



**PSYCHOSOCIAL DETERMINANTS OF PERCEIVED WELL-BEING AMONG
INFORMAL WASTE WORKERS AT REPPIE LANDFILL SITE (KOSHE) IN ADDIS
ABABA**

MESSAY SINTAYEHU BESHAH

**A THESIS SUBMITTED TO THE SCHOOL OF PSYCHOLOGY IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER OF ARTS IN
SOCIAL PSYCHOLOGY**

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Title Page

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A THESIS SUBMITTED TO THE SCHOOL OF PSYCHOLOGY IN PARTIAL
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PSYCHOLOGY

AUTHOR DECLARATION

I, Messay Sintayehu, hereby affirm that the thesis research titled “Psychosocial Determinants of Perceived Well-Being Among Informal Waste Workers at Reppie Landfill Site (Koshe) in Addis Ababa” is entirely my original work. I confirm that this research has not been submitted, in whole or in part, to qualify for any other academic degree at any university. I have duly acknowledged and referenced all the materials referred to and utilized in this research.

NAME

SIGNATURE

DATE

Messay Sintayehu

A handwritten signature in black ink, appearing to read 'Messay Sintayehu', is written over a light gray rectangular background.

May 2026

ADVISOR STATEMENT OF CERTIFICATION

I hereby certify that the thesis titled “Psychosocial Determinants of Perceived Well-Being Among Informal Waste Workers at Reppie Landfill Site (Koshe) in Addis Ababa” was conducted by Messay Sintayehu Beshah as part of the requirements for the completion of the Master of Arts in Social Psychology at Addis Ababa University. I confirm that this thesis represents an original piece of work and has been submitted with my approval.

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BOARD OF EXAMINERS STATEMENT OF CERTIFICATION

PSYCHOSOCIAL DETERMINANTS OF PERCEIVED WELL-BEING AMONG INFORMAL WASTE WORKERS AT REPPIE LANDFILL SITE (KOSHE) IN ADDIS ABABA

This thesis paper is prepared by Messay Sintayehu Beshah and submitted to the School of Psychology in partial fulfillment of the requirements for the Master of Arts in Social Psychology.

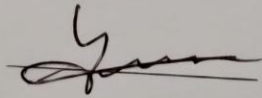
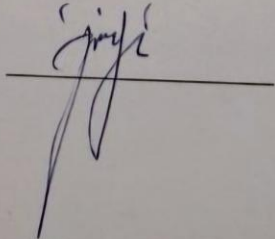
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ABBREVIATIONS AND ACRONYMS

AACMA	Addis Ababa Cleansing Management Agency
AAU	Addis Ababa University
APA	American Psychological Association
CI	Confidence Interval
COD	Chemical Oxygen Demand
DV	Dependent Variable
EPA	Environmental Protection Authority
EPR	Extended Producer Responsibility
ETB	Ethiopian Birr
HIDO	Hiwot Integrated Development Organization
IRB	Institutional Review Board
IV	Independent Variable
JICA	Japan International Cooperation Agency
KII	Key Informant Interview
MeV	Mediating Variable
MoPD	Ministry of Planning and Development
MoV	Moderating Variable
MSPSS	Multidimensional Scale of Perceived Social Support
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
RSES	Rosenberg Self-Esteem Scale
S&M	Soil and More Ethiopia
SCS	Stigma Consciousness Scale
SD	Standard Deviation
SME	Small and Medium Enterprise
SE	Standard Error
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor
WEMWBS	Warwick–Edinburgh Mental Well-Being Scale
WIEGO	Women in Informal Employment: Globalizing and Organizing

ABSTRACT

Informal waste workers are essential to urban waste management and circular economies in developing countries, yet they face persistent occupational stigma, social exclusion, and hazardous conditions. In Addis Ababa, limited empirical research exists on how these psychosocial factors affect their mental health. This study investigated the psychosocial determinants of perceived well-being among informal waste workers at Reppie Landfill Site (Koshe), focusing on the mediating role of self-esteem and the moderating role of perceived social support. A mixed-methods convergent parallel design was employed. Quantitative data were collected from 314 informal waste workers using adapted versions of the Stigma Consciousness Scale, Rosenberg Self-Esteem Scale, Multidimensional Scale of Perceived Social Support, and Warwick-Edinburgh Mental Well-Being Scale. Qualitative data were collected through key informant interviews. Mediation and moderation analyses were conducted using PROCESS Macro (Model 5). Stigma had a significant negative direct effect on perceived well-being ($B = -.330, p < .001$). Self-esteem significantly mediated the stigma-well-being relationship (indirect effect = $-.072, 95\% \text{ CI } [-.118, -.029]$), indicating that stigma reduces perceived well-being partly by eroding self-esteem. Perceived social support had a significant positive main effect on perceived well-being ($B = .257, p < .001$) but did not significantly moderate the stigma-well-being relationship (interaction $B = .024, p = .697$). Qualitative findings revealed chronic stress, internalized shame, institutional discrimination, and the centrality of informal peer networks for emotional support. The findings inform policymakers, municipal actors, and civil society in waste management and social protection. Recommendations include integrating psychosocial services into formalization efforts, implementing dignity-centered training, launching stigma-reduction campaigns, and strengthening peer support networks. The study contributes empirical evidence on the stigma-well-being nexus among marginalized occupational groups in Ethiopia.

Keywords: Stigma; Self-esteem; Perceived social support; Perceived well-being; Informal waste workers;

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The informal sector waste workers—colloquially referred to as waste pickers, collectors, or scavengers—are vital stakeholders in the municipal solid waste management systems of cities and towns in developing countries, especially in Africa, where formal waste management infrastructure is often poorly developed (Medina, 2007; Samson, 2009). In Ethiopia, rapid urbanization and population growth have significantly increased the volume of municipal solid waste generated. A study conducted by the Japan International Cooperation Agency (JICA, 2024) and the Addis Ababa Cleansing Management Agency (AACMA, 2024) estimated that more than 3,000 tons of solid waste are generated in Addis Ababa each day, of which approximately 70% is collected through formal systems. Informal workers recover a significant proportion of waste, especially recyclables, operating outside the formal municipal sector.

The Reppie landfill site, locally known as Koshe in Addis Ababa, is the largest waste landfill site in Ethiopia and serves as a major informal waste worker settlement and waste recovery site. According to data obtained from Woreda 1 Administration of the Kolfe Keraniyo Sub City, approximately 2,000 informal workers are estimated to live on and utilize the landfill site, most of whom depend solely on waste picking as their livelihood source. Through their daily waste picking activities, these workers recover a considerable portion of valuable resources, contribute to landfill waste diversion, and sustain the functioning of the urban circular economy (Wilson et al., 2006). Informally, this work is consistent with Ethiopia's commitment to climate change under its Nationally Determined Contribution (NDC 3.0), which prioritizes emission reduction, sustainable waste management, and equitable climate action as part of the national development agenda (Ministry of Planning and Development [MoPD], 2025). This contribution is further aligned with the Ethiopian Environmental Policy, the National Circular Economy Roadmap, and the Solid Waste Management and Disposal Proclamation. All these policy documents have underscored the importance of waste prevention and resource recovery, sound waste management, and the progressive integration of diverse stakeholders into sustainable waste governance frameworks.

However, informal workers face extremely precarious occupational conditions, including the constant threat of occupational hazards, unstable income, and exclusion from society (Temesgen

et al., 2022). From a social psychology perspective, psychosocial determinants—characteristics of an individual's social environment that significantly affect their mental and social health—are critical for understanding the lived experiences of marginalized occupational groups (Thoits, 2011). Key psychosocial factors influencing these experiences include stigma (Thoits, 2011), structural and individual processes of social devaluation (Link & Phelan, 2001), stigma consciousness (an individual's perception of being stereotyped, stigmatized, or discriminated against based on their social identity; Pinel, 1999), self-esteem (an individual's overall appraisal of their self-worth; Rosenberg, 1965), and perceived social support (individuals' beliefs that assistance is available from family, friends, and society; Zimet et al., 1988). These factors contribute significantly to poor perceived well-being, which is defined as the subjective evaluation of positive mental functioning, emotional balance, and life's sense of meaning (Tennant et al., 2007).

Existing empirical studies from other African contexts provide evidence for these psychosocial dynamics. A quantitative study conducted among informal waste collectors in Ghana revealed high psychosocial risks, work over-demands, social marginalization, job dissatisfaction, and decreased well-being (Lissah & Ayanore, 2020). Similarly, a study conducted in Nigeria documented common mental disorders and social isolation due to stigma among waste workers (Oluwafemi & Iweala, 2019), while research conducted in South Africa reported social exclusion from policy contexts, lack of social recognition, and diminished self-worth among waste workers (Godfrey et al., 2023). Although most Ethiopian studies on municipal waste workers have focused on physical injuries—reporting a high prevalence of 58.5%—there is emerging evidence of psychosocial strain resulting from marginalization, lack of social support, and job insecurity (Temesgen et al., 2022; Melaku & Tiruneh, 2020).

Hence, the present study examines the psychosocial determinants of perceived well-being among informal workers at the Reppie landfill site. Following the frameworks of Social Identity and Self-Esteem Theory and the Stress-Buffering Model, the study examines the direct effects of stigma on perceived well-being as well as the moderating effects of perceived social support on the relationship between stigma and perceived well-being. The present study hopes to contribute to social psychology literature by exploring the underlying psychosocial dynamics influencing the

experiences of informal waste workers and by providing a scientific basis for inclusive urban development, waste management, and social protection policy interventions in Ethiopia.

1.2 Statement of the Problem

Informal waste workers are a vital but socially marginalized component of Addis Ababa's solid waste management system (Alemu, 2017). These workers help reduce pressure on landfill sites and contribute to environmental sustainability by collecting and recovering recyclable materials (JICA, 2024; AACMA, 2024). According to data from the Japan International Cooperation Agency (JICA, 2024), approximately 2,000 informal waste pickers operate at Ethiopia's Reppie landfill site, depending on waste picking for their income and livelihood. Despite their contributions to resource recovery and the circular economy, these workers face workplace risks, lack of income security, and constant marginalization in society.

Various studies conducted in Ethiopia have highlighted the physical and occupational health risks faced by waste pickers, including injuries and exposure to hazardous materials (Temesgen et al., 2022). While these studies contribute significantly to our understanding of physical risks in the waste sector, they provide limited insight into the psychosocial dynamics involved in informal waste work. From a social psychological perspective, factors such as perceived self-esteem, public stigma, perceived social support, and subjective well-being are essential for understanding why marginalized individuals are prone to hardship and how they cope with and manage their livelihoods (Thoits, 2011). However, in the Ethiopian context—particularly among informal waste pickers—these psychosocial components remain under-researched.

Evidence from across Africa indicates that psychosocial dimensions are problematic issues for waste pickers. A study conducted in Ghana found that occupational stigma, social exclusion, and lack of recognition contributed to psychological distress and low subjective well-being among waste collectors (Lissah & Ayanore, 2020). Similarly, research conducted in Nigeria documented elevated levels of anxiety and depression among informal waste workers, exacerbated by stigma and social isolation (Oluwafemi & Iweala, 2019). In South Africa, a study highlighted how stigma constrains policy inclusion and weakens social recognition, negatively affecting workers' self-worth and mental health (Godfrey et al., 2023). In Ethiopia, although emerging studies acknowledge psychological strain linked to marginalization and weakened social networks (Melaku & Tiruneh, 2020), there remains inadequate empirical investigation regarding how

occupational stigma affects subjective well-being through the mediating mechanism of self-esteem and whether perceived social support moderates the association between occupational stigma and perceived well-being.

Recent national and city-level policy frameworks demonstrate increasing recognition of waste management as a critical component of sustainable development. Ethiopia's Ten-Year Development Plan (2021–2030) sets explicit targets for improving solid waste management services in urban areas, aiming to increase the coverage of dry waste removal from approximately 30% to 80% in towns with populations over 20,000, underscoring the policy emphasis on improved sanitation within broader development goals. Ethiopia's National Circular Economy Roadmap (2025–2035) and National Plastic Waste Management Strategy and Roadmap (2024–2034) emphasize waste prevention, recycling, and resource efficiency. At the city level, the Addis Ababa City Integrated Solid Waste Management Strategic Master Plan (2024–2043) outlines a comprehensive vision for an environmentally friendly, socially acceptable, and economically viable waste management system, including collaboration with the private and informal sectors. Furthermore, the Environmental Policy of Ethiopia and Proclamation No. 1383/2025 on Solid Waste Management and Disposal provide the legal foundation for waste governance in Ethiopia. However, while these policy instruments prioritize technical, institutional, and environmental dimensions, they give limited explicit attention to the psychosocial well-being, stigma, and social inclusion of informal waste workers who are central to achieving waste recovery and circular economy goals.

Hence, this study seeks to investigate the extent to which psychosocial variables—namely occupational stigma, perceived self-esteem, and social support—explain informal waste workers' perceived well-being. Following the propositions of Social Identity and Self-Esteem Theory and the Stress-Buffering Model, the study tests whether occupational stigma affects informal waste workers' perceived well-being through self-esteem and whether these effects are conditioned by perceived social support. The study will contribute to developing inclusive policies and interventions that take into account the crucial well-being issues of informal waste workers whose work not only makes cities livable but also enhances the circular economy.

My Interest in the Study

My interest in this research topic developed gradually through sustained engagement with the issue of informal waste workers. Initially, I attended a meeting organized by Eco Justice Ethiopia, where I learned about the daily struggles, stigma, and economic hardships faced by informal waste workers in Addis Ababa. This exposure motivated me to select the issue as a case study for my Social Program Development and Evaluation course, where I began to understand the complexity of their situation from a programmatic perspective. Subsequently, during my social psychology internship, I returned to Eco Justice Ethiopia to continue working with and learning about this marginalized group. The cumulative experience of witnessing their resilience despite systemic neglect, combined with the lack of empirical research on their psychosocial well-being, ultimately led me to choose this topic for my thesis research. My goal is to generate evidence that can inform policies and interventions to improve the lives of these invisible yet essential workers.

1.3 Objectives of the Study

General Objective

The general objective of this study is to examine the psychosocial determinants of perceived well-being among informal waste workers at the Reppie (Koshe) Landfill Site in Addis Ababa, focusing on the interplay between stigma, self-esteem, and social support.

Specific Objectives

- To investigate the relationship between occupational stigma and the perceived well-being of informal waste workers.
- To determine the mediating role of self-esteem in the relationship between occupational stigma and perceived well-being.
- To test the moderating effect of perceived social support on the impact of occupational stigma on worker perceived well-being.
- To explore the perspectives of key stakeholders regarding the institutional and social barriers affecting the psychosocial health of waste workers.

1.4 Research Questions

Based on the research objectives, the study seeks to answer the following questions

- How does occupational stigma significantly influence the perceived well-being of informal waste workers at the Reppie Landfill Site?
- To what extent does self-esteem act as a mediator in the path between occupational stigma and perceived well-being outcomes?
- Does social support serve as a significant moderator in buffering the negative psychological effects of stigma on worker perceived well-being?
- What are the perspectives of key stakeholders regarding the institutional and social barriers affecting the psychosocial health of informal waste workers?

1.5 Significance of the Study

This study explores the psychosocial determinants of perceived well-being of informal waste workers in Addis Ababa and has theoretical, practical, and policy significance.

Theoretically, the study enhances the body of knowledge in the field of Social Psychology. The current research focuses on a well-documented knowledge gap regarding the mental and social well-being of socially excluded groups engaged in stigmatized occupations in an urban African setting. Through examination of stigma, self-esteem, and perceived social support, the study provides insight into the way stigmatized work influences workers' psychological functioning and perceived well-being. Findings from this research will inform the practical application of Social Identity and Stress-Buffering theories and assist in better explaining the interplay of individual psychological processes and larger social circumstances on well-being outcomes among informal workers.

Practically, this study will inform development and design of context-specific interventions that can improve the psychosocial well-being of informal waste workers. Results of the study can aid the creation of programs such as peer-support mechanisms, awareness raising efforts at community levels, and stigma-reducing activities that enhance self-esteem and promote social support networks. Improving workers' well-being has been shown to promote social inclusion, reduce psychological stress, and enable sustainable participation in environmentally beneficial waste recovery activities and ultimately benefit workers, their families, and surrounding communities.

Policy-wise, findings from this study can provide supporting evidence for the municipal government, development agencies, and civic societies engaged in solid waste management and social protection. By shedding light on the psychosocial barriers informal waste workers encounter, this research can inform integrated urban waste management governance and labor policies, by helping incorporate psychosocial aspects in policy and implementation efforts such as the Ten-Year Development Plan and the Addis Ababa City Integrated Solid Waste Management Strategic Master Plan, among others. Overall, this study would promote inclusive and sustainable urban development in Addis Ababa.

1.6 Scope of the Study

The current study explores the psychosocial determinants of perceived well-being among informal waste workers in Addis Ababa and specifically focuses on occupational stigma, self-esteem, and perceived social support.

From a geographical perspective, this study focuses on Addis Ababa, particularly the Reppie Landfill Site where the largest population of informal waste workers is concentrated as well as the workers interviewed on major waste collection routes. It is estimated that about 2,000 workers work at the Reppie Landfill Site alone although the precise population size is unknown.

Conceptually, the study investigated the relationship between occupational stigma and perceived well-being. The mediating role of self-esteem and moderating role of perceived social support are examined. This study was grounded in the theories of Social Identity and Self-Esteem Theory and Stress-Buffering Model that would provide guidance in the assessment of how occupational stigmatization affects workers' perceived well-being.

Methodologically, this research used both quantitative and qualitative methods. In the quantitative aspect a survey of informal workers, randomly encountered at the landfill site and during waste collection activity, was undertaken. Qualitative aspect included key informant interviews of people from the relevant governmental offices and relevant non-governmental organizations. The current study included adult informal workers and excluded the formally employed waste sector. It also focused only on perceived psychosocial well-being, not physical and occupational health.

Temporally, the study is cross-sectional and was conducted within approximately nine months during 2025/2026 academic year.

1.7 Operational and Conceptual Definitions of Terms

This section defines the key concepts and variables used in this study according to the specific ways in which they are operationalized and measured within the research context.

Informal Waste Worker: An informal waste worker (often referred to as a waste picker or informal recycler) is an individual who collects, sorts, and sells recyclable materials from waste streams as a primary means of livelihood, operating outside formal employment arrangements and without legal recognition or social protection within municipal waste management systems (WIEGO, 2020; Wilson et al., 2006). For the purpose of this study informal waste worker means any male or female aged 18 years and above, not formally working for any government or private waste collection service, who earn their living by directly handling, collecting, sorting, and selling the recyclable wastes (plastics, metal, glass, and papers) from Reppie Landfill Site Addis Ababa.

