen the organizational base of the recyclers, opening up discourse between groups and individuals in other regions, thus facilitating knowledge transfer and mobilization on a wider scale; generating awareness, and providing areas for educational training (Gutberlet & Baeder, 2008; Felipone, 2010). The cooperative, although not a means or end-product to alleviating all health issues, can be perceived as an organic process that creates both place and space for the informal recyclers.

Repressing the informal sector to address the occupational health implications of informal recycling is not a viable resolution. By legitimizing the employment, cooperatives allow a tangible space to be constructed or rented. This space can then be used to bring collected solid waste for sorting and resale. da Silva *et al.* (2005) found that 86% of the recyclers were sorting and separating the solid waste in their homes. The cooperative thus inhibits the solid waste from propagating into the environment and curbs illegal dumping (Medina, 2000). It allows the waste to be in a controlled state, allowing preventative measures to be implemented, thus diminishing potential injuries (Gutberlet & Baeder, 2008). Furthermore, working together in a cooperative can reduce overexhaustion and overworking, which are factors in musculoskeletal damage, stress, anxiety, and depression.

The cooperative can allow easier access to legal protection and health care (Medina, 2000). A case in point, is the recycling cooperative *El Movimiento de Trabajadores Excluidos* (Movement of Excluded Workers, MTE). This cooperative was formalized as a secondary means of solid waste collection and recycling in a number of neighbourhoods in Buenos

Aires. As part of Argentina's workers union, it currently has access to *Obras Sociales*, a social security network that allows extended health insurance. Cooperative members are also provided durable uniforms with reflective strips, and are able to register with the city, thus accessing free gloves and vaccinations, such as tetanus. Whether they choose to wear the items provided is up to them. This program is open to all informal recyclers in Buenos Aires. By February 2004, the city had vaccinated 12,000 informal recyclers for tetanus and hepatitis (Koebs, 2004). Thus, the formation of a cooperative, working alongside the government, can progressively move the informal employment into the formal sector (da Silva *et al.*, 2005). Creating cooperatives is typically done under organic grassroots situations. It is a difficult process. The activity of informal recyclers has been noted as being individualistic (Furedy, 1990), and therefore, creating cooperatives is not without its set of challenges. Nonetheless, there have been numerous successful cooperatives, such as the aforementioned MTE in Buenos Aires, and scores of others in Brazil, Colombia, and throughout Latin America. A Brazilian researcher, Yunes (2005), worked alongside the cooperative COOPERMYRE in Brazil. Together, Yunes and the members of the cooperative developed a framework that would assist in alleviating risks and injuries while working. Evidently, the creation and use of cooperatives and associations create a working environment that fosters emotional and financial support for their members.

3.6. Conclusion

Further research is necessary in utilizing more adequate methods that can move to alleviate the majority of preventable accidents and illnesses associated with the unaffiliated informal recycler. As mentioned by Wilson *et al.*, (2006) there needs to be additional data

collection on accidents and vulnerabilities in order to make a significant contribution to the health of the workers. Wilson *et al.* notes that most studies suffer from methodological flaws, and that studies with control groups have difficulty linking the data to the population understudy and the referent group.

As demonstrated, the informal recycler is exposed to a wide variety of hazards. The chronic diseases typically associated with operating in these situations arise, but the time frame used for a study makes it difficult to determine if the recyclers were affected through occupational conditions or if the disease was acquired due to the genetics, lifestyle, or lack of medical access. Hence, these studies have difficulties in defining these effects of long-term exposure, and as a consequence, diseases may also be wrongly classified (Suplido & Ong, 2000; Van Eerd, 1996). However, there is an opportunity to further research some risk aversion methods, such as the role a cooperative plays in the self-reported health and injuries of an informal recycler. The environment of organized recyclers (cooperatives or associations) has not yet been studied sufficiently in terms of the health implications and risks for the workers.

Moreover, early detection of musculoskeletal disorders, childhood labor, hearing loss, respiratory illnesses, and gastrointestinal diseases must be addressed (Kuijer *et al.*, 2010) to understand long-term issues. Sanitation workers in Rio de Janeiro refer to work-related injuries as an issue from the process itself and the lack of training, equipment, and preventative measures (Velloso, 1998; Velloso, 1998). Most recyclers cite ergonomic issues with lifting and carrying waste. More participatory studies can be done to further determine perceptions of hazards and risks and grasp a better understanding of the problems and future solutions. Furthermore, addressing poor working conditions, the lack

of recognition for their profession, and the fatigue from long days will create more knowledge on how profession affects the informal recycler physically and emotionally (Sousa & Mendes, 2006).

Additionally, it is necessary that tacit and experiential knowledge be shared by recyclers to industry, consumers, and policy makers. This knowledge mobilization would optimistically demonstrate experiential wisdom, working to raise awareness in proper waste separation. By notifying consumers of the proper way to dispose materials, particularly those that are prone to lead to injuries, such as broken glass, syringes, chemicals, or infectious materials, recyclers can further legitimize their employment as a necessary public service while working toward creating a safer work environment. However, Furedy (1990) discovered that most recyclers were unaware of some of the infectious hazards associated with waste collection. When asked, recyclers defined health simply as their ability to work (Porto *et al.*, 2004). Hence, it is necessary, through associations and cooperatives, to facilitate discussion surrounding the merits of wellbeing and occupational health. The recycler must be as equally informed about the future consequences of long-term exposure to waste collection and their health (Cavalcante & Franco, 2007; Figueiredo & Deorsola, 2010; Velloso, 1997).

The nature of chemical and biological injuries are preventable and happen because of a failure in policy enforcement regarding commercial and industrial regulation and residential knowledge awareness. To enhance safety measures during collection and separation, states and organizations should monitor both the public and private sectors, ensuring they adhere to sustainable solid waste management practices and policies. In fact, health promoting policy must be addressed and enforced at all government levels

(Gutberlet, 2008a). As exemplified governments, such as in Buenos Aires, have already moved forward to creating branches that work with recyclers. Furthermore, education of both the public and informal recyclers and appropriate signage, with regard to chemicals, could certainly cut down on injuries associated with chemicals and contaminants (Cavalcante & Franco, 2007; Yunes, 2005).

Informal recyclers are an unpaid public service necessary for our current state of mass consumption. They are typically pushed into this livelihood and most see it as a temporary means of employment. The importance of their work is typically unacknowledged, when in fact they are assisting in reducing solid waste and working toward a more recyclable and reusable society. Assisting and legitimizing their employment is crucial for economies struggling to cover the costs of formal waste management. In summary, further effective preventative measures include: knowledge mobilization between recyclers, the community, and policy makers; adherence to household source separation of solid waste; support from both the public and private sector toward the proper disposal of solid waste; and continued financial assistance to burgeoning cooperatives and worker-run collectives for personal protective equipment and workplace health promotion.

4.0. "Yeah, I am good. I am still standing" - A study of the perceptions of health and injuries associated with informal recycling in Buenos Aires, Argentina.

4.1. Abstract

Globally, hundreds of thousands of people subsist by collecting, sorting, and selling recovered solid waste. For most individuals involved, the livelihood is informal and thus prone to job insecurity, stigmatization, exploitation, physical danger, and emotional distress. Injuries may push recyclers out of the workforce, which, on a day-to-day salary, could be unfortunate to them or the livelihood of their dependents. In order to understand how the recyclers perceived their health and physical predicament, research was conducted over a six-month period in Buenos Aires, Argentina. A qualitative study was performed surveying 21 independent informal recyclers who operated evenings in downtown Buenos Aires. The results demonstrate through self-rating of their wellness, that the informal recyclers generally feel healthy. The most common pain and discomfort experienced was situated in their lower back, legs, and feet due to heavy lifting, bending, and walking. The majority of participants indicated regular exposure to occupational health hazards, such as used-syringes and broken glass. They cited lacerations to their hands as a common experience. The research argues that the solution to alleviating risks and elevating health in informal recyclers are complex and multifaceted. The article demonstrates that these health challenges may be ameliorated through operating with a recycling cooperative. The findings of this research support the continued financial and community support for cooperatives operating in the social economy that offer occupational health training, childcare, social service benefits, and workplace health promotion.

4.2. Introduction

Despite the regional differences in socioeconomic, political, and cultural contexts, international research suggests a strong correlation between informal recycling and above average mortality rates. In his study, Berthier (1990) revealed that informal recyclers working at a dumpsite in Mexico City had on average a life expectancy of merely 39 years. An ensuing study in India found that children involved in informal recycling had a 2.5 times higher potential of morbidity than the national average (Nath *et al.*, 1991). The *Zabaleen* in Egypt exemplified the mortality rate of infants at 240 deaths per 1000 live births when the national average at the time was 98 deaths per 1000 live births (Environmental Quality International Inc., 1996). In addition to the specific aspect mortality, 51% of Vietnamese recyclers rated their health as poor, or worse than what they consider typical to the national average (Nguyen *et al.*, 2003). Informal recyclers are most populous in cities in the global South, however, their numbers are also increasing in major cities in high-income nations. In recovering discarded resources they perform a useful environmental function and yet remain at the margins of the formal economy. They face exclusion, stigmatization, and suffer from occupational health hazards and risks. These stresses affect the individual, both physically and emotionally. While hundreds of thousands of workers operate in this manner around the world, few investigations have focused on the health of this population. As demonstrated in Table 4.1, a number of variables affect the wellbeing of individuals operating in the informal sector of waste management.

Category of issue	Nature of issue
<i>Chemical hazards</i>	<ul style="list-style-type: none"> • Increased blood lead levels from working in the street and chemical contamination from pesticide residues (Sarkar, 2003; Suplido & Ong, 2000); • Decreased lung function, lung infections, and eye irritation as a result of diesel fuel exhaust and burning waste (Gomez-Correa <i>et al.</i>, 2008; Ray <i>et al.</i>, 2004; Romero <i>et al.</i>, 2010);
<i>Infection</i>	<ul style="list-style-type: none"> • Needlesticks and contact with hazardous medical waste (Mochungong, 2010; Rendleman & Feldstein, 1997); • Stomach infections and parasites from ingestion or inhaling of contaminated waste (da Silva <i>et al.</i>, 2005; Furedy, 1994; Martin <i>et al.</i>, 2007; Porto <i>et al.</i>, 2004);
<i>Ergonomic and musculoskeletal damage</i>	<ul style="list-style-type: none"> • Lower back pain due to repetitive movements, squatting, and inadequate working positions (da Silva <i>et al.</i>, 2006a; Gutberlet & Baeder, 2008);
<i>Mechanical trauma</i>	<ul style="list-style-type: none"> • Injuries involving lacerations and infections of the hands and unprotected feet (Hunt, 1996; Gutberlet & Baeder, 2008; Nguyen <i>et al.</i>, 2003; Parizeau, 2011; Wilson <i>et al.</i>, 2006); • Traffic accidents and motorist harassment (Martin <i>et al.</i>, 2007);
<i>Emotional wellbeing and vulnerabilities</i>	<ul style="list-style-type: none"> • Minor psychiatric disorders, such as stress, depression, and anxiety (da Silva <i>et al.</i>, 2006b); • Social stigmatization and perceived vulnerability (Cavalcante & Franco, 2007; Martin <i>et al.</i>, 2007; Medeiros & Macedo, 2006; Gutberlet & Baeder, 2008).

Table 4.1. Examples of health related issues affecting informal recyclers

Buenos Aires was decided as the study site because of the successful recycling cooperatives operating there, the recent economic history of the country, and the particular socioeconomic factors that characterize the informal recyclers. Our research builds upon the existing knowledge of health and informal recycling in Buenos Aires (Martin *et al.*, 2007; Parizeau, 2011) and proposes a qualitative perspective using constructivist grounded theory to inform about health hazards and risks this population faces. In addition, the article wishes to reiterate the importance of recycling cooperatives in ameliorating health challenges. We begin our discussion with the history and context of informal recycling in Buenos Aires, delving into the common characteristics of recyclers and the political and economic world in which they navigate.

4.2.1. The local livelihood context

Following the 2001-2002 Argentine Economic Crisis, the number of informal recyclers in Buenos Aires dramatically increased, as more individuals were *pushed* into the informal sector due to a loss of stable income. Schamber and Suárez (2002; 2007) estimate that the amount of informal recyclers operating in Buenos Aires reached a pinnacle in 2002 with 25,000 individuals and has since levelled at 9,000 - 10,800 recyclers in 2007. Generally recyclers in Buenos Aires are unemployed male, between 19-29 years old, formally employed in the industrial sector, construction, or personal services (Schamber & Suárez, 2002). Many live outside of the cities and commute downtown to work during the evening (Schamber & Suárez, 2007). In 2007, Parizeau determined that the average recycler earned 27.92 pesos (\$8.46 CAD 2007) a day, which is considerably lower than the minimum wage at the time in Argentina (2011). In addition, she observed that the daily range fluctuated between 1.25 pesos/day to 112 pesos/day (\$0.038 – \$33.94 CAD/day), thus demonstrating disparity and uncertainty in potential earnings. A number of factors ultimately decide one's earning potential. First, the physical location, the means of transportation and the time of collection influences how much a recycler can earn due to the type of waste being generated in the locale. Second, a membership in a recycling co-operative assists the individual in bypassing intermediaries and selling material directly to industry as a collective, thus increasing profits. Working in downtown Buenos Aires is considered desirable, as there is more valuable waste, such as white paper and cardboard. The recyclers in Buenos Aires do not work in dumpsites, such as in Vietnam (Nguyen *et al.*, 2003) or Brazil. Their economic level would be considered higher than most recyclers in low to middle income nations, thus health implications are region specific. In sum, the

livelihood of the recycler is influenced by a variety of forces, including global market fluctuations in commodity prices, national structural economic adjustment policies, local policies regarding the legalization of informal recycling, and the level of support worker managed co-operatives receive from the local government. The challenges informal recyclers in Argentina face are complex and contextual, which makes it difficult to directly transfer our results to the findings from studies conducted in Vietnam, Brazil, and India.

4.2.2. Law 992 and occupational health

In 1977, informal recycling was banned by the governing military dictatorship. Correspondingly, the private company, CEAMSE (*Coordinación Ecológica Área Metropolitana Sociedad del Estado*) was created as a means of contracting-out and controlling waste management in Buenos Aires (Schamber & Suárez, 2002). The subsequent financial mismanagement and debts generated under the military dictatorship led to the structural adjustment turmoil of the 1990s. As a result the national government was decentralized, the public sector privatized, and the currency pegged with the U.S. dollar to combat inflation (Whitson, 2007). These adjustments coincided with uncontrollable debt, rising unemployment and increasing poverty rates, which inevitably led to the economic crash of December 2001. The variables of the economic crisis, such as unemployment, rising commodity prices in cardboard, paper, and metals, expedited the growth of the informal recycling sector. Public perception changed as friends and family members were widely pushed into this profession. Increased visibility, press coverage, and the support of a congressperson leveraged the removal of the law that prohibited the activity (Koehs, 2004). In December 2002, Law 992 (see Appendix 3), a participatory policy

towards resource recovery, was enacted (Schamber & Suárez, 2002) to legalize informal recycling and act as a public health policy guideline for this sector. The municipal government perceived the law as being beneficial for the public for the following reasons. First, by reducing the amount of waste in overused landfills by separating and recycling; second by legalizing an affordable recycling programme and public service; third by creating a large informal labour force that would work without benefits; and finally, by hopefully relieving some of the tension between private waste collectors and the informal recyclers (Koehs, 2004).

In addition to the policy makers, the recyclers equally lobbied for change. The law introduced a number of public health interventions. First, it facilitated vaccination programmes (for tetanus, influenza, Hepatitis-B); second, it created provision of legal counsel and health access support; third, it financed the allocation of personal protective equipment (such as uniforms with reflective tape and gloves); fourth, it created an identification card to legitimize the work; fifth, it financed a knowledge awareness campaign directed towards law enforcement officers and neighbourhood residents; and sixth, it financed child care, in hopes of preventing child labour (Koehs, 2004). These steps should contribute to reduce stigmatization, legitimize the recyclers' livelihoods, and facilitate greater ease in creating and operating co-operatives. By July 2007, the city had stated that 15,526 recyclers were registered under this program (Buenos Aires Ciudad, 2011). The registered population is higher than the actual estimated population mentioned above, and thus, does not accurately account for recyclers who have registered at one point and have discontinued. The city maintains that this registration was performed with the objective of protecting the informal recyclers' health, hygiene, and work-safety (LEY 992,

2002). This process allows the municipality of Buenos Aires to accumulate data, to track the extension and concentration of resource recovery activities and commercialization, as well as to know who the recyclers are, and whether they work individually or as a cooperative member (Buenos Aires Ciudad, 2011).

4.2.3. Current waste removal practices

The present method of waste collection involves businesses and residents placing their unsorted solid waste in front of their buildings after 19hrs. One of the private waste management companies then collects and transfers the waste to the organization CEAMSE for final disposal at the landfill. Recyclers may compete with these private contractors when sorting through the solid waste for white paper, cardboard, or metal. Martin *et al.* (2007) mentioned that most of the respondents in their study did not answer the question of conflict with the private firms, however those few that that did reported being threatened at times, and that the firms used police to intervene with collection. In some areas of the city, recyclers organized in cooperatives, will conduct door-to-door collection of recyclables from houses. These homeowners or small businesses typically separate their waste for the coop workers. This arrangement has developed out of prior community awareness initiatives between the co-operatives and household members. In addition, the municipal government, for example through the Ministry of Health, contracts informal recyclers to pick up non-hazardous waste separated at the household level. The city of Buenos Aires enacted waste separation bins in 2007, yet the public was still unaware of them, and thus did not use them appropriately or effectively. Currently the city administration is actively attempting this campaign again, and has, for example, been

posting information online regarding the importance of household source separation (Buenos Aires Ciudad, 2011).

4.2.4. The role of worker managed co-operatives

The cooperatives in Buenos Aires developed out of the chronic economic instability that has impacted the nation since the period of demilitarization of the government in general. During the Argentine Economic Crisis, the cooperative became a focal point of hope for many unemployed individuals who had been pushed into the informal recycling sector as a means of surviving. The members of newly formed co-operatives began to raise public awareness in campaigns around Buenos Aires. Since the early 1990s, a number of co-operatives have come and gone. Some have been able to find temporary funding through local governments or NGOs. The policy *Basura Cero* (Zero Waste), launched in 2006 and enacted in 2007, outlines a plan for Buenos Aires to curb the rampant solid waste accumulation and to reduce the pressure on the local landfills. This act has assisted in facilitating the funding and support for many co-operatives in the city.