Psychosocial: Psychosocial means interactions between mental states and social conditions influencing individual's mental health, social well-being, and interpersonal interaction, especially where social marginality and disadvantage occurs (Thoits, 2011).

Stigma (Consciousness): Stigma refers to the perceived experience of social devaluation, stereotyping, and discrimination associated with engagement in informal waste work. In this study, stigma is operationalized as stigma consciousness and is measured using the Stigma Consciousness Scale, a 10-item Likert-type scale assessing individuals' expectations of being stereotyped or judged based on their occupational identity (Pinel, 1999).

Self-Esteem: Self-esteem refers to an individual's overall subjective evaluation of personal worth and self-acceptance. In this study, self-esteem is measured using the Rosenberg Self-Esteem Scale, a 10-item Likert-type scale assessing global self-worth and self-respect among informal waste workers (Rosenberg, 1965).

Perceived Social Support: Perceived social support refers to an individual's belief that emotional, informational, and instrumental support is available from family members, friends, and significant

others. In this study, perceived social support is measured using the Multidimensional Scale of Perceived Social Support, a 12-item Likert-type scale (Zimet et al., 1988).

Perceived Well-Being: Perceived well-being refers to individuals' subjective assessment of their positive mental functioning, emotional balance, and sense of purpose in daily life. In this study, perceived well-being is measured using the Warwick–Edinburgh Mental Well-Being Scale, a 14-item Likert-type scale designed to capture positive mental well-being (Tennant et al., 2007).

CHAPTER TWO

LITERATURE REVIEW

This chapter presents a comprehensive review of the theoretical and empirical literature underpinning the study. The chapter is organized into six main sections. It begins with a theoretical literature review, discussing the key theories that guide the study: Social Identity and Self-Esteem Theory, the Stigma Framework, the Stress-Buffering Model of Social Support, and Psychological Well-Being and Self-Esteem Perspectives. Following the theoretical review, the chapter presents empirical literature organized geographically from broader African evidence to studies specific to Ethiopia and Addis Ababa. A synthesis of findings is then provided, followed by identification of gaps in the existing literature. The chapter concludes by outlining the implications of these gaps for the present study and presenting the conceptual framework.

2.1 Theoretical Literature Review

The theoretical literature review examines four interconnected bodies of theory that provide the foundation for understanding the psychosocial determinants of perceived well-being among informal waste workers. First, Social Identity and Self-Esteem Theory explains how membership in socially devalued occupational groups affects self-concept and psychological functioning. Second, the Stigma Framework conceptualizes stigma as a multidimensional social process embedded within structures of power and inequality. Third, the Stress-Buffering Model of Social Support describes how perceived social support can mitigate the negative psychological consequences of chronic stressors. Fourth, Psychological Well-Being and Self-Esteem Perspectives clarify the relationship between self-worth and positive mental health outcomes. Each theory is discussed in turn, and their integration informs the conceptual framework of the study.

2.1.1 Social Identity and Self-Esteem Theory

Social Identity Theory, developed by Tajfel and Turner (1986), provides a foundational framework for understanding how group membership shapes individual self-concept and psychological well-being. The theory posits that individuals derive a portion of their self-esteem from the social groups to which they belong and the value those groups hold within society. Membership in socially devalued groups is therefore associated with diminished self-worth and psychological vulnerability (Crocker & Major, 1989).

To informal waste workers occupational identity is tied to a devalued social identity and the stigma of dirtiness, low social status, and marginality (Ashforth & Kreiner, 1999; Hughes, 1958). Stigma is the process by which one is devalued, that threatens social identity and self-esteem (Tajfel, 1978) and over time, may result in internalized stigma (Corrigan & Watson, 2002). According to Crocker and Major (1989) some coping methods can be utilized to uphold self-esteem among members of stigmatized groups, such as group identification or shifting social comparisons, however, these are not helpful in the face of pervasive, structurally embedded and publicly reinforced stigmas. Under these circumstances, stigma consciousness, the awareness that others expect you to be stereotyped and/or treated in a particular way and that such treatment would affect your self-esteem (Pinel, 1999), is activated. Self-esteem was the key psychological process whereby occupational stigma influenced perceived well-being in the current study and the Social Identity perspective highlights how perceptions of well-being may be influenced by social information.

2.1.2 Stigma Framework

Link and Phelan's (2001) stigma framework defines stigma as a five-component, multi-dimensional social process: labeling, stereotyping, separation, status loss, and discrimination within conditions of unequal power. Unlike earlier views which perceived stigma as something the individual internalizes, this model suggests that the individual, in fact, is a conduit for structural processes of stigma.

In informal waste work, stigma is not simply a problem of individual attitudes, but, like the problem of informal work itself, exists within power relationships that devalue the work performed and its performers, thereby excluded from formal recognition, rights, and support (Medina, 2007; Samson, 2009). Structural stigmatization, in this sense, results in exclusion, lack of access to resources, voice, and dignity.

The stigma framework accounts for individual psychological mechanisms by describing internalization processes, including self-stigmatization, that result in low self-esteem and psychological distress (Corrigan & Watson, 2002). In a way that is consistent with stress-buffering explanations, Link and Phelan's model allows for social interaction and institution-level interventions to counteract stigmatization processes through social support, group action, and recognition from formal society (Phelan, Link, and Dovidio, 2008).

This paper utilizes the Link and Phelan (2001) model of stigma as an appropriate explanation for why we need to study both individual-level experiences of stigma and of self-esteem, perceived social support, and perceived well-being within the wider context of inequality and exclusion.

2.1.3 The Stress-Buffering Model of Social Support

In a social support context, the Stress-Buffering Model by Cohen & Wills (1985) argues that social support buffer negative psychological outcomes experienced due to stressful life events. Those who have the perception of receiving emotional, instrumental and/or informational support are believed to cope better with stress and to experience enhanced psychological health. Buffer effects are observed under certain conditions such as chronic stress from the social environment like the existence of social discrimination and occupation stigma (Thoits, 2011).

Social support buffer effects work through certain processes namely diminishing the severity of the stressor, reinforcing one's coping resources, and providing emotional validation and reassurance (Lakey & Cohen, 2000). Among the informal waste workers who are subject to occupational hazards, the risk of social marginalization, discrimination and economic insecurity can be compensated for the support received from social ties (family, friends and social networks) in the face of stigma.

A study in Africa shows that perceived social support moderates the relationship between stigma and negative mental health outcomes. Adewuya et al. (2018) suggest that social support buffer the negative influence of stigma on psychological distress. It also showed that social support protects emotional distress from marginal individuals by Sori et al. (2022).

The social support in this present study was conceptualized as moderating variable. It weakens the effects of stigma on self-esteem and perceived well-being. The Stress-Buffering Model is then employed to conceptually support the idea of investigating social support as a contextual resource that buffers informal waste workers from being adversely impacted by stigma.

2.1.4 Psychological Well-Being and Self-Esteem Perspectives

Psychological well-being (according to Ryff, 1989) consists of six interlocking dimensions: autonomy, environmental mastery, positive relations with others, personal growth, purpose in life,

and self-acceptance. This eudaimonic conceptualization is focused more on meaning, functioning and self-actualization than on passing moments of happiness.

Self-esteem, a key psychological resource that affects well-being, has been defined as an individual's subjective evaluation of their own worth (Rosenberg, 1965). It has been correlated with coping and emotional regulation abilities, with higher self-esteem contributing to greater resilience whereas low self-esteem is associated with increased levels of depression, anxiety and social withdrawal (Orth & Robins, 2014).

The role of self-esteem as a mediator has been investigated in low and middle income contexts, where it has been shown that self-esteem mediates the relationship between social stigma and psychological well-being (Adjorlolo & Watt, 2017; Sori et al., 2022). For stigmatized work such as informal waste labor, the development of self-esteem is determined by both workers' actions and social acknowledgement; thus when workers' contributions are acknowledged as valuable, workers' sense of self-esteem and subsequent well-being is reinforced, whereas if it is unacknowledged the former declines (Samson, 2009).

Furthermore, there is an interaction between self-esteem and perceived social support, whereby those who perceive high self-esteem are more likely to seek out and maintain positive social relationships that provide a sense of resilience (Lakey & Orehek, 2011). It is due to this interplay that in the present study self-esteem is proposed as a mediator and perceived social support is proposed as a moderator.

2.2 Empirical Literature Review

This section reviews empirical studies on the psychosocial dimensions of informal waste work, with particular attention to stigma, self-esteem, perceived social support, and perceived well-being. The review progresses from broader African evidence to studies conducted in Ethiopia and, more narrowly, Addis Ababa. It concludes by identifying gaps in the existing literature and outlining implications for the present study.

2.2.1 Empirical Studies from African Countries

Across Africa, informal waste workers are the principal yet marginal labor component of urban solid waste management systems. Empirical evidence from numerous African countries is

consistent in confirming the fact that not only do physically and financially vulnerable occupations exist in waste picking, but that there is also a substantial psychosocial component involved.

In Ghana, research has shown informal waste collectors experience both high occupational stress and low job satisfaction, which are primarily driven by social exclusion, lack of recognition and dangerous working environments (Lissah & Ayanore, 2020). Negative social views of waste work was found by the authors to be a predictor of psychosocial outcomes, and stigma was found to be an important psychosocial determinant. In addition, workers who reported higher social support (family & peer) experienced better coping outcomes suggesting a buffering effect.

In Nigeria, empirical studies also report on a strong relationship between occupation stigma and psychosocial outcomes among informal waste workers. Oluwafemi & Iweala (2019) reported significant mental health outcome indicators among waste workers relative to those in other informal occupational sectors. Their work suggests that prolonged social devaluation and rejection of the occupation of waste collection is related to internalized stigma, which subsequently reduces the feeling of self-worth and psychological well being. Additionally, a weak support network among workers was shown to be predictive of mental distress.

In South Africa, research has explored how the structural aspects of stigma contributes to psychosocial issues among waste pickers; while much of this work explores policy-level issues of inclusion, there is also empirical work demonstrating how work-based experiences of exclusion negatively impacts a worker's sense of self, the erosion of dignity and feelings of invisibility and low self-esteem (Samson, 2009; Godfrey et al., 2016).

In Kenya and Uganda too, studies have identified negative psychosocial impacts on informal workers that result from, among other things, social exclusion and rejection and also from exhaustion (Gutberlet et al., 2017). Work on informal waste workers in these countries also identifies positive psychosocial outcomes, with a waste pickers contribution to recycling and sustainability impacting negatively on workers sense of worth.

While all empirical evidence from Africa agrees that stigma is central to psychosocial well-being in informal work, and that psychosocial well-being is mediated by social exclusion and work values, none of these studies have tested mediators of self-esteem and perceived social support.

2.2.2 Empirical Studies in Ethiopia

Psychosocial aspects have received comparatively less research attention compared to occupational safety, environmental health risks, income insecurity and system inefficiency in studies on informal waste workers in Ethiopia. Although these studies generate valuable information about workers' working conditions, psychosocial aspects of working life, including stigma, self-esteem, social support and sense of well-being, have frequently been viewed as a consequence or unarticulated aspect of working life rather than as concepts to be explored analytically.

In urban settings in Ethiopia, several studies provide evidence of poor occupational safety, precarious working conditions and high levels of occupational risks for waste workers that implicitly lead to psychosocial stress. For example, in public health facilities and urban waste management systems, researchers document reports of injuries, exhaustion, job dissatisfaction and burnout among waste workers, with weak social support and inadequate institutional safety networks (Temesgen et al., 2022; Alemu et al., 2024). While these studies recognize the psychosocial stressors that influence the mental health of workers, they focus more on physical health outcomes and on the pathway to that outcome, with limited theoretical and empirical attention on the psychosocial factors themselves.

More recently, a growing body of qualitative and policy-oriented evidence indicates that the social reality for informal waste workers in Ethiopian cities is permeated with stigmatization in terms of negative stereotyping, lack of respect from community members, discrimination and marginalization from mainstream social and economic activities (Samson, 2009; WIEGO, 2020). A study made in Ambo Town, for instance, reported findings of lack of community respect, low payment and general lack of work satisfaction among waste collectors, pointing towards the workers' low self-esteem and psychosocial well-being (Bahalu, 2020). However, such findings have mostly been descriptive and did not include systematic measures of psychosocial constructs using psychological scales.

Further evidence from general research on informal labor in Ethiopia has also highlighted that strong kin and community relationships can moderate psychosocial distress among the poor, indicating a positive effect of perceived social support on psychosocial health among this

vulnerable group (Sori et al., 2022). While these findings relate to informal labor in general, they are useful in understanding mechanisms for coping in stigmatized professions. National-level research further highlights the marginalization of informal laborers by both policies and institutions, as well as the stigma in that social sector which erodes social integration and self-worth. Generally, Ethiopian studies have identified psychosocial issues for informal waste workers but they appear fragmented in terms of linking the identified psychosocial aspects together as well as clearly examining their effect using theoretically and empirically grounded psychosocial constructs such as stigma consciousness, self-esteem, perceived social support and perceived well-being.

2.2.3 Empirical Studies in Addis Ababa

Limited empirical studies are available that focus exclusively on informal waste workers in Addis Ababa and these studies mainly address environmental management, service delivery and livelihoods. Work on waste picking in Reppie (Koshe) Landfill Site and elsewhere has shown economic benefits of informal recycling to landfill diversion and material recovery in Addis Ababa (Medina, 2007; Samson, 2009).

Social marginalization of waste workers is well documented in Addis Ababa and other African cities and is attributed to factors such as public harassment, stigma and institutional marginalization from official waste systems (Samson, 2009; Dias, 2016). This often is a result of public view of waste work as unclean and low-status work. Waste workers internalize these social attitudes which affect self-confidence and dignity and promote social withdrawal and self-contempt. Psychological outcome are rarely measured with standard psychological instruments thus with weak empirical accuracy (Dias, 2016; Assefa et al., 2022).

Private sector involvement and micro enterprises in Addis Ababa's solid waste management shows that additional psychosocial issues affect informal and semi-formal workers; especially loss of confidence and a sense of dependency, and bargaining power with a general sense of insecurity resulting from a clash of interest between cooperatives, private contractors and the city (Tilaye & van Dijk, 2014). It is suggested that the situation reinforces an absence of self-concept and the general social exclusion of the working group.

Qualitative and localized studies from Addis Ababa suggest that waste workers also face disrespect, safety concerns, disappointment and a lack of motivation particularly women, whose conditions of work are not suitable for a productive and healthy working environment (Assefa et al., 2022; Tarekegn, 2024). While there exist some level of informal peer support networks; there are no institutional/ policy-level mechanisms or intervention programs designed to address the psychosocial needs of waste workers, and stigma in particular has been a major driver of non-incorporation and non-recognition, affecting self-worth (Taye et al., 2023). Policy and technical analyses like life cycle or systems assessments have recognized the crucial role of informal waste workers in the Addis Ababa waste management system; but have mainly ignored the psychosocial well-being and status of waste workers in the city (Mekonnen et al., 2023). This makes, to the authors knowledge, Addis Ababa-the most urbanized city and largest locus of informal waste workers in Ethiopia-lacking systematic empirical studies focusing on stigma, self-esteem, perceived social support and perceived well-being through theory-driven quantitative or mixed method research designs.

2.3 Synthesis of Findings

An extensive review of theoretical and empirical literatures revealed an interrelated, consistent body of evidence suggesting the centrality of psychosocial variables in the health and well-being of informal waste workers. A consensus in both theoretical and empirical literature holds that stigma, self-esteem, and perceived social support are central psychological factors influencing perceived well-being among socially marginalized occupational groups.

Theoretically, Social Identity and Self-Esteem Theory argues that membership to a socially devalued occupational group undermines a worker's self-concept and feelings of worth. Being an informal waste worker is socially stigmatized; the nature of the job itself is deemed undesirable, polluted, or socially worthless by others. This threat to social identity can diminish the self-esteem of the waste worker, which, in turn, negatively affects mental and psychosocial health. The Stigma Framework further outlines that stigmatized individuals become psychologically aware that labeling, stereotyping, and discrimination are a normal part of the occupational hierarchy in the community, rendering their exclusion not just a social process but internalized self-devaluation. Together these theories propose self-esteem as the key psychological mediating variable that explains the mechanism through which stigma leads to compromised perceived well-being.

The Stress-Buffering Model of Social Support contributes to understanding psychosocial health in a conditional manner. It hypothesizes that perceived social support may weaken the link between stressors like stigma and mental health and well-being among marginalized individuals. Individuals who feel they have emotional, instrumental, or informational support are better able to cope with social exclusion and discrimination, proposing perceived social support as a moderating variable.

The empirical evidence supports this theory by documenting high levels of stigma, discrimination, and poor psychosocial outcomes among informal waste workers across African contexts including Ghana, Nigeria, South Africa, and others. Results showed that high levels of stigma correlate with decreased well-being and poorer mental health, while social support buffered the impact of stress. However, many of these studies are largely descriptive and rarely test how stigma translates to psychological and social well-being or explain underlying mechanisms through which stigmatization influences workers' perceived well-being.

Within Ethiopia, the literature has mainly emphasized physical and environmental risks as well as economic vulnerabilities among informal waste workers, and psychosocial dimensions have received little attention. Some recent empirical works include stigma, marginalization, and poor social support but rarely do they include validated psychological constructs or empirically test the impact using theory-driven models. In Addis Ababa, research at the Reppie Landfill site shows social exclusion, lack of social recognition, and lack of institutional validation, but failed to investigate the link between these experiences and workers' self-esteem and perceived well-being.

Overall, both theoretical and empirical literatures present a coherent, integrated picture that stigmatization, self-esteem, and perceived social support are critical determinants of psychological and social well-being of marginalized occupational groups like informal waste workers. While theories define clear mediational pathways of self-esteem and moderation pathways of social support and empirical findings highlight prevalence of stigma, a significant gap remains in theory-driven empirical models that include and test these psychosocial variables, particularly in the Ethiopian context. The current study attempts to address this gap by integrating these psychosocial variables into a cohesive, theoretically grounded framework.

2.4 Gaps in the Empirical Literature

By reviewing the empirical literature a number of connected gaps emerged which restrict our understanding of psychosocial impacts of being an informal waste worker, in particular in Ethiopian and Addis Ababa settings.