Two cooperatives featured in this article are *Movimiento de Trabajadores Excluidos* (Movement of Excluded Workers: MTE) and *Reciclando Sueños* (Recycling Dreams: RS). MTE is a worker-managed co-operative that was formed by independent recyclers in 2002. It is the largest recycling co-operative in Argentina with a staff of 2,300 recyclers. The recyclers operate in teams throughout a number of neighbourhoods in Buenos Aires, with each team having two elected delegates. They meet in an arranged area, typically in the late afternoon, mobilize, and then proceed to collect along set routes. Through the co-operative they have access to buses, carts, uniforms, and trucks. Besides warehouse space for sorting,

there is an office in the city. This office is staffed by city appointed servants and operates as a meeting place. In addition, this space allows members to meet with city staff, hold training sessions, allocate uniforms and PPE, and provide childcare, hence reducing child labour (personal communication, November 18, 2010). Recyclers who are members of MTE are entitled to extended health care (*obras sociales*) and social benefits, such as pension. They were the first recycling co-operative in Buenos Aires to offer such incentives (Cartoneando MTE, 2012). In March 2011, MTE, and other recycling co-operatives, were awarded contracts for door-to-door collection service in a number of neighbourhoods in Buenos Aires (Videla, 2011). The city has promised the allocation of additional funding to the co-operatives, however, the sale of collected and sorted solid waste will continue to be the main source of income for the co-operatives (Videla, 2011).

4.3. Methods and methodology

The study was qualitative in nature and thus received approval by the University of Victoria's Ethics Board (Approval number 10-233). The research primarily entailed interviewing and surveying participants from the informal recycling community. In addition in-depth interviews were conducted with key informants. Participant observation and secondary data collection was a complementary form of accessing information about the research topic. The information accumulated through this process was one of "data generation as opposed to data collection" (Mills *et al.*, 2006, p10). The surveys took place in three neighbourhoods: The Microcentro (East of 9 de Julio: Monserrat and San Nicolas), Palermo, and Caballito. The co-operative interviews and observations took place in San Justo, in the west of the city. All neighbourhoods are near the city centre and are readily

accessible by train, subway, bus, or automobile. Several *villa miserables* (unauthorized housing settlements) are located near the three study neighbourhoods.

The respondents contacted during the survey were chosen by convenience, accessibility, and willingness to participate in the study. A total of twenty-one informal recyclers were approached and surveyed (see Table 2). The number of participants was based on: 1) budget, resources, and time limitations, and 2) theoretical saturation, which was defined by the researcher. The surveys were conducted in person, on the street, and accompanied by a trained research assistant who was a native speaker in Spanish. The research assistant helped clarify colloquial mistranslations and other language issues. Participants were notified about the objectives of the research and verbally confirmed their consent prior to discussions. All participants agreed to consent. They were offered no incentives to participate. The majority of the respondents were males aged 20-49, which is characteristic of informal recyclers in Buenos Aires (Schamber & Suárez, 2002), thus the sample, at least demographically, was representative of the informal recycling sector in Buenos Aires. Only three of the respondents were female. Out of the 21 respondents, six participants identified as being connected with the co-operative MTE. Some recyclers did not have enough time to complete the entire survey as they were in the midst of collecting.

Policy directors and co-operative members of *Reciclando Sueños* and government workers at MTE were contacted through existing networks of academia and local government. Interviews with co-operative leaders and members took place at the processing centre for *Reciclando Sueños* in San Justo. In total, there was one in-depth interview with a co-operative member at RS (*Pablo*), two in-depth interviews with co-operative leaders of MTE, two in-depth interviews with city policy directors, and one in-

depth interview with a public hospital nurse. The informants scheduled the interviews to their convenience. The interview data helped create an overall context of the current health situation of informal recyclers. All interviews were transcribed into Spanish and reviewed by a Spanish speaker from South America. The data was coded initially for categorization as the data was collected and later again for the emergence of further detail and only then the data was translated into English. Translations were checked with a bilingual Argentine. Constant comparison techniques were utilized to compare the incoming data in order to analyze the categories emerging. Names used in the article have been changed to protect the identity of the participant.

Constructivist grounded theory (CGT) was applied to guide the interview process and in analyzing the data. The framework facilitated the understanding of power differentials in research-participant relationship (Charmaz, 2011). The researchers practiced reflexivity through critical contemplation and by keeping diaries of their fieldwork. They actively worked to situate and deconstruct their positionality in the field. For example, the researchers were cognizant of privilege, representations of participants, and the over-arching hegemonic process of knowledge creation in both the academic and non-academic landscapes (Rose, 1997). The researchers utilized several strategies to equalize power, such as being flexible with interviewing and in conversations, allowing the participants to be in control of scheduling and sharing personal details when asked (Mills *et al.*, 2006). CGT was utilized as “a systematic approach to social justice inquiry that fosters integrating subjective experience with social conditions in our analyses” (Charmaz, 2011, p. 509). The framework fostered the creation of abstract ideas regarding human agency and structures by locating collective and subjective experiences in order to better

understand the structural forces that produce inequity (Charmaz, 2011). The theory assisted in guiding the researchers to emphasize the situations, events, and definitions of the participants through multi-level coding (Charmaz, 2002). The data was coded in two steps. The first step involved initial or open-coding, which fostered analytic decisions about the data (Charmaz, 2002). The second step was selective coding, which involved taking the most frequent codes and synthesizing them to conceptualize the data (Charmaz, 2002). For both the survey and the interviews, grounded theory guided the creation of questions. The questions were always open-ended.

Accessing the informal recycling community is challenging. Cooperatives in Buenos Aires are an over researched community and are sceptical of academic inquiries and may be reluctant to work with researchers from high income nations. Subsequently, the focus of the research was on a single study group at a specific spatial and temporal point, which being informal recyclers, collecting solid waste in the streets during the early to late evenings. Recyclers that operated at different times than the evenings and in other neighbourhoods were not part of this study; therefore we also rely on secondary data in our conclusions or suggestions. Selection bias was unavoidable when determining which potential participants to approach. Exclusion bias occurred as it was deemed unfeasible to approach all members of the informal recycling community, thus making no assurance that every perception of every recycler had an equal chance of being included in the sampling (Feild *et al.*, 2006; Skowronek & Duerr, 2009). Furthermore, the study did not include informal recyclers who have been injured or hurt and have left the informal sector due to health issues. In sum, the researcher's language level was intermediate, and as mentioned,

the RA was crucial in translating slang or colloquial sayings. Ultimately, translations are subjective and may not accurately convey the participant’s meaning or *Truth*.

4.4. Health, wellbeing, and informal recycling

After coding, analyzing, and compiling the data from the interviews and surveys, a number of themes emerged, as highlighted in Table 4.2.

Themes
Diverse perceptions of overall wellbeing
Different level of access and use of health care services
Working with pain Musculoskeletal pain and unsafe or inadequate ergonomics Lacerations, bumps, and bruises
Environmental and social determinants Contact with medical waste Traffic accidents Discrimination Injury prevention

Table 4.2. Themes and sub-themes that emerged during coding.

The research addresses two groups within the informal recycling sector. One, the independent or informal recyclers, who operate in the streets, typically selling their collected waste to intermediaries or, second, the members of government sponsored co-operatives. The second group refers to the members of two co-operatives: *Reciclando Sueños* and *El Movimiento de Trabajadores Excluidos*. The co-operative workers from MTE have access to extended health care benefits, health and personal protection equipment (PPE), group social support, transportation and equipment, and work as a government approved and legitimate organization, operating in conjunction with formal waste management workers. The amount of structural support is dependent on the quality of the relationships they have with local governments, nonprofits, or universities. Research has demonstrated that merely living in a waste-related environment can have serious long-

term adverse effects (Martuzzi *et al.*, 2010). Thus, the livelihoods and the living conditions associated with informal recycling always raise questions with regard to environmental and occupational health, socioeconomic exclusion, and social inequities particularly visible in overall health aspects of the recyclers.

4.4.1. Perception of overall wellbeing

As a summary of overall health, self-reported health (SRH) is widely regarded as a reliable tool to learn about participant's health. The assessment allows participants to identify perceived health problems and to demonstrate if they are satisfied with their health. This type of assessment has been widely used in qualitative research determining individual perceptions and representations of health. Different authors support the fact that self-assessment can be a better predictor of personal health than ratings that have been clinically assessed by a physician (Cousins & O'Brien, 1997; James & Eyles, 1999).

When asked how they would rate their health, four recyclers out of 21 considered their health as being *normal*. The rest (17) of the respondents assessed their overall health as *good*. The responses were based on the participant's vocabulary and were not part of a traditional Likert scale question and hence, semantic biases may be present in our evaluation. Overall, participants were by and large optimistic about their self-reported health. One recycler, a male in his late-30s, had been pushing a loaded cart through the neighbourhood *Caballito* and proclaimed with a smile: "I am good! I don't have AIDS, I don't have the flu! I am vaccinated!". Accordingly, he was aware of the common associative health issues of recycling, such as needle sticks and the need for vaccinations. In addition, he was the only participant to mention AIDS. While perhaps less optimistic, but still

positive, a male who was casually sorting white-paper in the central business district replied: "Yeah, I am good. I am still standing" while a woman in her late 40s, sitting next to a bag, sorting waste posited: "I am good enough!". One recycler who claimed that his health was *normal*, indicated that he was typically "tired" while working during the evenings.

We conversed with a middle-aged man who commutes daily from the province. We discussed his health, which soon transferred into how he perceived the health of his peers in comparison. He stated: "I am over 40, I consider my health to be *normal*. There are people older than me working in the streets. I don't want to be like them in ten years. I hope not to follow them". *Pablo*, from the co-operative *Reciclando Sueños*, claimed that his health was generally better than independent recyclers' he observed in the streets, where he had once worked: "Yes very much, my health is much better. I see [independent recyclers] in the streets. They may have a bad cough or are poorly dressed ..." . None of the respondents compared their health to non-recyclers. The results are consistent with Parizeau's research (2011) conducted with informal recyclers in Argentina. She demonstrated that the recyclers generally rate their health as being *good* (56.2%), *average* (27.1%), or *very good* (10.6%).

Conversely, the results differ from the outcome of Nguyen *et al.*'s (2003) study in Vietnam, which demonstrated that 51% of the country's recyclers rated their health as *poor*, or worse than what they considered typical to the national average. However, it needs to be underlined that the Nguyen *et al.* study took place at a landfill, where health considerations are even more prominent. This may also demonstrate how locale and socioeconomic position changes perception in wellbeing. Some participants claimed to have experienced specific symptoms they that affected their wellbeing. A young man

mentioned, for example, that he suffered infrequently from convulsions. He hypothesised that this health issue was attributed to overheating while working long days in the sun, during the summer. Since switching to evenings, he indicated that the convulsions had disappeared and that his state of health had improved. He did not mention if he accessed medical care when suffering from this affliction.

4.4.2. Accessing and utilizing health care

During the 1990s, the health care system was advised by global funding institutions to decentralize and follow neoliberal reforms, which shifted the focus from pro-poor to pro-rich (Cavagnero & Bilger, 2010). Health care in Argentina is structured into three subsystems: the private sector, the publicly funded sector, and the social insurance funded (*obras sociales*; both national and provincial) (Cavagnero, 2008). The public sector lacks resources, has long waiting times, criticized with poor infrastructure, but has better quality services than some private institutions and well-trained staff (Cavagnero, 2008). Public sector health care is subsidized in Argentina, and thus, every individual should have access to health treatment. However, the system is plagued with inefficiencies, fragmentation, structural problems, and weak regulation in the private sector (Cavagnero, 2008; Lloyd-Sherlock, 2005). The informal recyclers who do not operate in a co-operative and have extended health care are excluded from accessing the better public sector. Questions related to health care and medical services were addressed. As a result responses were mixed with regard to seeking help when injured or ill. Some participants utilized the health care provided by the government. A woman stated that she "went to the doctor every 15 days for a check-up" and that she had no pressing issues. Martin *et al.* (2007) revealed that

most informal recyclers in Buenos Aires were aware of small clinics in their neighbourhoods and knew where to access care if needed. Another woman stated that she had gone to a physician recently who told her she had high cholesterol and hypertension, and thus he recommended adhering to a new diet. She mentioned taking medication, but insisted that she does not go to the doctor anymore. Parizeau (2011) found that 97.2% of informal recyclers had used the public health system, waiting, on average, 1.1 hours, and the majority paid 5 pesos (\$1 USD) for medication while the health care was free. Pablo from *Reciclando Sueños* mentioned behavioural factors as a leading issue to his health, accounting for a previous hospital stay:

I smoke. The cigarette pack lasts me two days. I smoke like a beast. Smoking and alcohol. I spent a week interned at the hospital, then I had surgery. They did a biopsy, but they could not operate because the liver was half glazed, half-greasy and they told me that they could not operate well under these conditions. I was hospitalized a week. I had to go on a diet that they gave me.

In Colombia, researchers found higher BMI ratings with informal recyclers after samples were taken from recyclers and a neighbouring control group of similar socioeconomic status. The results suggest that improper nutrition by informal recyclers may be the main cause for being overweight or obese (Gomez-Correa *et al.*, 2008). No one in the surveys or interviews mentioned stomach parasites or bacterial infections. There was not a specific question with regard to vaccinations, yet three interviewees mentioned being vaccinated when discussing their access to medical care. A male mentioned he was vaccinated, but would not expand on the details. *Pablo* from the co-operative discussed having received vaccinations, specifically for tetanus and the flu:

I got a vaccine ten years ago. I always do get the vaccine, and it is always the same, tetanus. I have the vaccine for tetanus and it lasts for ten years, so if I get hurt on some metal I have the vaccine. And besides that, I get the flu shot.

Pablo was aware of the issues of tetanus and the ability to spread via lacerations and punctures with rusted metal. Finally, a woman in Palermo indicated that she had also received the “anti-tetanus vaccination” offered freely by the city. Parizeau (2011) discovered that 97.2% of the respondents received vaccinations during their youth. The high rate of vaccinations may be the reason why the topic was not actively addressed. It is estimated that 90-94% of the Argentine population has the HepB3 (third dose) vaccination and 90-94% DTP3 (diphtheria toxoid, tetanus toxoid and pertussis; third dose) (WHO/UNICEF, 2011). Health promoters, such as members of local churches and NGOs, help to spread awareness about the importance of vaccinations in the informal recycling community (La Nacion, 2002). These vaccinations are free of charge. The city has annual updates for vaccinations that are advertised online and in newsprint.

Some recyclers mentioned never visiting a doctor. As one recycler posited: "I have been working for 12 years and I have never gotten sick or had an accident". Similarly, another male postulated that: "This work gives me energy. I have never been to a doctor in my life". However, this particular participant went on to reveal that he had diagnosed himself for a gall bladder infection and indicated that he has headaches. He currently prefers to treat himself with out-of-pocket painkillers. Post-deregulation, pharmaceutical prices rose increasing access inequity (Alonso, 2003). *Pablo*, who does access medical care, mentioned having pain in his lower back, but cited: "I did not go to the doctor for anything like that". It is unknown if the pain was symptomatic of work conditions. Studies of health

care access, have demonstrated that the recyclers choose not to access the care, as they are typically requested to take work off and rest, which is not feasible when living on day-to-day pay (Koebs, 2004). Informal recyclers interviewed elsewhere typically mention not receiving medical care, or when they do decide to seek assistance, it is deemed *too late* (Rendleman & Feldstein, 1997).

4.4.3. Working with pain

From a physiological perspective the act of feeling pain is a physical sensation that the body uses to warn one of impending danger and damage. This pain can either be chronic and reoccurring or acute and instantaneous and is “quintessentially a matter of self-perception” (Sen, 2002, p 324). Complaints about injuries and reoccurring pain, however minor, affect the internal emotional state of the respondent. External views, useful in a variety of situations, such as assessing how to deal with pain, are difficult to use in assessing pain levels and how the pain is felt or perceived. Regardless of pain tolerance or cultural differences, the internal assessment of pain is what is important. A physically laborious occupation, informal recyclers spend a majority of their working time collecting and sifting through waste in bins or in the streets. Hazardous materials, sharp objects, and the constant risk of automobile collision threaten the process. Recyclers may be inflicted to a varying degree of pain, either acute, or chronic throughout their working day. A typical day consists of recyclers loading their carts with up to 70kg of waste and pushing or pulling them along their routes. The filled carts are transported extensive distances, typically by foot, where the waste is sorted or sold. These tasks inflict strain on the human musculoskeletal system.

4.4.3.1. Musculoskeletal pain and ergonomics

Six respondents indicated lower-back soreness as a daily occurrence of discomfort. The pain was mentioned alongside the task of bending over, sorting, or extensive lifting and pulling carts. A participant, working alongside his teenage sons, reported that they pulled or pushed the carts out to the province every night, a journey which could take hours. They would sort the solid waste at their home. He estimated that each cart would weigh 70 kilograms or more at the end of the night. He mentioned lower-back pain as frequently affecting his work. Respondents mentioned repetitive tasks and heavy lifting as causes for back pain. One participant indicated that he had to rapidly lift heavy bags of solid waste into a truck. This task would occur numerous times at the end of his workday. He stated that although he had little pain overall, he did get much discomfort in his lower back at the end of the night when he had to lift the 80 kg bags up and into the back of the truck. In addition, a female in Palermo reported having lower back pain on a daily basis. She complained of having to spend long periods of time on her feet, bending over large bags of solid waste to pick out white paper. At the co-operative, *Pablo* reiterated the issue of having to constantly be bending over in order to sort materials and how he attempts to alleviate it: "I feel pain in my back. But when you place the bags [of solid waste] here (indicated to a high platform), it is better for not having to crouch over while sorting. Otherwise it is bad for your lower back." Pablo demonstrated the custom-made carts that were produced for the co-operatives work of door-to-door collection in San Justo. The carts allow bags to be fixed and then transported with greater ease. He commented on how much of an improvement the carts were for mobility and lifting. The carts used to transport the waste are typically modified out of pre-existing carts or handcrafted together from scraps. Some

carts only have two front wheels, thus the recycler must continuously be applying pressure upon the rear handles to keep the cart upright when in motion, hence inflicting strain on the shoulders, lower back, and arms.

Pain in the feet and legs was the second most reported injury. Four respondents mentioned this problem and this was generally attributed to walking and standing long hours in the streets. One male, aged between 40 and 49, working at Microcentro, reported that his legs were sore while working. This was due to standing while sorting waste. A female participant also indicated that her sore feet were the only pain she incurred while collecting in the streets. She said she tries to sit as often as possible while sorting, but usually she had to stand in order to dig into bins or large bags of mixed solid waste.