First, limited attention on psychosocial determinants. Most empirical studies were conducted with emphasis on physical health problems and injuries, income insecurity, or environmental impact. Psychosocial indicators such as stigma, self-esteem, perceived social support, and perceived well-being lack analytical attention and where considered are treated as dependent outcome variable, not explanatory construct.

Second, theory-driven analysis is underdeveloped. There are few studies that utilized a Social Identity Theory, stigma theory, or stress-buffering theory to explicate the mechanism by which the social devaluation and marginalization transform into psychosocial impacts. Thus, existing studies remain largely descriptive and lack in-depth explanations for underlying mechanisms that explain the relationship between occupational stigma and mental and social well-being.

Third, there is a deficit of testing mediation and moderation. Psycho-social mechanisms (e.g. Self-esteem as mediator; perceived social support as moderator) through which the stigmatizing situation impacts psychological well-being have rarely been assessed in existing studies, thus limit the extent to which it is clear how and under which circumstances psycho-social harm occurs.

Fourth, context specific research from Addis Ababa specifically Reppie Landfill site is lacking. This is one of the most densely populated areas with informal waste workers in Ethiopia, yet few empirical studies are conducted on psychosocial determinants at the Reppie landfill. This is a major shortcoming due to the social, physical and policy relevance of the site.

Fifth, there is lack of policy makers' and experts' perspectives. Most of the studies were conducted on worker's experience without systematically collecting information from policy maker's, program implementers, and the policy institutions. This hinders findings for effective policy making and program planning.

2.5 Implications for the Present Study

The observed research gaps identify a dire need for a theory-driven, comprehensive, and systematic empirical examination of psychosocial determinants of perceived well-being among informal waste workers in Addis Ababa. The present study addresses these research limitations by considering the integration of stigma consciousness, self-esteem, perceived social support, and perceived well-being into one study. It employed a mixed-methods approach where a quantitative mediating and moderating approach was coupled with qualitative exploration of expert and policy perspectives for an in-depth examination of psychosocial factors. It is therefore not a descriptive study but an explanatory, contextualized study of psychosocial aspects relevant to informal work in general and waste work at the Reppie Landfill Site, in particular. In addition, it will inform inclusive waste governance and social protection strategies since it identifies psychosocial impediments to worker empowerment, resilience, and well-being. By bridging empirical research to the priority concerns in urban environmental and development efforts in Ethiopia, it proposes evidence based policies and interventions that promote socially inclusive waste management practices. Thus, the present study advances the empirical research in Social Psychology while meeting a vital research demand for research into the occupational stigma and perceived well-being in relation to urban sustainability.

2.6 Conceptual Framework of the Study

Based on the synthesis of theoretical and empirical literature, this study adopts a conceptual framework (see figure 1) that explains the psychosocial pathways influencing perceived well-being among informal waste workers. Assumptions are:

1. **Stigma** negatively affects the **perceived well-being** of informal waste workers by undermining their social identity and self-worth.
2. **Self-esteem** functions as a mediating variable, explaining how stigma translates into reduced perceived well-being.
3. **Perceived social support** serves as a moderating variable, buffering the negative effects of stigma on perceived well-being.

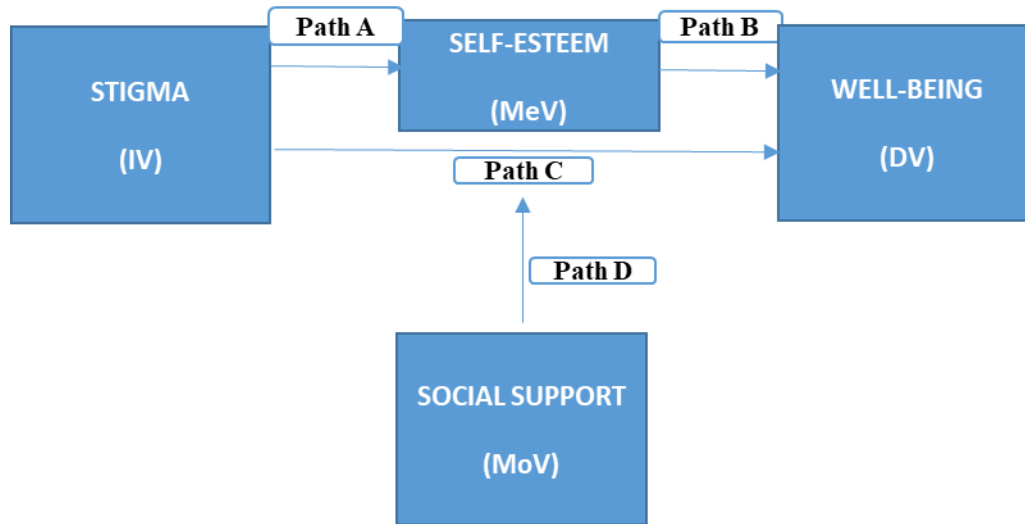


Figure 1: Conceptual framework of the study

This conceptual model links the Social Identity and Self-Esteem Theory, the Stress-Buffering Model of Social Support, and Stigma Theory to provide an explanatory framework of the psychosocial outcome for informal waste workers. The theoretical model informed research objectives, hypotheses, and methodology. Within this conceptual framework:

- Stigma is the independent variable representing the phenomenon of devalued identities, experienced social discrimination and negative labeling within the informal waste work profession.
- Perceived well-being is the dependent variable and represents workers' sense of psychological functioning, meaning, autonomy and emotional well-being.
- Self-esteem is the mediator in the relationship between stigma and perceived well-being: It is hypothesized that higher amounts of stigma decrease levels of self-esteem and in turn decreases levels of perceived well-being, and that if workers can maintain high levels of self-esteem, there is less negative impact of stigma upon perceived well-being.
- Social support is used as a moderator in this model in determining the direction and extent to which stigma can affect the two variables and we hypothesize that when informal waste workers have high levels of perceived social support (such as family support, peer support, institutional or community support) the negative impacts of stigma is less powerful than when informal workers have low levels of perceived social support.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Description of the Study Area

This section presents the criteria used for selecting the research site and provides a detailed description of the study area, with specific focus on the Reppie Landfill Site in Addis Ababa.

3.1.1 Research Site Selection Criteria

In selecting the research site, attention was paid to relevance to the research problem, location with high concentration of the target population and policy implications. Therefore the following criteria guided selection of research site.

Firstly, the site contains large numbers of informal waste workers, facilitating the exploration of psychosocial correlates of perceived well-being in a sufficiently varied and sizable sample of the population. Reppie Landfill Site accommodates about 2000 or more informal waste workers, hence forming the largest informal waste pickers and scavengers collection point in Ethiopia.

Secondly, it occupies a critical position in the management of solid waste in the Addis Ababa City Administration. The landfill serves as a main disposal site and material recovery/recycling center as well as diverting wastes from being sent to landfill in the city and hence provides insights into psychosocial lives within a key site of urban waste management.

Thirdly, the site is of critical policy relevance in national as well as city level policy frameworks. The site's working environment is crucial in national as well as city level policy intervention. Examples of such national as well as city policy documents include the Addis Ababa City Integrated Solid Waste Management Strategic Master Plan 2024-2043 and Ethiopia's NDC 3.0 which focus on inclusive waste management, circular economy and improved working conditions across the waste management chain.

Lastly, the site exhibits extreme occupational, social and environmental hardships. These characteristics of Reppie Landfill Site-such as risky working environment, stigma, institutional marginality-made it a valuable site to explore stigma, self-esteem, social support and perceived well-being.

3.1.2 Description of the Study Area - Reppie Landfill Site

The data for this study was collected at the Reppie Landfill Site (more commonly known as Koshe) located at the periphery of Addis Ababa, Ethiopia (Figure 2). Reppie is Addis Ababa's main solid waste dumping facility and it has been serving as the primary dumping site of municipal solid waste for decades. It remains to be one of the main components of the Addis Ababa waste management system and one of the largest sites for the activities of informal sector in waste retrieval.

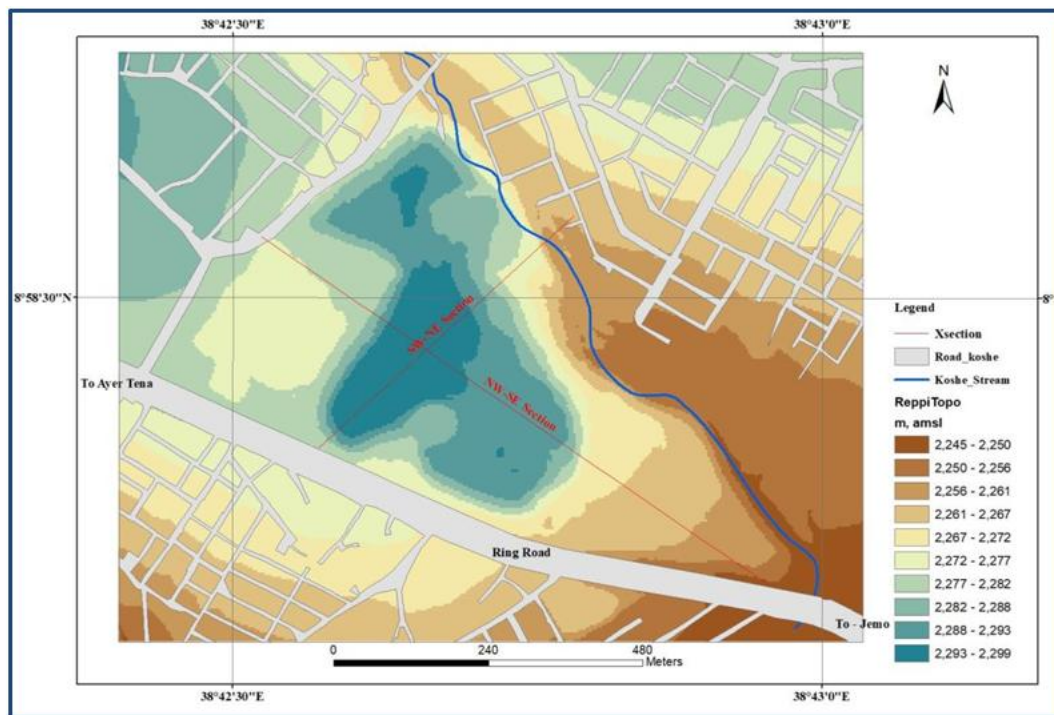


Figure 2: Reppie Landfill Site Topography (Source: AACMA, 2024)

With over 3000 tons of solid waste produced daily in Addis Ababa, over 74% of this waste is dumped at Reppie. At Reppie the municipal waste dumped, either directly onto the land or through incineration is approximately 74%, out of which about 42% is retrieved by incineration while the remaining 32% is dumped on the site and there is enormous concern of the Land fill's capacity and life span and security aspects (AACMA, 2024).

Environmentally and to the public health there are high risks associated with Reppie landfill site. It is the major contributor of undecomposed biodegradable and inert wastes which generate massive Leachate that contaminate the ground water quality. The groundwater quality around the

area is generally in conformity with WHO standards, however, the higher COD values are suggestive of risks of ground water contamination due to low natural attenuation capacity of the soil layers (AACMA, 2024). Moreover the proximity of the landfill site to residential areas and main highways poses environmental and social threats.

Geotechnical risk assessment for Reppie found significant stability risks. In particular, 3D slope stability analysis indicated very high risk of slope failure, the primary driver being the increased groundwater levels during the rainy season which leads to lower effective stresses along the failure zone. While seismic risk to the slopes is present, groundwater is expected to dominate the risks. Continuous monitoring of groundwater levels and tension cracks were recommended (AACMA, 2024).

With existing waste management practices the estimated duration life for active dumping is 10 to 16 months, whereas considering both active and capped sites, the landfill has capacity of 20 to 26 months or 31 months in case the operating regime is altered and the waste-to-energy plant works effectively. Over time the decomposition of the waste is expected to lead to denser slopes and increased stability however; heavy machinery operating at the landfill site especially the old bulldozers can create higher risks which indicate the need for lighter machinery and a better operation control system.

Beside the technical and environmental issues of the Reppie landfill site it also serves as the working space and provider of livelihood to an estimated 2,000 informal waste pickers who survive their lives by the activity of waste picking at the landfill. Informal waste pickers often work under the dangerous circumstances such as pollution, instability of the waste slopes, lack of safety gears and potential risk of injury. Coupled with stigmatization and hazards associated with waste picking the activity leads to heightened psychosocial stresses such as fear, feeling of insecurity, isolation, reduced self-esteem and exclusion from the society.

Recent policy guidelines of the city clearly stress the need for an integrated waste management approach and a circular economy framework which embraces waste minimization, recycling, improved landfill practices and cooperation with the informal sector. While these policies acknowledge the economic and environmental role of informal waste pickers, their well-being

needs to extend beyond that to the psychosocial factors like sense of well-being, self-respect and sense of belonging.

Taking the environmental risks, policy implication and concentration of informal waste workers into consideration, the Reppie Landfill site presents itself as an ideal empirical site for analyzing the psychosocial drivers of well-being among informal waste pickers in Addis Ababa.

3.2 Research Paradigm, Design, and Approach

This section outlines the philosophical stance, overall research design, and methodological approach adopted for the study. These methodological choices are guided by the study's objectives, research questions, and conceptual framework.

3.2.1 Research Paradigm

This study was approached using the pragmatist research paradigm. Pragmatists employ those methods that are most likely to effect the research problems in question and do not necessarily subscribe to one specific epistemological position (Creswell & Plano Clark, 2018).

Under pragmatism, social realities like stigma, self-esteem, social support and well-being are multi-faceted and can not be explained by a single way of knowing. Knowledge is perceived as both objective and subjective, allowing for both statistical analyses of numerical data and an understanding of the meanings generated from an individuals' experiences, and is thus ideal for psychosocial research with an underrepresented group where observable patterns are to be juxtaposed against socially constructed experience (Tashakkori & Teddlie, 2010).

By using pragmatism, the researcher was able to:

- Quantitatively assess relationships among stigma, self-esteem, perceived social support, and perceived well-being; and
- Qualitatively explore expert and policy-level perspectives on psychosocial challenges and intervention strategies.

By prioritizing practical problem-solving and real-world relevance, the pragmatist paradigm aligns with the study's goal of generating evidence that informs inclusive waste management policies and psychosocial interventions.

3.2.2 Research Design

A concurrent mixed method design was used for this study. Specifically, a convergent parallel design, in which the quantitative and qualitative data were collected concurrently during one phase of the study, analyzed independently and merged during interpretation (Creswell & Plano Clark, 2018). The concurrent parallel design was considered most appropriate for this study for several methodological and practical reasons:

- **Complementary Nature of the Research Objectives:** The study has two distinct but interrelated strands. The quantitative component aims to measure and test relationships among occupational stigma, self-esteem, perceived social support, and perceived well-being. The qualitative component, on the other hand, seeks to explore expert and policy-level perspectives on psychosocial challenges and potential interventions. These two strands are not hierarchical; the qualitative data were not primarily collected to explain the quantitative results, but rather to provide complementary institutional and policy context. A concurrent design allows both strands to be developed in parallel and brought together during integration for a more complete understanding.
- **Triangulation and Corroboration:** Collecting both types of data concurrently enables direct triangulation. This strengthens the validity of the findings by allowing the researcher to compare statistical patterns with the lived realities and institutional insights obtained from key informants. Such convergence or divergence of findings provides richer interpretation than a sequential approach would allow.
- **Time Efficiency and Practicality:** As the researcher was operating with limited time and resources, the concurrent design was more feasible. The concurrent approach allowed both surveys and key informant interviews to be conducted within the same timeframe.
- **Alignment with Pragmatist Paradigm** The study is guided by pragmatism. The concurrent parallel design best serves the pragmatic goal of generating both generalizable

patterns and context-rich insights to inform policy and practice in Addis Ababa's waste management system.

The quantitative aspect of this study utilized a cross sectional survey design that assessed relationships between the constructs of this study at one point in time. This approach allowed for the assessment of association, testing mediation and moderation effects and the strength and direction of relationships between psychosocial variables in the given population (Bryman, 2016).

The qualitative portion of this study included key informant interviews with actors involved in waste management, urban development, and social protection sectors (i.e. experts, policymakers, service providers) to probe the context of policy, implementation, institutional constraints, and intervention opportunities which survey data could not provide.

By triangulating and comparing the quantitative and qualitative data the richness and validity of the results were maximized, as the statistical associations could be interpreted in light of social and policy context.

3.3.3 Research Approach

The study employed a mixed-methods research approach, combining quantitative and qualitative approaches within a single study framework.

The quantitative approach was used to:

- Measure levels of stigma, self-esteem, perceived social support, and perceived well-being using standardized instruments;
- Test relationships including mediation and moderation effects; and
- Generate generalizable findings about the psychosocial determinants of perceived well-being among informal waste workers

The qualitative approach complemented this by:

- Exploring expert and policy-level insights into psychosocial challenges faced by informal waste workers;

- Identifying institutional, structural, and programmatic factors influencing workers' well-being; and
- Providing explanatory depth for interpreting quantitative results.

Mixed-methods research is particularly appropriate for studies addressing complex social issues, as it allows researchers to capture both measurable outcomes and contextual meanings (Johnson, Onwuegbuzie, & Turner, 2007). In this study, the approach brought a holistic understanding of psychosocial well-being that integrates individual psychological processes with broader social and policy dynamics.

3.3 Type and Source of Data

Type of Data

- **Quantitative Data:** These were obtained from informal waste workers on Reppie Landfill Site and were specifically focused on measuring psychosocial variables [stigmatization, self-esteem, perceived social support and perceived well-being] by the use of psychometric tests with validated scales. The data were suitable for statistical analysis for tests of association including testing the mediation and moderation of the study variables.
- **Qualitative Data:** This was derived from key informant interviews conducted with purposefully selected experts, policy makers and program implementers related to waste management, environmental governance, urban development, social protection and human development so as to give context and institutional perspective of psychosocial problems of informal waste workers and of the available policy and program solutions for them.

Sources of Data

- **Primary data:**
 - Survey responses from informal waste workers
 - In-depth interviews with key informants
- **Secondary data:**
 - Policy documents, strategic plans, and reports from AACMA, EPA, MoPD, and other relevant institutions

The integration of primary and secondary data enhances the depth, credibility, and policy relevance of the study findings (Creswell & Plano Clark, 2018).