Ergonomic challenges provoke musculoskeletal illness, the direct result of repeatedly moving and lifting heavy objects, such as carts or bags filled with recyclable materials. These issues may lead to sprains, fatigue, muscle pain, and back problems. In Brazil, a study demonstrated how informal recyclers are prone to squatting, vibration, awkward postures, and repetitive movements, which was associated with lower extremity pain (da Silva *et al.*, 2006b). In the regulated sector of waste management, heavy lifting leads to higher rates of back and shoulder pain, lumbar disc prolapse, disorders of the neck, tendon disease, and increased pulmonary ventilation (Englehardt *et al.*, 2000). In Brazil, Gutberlet and Baeder (2008) found that the majority of the informal recyclers interviewed in their research mentioned pain or discomfort in their limbs and back. da Silva *et al.* (2006b) compared informal recyclers with a control group from similar socioeconomic position. They found that mentioning back pain in informal recyclers was similar with the control group of similar socioeconomic position. However, both groups still reported back

pain more frequently than that of the general population. Thus, it is difficult to strongly affirm that the occupation itself directly leads to back pain. Ergonomic risks may have a delayed latency time frame from when the injury occurred and when the symptoms begin to develop, thus creating difficulties in diagnosing accurately.

4.4.3.2. Lacerations, bumps, and bruises

Recyclers referred to lacerations as the second most reoccurring issue when working. The majority of the informal recyclers mentioned having received lacerations from sharp objects located in the waste, such as broken glass or tin can lids. The lacerations were typically to the hands or legs, or in one case, the entirety of the arm. A male participant was asked as to how he received a thick scar down his forearm. He replied that he had been cut while reaching into a dumpster. When asked if he went to the doctor to get stitches or bandages, he replied: “No, not for this. This was merely a superficial cut”. In addition, a female participant mentioned that she gets little cuts on her hands on a daily basis while collecting waste in the street. A young man was seen holding his hand while we talked to him. He said he had recently been cut by a steak knife (see Fig 4.1). He said he would continue working tonight and not get stitches. He mentioned a previous time when he did eventually have to receive stitches after being cut with a razor across his palm. Respondents complained that glass was hidden or easily missed when sorting, and that it was almost inevitable to incur some sort of cut or laceration during an evening of work. A female mentioned that: “[the households] sometimes wrap the broken glass up in newspaper, which is good, but it also hides it and I still end up getting cut”. At the co-

operative, Pablo uses heavier machinery to crush, cut, and sort the waste in order to prepare it for sale. He indicated his opinion on getting injured:

If you're awake and paying attention to what you're doing, you will not get hurt. I cannot say that nothing will never happen. I have had a couple of close calls when materials have bounced out of the machinery and struck me in the leg. I was bruised but not much more than that. You'd have to be drunk to really get hurt.

Pablo further indicated the dangers of working with the machinery: "Yes, because [pieces of plastic] break and then jump out at the body, or after they could hit you here, in the hands".



Figure 4.1. A MTE member displays a steak knife that had recently lacerated his palm while sorting through mixed solid waste in Palermo.

4.4.4. Environmental and social determinants

Recyclers face a litany of potential hazardous materials during collection. The theme of risk was pervasive among the respondents. Nineteen of the 21 respondents who answered the questions, reported perceived risks associated with injuries and pain. Only two participants did not mention risks with work, one citing that: “I never find anything dangerous”. The majority of the respondents mentioned syringes as being the biggest risk to working in the street.

4.4.4.1. Syringes

A number of recyclers indicated finding syringes in reoccurring areas, and thus chose not to collect or sort waste there. As one recycler responded, “the syringes all come together, never on their own, so they are easy to see, but you still have to watch out”. He stated that a building nearby was avoided as it “... always has syringes. I am not sure why because it is not a hospital or a clinic”. Another respondent mentioned, “I never work over there (motioned to a private clinic across the street). There are always syringes in the waste”. One female recycler opened a bag on the spot and demonstrated the syringes she found in the waste (See Fig 4.2). Some of the syringes were capped, thus giving protection from needlesticks. *Pablo*, at the co-operative, mentioned getting cut on the hands, but specifically mentioned not receiving needlesticks: “With the syringes, no. With the other material, yes”. A young worker at *Reciclando Sueños* mentioned finding a bloody scalpel in a bag with bandages. In addition, another respondent reported that he knew someone who had found a foetus while sorting through solid waste. This same recycler was the only individual to mention used-contraceptives as being a potential harm to his health.

The Director of Hospital Waste at the Ministry of Health was asked as to whether he thought syringes were of concern to informal recyclers and what the public hospitals were doing to remove the risk of needle sticks. He responded: “The *cartoneros* have a better chance of getting cut by a lid of sardines than pricked by a needle in [public] hospital waste” (in-depth interview, 23, November, 2011). He went on to mention that the public hospitals sort out the hazardous material and contracts recyclers to haul off the rest. The director ended by stating: “If syringes, or disease were an issue [for the recyclers], there would have been a pandemic of disease, no?” (in-depth interview, 23, November, 2011). Some respondents in the study mentioned the physical locations were most likely disposed there from a private health clinic. However, it is unknown how many discarded syringes originate from care homes, residences, or pharmacies. A study with 4000 health care workers indicated that a single percutaneous needlestick had the likelihood of transmission of 0.3 % risk for HIV, 1.8% hepatitis C, and 23-62% hepatitis B (Grossheim & Takenaka, 2010; Russi, 2006). This risk rises if the needlestick places directly into a vein or artery or if there is a deep injury (Russi, 2006). Evidently, no recyclers mentioned HIV or hepatitis, but this does not mean that the disease has not been transmitted. A further study would be needed to assess the transmission rates with informal recyclers.



Figure 4.2. A woman in *Caballito* opens a bag of mixed solid waste to show how prevalent syringes are in the area. She indicated that this syringe came from a private clinic across the street.

4.4.4.2. Traffic accidents

Recyclers may push large carts through streets, working their way in the dark from corner to corner. The concept of traffic accidents emerged during the interviews, however there were few mentions, and none of which were serious. One male recycler discussed being involved in an automobile incident, but he would not expand on the details. In addition, an employee of the co-operative MTE stated that some recyclers did have accidents on the way to work. Recyclers who are members of co-operatives meet at points

in the city, and then commute together, riding on top of trucks, which are used to transport the collected recyclables. MTE has been collecting appliances, such as refrigerators and washers. These bulky items have created a new hazard. One employee mentioned times when such appliances toppled off the truck while en-route. He also mentioned that prior to using buses, individuals could get buried by bags of solid waste while riding in the back of the truck. He also stated that: “sometimes people fall off the top of trucks on the way to work [...] and sometimes no one notices until we arrive”. Participants mentioned issues with traffic, but most refer to it as a nuisance. Some said they would get honked at, or yelled at if they took up too much space in the road. A woman mentioned that she gets honked at, or insults yelled at her, when she pushes her cart along the side of the road. A younger man in Palermo indicated that he only had issues with traffic when he had to go against traffic, down one-way streets. Research conducted with informal recyclers in Santo Andre, Brazil found a more severe picture related to traffic accidents. Nine of the 47 interviewed informal recyclers reported to have been involved in a traffic accident at least once (Gutberlet & Baeder, 2008).

4.4.4.3. Discrimination & stigmatization

Self-assessed discrimination is the participant’s perception of being treated unfairly due to a variety of attributes, such as ones socioeconomic position, ethnicity, or gender (Kessler, Mickelson, & Williams, 1999). Research has demonstrated that the lower ones socioeconomic position, the worse is the health status of that person (Marmot, 1994). Recyclers face discrimination in varying degrees. Harassment from neighbours and law enforcement officials were both mentioned in the surveys. A man working in *Caballito*

mentioned having problems with law enforcement. He stated that he commutes from the province towing a large trailer behind his car. He uses the vehicle to transport waste back to his home where he sorts it. He said that he used to have to bribe the local police officers in the neighbourhood, as they always bothered him by asking for bribes. He mentioned that it had to do with his car and trailer. However, after so many years, he indicated that the police are friendlier with him and he no longer needs to pay bribes to park his vehicle. Thus, this optimistically demonstrates some change. Being in a co-operative does appear to quell some risks, but as *Pablo* posited, there are still inherent dangers:

The only danger of working here [in the co-operative] is that there are thieves ... One time the door was open and some men walked in and yelled “Everyone get down on the floor!” and we all fell to the floor. They said “Give me all you have!”... he [a co-worker] put his hand in his pocket and took out his mobile phone and some money, just a little, he had 30 or 40 pesos. They took it. Then there was another time ... I saw the thief walk in [to the co-operative] and he headed for the money. I removed my watch and chain and threw them under a ledge. [A colleague] ran out fast and jumped over the wall to escape and I did not have time to jump ... the thief shot up into the air. I thought he was going to shoot me.

A woman described having access to a local resident’s home. She informed us that the homeowner allowed her to enter her residence, use her bathroom facility and wash her hands so she could eat dinner. She seemed proud of this relation as it demonstrated, at least in this reference, the lessening of stigmatization and gaining public awareness of the role recyclers play in society.