3.4 Sampling Procedure and Techniques

3.4.1 Target Population

The quantitative sample target population was all informal waste handlers at the Reppie Landfill Site. Based on data obtained from Woreda 1 Admin, Kolfe Kereniyo Sub City, an estimated 2,000 informal waste handlers are actively employed in picking at the landfill site as a means of livelihood. The qualitative sample target population was key informants at relevant government and non-state actors related to waste management, environment policy, urban development, psychosocial interventions.

3.4.2 Sample Size Determination

The sample size for the quantitative survey was determined using Yamane's (1967) formula, which is widely applied for determining sample sizes in finite populations when the population size is known.

$$\text{Sample size determination formula: } n = N / (1 + N(e)^2)$$

Where:

- n = sample size
- N = population size (2,000)
- e = level of precision (0.05)

Therefore,

- $e^2 = 0.05^2 = 0.0025$
- $N(e^2) = 2000 * 0.0025 = 5$
- $1 + 5 = 6$
- $n = 2000 / 6 = 333.33$

Accordingly, a total sample size of 333 informal waste workers was determined for the quantitative survey. This size is adequate for sample representativeness and statistical power while accounting for potential non-response.

3.4.3 Sampling Techniques

Quantitative Sampling Strategy: The sampling strategy used for quantitative survey was non-probability intercept (random encounter) sampling strategy where all respondents were recruited from Reppie Landfill site. Informal waste pickers were randomly selected at the landfill site and invited one after the other to participate. Informal waste pickers who met the sampling criteria i.e. Those who were eighteen years of age and over and participating in informal waste picking and scavenging and consented to participate were selected. Information was gathered until the determined sample size of 333 informants was obtained. This sampling method is appropriate for inaccessible and informal populations, which have no sampling frame (Bryman, 2016).

Qualitative Sampling Strategy: For the qualitative part, purposive sampling strategy was used in order to select the informants whose expertise, position and involvement were considered relevant for the research in terms of waste management and the psychosocial and urban policies. Purposive sampling mean the participants selected have relevant knowledge and experience to provide richer information on psychosocial problems, policy issues and intervention possibility, specific to informal waste pickers (Patton, 2015). Informants from the following institutions were targeted:

- Government institutions (one from each)
 - Addis Ababa Cleansing Management Agency (AACMA)
 - Environmental Protection Authority (EPA)
- Non-state stakeholders (one from each)
 - Soil and More Ethiopia (S&M)
 - Eco Justice Ethiopia
 - Hiwot Integrated Development Organization (HIDO)

3.5 Data Collection Methods and Data Management

This section describes the instruments that were used to collect data on the study variables, the data collection procedures for both quantitative and qualitative components, data management procedures, and the units of analysis.

3.5.1 Description of Variables and Measurement Instruments

The study addressed four specific psychosocial variables: stigma, self-esteem, perceived social support, and perceived well-being. All items were adapted for the informal waste worker context, with minor contextual modifications to ensure relevance and comprehensibility, while preserving the core meaning of the original scales.

Stigma (Independent Variable): Occupational stigma was assessed using a modified version of the Stigma Consciousness Scale (SCS; Pinel, 1999). The SCS includes ten items that assess individuals' perceptions and anticipation of stereotyping, prejudice, or discrimination based on the identity they possess, using a Likert type response format. In order to fit the informal waste work context, the questions asked people to what degree they believed that they were stereotyped/stigmatized because they are a waste worker instead of a person with a specific social identity. The modified questionnaire was pretested on waste workers at the Reppie Landfill Site to assure that the items were comprehensible and appropriate to their situation.

- **Response Options and Scoring:** There were 10 items each rated on a 5-point Likert-scale from 1 (Strongly Disagree) to 5 (Strongly Agree). The total score ranged from 10-50. The average score was calculated by summing each participant's answers on the Stigma items and dividing by 10 to generate a score between 1 and 5, where larger scores indicate higher levels of stigma consciousness.

Self-Esteem (Mediating Variable): Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), a widely used 10-item Likert-scale instrument that assesses global self-worth and self-acceptance. The scale was adapted linguistically (not conceptually) to ensure comprehension among informal waste workers. Items were translated into Amharic and back-translated to preserve meaning while using accessible language appropriate for participants with varying literacy levels.

- **Response Options and Scoring:** Each of the 10 items is rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Items 5, 7, 8, 9, and 10 are reverse-scored. Total scores range from 10 to 50, with higher scores indicating higher self-

esteem. For this study, item scores were averaged to produce a mean self-esteem score per respondent, with values ranging from 1 to 5.

Social Support (Moderating Variable): Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988). The instrument contains 12 items assessing perceived support from three sources: family, friends, and significant others. The scale was adapted for the informal waste worker population by simplifying wording where necessary and contextualizing examples. The adapted scale was used to examine whether perceived support buffers the negative effects of stigma on well-being.

- **Response Options and Scoring:** Each of the 12 items is rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The scale assesses three sources of support: family (items 3, 4, 8, 9), friends (items 5, 6, 10, 11), and significant others (items 1, 2, 7, 12). Total scores range from 12 to 60. For this study, item scores were averaged to produce a mean social support score per respondent, with values ranging from 1 to 5.

Well-Being (Dependent Variable): We used the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; Tennant et al. 2007) to measure the dependent variable of perceived well-being. This scale is 14 items long, measures positive mental well-being (such as feeling optimism, purpose, positive affect, functioning), and was modified for this population to ensure the questions about 'feeling close to others' and 'coping with life' were tailored to the everyday context of waste workers.

- **Response Options and Scoring:** Each of the 14 items is rated on a 5-point scale ranging from 1 (None of the time) to 5 (All of the time). Total scores range from 14 to 70, with higher scores indicating higher positive mental well-being. For this study, item scores were averaged to produce a mean well-being score per respondent, with values ranging from 1 to 5.

3.5.2 Data Collection

Quantitative Data Collection: Quantitative data were collected through a structured questionnaire composed of five sections:

1. Socio-demographic characteristics
2. Occupational stigma (SCS)
3. Self-esteem (RSES)
4. Perceived social support (MSPSS)
5. Perceived well-being (WEMWBS)

Data collection was conducted at the Reppie Landfill Site through face-to-face interviews. Informal waste workers encountered randomly during their routine activities were invited to participate until the required sample size is reached. Eligibility criteria include being 18 years or older, deriving one's primary livelihood from informal waste picking at the site, and willingness to participate.

The questionnaire were translated into Amharic language by the researcher. Informed consent was obtained orally from all participants prior to data collection.

Qualitative Data Collection: Qualitative data was collected using semi-structured key informant interviews. An interview guide was developed to explore:

- Psychosocial challenges faced by informal waste workers
- Manifestations and consequences of stigma
- Existing institutional, policy, and programmatic responses
- Potential interventions to enhance psychosocial well-being and social inclusion

Interviews were conducted in person and virtually.

Pilot Test: Prior to the main data collection, a pilot test was conducted with 33 informal waste workers (approximately 10% of the target sample) who were not included in the final sample. The primary purpose of the pilot test was to determine if the adapted questionnaires were clear, understandable, and appropriate for the cultural context, and whether any items were confusing or

problematic. The main recommendation after the pilot was the need for translation into the Amharic language.

3.5.3 Response Rate

There has been increased pressure to achieve higher response rates in survey research; researchers are increasingly being expected to work toward a target of around 60% and journal editors and associate editors have similar expectations (Fincham, 2008).

In this research, a total of 333 questionnaires were distributed to the informal waste workers at the Reppie (Koshe) landfill site. Because this was done face-to-face, it allowed for the interaction with respondents and aided in situations involving lack of literacy or clarity, resulting in a strong participant involvement and therefore a high response rate. 314 of the 333 distributed questionnaires were completed and can be used for the analysis, providing the survey a response rate of 94.3%.

3.5.4 Data Management

The quantitative data was monitored for completeness and accuracy daily. The questionnaires were coded and the data from completed questionnaires was input into an Excel file where it was cleaned. Missing data was analyzed and the quantitative data was checked for data entry errors prior to analysis.

Qualitative interview recordings were transcribed verbatim. All transcripts were anonymized, names and identifying features removed.

The quantitative and qualitative data was stored securely so that only the researcher had access to it. Hard copies of the questionnaires were stored in a locked cabinet. It was acknowledged that the data would be used for academic purposes only.

3.5.5 Units of Analysis

- The unit of analysis for the quantitative part was informal waste workers at Reppie Landfill site.

- The unit of analysis for the qualitative part was institutional and expert view, referring to those actors policy makers, programs implementers and practitioners operating at the waste management, public health and social protection domains.

3.6 Data Validity and Reliability

Ensuring data validity and reliability is essential for producing credible and trustworthy research findings. This study applied multiple procedures to enhance the validity and reliability of both quantitative and qualitative data.

3.6.1 Data Validity

Validity refers to the extent to which an instrument accurately measures what it is intended to measure (Creswell & Creswell, 2018). In this study, several forms of validity were applied.

Content Validity: Content validity was maintained by using standardized and widely accepted measurement instruments for all key variables (stigma, self-esteem, perceived social support, and perceived well-being). Minor contextual adaptations was made without altering the core meaning of the items.

Construct Validity: refers to the degree to which a scale measures the theoretical construct it purports to measure (DeVellis, 2017). Construct validity was supported by grounding the study variables in established theories, including Social Identity and Self-Esteem Theory and the Stress-Buffering Model. Empirical relationships among variables (stigma, self-esteem, social support, and well-being) were examined to assess whether they align with theoretical expectations.

Face Validity: refers to the extent to which a measurement instrument appears, on the surface, to measure what it is intended to measure, based on subjective judgment rather than statistical testing (Nevo, 1985). Face validity was addressed through pretesting the questionnaire with a small group of informal waste workers who are not part of the final sample. Feedback was used to understand if the questions are understandable, culturally appropriate, and interpreted as intended. One of the feedback implemented after pretest was translation to Amharic language.

Qualitative Validity (Credibility): For the qualitative component, credibility was enhanced through the use of semi-structured interview guides, careful probing during interviews, and

accurate transcription of interview data. Clarification questions were used during interviews to confirm participants' meanings (Lincoln & Guba, 1985).

3.6.2 Reliability Test

Reliability refers to the consistency and stability of measurement results over time or across items within a scale (Bryman, 2016).

For the quantitative data, internal consistency reliability was assessed using Cronbach's alpha coefficient, which is the most widely used method for evaluating the reliability of Likert-type scales (Tavakol & Dennick, 2011). Cronbach's alpha values of 0.70 or higher were considered acceptable for this study. Reliability analysis was conducted separately for Stigma scale, Self-Esteem scale, Perceived Social Support scale, and Perceived Well-Being scale.

For the qualitative data, reliability (dependability) was strengthened by maintaining a clear audit trail, including documentation of interview procedures, transcription, and theme development (Lincoln & Guba, 1985). Consistency in data handling and analysis procedures was maintained throughout the research process.

Psychometric Properties of Instruments from Previous Studies: Prior to assessing reliability in the current sample, the psychometric properties of the four adapted scales as reported in previous studies were reviewed. The original Stigma Consciousness Scale (SCS) demonstrated good internal consistency, with Cronbach's alpha ranging from 0.78 to 0.87 across validation samples (Pinel, 1999). The Rosenberg Self-Esteem Scale (RSES) has extensive evidence of reliability, with meta-analytic reviews reporting Cronbach's alpha typically ranging from 0.77 to 0.88 across diverse populations (Sinclair et al., 2010), and has been validated in Ethiopian contexts with alpha values of 0.81 reported among informal workers (Sori et al., 2022). The Multidimensional Scale of Perceived Social Support (MSPSS) shows good psychometric characteristics; with Cronbach's alpha of 0.88 for the total scale and between 0.85 to 0.91 for the subscales reported by the original validation study (Zimet et al., 1988) and has shown to be effective in Ethiopia with an alpha greater than 0.80 (Sori et al., 2022). The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) has shown to be validated across the world with a Cronbach's alpha of 0.89 for the general population and 0.91 for students on the original UK study (Tennant et al., 2007).

Reliability of instruments used in this study: With regard to quantitative data analysis, internal consistency reliability was estimated by using Cronbach's alpha coefficient (Tavakol & Dennick, 2011). Reliability analyses were performed separately for each of the four scales (Stigma scale, Self-Esteem scale, Perceived Social Support scale and Perceived Well-Being scale) as well as for all the items altogether. The internal consistency reliability analysis for each of the Stigma, Self-Esteem, Perceived Social Support and Perceived Well-Being scales and for the entire 46 items shown in table 1 reported that the internal consistency of all the scales were from adequate to good ranging from Cronbach's alpha of 0.781 to 0.889. The internal consistency of all 46 items, Cronbach's alpha was 0.819, representing adequate to good internal consistency of the entire measurement instrument.

Table 1: Reliability Test Results (Cronbach's Alpha)

Scale	Number of Items	Cronbach's Alpha	Internal Consistency
Stigma	10	0.875	Good
Self-Esteem	10	0.781	Acceptable
Social Support	12	0.889	Good
Well-Being	14	0.853	Good
All Variables Combined	46	0.819	Good

3.7 Methods of Data Analysis

This study employed quantitative and qualitative data analysis methods consistent with the mixed-methods research approach. The analysis procedures were designed to address the research objectives and test the proposed conceptual framework.

3.7.1 Methods of Quantitative Data Analysis

Quantitative data were analyzed using SPSS software (Version 23). Data analysis proceeded through several sequential steps.

Descriptive Analysis: Descriptive statistics, including frequencies and charts were computed to summarize participants' socio-demographic characteristics.

Linearity Assumption Test: Prior to conducting the main regression analyses, several diagnostic tests were performed to assess whether the data met the assumptions of linear regression. Specifically, the assumption of linearity was examined using partial regression plots. The independence of errors was assessed using the Durbin-Watson statistic. Homoscedasticity was evaluated through visual inspection of the scatterplot of standardized residuals against standardized predicted values. Normality of residuals was tested using the Shapiro-Wilk test, the Kolmogorov-Smirnov test, and a Normal P-P plot. Multicollinearity was assessed using tolerance values and Variance Inflation Factor (VIF). Finally, influential outliers were identified through casewise diagnostics set at a threshold of ± 3 standard deviations.

Direct Effect Analysis: Simple linear regression was conducted to examine the direct effect of occupational stigma (independent variable) on perceived well-being (dependent variable). The unstandardized coefficient (B), standardized coefficient (β), p-value, and coefficient of determination (R^2) were reported.

Mediation Analysis: Mediation analysis was performed using Hayes' (2018) PROCESS macro for SPSS (Model 4) to test whether self-esteem mediated the relationship between stigma and well-being. The indirect effect was tested using 5,000 bootstrap resamples to generate 95% confidence intervals.

Moderation Analysis: Moderation analysis was conducted using Hayes' (2018) PROCESS macro for SPSS (Model 1) to examine whether perceived social support moderated the relationship between stigma and well-being. An interaction term (stigma $\times$ social support) was created, and a significant interaction effect ($p < .05$) was taken as evidence of moderation (Aiken & West, 1991).

3.7.2 Methods of Qualitative Data Analysis

Qualitative data obtained from semi-structured interviews with experts, policymakers, and program implementers was analyzed using thematic analysis.

Transcription: Audio-recorded interviews were transcribed verbatim.

Transcription and Familiarization: The researcher read and re-read transcripts to become familiar with the data and gain an overall understanding of participants' perspectives.

Theme Development: Related concepts were grouped into broader themes that capture recurring patterns across interviews.

Interpretation and Integration: A crucial aspect of this phase involved integrating the findings of the qualitative analysis into the quantitative findings. Interpretive findings from the qualitative analysis provided an explanation of statistical results and relationships between variables, and further provided practical policy recommendations for both policy makers and academics (Creswell & Creswell, 2018).

3.8 Ethical Considerations

The study adhered to the widely accepted guidelines on ethical conduct for social and behavioral research involving human subjects. Since this study involves a socio-economically marginalized community, greater care was taken in terms of ensuring respect, protection and justice at each stage of the research process.

Informed Consent: Participants were clearly explained about the objectives, nature of study, likely benefits and risks, procedures involved and their right to participate and withdrawal from the study without fear of punishment or any other negative repercussions at any stage of the study. All interviews with informal waste workers and those to be interviewed with formal waste sector workers (i.e. Policy makers, programmers and implementers) began after getting their verbal consent.

Confidentiality and Anonymity: The confidentiality of participants was ensured to the maximum extent possible. Names and other identifying personal information did not appear in any questionnaires, interview transcripts, and reports.

Protection from Harm: Efforts were taken to minimize potential psychological or social harms. Interviews with informal waste workers were carried out with dignity and in a non-judgmental manner taking due consideration of the potentially sensitive nature of stigma and well-being related issues. Interviewees were encouraged not to respond to questions they feel may be

embarrassing and the interview was halted if at any stage it seemed the interviewees were feeling uncomfortable or distressed.

Data security and storage: All collected data was stored in a safe place to avoid unauthorized access.

Respect for vulnerable population: Informal waste workers being considered a vulnerable population (due to socio-economic exclusion) specific effort was made to protect them from additional stigma, exploitation and threats of income loss. For the sake of minimizing unnecessary influence over participation none of the participants were offered incentives that could unduly affect their will to participate.

Ethical conduct in qualitative interviews: For the key informant interview (KII) interviews with experts, programmers and policy makers consent to tape recording of the interview was taken prior to the recording and participants were clearly informed on how their information would be used and also asked if they would be willing to share a copy or clarify statements.

CHAPTER FOUR

RESULT AND DISCUSSION

This chapter, which addresses the overall findings of the study, summarizes the data generated from quantitative surveys and qualitative KIIs. It opens with an analysis of the response rate and testing reliability, which are crucial to validate the collected data. The chapter then proceeds with a descriptive analysis, where respondents are characterized, followed by an inferential analysis aimed at identifying relationship between variables. In order to gain insights that could be missing in the quantitative data analysis, KII findings are integrated within the results and a qualitative response profile is presented to elicit expert opinion and complex details. Finally, the results are synthesized and a discussion section connects the study findings to the literature as well as specific objectives.

4.1 Descriptive Analysis

4.1.1 Respondent Profile (Frequencies)

In all, 314 informal waste workers took part in the quantitative survey. Table 2 shows the socio-demographic profile of respondents; these include age, gender, marital status, level of education, province of origin, main waste activity, duration in waste business, monthly earning, primary occupation, and number of dependents. These are important features for description of the study population, and for investigation into their likely influence on the psychosocial constructs being studied.

Table 2: Respondent Profile Summary

		Count	Column N %
Age Category of participants	18-24	111	35.4%
	25-34	117	37.3%
	35-44	49	15.6%
	45-54	23	7.3%
	>55	14	4.5%
Gender of participants	Male	140	44.6%
	Female	174	55.4%
Marital status of participants	Single	157	50.0%
	Married	137	43.6%
	Divorced	18	5.7%

	Widowed	2	.6%
Highest level of education completed	0	1	.3%
	No Formal Education	82	26.1%
	Primary Education	187	59.6%
	Secondary Education	39	12.4%
	TVET Certificate	3	1.0%
	Diploma or above	2	.6%
Participant place of origin	Addis Ababa	85	27.1%
	Outside Addis Ababa	229	72.9%
Participant primary type of waste activity	0	1	.3%
	Waste picking or scavenging	245	78.0%
	Sorting recyclable materials	62	19.7%
	Buying and reselling recyclables	2	.6%
	Combination of the above	4	1.3%
Years of experience in informal waste work	<1	17	5.4%
	1-3	53	16.9%
	4-6	133	42.4%
	7-10	91	29.0%
	>10	20	6.4%
Average Monthly Income from Waste Work	<2000	4	1.3%
	2000-4000	22	7.0%
	4000-6000	95	30.3%
	>6000	187	59.6%
	Prefer not to say	6	1.9%
Main source of livelihood	Informal waste work only	260	82.8%
	Waste work + other activities	45	14.3%
	3	8	2.5%
	4	1	.3%
Household dependents supported by your income	None	44	14.0%
	1-2	126	40.1%
	3-4	85	27.1%
	5 or more	59	18.8%

Interpretation: A majority (72.6%) of respondents were between 18 and 34 years of age and largest age group was between 25-34 (37.3%), indicating a young workforce. Majority of the respondents (55.4%) were female, showing a female predominance in this sample of informal waste workers. Half of the respondents (50.0%) were single while majority were married (43.6%).

Vast majority of respondents had only a primary school or no education at all (85.7%), of which majority had only a primary level of education (59.6%). Close to three-quarters of the respondents (72.9%) came to Addis Ababa from outside the city. Most (78.0%) of the respondents were involved in waste picking/scavenging, followed by sorting recyclable material (19.7%). Majority of respondents (71.3%) had been working as informal waste worker for between 4 to 10 years, and largest groups of respondents have worked for 4-6 years (42.4%). A large majority (59.6%) earn over 6,000 ETB per month, this conclusion should however be interpreted with caution considering that potential underreporting or classification might occur since the highest category was capped as "above 6,000". Over 4/5ths (82.8%) depended entirely on informal waste work as their main source of income and majority of respondents were supported by at least one dependent (85.9%), 40.1% of respondents were supporting 1-2 dependents while 27.1% were supporting 3-4 dependents. Socio-demographics of the 314 study respondents indicated a young, predominantly female, migrant, unskilled workforce, with substantial household commitments.

4.1.2 Binary Analysis (Bar Charts)

Binary analysis was made using bar charts for selected variables. The charts are presented in figure 3, 4, and 5 with interpretations.

i. Age with gender and marital status

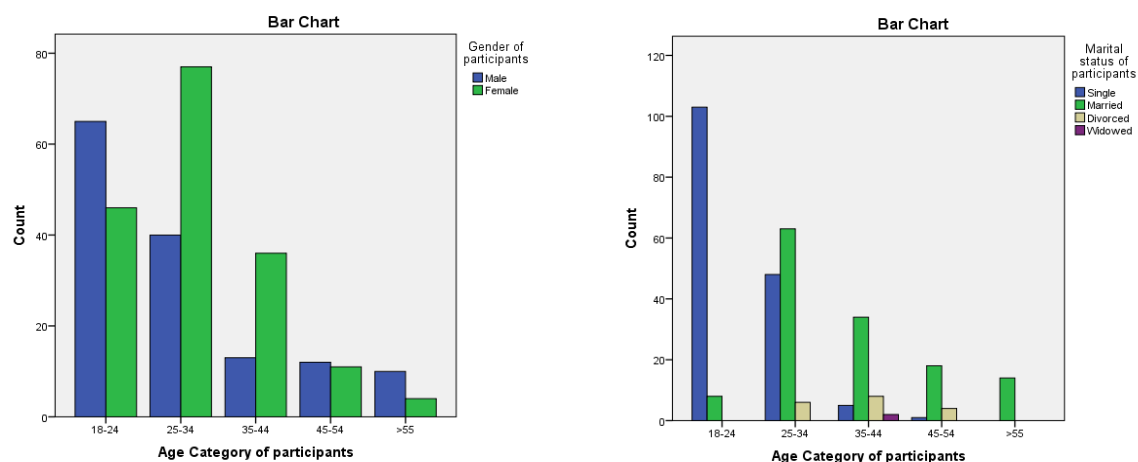


Figure 3: Bar Charts of Age with Gender and Marital Status

Interpretation: With nearly 3 quarters of all the sample being young adults (72.6% 18-34). When considered with gender the younger groups 18-24 age band were fairly evenly gender split. As you progress up the age bands toward the middle range females became more predominant and then dropped off at the 45+ range where males increased their representation once again. With marital

status the nearly 50% each of single (50.0%) and married (43.6%) respondents closely corresponds with age; the higher concentration of the younger (18-34) age group would account for the majority single respondents, and the middle age bands the greater percentage of the married category.

ii. Gender with dependents and place of origin

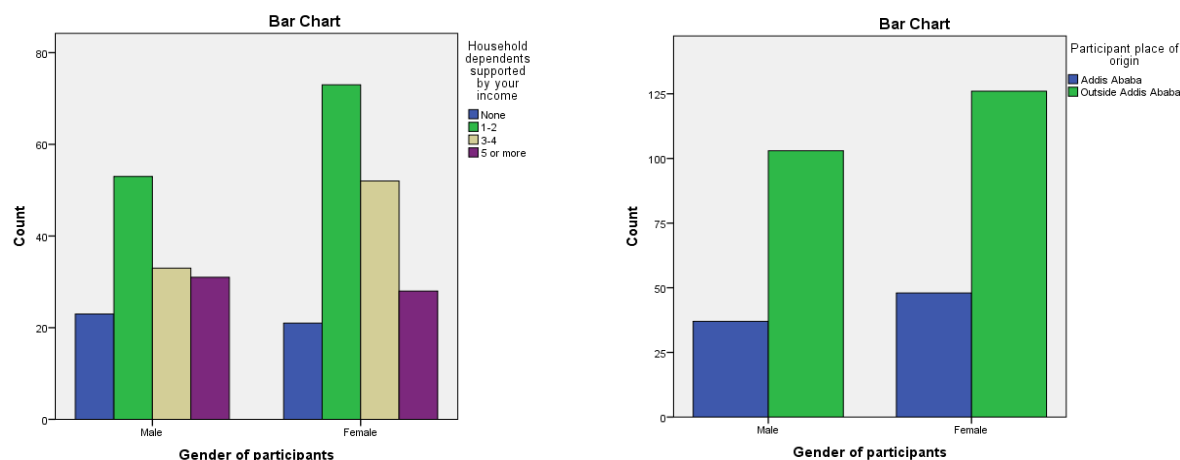


Figure 4: Bar Charts of Gender with Dependents and Place of Origin

Interpretation: As the sample is comprised of 55.4% women and 44.6% men, there are also intersections of gender and household burden and geography. As far as dependency burden is concerned, as many as 86% of the sample provides for one or more dependents and it clearly shows that this segment of the workforce carry heavy financial burdens. Considering the gender composition, the women in the sample must be taking a significant proportion of this burden (86%) with women of 25-44 age group probably bearing a greater share. As for the geography, 72.9% are not originally from Addis Ababa meaning that it is a migratory workforce. The trend is evident in both genders but it is interesting to note that women + out-of-town combination implies that a large section of the group is migrant women from rural areas that have moved to Addis Ababa for an income-generating strategy (informal work).

iii. Education with income and place of origin

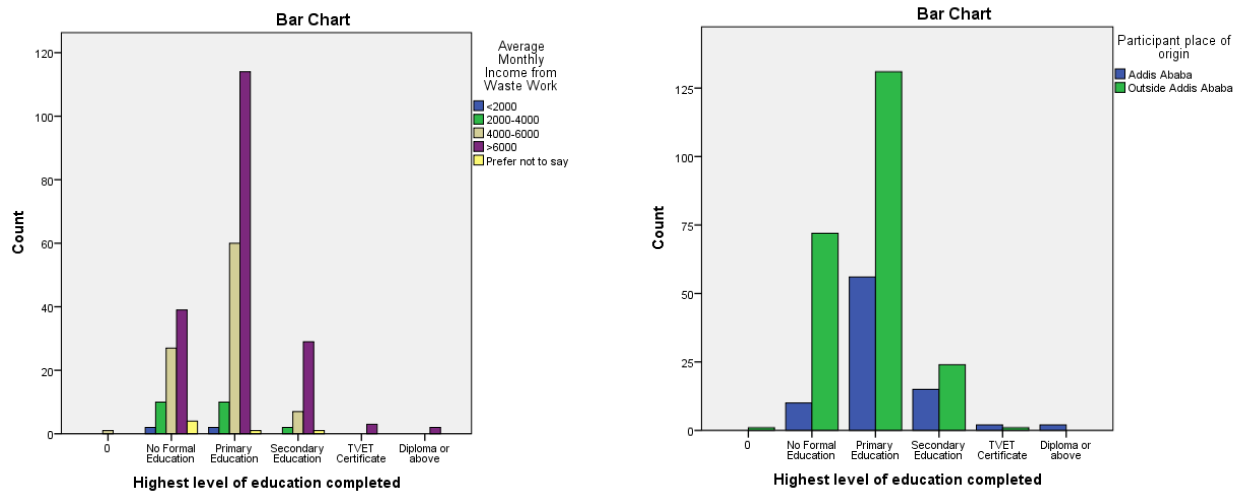


Figure 5: Bar Charts of Education with Income and Place of Origin

Interpretation: The level of educational attainment of this sample was alarmingly low. 85.7% of the sample reported the highest level of schooling attained as being primary school or less, with 26.1% having had no formal schooling and 59.6% primary schooling. High levels of education were extremely rare among the sample. Nevertheless, the sample's level of income was relatively high, considering their educational background, with 59.6% earning over 6,000 ETB per month from waste work alone, and another 30.3% between 4,000 and 6,000 ETB. The contradiction between the low level of education and the comparatively high income level indicated that informal waste work does provide relatively easily accessible entry into an income earning activity which requires few qualifications, and acts as a key support mechanism for low-educated persons. This perception is further supported by the evidence regarding place of origin, with the vast majority of the 72.9% originating from outside Addis Ababa falling into the low-education category groups. This confirms historical trends regarding limited access to formal schooling in rural and peri-urban Ethiopia, and suggests that the role of informal waste work is the absorption of low-educated, outside city migrants into a livelihood activity within the urban informal sector.

4.1.3 Descriptive Statistics of Variables

Table 3: Descriptive Statistics for Psychosocial Variables (N = 314)

Variable	M	SD	Range	Skewness	Kurtosis
Stigma	3.90	0.57	2–5	-0.49	-0.33
Self-Esteem	2.43	0.51	1–4	0.01	-0.52
Social Support	3.16	0.70	1–5	-0.13	-0.51
Well-Being	2.77	0.53	1–4	-0.02	-0.24

Note: N = 314. All variables were measured on 5-point Likert scales.

Interpretation:

Stigma (M = 3.90, SD = .57): Participants had relatively high levels of stigma with a mean of nearly four on a five-point scale (1 = Strongly Disagree, 5 = Strongly Agree), negatively skewed by -.49, indicating that the data clustered on the higher half of the scale.

Self-Esteem (M = 2.43, SD = .51): Participants had low to moderate levels of self-esteem with a mean nearly at the midpoint of the scale (1 = Strongly Disagree, 5 = Strongly Agree); it was normally distributed (Skewness = .01).

Social Support (M = 3.16, SD = .70): Participants had moderate levels of perceived social support with a mean just above the midpoint of the scale (1 = Strongly Disagree, 5 = Strongly Agree); negatively skewed (-.13) but still approximately normal.

Well-Being (M = 2.77, SD = .53): Participants had moderate levels of perceived well-being with a mean just below the midpoint of the scale (1 = Strongly Disagree, 5 = Strongly Agree); normally distributed (Skewness = -.02, Kurtosis = -.24) given values between -1 and +1 are accepted as normal (Field, 2018).

Overall, participants scored highest on Stigma (M = 3.90, SD = .57), lowest on Self-Esteem (M = 2.43, SD = .51) and had low to moderate scores for Social Support (M = 3.16, SD = .70) and Well-Being (M = 2.77, SD = .53). All variables were negatively or positively skewed within an acceptable range of values (-1 to +1) indicating that data would approximate normal distribution

and parametric analyses would be appropriate (Field, 2018). The standard deviations for all variables are between .51 and .70 indicating average spread of scores.

4.2 Inferential Analysis

A mediated mediation analysis was performed using Hayes' (2018) PROCESS Macro Model 5 to test (a) the mediation by self-esteem of the stigma and well-being relationship, and (b) the mediation of the stigma-well-being direct effect by social support. The linearity assumptions were first tested for both the outcome and mediation effects before the main analysis (table 4), the sample consisting of 314 informal waste workers.

Table 4: Regression Assumption Test Results

Assumption	Test	Result & Interpretation	Status
Linearity	<i>Partial Regression Plots</i>	Partial regression plots for all three predictors (ST_MEAN, SE_MEAN, SS_MEAN) against WB_MEAN showed linear relationships, confirming that the assumption of linearity was met.	Met
Independence of Errors	<i>Durbin-Watson</i>	The Durbin-Watson statistic was 1.996, which falls well within the acceptable range of 1.5–2.5, indicating no significant autocorrelation among the residuals.	Met
Homoscedasticity	<i>Zresid vs. Zpred Scatterplot</i>	The scatterplot of standardized residuals (*ZRESID) against standardized predicted values (*ZPRED) displayed a random, patternless dispersion of points with no discernible funnel shape, indicating constant variance (homoscedasticity) of residuals across the range of fitted values.	Met
Normality of Residuals	<i>Histogram, Normal P-P Plot, Shapiro-Wilk</i>	The studentized residuals did not depart from normality, Shapiro-Wilk $W = 0.995$, $df = 314$, $p = .419$, which was confirmed by the Kolmogorov-Smirnov test (statistic= 0.039, $df = 314$, $p > .200$) and also by the Normal P-P plot that displayed the points lying on the line of identity. Residual descriptives further confirmed approximate normality ($M = 0.006$, $SD = 1.004$, skewness = -0.109).	Met
Multicollinearity	<i>Tolerance & VIF (Coefficients Table); Collinearity Diagnostics</i>	Tolerance values were: ST_MEAN = 0.828, SE_MEAN = 0.826, SS_MEAN = 0.993 — all well above the 0.10 threshold. Corresponding VIF values were: ST_MEAN = 1.208, SE_MEAN = 1.211, SS_MEAN = 1.007 — all far below the critical value of 10. The maximum Condition Index from the Collinearity Diagnostics was 10.24, which is below the threshold of 30. Collectively, these indices confirm the absence of multicollinearity.	Met

Outliers	<i>Casewise Diagnostics (± 3 SD threshold)</i>	The casewise diagnostics plot set at a threshold of ± 3 standard deviations produced no flagged cases. Standardized residuals ranged from -2.614 to $+2.516$, and studentized residuals remained within an equivalent range — all within the ± 3 SD boundary. With $N = 314$, no influential outliers were detected in the dataset.	Met
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Note: Full SPSS diagnostic outputs (partial regression plots, scatterplot, histogram, Normal P-P plot, casewise diagnostics) are attached as Annex.

Overall Assessment: All six regression assumptions — linearity, independence of errors, homoscedasticity, normality of residuals, absence of multicollinearity, and absence of outliers — were confirmed. The dataset is therefore appropriate for multiple linear regression analysis.

4.2.1 Effect of Stigma on Self-Esteem

A simple linear regression analysis was conducted to examine the effect of occupational stigma (independent variable) on self-esteem (dependent variable). The results are presented in Table 5.

Table 5: Regression Results for the Effect of Stigma on Self-Esteem

Predictor	Coefficient (B)	SE	t	p	95% CI
Constant	2.4325	.0262	93.001	< .001	[2.381, 2.484]
Stigma	-.3700	.0461	-8.035	< .001	[-.461, -.279]

Note: $R^2 = .1714$, $F(1, 312) = 64.556$, $p < .001$. Dependent variable: Self-Esteem (SE_MEAN).

Interpretation: The findings in Table 5 demonstrate that stigma consciousness of work had a statistically significant negative effect on self-esteem of informal waste workers. The coefficient of stigma ($B = -.370$, $p < .001$) suggests that for every one-unit increase in stigma consciousness, there was a decrease of 0.37 units in self-esteem. The model accounts for approximately 17.1% of the variability of self-esteem ($R = .1714$) and is overall statistically significant ($F(1, 312) = 64.556$, $p < .001$). The 95% CI for the coefficient of stigma ($-.461, -.279$) does not contain zero, which confirms the significance of this relation and supports the theoretical prediction.

4.2.2 Effect of Self-Esteem on Perceived Well-Being

A multiple regression analysis was conducted to examine the effect of self-esteem on well-being. The results are presented in Table 6.

Table 6: Regression Results for the Effect of Self-Esteem on Perceived Well-Being

Predictor	Coefficient (B)	SE	t	p	95% CI
Self-Esteem	.1942	.0528	3.678	< .001	[.090, .298]

Note: The effect means controlling for stigma, social support, and their interaction.

Interpretation: Table 6 illustrates that self-esteem is a strong significant predictor of perceived well-being ($B = .194$, $p < .001$). For informal waste workers, this signifies that a higher level of self-esteem corresponds with higher perceived well-being. That is, for every increase of one unit in self-esteem, perceived well-being increased by approximately 0.19 units while all other variables remained constant. The 95% confidence interval between .090 and .298 did not contain zero; hence, the relationship between self-esteem and well-being is statistically significant. This is consistent with the theoretical view that self-esteem is a valuable psychological resource for fostering positive mental health and emotional well-being, even amidst negative circumstances.

4.2.3 Effect of Stigma on Perceived Well-Being through Self-Esteem (Indirect Effect)

Mediation analysis using PROCESS Macro Model 4 (Hayes, 2018) with 5,000 bootstrap resamples was conducted to test the indirect effect of stigma on well-being through self-esteem. The results are presented in Table 7.