4.4.4.4. Injury prevention and PPE

A common occurrence when observing workers in the street or in co-operatives in both Argentina and Brazil (Gutberlet & Baeder, 2008) is the lack of gloves. As mentioned with regard to Law 992 (2002), in Buenos Aires a recycler has the opportunity to receive gloves, along with vaccinations, if they register with the city. In some co-operatives, such as MTE, there are gloves and uniforms. Yet, most recyclers still don't use gloves and argue that they sort more quickly through dumpsters or piles of solid waste without gloves. Nevertheless, as reported above, cuts to the hands are frequent and the risk of needlesticks is apparent and well known among recyclers. The majority of respondents, when asked why they didn't wear gloves, responded that they needed the feeling of tactility, the ability to quickly feel and sort a variety of plastics and types of paper. The gloves are either too big for sorting, get too hot in the summer, or are too sticky and clumsy. Some people responded saying that they cannot work with gloves at all.

One respondent said, "If the government provided me with gloves, I would wear them", another posited, "No one has given me gloves. If they did, I might wear them". A discussion with the Director of Urban Solid Waste Management of Buenos Aires responded when asked about the free gloves, "I do not know if they use them. There is a summer uniform and another for the winter, and gloves are given. Do they use them? I hope so, it would make me happy" (in-depth interview, Nov 29, 2010). A government appointed representative of the informal recycling co-operative MTE mentioned, "The problem of gloves is a cultural problem of the 'pickers'. Here, we have an obligation to provide the gloves and uniforms, but the problem is they do not use them" (in-depth interview, Nov 18, 2010). The results demonstrate that regardless if recyclers are aware of gloves, they may not wear them as they hamper or slow down the collection process. Thus better glove

design may assist in improving this situation. The co-operative *Reciclando Sueños* had a significant amount of safety gear, such as gloves, hardhats, ear protection, and back brace belts. However, when *Pablo* was asked if he wore gloves, he responded, “Gloves? Yeah I have them but I do not use them. Look, here are the gloves. They do not get used”.

4.5. Conclusion

The empirical work demonstrated that recyclers primarily mentioned concerns with back, shoulder, and foot strain, lacerations, and needlesticks. This conclusion will review these salient results and will reiterate the important potential of recycling cooperatives from the perspective of improved occupational health standards.

Improper lifting and loading, repetitive bending, or poorly constructed carts, can lead to strain in the back, shoulders, and feet. Most concerning are the still unknown potential impacts from a lifetime of such wear and tear, which can cause disc-specific disorders, chronic pain, degenerative arthritic, and muscle and tendon strains (Hsiang *et al.*, 1995). As noted by *Pablo* from *Reciclando Sueños*, the cooperative did have access to PPE, such as hard hats and gloves. However, he mentioned that he did not use a back belt, despite their availability. Although back belts are not considered PPE, they still function to alleviate some of the strain from repetitive lifting. This simple item may be of importance as back strain was mentioned as a concern. Hence, aside from back belts, proper lifting techniques can be instructed by co-operative members to reduce torsion and compression injuries (Hsiang *et al.*, 1995). In addition, cooperatives can continue to offer ergonomically engineered carts for their members and trucks for transportation. These carts, when engineered correctly, such as the ones at RS, reduce strain on the back and shoulders. Some carts observed in use required almost constant downward pressure from the shoulders

and arms to keep the cart lifted and in movement. Unfortunately, with precarious funding, cooperatives face difficulties in acquiring or affording the upkeep of trucks or carts. Lifting and squatting while collecting waste seems inevitable and only proper training may alleviate some of the injuries associated with these actions. As witnessed, waste sorted at the cooperatives is typically performed standing, thus reducing the strain of bending. However, if performed for too long without break standing can cause other circulatory health problems.

As mentioned, lacerations and incisions are quite common among recyclers. The majority of responses mentioned damage to the hands and arms. The difficulty of laceration amelioration is two fold. One, recyclers have openly expressed their disdain of wearing gloves. They say that the gloves are difficult to wear when quickly sorting through solid waste and that there is no tactile function; hence the gloves hamper the speed of collecting and sorting. In addition, some recyclers mentioned being too hot to use gloves in the summer. The city of Buenos Aires is allocating gloves and uniforms to recyclers, but the majority of the individuals interviewed did not know of this initiative. Some even mentioned that they would take the gloves if they were offered for free. Although not completely effective in fending off all lacerations, gloves exhibit protective qualities that guard against daily hazards in the waste, such as shards of glass, metals, and needlesticks. The gloves are useful in protecting the recycler from directly contacting chemical containments or biological hazards, which may cause acute or chronic health issues. The second challenge with lacerations lies with the waste producers. Recyclers did mention that some people attempted to protect sharp objects in the waste, but which still injured the recyclers. By being considerate when throwing out items that may injure an individual,

the community can assist in minimizing lacerations. Perhaps, a compromise must occur in order to alleviate some of these risks. The creation of a thinner, more tactile glove would give some protection while still facilitating the speed needed in sorting. Perhaps a glove that has some area removed on the digital pulp of the thumb and small finger. This would allow some tactility for discerning various papers and plastics. It would create vulnerability in the design of the glove but would still protect the majority of the hand against mechanical injuries and needlesticks.

More than half of the participants were aware of the likelihood of finding used syringes in the waste disposed in the streets and mentioned the risks related to needlesticks. Evidently, the city would have great difficulty in enforcing the illegal disposing of syringes alongside curb side waste. The agents at fault could vary from private clinics, care-homes, and residences, to public hospitals. In this situation, the best the recycling community can do is voice their concerns and attempt to raise awareness with the community in which they are working.

5.0. Thesis conclusion

In the thesis conclusion, I will restate the aims of the research, summarize the contents of the thesis, discuss the salient findings, suggest the implications of the research, and expand on the significance of the research. The thesis will conclude by defining future recommendations and explaining the methodological limitations of my research.

Once again, the objective of the research, and of this thesis, was to create an overall story of the recyclers and their perceived health. The research questions, which are reiterated below, seek to define and create more depth to the literature on informal recycling and health.

5.1. Salient findings

The salient findings from the fieldwork and secondary research exhibit a number of reoccurring challenges facing informal recyclers who operate independently in Buenos Aires. Three points will be summarized: 1) the negative health implications that arose from the perceptions of recyclers, 2) the local policy , and 3) the importance of a cooperative as a means of ameliorating health risks.

The research demonstrates that the recyclers reported and perceived musculoskeletal pain as something related to their livelihood. Pushing heavy loads during their working day while bending over lead, the participants mentioned pain in their lower back, feet, and limbs. The long-term health implications, such as disc-specific disorders, chronic pain, degenerative arthritic, and muscle and tendon strains (Hsiang *et al.*, 1995), can only be hypothesized. Lacerations were certainly problematic, as recyclers mentioned getting cut by sharp objects, such as knives, non-sanitized medical equipment, such as

scalpels, and broken glass. These threats were not only mentioned or perceived, but were witnessed firsthand during the fieldwork while I was performing the survey interviews (as seen in Figure 4.1 & 4.2). The risk of laceration, and the subsequent infection, could lead to missed days off work, thus creating uncertainty and stress. Syringes were mentioned as the largest perceived risk to waste collection, and were demonstrated numerous times to be found in the waste by recyclers. The enforcement of proper syringe disposal is complicated, as it is unknown who the disposers are, whether the public hospital, private hospital and clinics, or personal users. There is a need for personal protective equipment that could alleviate needlesticks and lessen the long-term viral health implications which may develop from such a misfortune.

The research demonstrated a divergence between the policy directors, government appointed leaders of MTE, and the recyclers. Although the recyclers were split on whether or not PPE (personal protective equipment) would be of much use, such as gloves, the majority of them were seemingly unaware that the city government would supply such items freely if they registered with the city. Thus, there is a disconnect between policy application, enforcement, and the mobilization of knowledge. As demonstrated with Law 992 and the current contracts to cooperatives in Buenos Aires, there is an opportunity for policy makers to work with the informal recyclers and the cooperatives. The opportunity is not necessarily ignored, as the local government is creating possibilities for the cooperatives to legitimately operate alongside the formal waste sector, but it is a fine line between working together and being exploited.

The cooperatives play a pivotal role in legitimizing the employment, empowering its members, increasing the selling power of recyclables, and networking between

cooperatives, government officials, and academics (Gutberlet 2012, Gutberlet & Baeder, 2008; Medina, 2000; Tremblay *et al.*, 2010). The literature review on the occupational health situation of informal and organized recycling underlines the fact that cooperatives have a greater ability to provide personal protective equipment, and more adequate conditions to perform the classification, bundling and storage of recyclables, avoiding the sorting in the street or at home. In addition, as mentioned in the article, cooperatives such as MTE, have access to extended social benefits, such as health and childcare. Collectively, members are able to raise money and acquire capital, such as a warehouse, bailers, and transportation. This allows them to group their collections together in a central location before bringing it to a buyer. Selling their recycled items by bulk, the cooperative is able to acquire a higher net-profit. This process removes intermediaries, who make a much larger profit from independent recyclers. In some cases, such as in Mexico City, intermediaries were able to sell the solid waste for a 300% mark up (Medina, 2000). Although not utilized by all members, some cooperatives have funding for PPE (Figure 5.1) and specialized carts which lessen the perceived pain of collecting and transporting waste.

However, cooperatives do not operate within a vacuum of safety. Pablo, at RS, did mention some perceived danger when using the heavy machinery associated with sorting and process the waste. Improper training, a lack of knowledge, or a lapse in focus may lead to serious trauma when operating such machines. Nevertheless, Pablo conferred with me that one would “have to be drunk” to be injured by a machine in the cooperative and he was generally nonplussed by them. Being a collection point, recyclers may be dealing with larger loads of processed waste. This may inflect strain if there are no lifting devices for loading trucks. In addition, RS faced two fires over its lifetime, thus demonstrating that the

waste stored may act as kindle, even though one fire was rumoured to have been set intentionally by a formal waste management corporation.