Table 7: Indirect Effect of Stigma on Perceived Well-Being via Self-Esteem

Effect	Estimate	Boot SE	Boot 95% CI
Indirect Effect (Stigma → Self-Esteem → Well-Being)	-.0718	.0224	[-.118, -.029]

Note: Bootstrapped confidence interval based on 5,000 resamples.

Interpretation: The indirect effects of stigma on well-being via self-esteem are displayed in Table 7. The estimation of the indirect effect is -.0718, with a bootstrapped 95% confidence interval of (-.118, -.029). Since this confidence interval does not span zero, the indirect effect is significant at the $p < .05$ level. This results support the conclusion that self-esteem acts as a mediating variable between occupational stigma and worker well-being. Stigma does not directly effect worker well-being; rather it decreases well-being by first impacting worker self-esteem, which, in turn, impacts worker well-being. Since the indirect effect has a negative sign, more stigma resulted in lower self-esteem and subsequently lower well-being.

4.2.4 Direct Effect of Stigma on Perceived Well-Being

A multiple regression analysis, controlling for self-esteem, social support, and their interaction, was conducted to examine the direct effect of stigma on well-being. The results are presented in Table 8.

Table 8: Direct Effect of Stigma on Perceived Well-Being

Predictor	Coefficient (B)	SE	t	p	95% CI
Stigma	-.3301	.0472	-6.994	< .001	[-.423, -.237]

Note: The direct effect means controlling for self-esteem, social support, and their interaction.

Interpretation: The direct effect of stigma on well-being was found to be significant and negative, after controlling for self-esteem, social support, and their interaction ($B = -.330$, $p < .001$; CI: [-0.423, -0.237]). The confidence interval does not contain zero, indicating that stigma has a significant direct effect on perceived well-being beyond that which is accounted for by its mediation via self-esteem. An increase of one unit in stigma consciousness is associated with a decrease of 0.33 units in well-being when all else is equal. This suggests that stigma does have a direct negative effect on workers' well-being in addition to its indirect effect via self-esteem, and that negative regard has widespread consequences for workers' mental health.

4.2.5 Effects of Stigma, Self-Esteem, Social Support, and their Interaction on Perceived Well-Being

A moderated mediation analysis was run using PROCESS Macro Model 5 (Hayes, 2018) to analyze stigma, self-esteem, social support, and their interaction on well-being. Table 9 summarizes the findings.

Table 9: Full Moderated Mediation Model: Effects on Perceived Well-Being

Predictor	Coefficient (B)	SE	t	p	95% CI
Constant	2.2964	.1307	17.573	< .001	[2.039, 2.554]
Stigma (ST_MEAN)	-.3301	.0472	-6.994	< .001	[-.423, -.237]
Self-Esteem (SE_MEAN)	.1942	.0528	3.678	< .001	[.090, .298]
Social Support (SS_MEAN)	.2567	.0351	7.320	< .001	[.188, .326]
Stigma $\times$ Social Support (Int_1)	.0239	.0613	.390	.697	[-.097, .144]

Note: $R^2 = .3503$, $F(4, 309) = 41.648$, $p < .001$. All continuous variables were mean-centered prior to analysis.

Interpretation: Table 9 presents the full moderated mediation model examining the effects of stigma, self-esteem, social support, and their interaction on perceived well-being. The overall model is statistically significant ($F(4, 309) = 41.648$, $p < .001$) and explains approximately 35.0% of the variance in well-being ($R^2 = .3503$).

Key findings from the full model include:

- **Stigma ($B = -.330$, $p < .001$):** Occupational stigma has a significant negative direct effect on well-being, consistent with previous findings.
- **Self-Esteem ($B = .194$, $p < .001$):** Self-esteem has a significant positive effect on well-being, confirming its role as a protective psychological resource.
- **Social Support ($B = .257$, $p < .001$):** Perceived social support has a significant positive main effect on well-being, indicating that workers who perceive stronger support from family, friends, and significant others report higher levels of well-being.
- **Stigma $\times$ Social Support Interaction ($B = .024$, $p = .697$):** The interaction term is not statistically significant. This indicates that perceived social support does not significantly moderate the direct relationship between stigma and well-being. In other words, the effect of stigma on well-being does not significantly differ depending on the level of social support.

The non-significant interaction was further tested through an F-test for the X-by-M interaction ($F(1, 308) = .176$, $p = .675$) and the change in R^2 due to the interaction term ($R^2\text{-chg} = .0003$, $F(1, 309) = .152$, $p = .697$), both confirming the absence of a significant moderating effect.

4.2.6 Conditional Direct Effects of Stigma on Perceived Well-Being at Levels of Social Support

To explore the conditional direct effects of stigma on well-being at different levels of social support, the analysis was conducted with social support set at low (one standard deviation below the mean), mean, and high (one standard deviation above the mean) levels. The results are presented in Table 10.

Table 10: Conditional Direct Effects of Stigma on Perceived Well-Being at Low, Mean, and High Levels of Social Support

Social Support Level	Value (Mean-Centered)	Effect (B)	SE	t	p	95% CI
Low (-1 SD)	-.7417	-.3479	.0675	-5.151	< .001	[-.481, -.215]
Mean	.0083	-.3300	.0472	-6.994	< .001	[-.423, -.237]
High (+1 SD)	.7583	-.3120	.0641	-4.865	< .001	[-.438, -.186]

Note: Social support values represent mean-centered scores. Low = one standard deviation below the mean; High = one standard deviation above the mean. All conditional direct effects are statistically significant at $p < .001$.

Interpretation: Although the interaction term was non-significant (as reported in Table 9), Table 10 presents the conditional direct effects of stigma on well-being at different levels of social support for descriptive and exploratory purposes. These values show the slope of the stigma-well-being relationship when social support is set at low (one SD below the mean), mean, and high (one SD above the mean) levels.

The results indicate that the direct effect of stigma on well-being is negative and statistically significant at all three levels of social support (all $p < .001$). However, the magnitude of the effect varies slightly:

- At **low social support** ($B = -.348$), the negative effect of stigma on well-being is strongest.
- At **mean social support** ($B = -.330$), the effect is slightly weaker.
- At **high social support** ($B = -.312$), the effect is weakest (least negative).

While the confidence intervals overlap and the interaction test was non-significant, the pattern of coefficients suggests a possible descriptive trend: higher social support may modestly buffer the negative impact of stigma on well-being, although this buffering effect did not reach statistical significance in the current study. The non-significant interaction may be attributed to insufficient statistical power, measurement limitations, or the possibility that social support operates through other pathways (e.g., moderating the mediation rather than the direct path).

Summary of Inferential Analysis

To sum up, the analysis of moderated mediation analysis resulted in the following:

- 1. Direct Effect:** Occupational stigma has a significantly negative effect on perceived well-being.
- 2. Mediation:** Self-esteem significantly mediates the relationship between occupational stigma and perceived well-being. It indicates that occupational stigma influences well-being by undermining self-esteem.
- 3. Moderation:** Perceived social support did not significantly moderate the direct effect of occupational stigma on well-being (Interaction term: $p = .697$).
- 4. Model fit:** The total model accounted for 35.0% of the variance in perceived well-being which suggests that the full model has strong predictive value.

4.3 KII Findings

This section details the results of the qualitative research; from semi-structured key informant interview (KII) with experts, practitioner and policy makers in Addis Ababa. This qualitative study aimed to understand from experts their views on psychosocial problems, stigma associated with work and institutional responses for informal waste workers. The sample was made up of representatives from NGOs focusing on environmental justice, organizations focused on social protection and private organizations operating within the circular economy.

4.3.1 Psychosocial Challenges

The notion of a "constellation of psychosocial pressures" across emotional, social, and economic dimensions was reported by all key informants. The leading source of psychosocial stress for all informants revolved around unpredictable daily earnings and reliance on livelihoods that are precarious due to reliance on fluctuating prices of recyclables and the power wielded by middlemen over prices. As one key informant working with an environmental justice NGO succinctly put it, *"daily income is unpredictable and heavily influenced by the fluctuation of the price of recyclables and the power of the middlemen; this affects the constant anxiety about the ability to meet costs of food, rent, children's school fees and medical fees."*

Crucially, it was found that there was unresolved trauma amongst the waste pickers at the Reppie site, many of whom were deeply affected by the 2017 landslide, subsequent displacement, and the deaths of several community members, as the above key informant elaborated, *"a number of the workers at the Reppie site are affected by unresolved trauma from the 2017 landslide, subsequent displacement, and the deaths of their family and friends. Even those not directly impacted still worry constantly about further landslides and sudden displacement."*

Finally, there were gendered stresses and vulnerabilities, with female waste pickers reporting harassment and sexual violence: A key informant from a social protection agency stated, *"women waste pickers bear a multitude of gender-specific stresses, including fear and risk of harassment and sexual assault, and the need to reconcile informal livelihoods with the unpaid burden of care provision."*

4.3.2 Occupational Stigma and Its Consequences

Stigma was identified as widespread and strongly anchored in the social concepts of cleanliness and class. Community exclusion on one hand, means that workers are avoided in public, refused services in stores or mocked. *"Workers are often avoided in public, denied service at stores or receive treatments that overtly indicate the disapproval. School children of waste workers face taunting and stigmatizing"*, an informant from the private sector said.

Institutional discrimination on the other hand means, in health centers and public offices staff don't take the workers seriously and attribute their work conditions to themselves. According to an NGO informant *"in health centers, Kebele offices, police stations etc, they are treated as second-class citizens, they get little respect, are discouraged from speaking and are blamed for their situation"*.

The psychological impact of the social stigma is internalized shame and leads to lowered confidence and social withdrawal, workers begin to see themselves in the same light in which society sees them. The social stigma leads to internalized stigma, *'the loss of self-respect is so ingrained that they see themselves in the same image of shame in which the society views them'* said one informant.

4.3.3 Institutional and Policy Responses

Respondents concur on the inadequacies and incoherence of current support. The Addis Ababa City Administration has tried to organize informal waste pickers into cooperatives for better organization, efficiency, but the programs lack psycho-social aspects or social protection. According to one respondent *"there is no organized system that identifies informal waste pickers as group with particular psycho-social needs."*

The current policies have been labeled as "gender-blind" focusing on 'waste collection efficiency' not 'human dignity.' It also noted that informal waste pickers are *"defined as a problem to be 'organized' or 'formalized' and not as environment agents with rights."*

4.3.4 Social Support and Potential Interventions

Outside of formal assistance, informal social networks are the most significant form of support. Informal networks offer emotional support, direct assistance (loans and food sharing), and collective security to women. An informant states: *"these informal support networks serve to replace the absent institutional support mechanisms. They are a site of emotional support, jokes, and daily coping through mutual shared experiences."*

Several policy recommendations are suggested by informants: public awareness campaign to shift public attitude of waste workers as environmental protectors; institutionalization of psychosocial support in municipal policies; rights based approach and legal framework for waste workers; social protection (health insurance and income stabilization schemes).

Summary of KII Findings

In summary, consistent thematic patterns emerged among all key informants in the qualitative analysis:

- Pervasive Psychosocial problems. Informal waste workers consistently endure ongoing stress, anxiety, depression, trauma, social isolation and poor self-esteem. These issues are exacerbated by difficult work conditions and job insecurity.
- Entrenched stigma. Stigma was evident in many forms – including community marginalization and harassment, institutional discrimination and criminalization and the symbolic invisibility of informal waste workers and the severe negative impacts of this-

intergenerational consequences, feelings of shame, poor health seeking and lack of access to services.

- Institutional blindness to psychosocial problems. Official policies and programs largely failed to address psychosocial issues, focusing on the logistics of waste management rather than worker well-being and failed to create integrated programs for trauma recovery (following 2017 landslides).
- Crucial informal social networks. In the absence of formal institutional support, workers depend on their informal social networks for psychosocial support and solidarity. Potential informal institutions such as co-operatives were identified, but these are often constrained by resource and governance challenges.
- Multi-stakeholder recommendations. Suggestions for successful intervention include: public awareness raising, safe work environments with integrated psychosocial interventions, strengthening co-operatives, program design to meet the needs of women informal workers, comprehensive trauma treatment, social protection systems, formal legal recognition and combined action by the public and private sectors and civil society.

4.4 Synthesis of Findings

The quantitative and qualitative data converge to produce a holistic understanding of the psychosocial experience of informal waste workers at the Reppie Landfill Site. Using the convergent parallel design, this study successfully integrates statistically measurable psychological outcomes with the lived realities of workers within an institutional context.

i. The Stigma-Well-Being Nexus

The quantitative analysis revealed a significant negative relationship between occupational stigma and perceived well-being ($B = -.330$, $p < .001$), indicating that higher levels of stigma are associated with lower levels of well-being (see Section 4.2.4). This finding is corroborated by the qualitative data, where key informants described waste workers as "socially invisible" yet "highly visible targets for discrimination." Key informant interviews highlighted that stigma manifests through derogatory labeling, community exclusion, and institutional discrimination, which directly erode workers' sense of purpose and emotional balance (see Section 4.3.2). The convergence of quantitative and qualitative evidence confirms that stigma is not merely a subjective feeling but a structural reality that negatively affects worker well-being.

ii. The Mediating Role of Self-Esteem

The quantitative analysis confirmed that self-esteem partially mediates the relationship between stigma and well-being. The indirect effect of stigma on well-being through self-esteem was significant (estimate = -.072, 95% CI [-.118, -.029]), indicating that stigma reduces well-being partly by eroding self-esteem (see Section 4.2.3). Specifically, stigma significantly predicted lower self-esteem ($B = -.370, p < .001$), and lower self-esteem significantly predicted lower well-being ($B = .194, p < .001$) (see Sections 4.2.1 and 4.2.2). The qualitative findings shed light on this internalization process. Key informants noted that persistent social devaluation leads workers to view their labor—and, by extension, themselves—as "low-status" or "shameful." One informant observed that "the loss of self-respect is so ingrained that they see themselves in the same image of shame in which society views them" (see Section 4.3.2). This confirms that the damage to well-being occurs partly because stigma successfully penetrates the worker's self-concept.

iii. Social Support and the Stigma-Well-Being Relationship

The quantitative analysis did not confirm a moderating effect of perceived social support on the relationship between stigma and well-being. The interaction term (stigma $\times$ social support) was not statistically significant ($B = .024, p = .697$), indicating that the negative impact of stigma on well-being remained consistent regardless of the level of social support reported by workers (see Section 4.2.5). However, perceived social support did have a significant positive main effect on well-being ($B = .257, p < .001$), meaning that workers who reported higher levels of social support also reported higher levels of well-being, independent of stigma levels (see Section 4.2.5).

The qualitative findings provided a more nuanced perspective. Key informants observed that informal peer networks and family ties function as a vital source of emotional relief and practical assistance. One informant stated that "these informal support networks serve to replace the absent institutional support mechanisms. They are a site of emotional support, jokes, and daily coping through mutual shared experiences" (see Section 4.3.4). However, informants also noted that these networks, while valuable, are not sufficient to counteract the systemic burden of stigma. This suggests that while social support provides essential emotional relief, it may not be powerful enough to statistically buffer the heavy burden of occupational stigma.

iv. Policy and Institutional Gaps

The qualitative findings revealed a stark gap between current policy frameworks and the psychosocial needs of informal waste workers. Key informants reported that existing policies and programs largely ignore psychosocial well-being, focusing narrowly on operational efficiency rather than worker dignity. One informant noted that "there is no organized system that identifies informal waste pickers as a group with particular psychosocial needs" (see Section 4.3.3). Another observed that informal waste pickers are "defined as a problem to be 'organized' or 'formalized' and not as environmental agents with rights." The Addis Ababa City Integrated Solid Waste Management Strategic Master Plan (2024–2043) was described as prioritizing technical and environmental solutions, with limited explicit attention to psychosocial support. These qualitative findings are consistent with the quantitative results, which showed that psychosocial factors are significant determinants of well-being, suggesting that without addressing the "human element"—specifically stigma and self-esteem—technical interventions may fail to achieve long-term social inclusion.

Summary of Integration

In summary, the convergence of quantitative and qualitative evidence underscores that occupational stigma is a pervasive determinant of poor well-being among informal waste workers, operating both directly and through the erosion of self-esteem. While social support offers emotional benefits and independently contributes to well-being, it does not statistically buffer the stigma-well-being relationship, suggesting that interventions must target structural stigma rather than rely solely on individual-level coping resources. The qualitative findings also reveal that current policies and institutional responses are inadequate, failing to address the psychosocial dimensions of informal waste work. Policy reforms that recognize the psychosocial dimensions of informal waste work are urgently needed to complement existing technical and environmental strategies.

4.5 Discussion

This study was conducted to explore the psychosocial determinants of well-being among informal waste workers at Reppie Landfill Site. The findings provide empirical support for the theoretical framework while offering novel insights into the Ethiopian context. The discussion is organized according to the four research objectives.

i. Objective 1: The Relationship Between Occupational Stigma and Perceived Well-Being

The first objective of this study was to investigate the relationship between occupational stigma and perceived well-being among informal waste workers. The findings revealed a significant negative direct effect of stigma on well-being ($B = -.330, p < .001$), confirming that higher levels of stigma consciousness are associated with lower levels of perceived well-being. This finding aligns with Link and Phelan's (2001) stigma framework, which conceptualizes stigma as a social process involving labeling, stereotyping, status loss, and discrimination occurring within contexts of unequal power. In the context of Reppie Landfill Site, stigma is not merely a psychological burden but a product of the "dirty work" label (Ashforth & Kreiner, 1999; Hughes, 1958) attached to informal waste collection. This also supports Pinel's (1999) theory of stigma consciousness, suggesting that workers at Reppie appear to live in a state of heightened awareness regarding stereotypic threat, expecting unfair treatment from the public and authorities.

Empirically, this finding is consistent with studies conducted in other African contexts. A quantitative study conducted among informal waste collectors in Ghana reported that negative societal attitudes toward waste work significantly predicted psychological distress, highlighting stigma as a key psychosocial determinant (Lissah & Ayanore, 2020). Similarly, research conducted in Nigeria documented that persistent social devaluation and exclusion contribute to internalized stigma, which undermines self-worth and psychological well-being (Oluwafemi & Iweala, 2019). In South Africa, studies examining waste pickers' experiences revealed that exclusion from formal waste governance systems reinforces feelings of invisibility, loss of dignity, and diminished self-esteem (Samson, 2009; Godfrey et al., 2023). The present study extends these findings by providing quantitative evidence from the Ethiopian context, using a validated measure of stigma consciousness (SCS), and demonstrating that the stigma-well-being relationship holds even after controlling for other psychosocial factors.

The qualitative findings of the present study corroborate and deepen this statistical relationship. Key informant interviews revealed that stigma manifests through community exclusion (workers being avoided in public, refused service in shops, or mocked), institutional discrimination (dismissive treatment in health centers and government offices), and criminalization by authorities. As one informant stated, workers are "socially invisible yet highly visible targets for discrimination." This suggests that stigma operates not merely at the individual level but as a structural reality embedded in everyday social interactions and institutional practices.

ii. Objective 2: The Mediating Role of Self-Esteem

The second objective was to determine the mediating role of self-esteem in the relationship between occupational stigma and well-being. The results confirmed that self-esteem significantly mediates this relationship (indirect effect = $-.072$, 95% CI [$-.118$, $-.029$]). Specifically, stigma significantly predicted lower self-esteem ($B = -.370$, $p < .001$), and lower self-esteem significantly predicted lower well-being ($B = .194$, $p < .001$), indicating that stigma reduces well-being partly by eroding workers' sense of self-worth.

Theoretically, this finding supports Social Identity Theory (Tajfel & Turner, 1986), which posits that individuals derive a portion of their self-esteem from the social groups to which they belong. Because waste workers derive part of their self-worth from their occupational group identity, the shame associated with waste picking at Koshe contributes to what Goffman (1963) termed a "spoiled identity." The data suggest that when society devalues the work, workers are more likely to devalue themselves. This aligns with the stigma framework of Link and Phelan (2001), which explains how stigma becomes internalized, resulting in self-stigmatization that diminishes self-esteem and psychological well-being (Corrigan & Watson, 2002).

Empirically, this finding is consistent with studies conducted in low- and middle-income settings demonstrating that self-esteem mediates the relationship between social stigma and psychological well-being (Adjorlolo & Watt, 2017; Sori et al., 2022). A study conducted among marginalized occupational groups in Ethiopia found that self-esteem mediated the relationship between perceived stigma and psychological distress, with alpha values of 0.81 reported among informal workers (Sori et al., 2022). The present study extends this evidence by specifically testing self-

esteem as a mediator in the stigma-well-being pathway among informal waste workers, using validated psychological instruments.

The qualitative findings shed further light on this internalization process. Key informants noted that persistent social devaluation leads workers to view their labor—and, by extension, themselves—as "low-status" or "shameful." One informant observed that "the loss of self-respect is so ingrained that they see themselves in the same image of shame in which society views them." This confirms that the damage to well-being occurs largely because stigma successfully penetrates the worker's self-concept, a process experts identified as a major barrier to productivity and social integration.

This finding has important implications for intervention design. Efforts to improve worker well-being cannot focus solely on economic improvements (e.g., higher pay) but must incorporate dignity-based approaches that enhance social recognition and self-esteem. Programs that build occupational pride, provide leadership training, and challenge internalized shame are essential to effectively boost self-esteem and, consequently, well-being.

iii. Objective 3: The Moderating Role of Perceived Social Support

The third objective was to test the moderating effect of perceived social support on the impact of occupational stigma on worker well-being. The results revealed that perceived social support has a significant positive main effect on well-being ($B = .257, p < .001$), indicating that workers who perceive stronger support from family, friends, and significant others report higher levels of well-being. However, the interaction term between stigma and social support was not significant ($B = .024, p = .697$), indicating that perceived social support does not significantly moderate (buffer) the relationship between stigma and well-being.

Theoretically, this finding diverges from the classic Stress-Buffering Model (Cohen & Wills, 1985), which posits that social support mitigates the negative psychological consequences of stressful life events. In the context of Reppie Landfill Site, the intensity of systemic stigma—manifested through community exclusion, institutional discrimination, and criminalization—appears to overwhelm the protective capacity of existing social resources. This suggests that for informal waste workers in Addis Ababa, the weight of structural stigma may be too great for

current support networks to adequately shield them from the impacts of their marginalized occupation.

Empirically, the finding that social support has a significant main effect but not a moderating effect presents a nuanced picture. Studies conducted in Ghana reported that workers with stronger family and peer support experienced better coping outcomes, suggesting a buffering role of social support (Lissah & Ayanore, 2020). Similarly, a study conducted in Ethiopia found that strong kinship and community ties could mitigate psychological distress among economically vulnerable groups (Sori et al., 2022). The present study's qualitative findings also corroborate this: key informants stated that "these informal support networks serve to replace the absent institutional support mechanisms" and that peer support, mutual aid, and solidarity are the primary sources of resilience for workers. However, these studies did not specifically test the moderating (interaction) effect of social support on the stigma-well-being relationship. The present study provides a more precise test and finds that while social support independently contributes to well-being, it does not significantly alter the strength of stigma's negative impact.

The lack of a significant buffering effect underscores a critical point: while peer support currently helps workers survive daily stressors, it does not serve as a substitute for formal, institutional social support. Without formal support from the city administration—such as legal recognition, access to mental health services, and social protection mechanisms—the existing informal networks are being stretched to their limits and cannot fully protect workers' long-term well-being. This finding challenges the universal applicability of the Stress-Buffering Model in contexts of extreme marginalization and suggests that interventions must target structural stigma rather than rely solely on individual-level coping resources.

iv. Objective 4: Stakeholder Perspectives on Institutional and Social Barriers

The fourth objective was to explore the perspectives of key stakeholders regarding the institutional and social barriers affecting the psychosocial health of waste workers. Key informant interviews revealed consistent themes regarding the inadequacy of current institutional responses, the persistence of stigma, and the need for comprehensive interventions.

Stakeholders reported that existing policies and programs largely ignore psychosocial well-being, focusing narrowly on operational efficiency rather than worker dignity. The Addis Ababa City

Integrated Solid Waste Management Strategic Master Plan (2024–2043) was described as prioritizing technical and environmental solutions, with limited explicit attention to psychosocial support. One informant noted that "there is no organized system that identifies informal waste pickers as a group with particular psychosocial needs." Another observed that informal waste pickers are "defined as a problem to be 'organized' or 'formalized' and not as environmental agents with rights." This finding supports the "policy-psychosocial gap" identified in the literature review.

Stakeholders also highlighted the critical role of informal social networks as the primary source of emotional and practical support for workers in the absence of institutional mechanisms. However, they noted that these networks, while valuable, are insufficient to counteract systemic stigma. Informants proposed several interventions: public awareness campaigns to reframe public perception of waste workers as environmental contributors; institutionalization of psychosocial support in municipal policies; a rights-based approach and legal framework for waste workers; and social protection mechanisms including health insurance and income stabilization schemes.

The stakeholder perspectives align with the quantitative findings and reinforce the need for multi-level interventions. The convergence of evidence from both quantitative and qualitative data underscores that occupational stigma is a pervasive determinant of poor well-being among informal waste workers, operating both directly and through the erosion of self-esteem. While social support offers emotional benefits, it does not statistically buffer the stigma-well-being relationship, suggesting that interventions must target structural stigma rather than rely solely on individual-level coping resources.

v. Author's Perspective: The Critical Role of Informal Waste Workers

As an author and researcher who has engaged with this issue for a few years—beginning with a meeting organized by Eco Justice Ethiopia, followed by a Social Program Development and Evaluation course case study, and then a social psychology internship at Eco Justice Ethiopia—I have witnessed firsthand the resilience and contribution of informal waste workers. These workers are a critical factor for Addis Ababa's waste management effort: they collect tons of uncollected waste that would otherwise clog the city's drainage systems and pollute the environment, and they supply valuable recyclable materials to circular economy actors, sustaining a significant portion of the recycling value chain.

Despite their essential role, these workers remain unrecognized, unprotected, and psychologically unsupported. The findings of this study demonstrate that psychosocial support is not a luxury intervention—it is a necessity for the well-being and productivity of these workers. The government should formally recognize informal waste workers as essential contributors to urban sustainability and extend social protection to them, including access to health insurance, emergency funds, and income stabilization schemes. Additionally, legal protection must be provided to safeguard workers from harassment, arbitrary displacement, and exploitation by middlemen, while ensuring their right to organize and collectively bargain. Stakeholders, including municipal authorities, NGOs, and private sector actors, should provide material support (protective equipment, safe working conditions) and capacity building (training, cooperative strengthening). Simultaneously, psychosocial support—including stigma-reduction campaigns, counseling services, and peer support networks—must be integrated into all programs and policies targeting this group. Only by addressing the structural, legal, social, and psychosocial dimensions of their work can we ensure the long-term sustainability of urban waste management and the dignity of the workers who sustain it.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This research intended to uncover the unseen human geography of the Reppie (Koshe) Landfill Site, Addis Ababa outside conventional environmental questions to discover the inner lives of the people who run the informal circular economy of the city. Using combined empirical statistical data and rich qualitative narratives, this research has revealed the underlying psychosocial process mechanism that governs the welfare of informal waste workers in Addis Ababa.

1. Summary of Key Findings

This study has indeed reaffirmed that the "dirty work" of informal waste picking carries with it a significant psychological cost. The descriptive and inferential analyses have provided statistical evidence of a significant negative association between occupational stigma and well-being. But perhaps the most important finding of this study lies in the way in which this harm is accomplished: not only is well-being undermined by stigma directly, but stigma also operates indirectly by directly targeting the worker's self-concept.

The statistically significant mediation of self-esteem lends support to this explanation: by internalizing social devaluing, workers undermine their own sense of self-worth, which consequently undermines their mental well-being. Yet another significant finding is that, in opposition to stigma, perceived social support has a strong positive main effect on well-being: workers who experience a stronger sense of support from family members, friends and significant others consistently report greater levels of well-being, irrespective of levels of occupational stigma.

Interestingly and contrary to what would be predicted by the classic Stress-Buffering Model, perceived social support failed to moderate the stigma-well-being relationship; that is, although social support is an independent positive predictor of well-being, it does not have sufficient impact to mitigate the pervasive systemic burdens of stigma. The qualitative data provided further insight by revealing that the support network operating within the waste sector is informal and kinship-based rather than institutionally provided.

2. Implications of the Research

The implications of the research are urgent and actionable. For the AACMA the research represents a clarion call for an expansion of the mandate of the Addis Ababa City Integrated Solid Waste Management Strategic Master Plan (2024-2043).

Evolution of Policy: Technical efficiency in terms of provision of machinery, bins and waste-to-energy facilities are not sufficient for the human beings at the bottom of the hierarchy. Interventions focusing on psychosocial dimensions of well-being and dignified services for the waste workers are imperative.

Circular Economy and Climate Action: As Ethiopia is moving towards the National Circular Economy Roadmap and also striving to fulfill its commitments to NDC 3.0, the well-being of its informal waste workers should be viewed as its prime resource rather than a peripheral consideration. Inclusive climate action can only achieve sustainable results when the participants themselves take pride in what they do and are not ashamed of it.

3. Limitations

Despite the insights provided by this study, some limitations exist.

Cross-sectional design: The data collection represents a cross-sectional study; hence the causal interpretation of mediation effects, although statistically significant, is not as definitive as it might be with a longitudinal study design.

Geographic limitations: This study focused on a particular location (Reppie Landfill Site), and while it is the main destination for city waste, experiences among other workers and locations in the city may differ.

Potential for bias in self-reports: The use of self-report scales for measuring psychological outcomes (WEMWBS, RSES, SCS) might be prone to social desirability bias, where participants under-report psychological distress and/or over-report psychological resilience based on their perception of social norms related to mental strength, shame or fear of stigma.

Generalizability: The research focused on a specific group of participants (informal waste workers in Addis Ababa) and thus results may not be generalizable to other populations (e.g. Formal waste collectors or waste workers in other cities within the region).

4. Conclusion

Finally, the waste pickers in Reppie Landfill stand as silent protectors of Addis Ababa's environment, and as this research indicates, their work cannot continue to go unnoticed, unsupported and psychologically neglected. In order to achieve effective environmental protection for sustainable urban development in Ethiopia, the actors carrying out the "dirty work" must first and foremost be addressed and validated through their mental well-being, legal acknowledgment, and anti-stigma initiatives. Only by affirming the dignity and self-esteem of its waste pickers can Ethiopia aspire to create a truly sustainable, inclusive, and socially just urban future.

5.2 Recommendation

To address the psychosocial challenges identified in this research, and improve the well-being of informal waste workers, the following are suggested:

1. To AACMA and EPA

Primary level psychosocial support in formalization programs: occupational stigma, due to the severe and long-lasting consequences that it imposed, demands inclusion of screening on health, information and training on stress management and counseling services in programs on the transition of the informal economy workers to formalization (i.e. SMEs).

Promote Dignity-Centered Training programs: Skills development should extend beyond technical skills, for example, sorting and safety training. They should include programs that raise self-esteem by challenging occupational stigma, building pride and leadership skills, so workers can recover a sense of identity.

2. To Policy Makers and Urban Planners

Shift to human-centered policy frameworks: Add "social inclusion and worker well-being" as a central pillar to subsequent editions of the Addis Ababa City Integrated Solid Waste Management

Strategic Master Plan, with specific, measurable indicators for progress made in reducing occupational stigma and improving social inclusion.

Align and Incentivize climate action with social protection programs: Develop a social protection program at the national level that directly links climate action priorities (such as NDC 3.0) with recognition, legal status, health insurance, and an emergency support fund for informal waste workers.

3. To Community and Civil Society Organizations

Develop a Public Stigma Reduction campaign: Plan and implement a public campaign throughout the city, using traditional and social media, and community events, that frames waste workers as 'Environmental Heroes,' or 'Circular Economy agents', to alleviate external stigma in the community at shops and other establishments.

Enhance existing informal social support mechanisms: Facilitate the establishment of workers' self-help groups at the Reppie site, or 'well-being circles'. Since a significant positive main effect of social support on well-being was detected, improving existing networks would significantly increase daily coping.

4. For future research

Conduct a longitudinal study: Conduct studies over time to measure how and if transitioning from waste dumpsite to recycling centers or cooperatives influences workers' psychosocial well-being and their identity as a 'spoiled identity.'

Evaluate effectiveness of different types of intervention: Research should determine if dignity-based interventions (i.e. Self-esteem building programs, public acknowledgement, leadership trainings) have a greater effect on psychological well-being than income-based interventions (i.e. Price incentives or microfinance).

Carry out comparative studies across Ethiopia: Studies should include informal waste workers at other informal dumping sites within the city and other Ethiopian towns, such as Dire Dawa, Hawassa and Bahir Dar to check whether the social-psychological dynamics at Reppie occur elsewhere as well.

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ANNEX

Annex 1: Data Collection Instrument (English)

Instrument 1 - Socio-Demographic Characteristics Questionnaire

Purpose: To describe study participants and to control for relevant socio-demographic factors in the analysis of psychosocial determinants of perceived well-being.

1. **Age:**
☐ 18–24 ☐ 25–34 ☐ 35–44 ☐ 45–54 ☐ 55 and above
2. **Sex:**
☐ Male ☐ Female
3. **Marital Status:**
☐ Single ☐ Married ☐ Divorced/Separated ☐ Widowed
4. **Highest Level of Education Completed:**
☐ No formal education ☐ Primary education ☐ Secondary education ☐
TVET/Certificate ☐ Diploma or above
5. **Place of Origin:**
☐ Addis Ababa ☐ Outside Addis Ababa (specify region if willing): _____
6. **Primary Type of Waste Activity:**
☐ Waste picking/scavenging ☐ Sorting recyclable materials ☐ Buying and reselling
recyclables ☐ Combination of the above
7. **Years of Experience in Informal Waste Work:**
☐ Less than 1 year ☐ 1–3 years ☐ 4–6 years ☐ 7–10 years ☐ More than 10 years
8. **Average Monthly Income from Waste Work (ETB):**
☐ Less than 2,000 ☐ 2,001–4,000 ☐ 4,001–6,000 ☐ Above 6,000 ☐ Prefer not to say
9. **Main Source of Livelihood:**
☐ Informal waste work only ☐ Waste work + other informal activities
10. **Household Dependents Supported by Your Income:**
☐ None ☐ 1–2 ☐ 3–4 ☐ 5 or more

Instrument 2 - Stigma

Adapted Stigma Consciousness Scale (SCS) (*Pinel, 1999 – adapted for informal waste workers*)

Purpose: This section measures the extent to which informal waste workers perceive and anticipate negative societal attitudes toward their occupation, including feelings of social devaluation, labeling, and discrimination related to waste work.

Instruction to Respondents: Please read each statement carefully and mark **one** response that best describes how much you agree or disagree.

Response Options: 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

No.	Statement	1	2	3	4	5
1	I am aware that many people judge me negatively because of my work as a waste worker.					
2	People often treat me differently when they know what kind of work I do.					
3	I feel that society looks down on people who collect or sort waste for a living.					
4	I worry that others will disrespect me if they know I am an informal waste worker.					
5	I often think about how my work affects the way people see me.					
6	I feel that people assume negative things about my character because of my work.					
7	I expect to be treated unfairly because I work with waste.					
8	I believe that people consider waste work to be low-status or shameful.					
9	I feel uncomfortable telling others about my work as a waste worker.					
10	My experiences as a waste worker have made me more aware of discrimination in society.					

Instrument 3 - Self Esteem

Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965 – adapted for informal waste workers)

Purpose: This section measures how individuals feel about themselves in general, including their sense of self-worth and self-respect.

Instruction to Respondents: Below are statements about how you feel about yourself. Please indicate how much you agree or disagree with each statement.

Response Options: 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

No.	Statement	1	2	3	4	5
1	I feel that I am a person of worth, at least as much as others.					
2	I feel that I have a number of good qualities.					
3	All in all, I am satisfied with myself.					
4	I am able to do things as well as most other people.					
5	I feel that I do not have much to be proud of. (R)					
6	I take a positive attitude toward myself.					
7	On the whole, I am inclined to feel that I am a failure. (R)					
8	I wish I could have more respect for myself. (R)					
9	I feel useless at times. (R)					
10	At times I think I am no good at all. (R)					

(R) = Reverse-scored item

Items 5, 7, 8, 9, and 10 will be reverse-coded.

Instrument 4 - Social Support

Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet *et al.*, 1988 – adapted for informal waste workers)

Purpose: This section measures how much support respondents feel they receive from family, friends, and significant others.

Instruction to Respondents: Below are statements about support you may receive from people around you. Please mark one answer that best shows how much you agree or disagree with each statement.