One can see the challenges of working within a cooperative still improve most negative aspects of working independently. Therefore, it is necessary to strengthen these cooperatives and group networks, allowing knowledge to transfer while expanding on health education, proper waste handling, and hygiene. Furthermore, by registering and working alongside government, injuries and illnesses that require medical care can now be compiled and noted, thus allowing policy makers, if they so wish, a greater opportunity to see the outcomes of injuries and, thus, look toward preventions.



Figure 5.1. PPE available at Reciclando Suenos.

Informal recycling is a livelihood that will remain ever present throughout most global cities in all income level nations. The conditions which determine a recycler's life is limited to their location. They may collect waste door to door, they might operate with a cooperative that has extended health care and social insurance, or they may live next to a landfill, raising a family on recovered food. Waste has value as a resource and, if properly managed, can continue to provide a livelihood.

The persistence of conspicuous consumption and materialism is the catalyst. Products with excessive packaging, throw-away items, and single use commodities are cheap, readily available, and are omnipresent globally. Regardless of their knowledge the recyclers perform an imperative public service by removing recyclables destined for the landfill or incinerator.

In the documentary *Reciclando Sueños* (2010), colleagues in Buenos Aires filmed cooperative member, Enrique, as he collected solid waste door-to-door in La Matanza. They asked Enrique to tell a short story about a time in his life as a member of *Reciclando Sueños*. He replied with a story about collecting waste from a school in Bonzi:

When I returned on Friday the lady who answered the door tells me:

"The teacher wants to talk to you because she wants to introduce you to the kids. She wants to explain to them the work you do".

Well, I went in and was introduced to the teacher. We walked into the classroom and I explained what I did.

The boys began to clap and everything.

I felt chills throughout my body. It was the first time I had been applauded. And there I talked to the kids about the work I do with my colleagues.

Now, when I got down the street they say hello, and everyone, the kids, the people, the customers all say hi to me in the street.

(Enrique, from the film *Reciclando Sueños*, 2010)

5.2. Methodological limitations

Accessing the informal recycling community can certainly be challenging. Co-operatives in Argentina have long been researched and are thus used to academic inquiries and may be reluctant at times to work with researchers from the global North. Recyclers working unaffiliated in the street were certainly approachable and quite open to discussion, but they are typically isolated from their peers; either working alone or in small groups, and thus research tools, such as focus groups, are next to impossible to coordinate. As mentioned above, the co-operatives at times were difficult to work with. Meetings would be arranged but would never transpire. They were rather busy and finding time to talk to leaders in order to arrange meetings with members was at times futile. Some leaders of the co-operatives were almost suspicious as to what I could offer, from an academic standing. Some asked how they would benefit from the arrangement, and if there was nothing there, they would not be interested. Further, some of the leaders approached were not interested in health or hazards associated with working and were thus not inclined to meet. However, that being said, all leaders took the time to have some discussion and open up the idea of working together. It was merely timing or alternate priorities that kept the co-operative investigation from progressing forward. Secondary data, such as newsprint, are unverifiable, which may cause challenges (Clark, 2005).

The focus of the research was subsequently on a single study group at a specific spatial and temporal point. Recyclers who operate in residential areas will ultimately face differing risks and hazards than those operating in industrial areas. There are differing levels in economic status between areas and recyclers. Recyclers operating in the core central business areas are at least perceived, by other recyclers, to be wealthier than those operating in the periphery and suburbs as these recyclers do not have access to more valuable solid waste, such as white paper or reusable office supplies. Selection bias was unavoidable when determining which potential participants to approach. Exclusion bias occurred as it was deemed unfeasible to approach all members of the informal recycling community, thus making no assurance that every perception of every recycler had an equal chance of being included in a sample (Feild *et al.*, 2006; Skowronek & Duerr, 2009).

Time frame may limit the exposure from recyclers who work during the day or in the early morning hours. Perhaps more recyclers with children would be more inclined to working during the day while more groups of men work throughout the night. However, women were approached in the interviews and there were families seen to be working together. In addition, the study may not include informal recyclers who have been injured or hurt and have left the informal sector due to health issues. The open-ended survey questions are open to interpretation by myself, thus this is more challenging to create an objective meaning (McGuirk & O'Neill, 2005). In addition, with regard to the survey, a few limitations, such as information being censored due to the surveys being administered face-to-face and the interviewer's presence may affect the responses (McGuirk & O'Neill, 2005). This issue is a cultural assumption. Having a female RA and interviewing males in a machismo may have affected the responses from the males. Attempting to identify and

remove the occupational health risks from hazards associated with living in marginal or impoverished socioeconomic status is an arduous task. There may be many variables, interacting in complex fashion, which affect the health, such as genetics, access to medical care, gender, age, education, economic, social and community influences, material deprivation, and behavioural factors all of which will affect the perception of health. As well, the period of exposure and the manifestation of an illness, may be unknown, or if known, may be classified wrongly. A study of this size was beyond the scope of this paper.

Last, there is some debate regarding *internal* and *external* views of health with regard to research. Sen (2002) argues that perceptions of health are complex and that self-assessments might be limited to the knowledge and experiences of the participant. Thus, someone who is more knowledgeable regarding disease, could more accurately describe the symptoms and issues facing them, while someone ignorant to the matter would see no issue whatsoever.

I was generally optimistic with the outcomes of the research, however, I was never naïve. The process was certainly challenging and facilitated a steep learning curve that furthered my experiential knowledge in research.

5.3. Recommendations for future research

Further research is required to deconstruct the dichotomised perspectives on the recyclers' health in the workplace. By using mixed research methods and by delving into the streets and the cooperative environments further refinement of the preliminary results from our study can be achieved. In-depth analysis is particularly important to shed more light on the wellness and risks of the members of recycling cooperatives. Further studies will also need

to investigate and evaluate the impacts of work place policies on the livelihoods and occupational health situation of the recyclers, ultimately legitimizing the services this sector provides. The following recommendations may guide:

1. A longitudinal study on the health perceptions of recyclers over a greater period of time utilizing both *external* (perceptions) and *internal* (observations) viewpoints.
2. Research regarding implications of specific perceived health implications, such as musculoskeletal pain in correlation with lifting, bending, and carrying heavy loads.
3. Research to determine if there are significant differences between the perceived health of cooperative members and independent recyclers.
4. Comparison and evaluation of regional policy regarding informal recyclers and health.

5.4. Dissemination: research commitments

In order to adhere to my research commitments, I will undertake a number of methods that will, in the least, bring some of this knowledge back to Buenos Aires and work, in the long run, through numerous other studies and publications, in helping to alleviate the challenges associated with recycling. Thus, in order to disseminate the research appropriately, I plan on undertaking the following steps in knowledge mobilization and awareness:

1. I will publish Chapter 3 & 4 for academic dissemination. This will allow the research to become part of the burgeoning information found on informal recycling and health.

2. I will try co-write a news article in Buenos Aires in order to publically raise awareness on source separation, exemplifying the importance of informal recycling and of properly disposing perceived hazardous items, such as syringes, knives, and broken glass.
3. As discussed and agreed upon during our interview, I will send a summarized and succinct report to the Director of Urban Recycling in Buenos Aires detailing the research outcomes.
4. The results have been presented at two conferences and one workshop.
5. The main research findings will be summarized into a pamphlet and distributed through projects with the Community-based Research Lab.

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Appendices

Appendix 1. Survey guide



Fecha: (Date) _____

Lugar: (Location) _____

Gracias por tomarse el tiempo para responder las siguientes preguntas. Esta encuesta es parte de un proyecto de investigación entre los recicladores informales en Buenos Aires y la Universidad de Victoria, Canadá. La información recopilada será utilizada en un proyecto de investigación sobre la percepción de los riesgos de salud en el campo ocupacional. El proyecto recibió la aprobación ética de la Universidad de Victoria (Protocolo número **10-233**).

*(Thank you for taking the time to answer the following questions. This survey is part of a research project among informal recyclers in Buenos Aires and the University of Victoria, Canada. The information collected will be used in a research project on the perception of health and occupational risks in informal recycling. The project received ethical approval from the University of Victoria (Protocol No. **10-233**.)*

Para más información vea nuestra página web: www.cbri.uvic.ca o contáctese con Eric Binion (ebinion@uvic.ca o [REDACTED]). Además, Ud. puede verificar la aprobación ética del estudio, o plantear cualquier preocupación que pudiera tener, poniéndose en contacto con la Oficina de Ética de Investigación en Seres Humanos en la Universidad de Victoria (001-250-472-4545 o ethics@uvic.ca).

(For more information see our website: www.cbri.uvic.ca or contact Eric Binion ([REDACTED] or 15-311-40764). In addition, you can check ethical approval of study, or raise any concerns you may have, by contacting the Ethics Office of Human Research at the University of Victoria (001-250-472-4545 or ethics@UVic.ca.)

La encuesta dura aproximadamente 20 minutos. Su participación es totalmente voluntaria. Usted decide si completar o no la encuesta. Si usted se compromete a completar esta encuesta, por favor, NO escriba su nombre. El completar y enviar el cuestionario, indica su consentimiento y conocimiento de las pautas, indica que usted entiende las condiciones anteriores de la participación en este estudio y que ha tenido la oportunidad de tener sus preguntas contestadas por los investigadores. Todas las encuestas serán confidenciales y serán descartadas tras el análisis. Por favor, háganos saber si alguna de las preguntas no está clara, o si desea obtener más información acerca de nuestro proyecto de investigación. Gracias.

(The survey takes about 20 minutes. Your participation is completely voluntary. You decide whether or not complete the survey. If you agree to complete this survey, please DO NOT write your name. The complete and submit the questionnaire indicate your consent and knowledge of the guidelines indicates that you understand the above conditions of participation in this study and has had the opportunity to have your questions answered by researchers. All surveys are confidential and will be discarded after analysis. Please let us know if any of these questions is unclear, or would like more information about our research project. Thank you.)

Por favor, marque aquí si ha entendido las pautas anteriores:

(Please check here if you understood the above guidelines:)

1. Es usted: Mujer Hombre

Gender

2. Edad: menos de 18 19-29 30-39 40-49 50+

Age

3. ¿Cómo describiría su salud?

How would you describe your health?

4. ¿Cuáles son los problemas de salud persistentes?

What are some persistent health problems?

5. ¿Dónde siente el dolor con frecuencia?

Where do you frequently feel pain?

6. ¿Cuándo usted tiene un problema de salud consulta al médico?

When you have a health problem do you go to the doctor?

7. ¿Cuáles son algunos de los elementos peligrosos que ha encontrado en el trabajo?

What are some dangerous things you have found at work?

8. Durante la recolección, ¿alguna vez ha sufrido un accidente de tráfico?

During collection, have you ever experienced a traffic accident?

9. Comentarios adicionales

Additional comments

Appendix 2. Interview guides

Interview with 'Pablo' – Reciclando Sueños

1. ¿Desde que el año ha estado trabajando con el reciclaje?

How long have you been working as an informal recycler?

2. ¿Sentís dolores con frecuencia? ¿Dónde los sentís?

Do you feel pain frequently? Where?

3. ¿Vos cuando estás trabajando acá con los materiales, encontrás algunas cosas peligrosas? ¿O ya está todo seleccionado?

Do you ever encounter dangerous objects while working?

4. ¿Pensás que es peligroso trabajar acá?

What do you perceive to be dangerous about work?

5. ¿Alguna vez te lastimaste?

Have you ever been hurt?

6. ¿Tenés problemas para respirar?

Do you have problems breathing?

7. ¿Cuántas veces te enfermaste en el último año?

How many times have you been sick in the last year?

8. ¿Te sentís estresado o con ansiedad?

Do you experience stress or anxiety?

Public Hospital Nurse

1. ¿Crees que ellos (los cartoneros) reciben buen tratamiento?

Do you believe recyclers receive good treatment?

2. ¿Sabes cualquier cosa sobre la seguridad de la basura del hospital?

Do you know anything about the safety of waste [disposal] from the hospital?

3. ¿Y por creaste qué un gran problemas de cartoneros y drogas?

Why do you believe that there is a large problem with informal recycling and drug use?

4. ¿Hay problemas de VIH con los cartoneros y la basura o solo drogas?

Is there a problem with HIV, waste, and drugs with the recyclers?

MTE

1. ¿Cuáles la situación por MTE por la seguridad; ellos tienen uniformes pero no guantes?

What is the situation with MTE and safety? Why do they (recyclers) have uniforms but no gloves?

2. ¿Es MTE cobertura de Obras Sociales?

Is MTE covered by [extended social insurance]?

3. ¿Qué pasa si un miembro se enferma o un accidente? ¿Ellos tienen pagar o ganar?

What happens if a member (recycler) is ill or is in an accident? Do they still receive pay or wages?

4. ¿Qué ha hecho al gobierno para aliviar los riesgos?

What will the government (local city) do in order to alleviate risks?

5. ¿Cuáles son las cosas que le gustaría que cambiara en lo que respecta a la política sobre la salud y riesgo?

What are some things that you would like to see changed with respect to health and risks?

6. ¿Cree que la situación ahora es más mejor que la pasado?

Do you believe the current situation is better now than before?

Director of Recycling

1. ¿Vos pusiste el programa con las cooperativas y con la gente que están fuera?

Did you instil/start the current program/initiative with the cooperatives and the people?

2. ¿Cuántos son las zonas verdes?

How many Green Zones are there?

3. ¿Cuáles son los riesgos que estos tienen actualmente de salud en el trabajo?

What are the health risks associated with working (informal recycling)?

Director of Hospital Waste

1. ¿Digame sobre la basura de la hospital, la historia, etc.?

Tell me about the hospital waste

2. ¿Desde oresta en practica, las politicas han tenido exitos? incinerar?

Since when has the practice (incineration of waste) existed?

3. ¿Cree que la basura he sido dispuesto bien?

Do you believe that the waste is being dealt with OK?

4. ¿Hubo, o hay, problemas con la basura de hospitals y los cartoneros?

Are there, or is there, problems with the hospital waste (collection) and the recyclers?

5. ¿Digame sobre jeringas?

Tell me about syringes.

Appendix 3. Ley 992 (Law 992)

Ley N° 992

Buenos Aires, 12 de diciembre de 2002.-

La Legislatura de la Ciudad Autónoma de Buenos Aires sanciona con fuerza de Ley

Artículo 1º.- Declárase como un Servicio Público a los Servicios de Higiene Urbana de la Ciudad Autónoma de Buenos Aires.

Artículo 2º.- El Poder Ejecutivo incorpora a los recuperadores de residuos reciclables a la recolección diferenciada en el servicio de higiene urbana vigente.

Artículo 3º.- Lo dispuesto en el artículo anterior deberá efectuarse previendo el cumplimiento de los siguientes objetivos:

Concebir una Gestión Integral de los Residuos Urbanos en la Ciudad Autónoma de Buenos Aires, que permita la recuperación de materiales reciclables y reutilizables, y deje sin efecto, como disposición final, el entierro indiscriminado de los residuos en los rellenos sanitarios.

Priorizar la asignación de zonas de trabajo, considerando la preexistencia de personas físicas, cooperativas y mutuales.

Coordinar y promover con otras jurisdicciones y organismos oficiales, acciones de cooperación mutua, planes y procedimientos conjuntos que tiendan a optimizar y mejorar el fin de la presente Ley, generando procesos económicos que incluyan a los recuperadores.

Diseñar un Plan de Preselección Domiciliaria de Residuos.

Implementar una permanente campaña educativa, con la finalidad de concientizar a los habitantes de la Ciudad Autónoma de Buenos Aires sobre los siguientes puntos: El impacto favorable que genera la actividad de recuperación y reciclado en su aspecto ambiental, social y económico. El beneficio que acarrea la separación de residuos en origen y/o previamente a su disposición final, facilitando de este modo el trabajo de los recuperadores y contribuyendo a la limpieza de la Ciudad y al cuidado del medio ambiente.

Artículo 4º.- Créase el Registro Único Obligatorio Permanente de Recuperadores de Materiales Reciclables. La autoridad encargada de la confección del Registro proveerá a los inscriptos una credencial para ser utilizada durante el desarrollo de su actividad y suministrará vestimenta de trabajo y guantes. Se tenderá al equipamiento necesario para equiparar la recolección al sistema de higiene urbana.

Artículo 5º.- Créase el Registro Permanente de Cooperativas y Pequeñas y Medianas

Empresas relacionadas con la actividad.

Artículo 6º.- Impleméntanse programas de actuación y capacitación destinados a todos los inscriptos en el Registro mencionado en el artículo 4º, con el objeto de proteger la salud, la higiene y la seguridad laboral durante el ejercicio de la actividad, como así también, promocionar una adecuada planificación de la actividad, evitando que el desarrollo de la misma redunde en menoscabo de la limpieza e higiene de la Ciudad. Los programas deberán diseñarse teniendo como ejes, además, los siguientes puntos: Formación y asesoramiento para la constitución de futuras cooperativas u otro microemprendimiento productivo. Asesoramiento para negociar su producto y facilitarles información sobre la totalidad del material recuperable para su posterior reciclaje . Programa de salud específico para los inscriptos y su grupo familiar.

Artículo 7º.- Queda derogado el artículo 6º de la Ordenanza N° 33.581 y el artículo 22º de la Ordenanza N° 39.874.

Artículo 8º.- Prohíbese la entrega y/o comercialización de residuos alimenticios cualquiera sea su procedencia.

Artículo 9º.- La presente Ley entra en vigencia el día de su publicación en el Boletín Oficial de la Ciudad de Buenos Aires.

Cláusula Transitoria Primera: El Poder Ejecutivo informará a esta Legislatura en un plazo de noventa (90) días, los estudios tendientes a poner en práctica una gestión integral de los residuos sólidos urbanos, en el cual se especifiquen las distintas modalidades a ser utilizadas.

Cláusula Transitoria Segunda: La instrumentación de esta Ley durante la vigencia de los actuales contratos no puede en ningún caso reducir la calidad ni las prestaciones del servicio que realizan los concesionarios.

Artículo 10º.- Comuníquese, etc.

CRISTIAN CARAM
JUAN MANUEL ALEMANY

LEY N° 992
Sanción: 12/12/2002
Promulgación: De hecho del 21/01/2003
Publicación: BOCBA N° 1619 del 29/01/2003