Response Options: 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

No.	Statement	1	2	3	4	5
1	There is a special person who is around when I am in need.					
2	There is a special person with whom I can share my joys and sorrows.					
3	My family really tries to help me.					
4	I get the emotional help and support I need from my family.					
5	I have friends with whom I can share my joys and sorrows.					
6	I can count on my friends when things go wrong.					
7	There is a special person in my life who cares about my feelings.					
8	My family is willing to help me make decisions.					
9	I can talk about my problems with my family.					
10	I have friends who truly try to help me.					
11	I can count on my friends when I need support.					
12	There is a special person who is a real source of comfort to me.					

Family Support: Items 3, 4, 8, 9; **Friend Support:** Items 5, 6, 10, 11; **Significant Other Support:** Items 1, 2, 7, 12

Instrument 5 - Well-Being

Warwick–Edinburgh Mental Well-Being Scale (WEMWBS) (*Tennant et al., 2007 – adapted for informal waste workers*)

Purpose: This section measures respondents' positive mental well-being, including emotional functioning, positive relationships, and psychological functioning.

Instruction to Respondents: Below are statements about how you have been feeling during the past two weeks. Please mark one answer that best describes your experience.

Response Options: 1 = None of the time | 2 = Rarely | 3 = Some of the time | 4 = Often | 5 = All of the time

No.	Statement	1	2	3	4	5
1	I have been feeling optimistic about the future.					
2	I have been feeling useful.					
3	I have been feeling relaxed.					
4	I have been dealing with problems well.					
5	I have been thinking clearly.					
6	I have been feeling close to other people.					
7	I have been able to make up my own mind about things.					
8	I have been feeling confident.					
9	I have been feeling loved.					
10	I have been interested in new things.					
11	I have been feeling cheerful.					
12	I have been feeling calm and peaceful.					
13	I have been feeling satisfied with my life.					
14	I have been feeling hopeful.					

Instrument 6 - Key Informant Interviews (KIIs) Guide

Targeted Participants: Policymakers, experts, program implementers and NGO staff with specific work in the fields of waste management, urban development, social protection or mental health.

Section A: Psychosocial Challenges

1. From your professional experience, what are the main psychosocial challenges faced by informal waste workers in Addis Ababa, particularly those working at the Reppie Landfill Site?

Probes: stress, mental health, dignity, social relationships, safety, uncertainty.

2. How do working conditions in informal waste collection affect workers' sense of self-worth, motivation, and psychological well-being?

Section B: Stigma and Its Consequences

3. How does occupational stigma manifest toward informal waste workers in the community, institutions, or public spaces?

Probes: labeling, discrimination, exclusion, treatment by authorities or the public.

4. In your view, what are the social and psychological consequences of this stigma for waste workers and their families?

Probes: self-esteem, social isolation, access to services, intergenerational effects.

Section C: Institutional, Policy, and Programmatic Responses

5. What policies, programs, or institutional mechanisms currently exist to address the social or psychosocial needs of informal waste workers?

Probes: municipal programs, NGO interventions, health or social protection services.

6. To what extent do current waste management or urban development policies recognize and address the psychosocial well-being of informal waste workers?

Section D: Social Support and Inclusion

7. What role do social networks, cooperatives, or community organizations play in supporting the psychosocial well-being of informal waste workers?

Probes: peer support, family support, associations, NGOs.

Section E: Potential Interventions and Recommendations

8. What types of interventions do you think would be most effective in reducing stigma and improving the psychosocial well-being of informal waste workers?

Probes: awareness campaigns, policy reforms, psychosocial services, inclusion strategies.

9. What role should government institutions, civil society, and the private sector play in promoting social inclusion and decent conditions for informal waste workers?

10. Based on your experience, what key recommendations would you offer to policymakers and practitioners working to improve the lives of informal waste workers?

Annex 2: Data Collection Instrument (Amharic)

አባሪ፡ የመረጃ መሰብሰቢያ መሳሪያ

አባሪ 1፡ መሳሪያ 1 – የማህበራዊ እና የግለሰብ መረጃ መጠይቅ

ዕድሜ፡

☐ 18–24 ☐ 25–34 ☐ 35–44 ☐ 45–54 ☐ 55 እና ከዚያ በላይ

ፆታ፡

☐ ወንድ ☐ ሴት

የጋብቻ ሁኔታ፡

☐ ነጠላ ☐ ተጋብቷል/ተጋብታለች ☐ ተፋትቷል/ተፋትታለች ☐ ባል/ሚስት የሞተ

ከፍተኛ የተጠናቀቀ የትምህርት ደረጃ፡

- ☐ መደበኛ ትምህርት የለም
- ☐ የመጀመሪያ ደረጃ
- ☐ የሁለተኛ ደረጃ
- ☐ TVET/ሰርተፍኬት
- ☐ ዲፕሎማ ወይም ከዚያ በላይ

የትውልድ ቦታ፡

- ☐ አዲስ አበባ
- ☐ ከአዲስ አበባ ውጭ (ክልል ከፈለጉ ይግለጹ): _____

ዋና የቆሻሻ ስራ አይነት፡

- ☐ ቆሻሻ መሰብሰብ
- ☐ ሪሳይክል የሚሆኑ እቃዎችን መለየት
- ☐ የተሰበሰቡ እቃዎችን መግዛት እና መሸጥ
- ☐ ከላይ የተጠቀሱት ጥምረት

በኢንፎርማል ቆሻሻ ስራ ያለዎት የልምድ ዓመታት፡

- ☐ ከ1 ዓመት በታች
- ☐ 1–3 ዓመት
- ☐ 4–6 ዓመት
- ☐ 7–10 ዓመት
- ☐ ከ10 ዓመት በላይ

ከቆሻሻ ስራ የሚገኝ አማካይ ወርሃዊ ገቢ (ብር):

- ☐ ከ2,000 በታች
- ☐ 2,001–4,000
- ☐ 4,001–6,000
- ☐ ከ6,000 በላይ
- ☐ መልስ መስጠት አልፈልግም

ዋና የመኖሪያ ምንጭ:

- ☐ ቆሻሻ ስራ ብቻ
- ☐ ቆሻሻ ስራ + ሌሎች ያልተመደቡ ስራዎች

በገቢዎ የሚደገፉ የቤተሰብ አባላት:

- ☐ የለም
- ☐ 1–2
- ☐ 3–4
- ☐ 5 ወይም ከዚያ በላይ

አባሪ 2፡ መሳሪያ 2 – በስራ ላይ የሚደርስ መገለል

መመሪያ፡ እባክዎን እያንዳንዱን ንግግር በጥንቃቄ ያንብቡ እና ከሚስማሙበት መጠን መሠረት አንድ መልስ ይምረጡ።

መልስ አማራጮች፡

- 1 = በፍጹም አልስማማም
- 2 = አልስማማም
- 3 = መካከለኛ
- 4 = እስማማለሁ
- 5 = በፍጹም እስማማለሁ

1. በቆሻሻ ስራዬ ምክንያት ብዙ ሰዎች እኔን አሉታዊ እንደሚፈረዱኝ አውቃለሁ።
2. ሰዎች የምሰራውን ስራ ሲያውቁ በተለየ መልኩ ያዩኛል።
3. ማህበረሰቡ ቆሻሻ የሚሰበስቡ ሰዎችን እንደ ዝቅተኛ ይመለከታል ብዬ ይሰማኛል።
4. ሰዎች ቆሻሻ ሰራተኛ መሆኔን ቢያውቁ ይንቁኛል ብዬ እጨነቃለሁ።
5. ስራዬ ሰዎች እንዴት እንደሚያዩኝ ላይ ተጽዕኖ ስለሚያሳድር ብዙ ጊዜ አስባለሁ።
6. ሰዎች በስራዬ ምክንያት ስለ ባህሪዬ አሉታዊ ነገሮች እንደሚያስቡ ይሰማኛል።
7. ከቆሻሻ ጋር ስለምሰራ ኢፍትሃዊ አያያዝ እንደሚደርስብኝ እጠብቃለሁ።
8. ሰዎች ቆሻሻ ስራን እንደ ዝቅተኛ ወይም እንደሚያሳፍር ስራ እንደሚያዩት አምናለሁ።
9. ሌሎች ሰዎች ስለ ስራዬ ሲጠይቁ ለመመለስ ምቹት አይሰማኝም።
10. በቆሻሻ ሰራተኛነቴ ምክንያት በማህበረሰብ ውስጥ ያለውን አድልዎ እንዳስተውል አደርጎኛል።

አባሪ 3፡ መሳሪያ 3 – ለራሳችን ያለን አመለካከት

መመሪያ፡ ከራስዎ ጋር በተያያዘ ያሉ ንግግሮች ከታች ተዘርዝረዋል። እባክዎ ከእያንዳንዱ ንግግር ጋር ምን ያህል እንደሚስማሙ ይምረጡ።

መልስ አማራጮች፡

- 1 = በፍጹም አልስማማም
- 2 = አልስማማም
- 3 = መካከለኛ
- 4 = እስማማለሁ
- 5 = በፍጹም እስማማለሁ

- 1. እኔ እንደ ሌሎች ሰዎች ቢያንስ እሴት ያለኝ ሰው ነኝ ብዬ አስባለሁ።
- 2. ብዙ ጥሩ ባህሪዎች እንዳሉኝ አስባለሁ።
- 3. በአጠቃላይ ከራሴ ጋር ደስተኛ ነኝ።
- 4. እንደ አብዛኛው ሰው ነገሮችን ማድረግ እችላለሁ።
- 5. ለመኩራት ብዙ ነገር የለኝም ብዬ አስባለሁ። (R)
- 6. ለራሴ አዎንታዊ አመለካከት አለኝ።
- 7. በአጠቃላይ ራሴን እንደ ውድቀት እቆጥራለሁ። (R)
- 8. ለራሴ ተጨማሪ ክብር እንዲኖረኝ እመኛለሁ። (R)
- 9. አንዳንድ ጊዜ ራሴን ዋጋ እንደሌለው ሰው ይሰማኛል። (R)
- 10. አንዳንድ ጊዜ ራሴ በምንም ነገር ጥሩ አይደለሁም ብዬ አስባለሁ። (R)

(R) = በተቃራኒ የሚመለስ

አባሪ 4፡ መሳሪያ 4 – ማህበራዊ ድጋፍ የግል ግንዛቤ

መመሪያ፡ ከእርስዎ ዙሪያ ካሉ ሰዎች የሚያገኙትን ድጋፍ የሚመለከቱ ንግግሮች ከታች ተዘርዝረዋል። እባክዎ ከእያንዳንዱ ጋር ምን ያህል እንደሚስማሙ ይምረጡ።

መልስ አማራጮች፡

- 1 = በፍጹም አልስማማም
- 2 = አልስማማም
- 3 = መካከለኛ
- 4 = እስማማለሁ
- 5 = በፍጹም እስማማለሁ

- 1. ችግር ሲኖርብኝ ከጎኔ የሚኖር ልዩ ሰው አለ።
- 2. ደስታዬን እና ሀዘኔን ሊጋራ የምችል ልዩ ሰው አለ።
- 3. ቤተሰቤ በእውነት ሊረዳኝ ይሞክራል።
- 4. ከቤተሰቤ የምፈልገውን የስሜት ድጋፍ እና እርዳታ አገኛለሁ።
- 5. ደስታዬን እና ሀዘኔን ሊጋሩ የሚችሉ ጓደኞች አሉኝ።
- 6. ነገሮች በስህተት ሲሄዱ በጓደኞቼ መተማመን እችላለሁ።
- 7. በህይወቴ ውስጥ ስሜቴን የሚረዳ ልዩ ሰው አለ።
- 8. ቤተሰቤ ውሳኔ ማድረግ ላይ ሊረዱኝ ፈቃደኛ ናቸው።
- 9. ችግሮቼን ከቤተሰቤ ጋር ማውራት እችላለሁ።
- 10. በእውነት ሊረዱኝ የሚሞክሩ ጓደኞች አሉኝ።
- 11. ድጋፍ ሲያስፈልገኝ በጓደኞቼ መተማመን እችላለሁ።
- 12. ለእኔ እውነተኛ አጽናኝ የሆነ ልዩ ሰው አለ።

አባሪ 5፡ መሳሪያ 5 – ስነ-ልቦናዊ ደህንነት የግል ግንዛቤ

መመሪያ፡ ካለፉት ሁለት ሳምንታት ውስጥ እንዴት እንደተሰማዎ የሚመለከቱ ንግግሮች ከታች ተዘርዝረዋል። እባክዎ ከእያንዳንዱ ጋር የሚገልጹትን መልስ ይምረጡ።

መልስ አማራጮች፡

- 1 = በፍጹም አልነበረም
- 2 = አልፎ አልፎ
- 3 = አንዳንድ ጊዜ
- 4 = ብዙ ጊዜ
- 5 = ሁል ጊዜ

1. ስለ ወደፊት ተስፋ አለኝ።
2. ጠቃሚ እንደሆንኩ ይሰማኛል።
3. ዘና የማለት ስሜት ይሰማኛል።
4. ችግሮችን በጥሩ ሁኔታ እየተቋቋምኩ ነው።
5. ግልጽ እያሰብኩ ነው።
6. ከሌሎች ሰዎች ጋር ቅርብ እንደሆንኩ ይሰማኛል።
7. ስለ ነገሮች የራሴን ውሳኔ እያደረኩ ነው።
8. በራሴ የመተማመን ስሜት አለኝ።
9. ተወዳጅ እንደሆንኩ ይሰማኛል።
10. ለአዳዲስ ነገሮችን ማወቅ ፍላጎት አለኝ።
11. ደስተኛ ነኝ።
12. ሰላም እና እረፍት ይሰማኛል።
13. በህይወቴ የእርካታ ስሜት ይሰማኛል።
14. የተስፋ ስሜት ይሰማኛል።

Annex 3: Linearity Assumption Test Outputs

Below are the SPSS outputs of the linearity assumptions test.

1. Independence of Errors – Durbin-Watson

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Social Support Mean, Stigma Mean, Self Esteem Mean ^b	.	Enter

a. Dependent Variable: Well-Being Mean

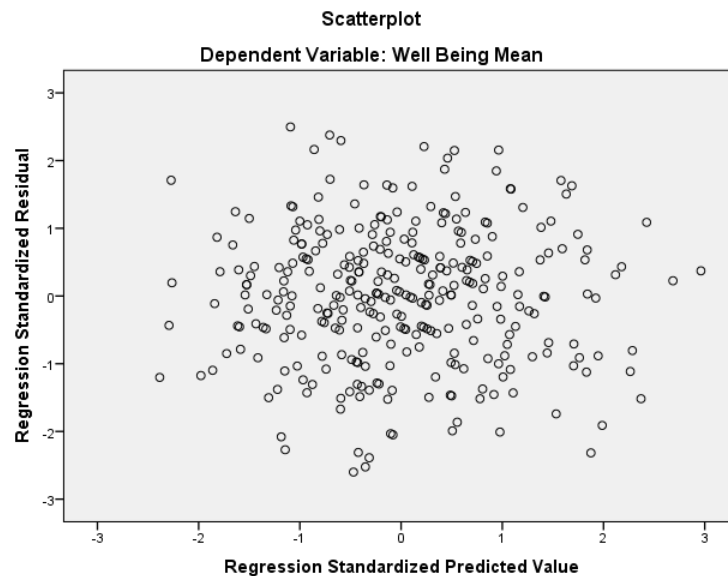
b. All requested variables entered.

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.592 ^a	.350	.344	.431	1.996

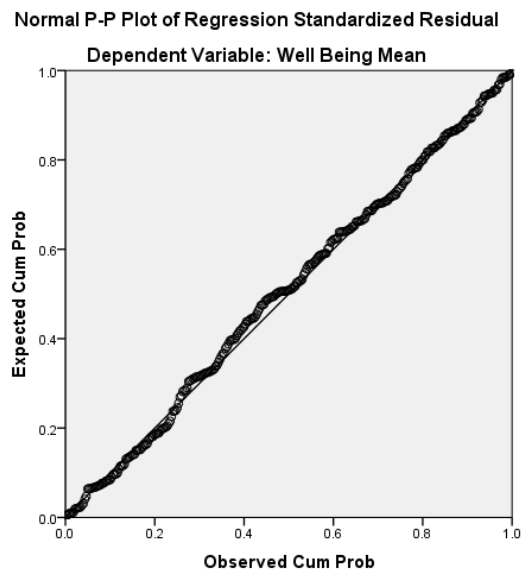
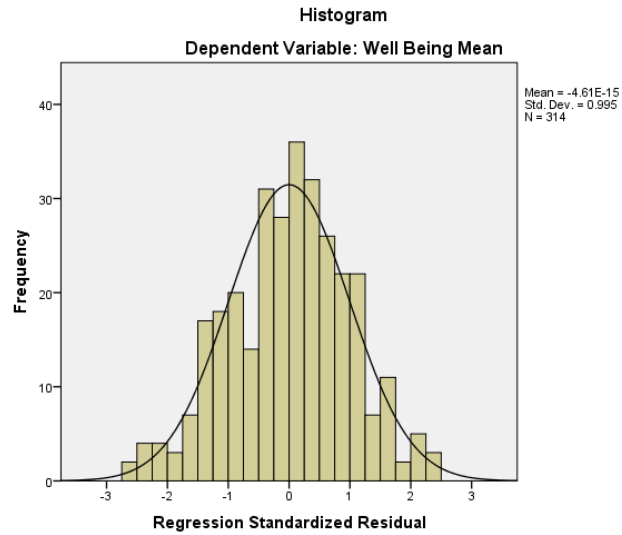
a. Predictors: (Constant), Social Support Mean, Stigma Mean, Self Esteem Mean

b. Dependent Variable: Well-Being Mean

2. Homoscedasticity - Zresid vs. Zpred Scatterplot



3. Normality of Residuals - Histogram, Normal P-P Plot, Shapiro-Wilk



Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Studentized Residual	.039	314	.200*	.995	314	.419

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

4. Multicollinearity - Tolerance & VIF (Coefficients Table); Collinearity Diagnostics

Coefficients ^a										
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	2.770	.286		9.669	.000	2.206	3.333		
	Stigma Mean	-.329	.047	-.352	-6.992	.000	-.422	-.236	.828	1.208
	Self Esteem Mean	.194	.053	.185	3.677	.000	.090	.298	.826	1.211
	Social Support Mean	.257	.035	.337	7.329	.000	.188	.326	.993	1.007

a. Dependent Variable: Well-Being Mean

5. Outliers - Casewise Diagnostics (± 3 SD threshold)

