

**DEBT LITERACY, ATTITUDES TOWARDS CREDIT AND DIGITAL CREDIT  
OVER-INDEBTEDNESS.**

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**T51/ 7460/2017**

**A RESEARCH PROJECT SUBMITTED TO THE INSTITUTE FOR  
DEVELOPMENT STUDIES, UNIVERSITY OF NAIROBI IN PARTIAL  
FULFILMENT FOR AWARD OF THE DEGREE OF MASTER'S IN  
DEVELOPMENT STUDIES.**

**NOVEMBER 2020**

**UNIVERSITY OF NAIROBI**

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## **DEDICATION**

To my beloved mother Muhida Rajab, my sisters Khadija and Rehema, and all my family members for their continued support.

## ACKNOWLEDGEMENT

I thank Allah (S.W.T), for the academic journey thus far. I am overwhelmingly grateful and indebted to my dedicated supervisor Dr. Radha Upadhyaya for her professionalism and academic rigor that is reflected in this work. The supervision meetings and classes she taught me, not only benefited me academically, but added some life skills into it, her unparalleled insights on digital credit kept this project moving. It was an absolute pleasure to be supervised by you.

Secondly, I want to send my sincere appreciation to the former Chief Justice Dr. Willy Mutunga and Dr. Samar Al Bulushi for their continued support both financially and psychologically. The two figures are responsible with my academic advancement are irrefutably my ideological mentors. The numerous books that they bought me, coffee meetings and messages of encouragement were the oil I needed to push through this academic journey.

Thirdly, I want to thank my lecturers at the Institute for Development Studies as well as the entire faculty team for their support during the time I was there. A special mention goes to Prof. Karuti Kanyinga for introducing me to the discipline of development studies. Others are too numerous to name, but I would also like to mention Prof. Patrick Alila, Prof. Winie Mitullah, and Prof. Rosemary Atieno whose academic insights during classes made my time at IDS valuable and enriched my project paper.

Lastly I would to thank my family and friends for having faith in my academic journey. To all my brothers and sisters you are the pillars of life I needed, and you taught me to remain strong and face life as it comes, and I thank you all for that. To my friends; Omar Abdulrahman, Zahra Mooloo and Babra you are all well appreciated.

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## ACRONYMS AND ABBREVIATIONS

<b>ANOVA</b>	Analysis of Variance
<b>CBA</b>	Commercial Bank of Africa
<b>CBK</b>	Central Bank of Kenya
<b>CGAP</b>	Consultative Group to Assist the Poor
<b>DFS</b>	Digital Financial Services
<b>EU</b>	European Union
<b>FSD K</b>	Financial Sector Deepening Kenya
<b>HELB</b>	Higher Education Loans Board
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>Ksh</b>	Kenya National Bureau of Statistics
<b>NACOSTI</b>	National Commission for Science, Technology, and Innovation
<b>NPL</b>	Non-Performing Loan
<b>SPSS</b>	Statistical Package for Social Sciences
<b>SSA</b>	Sub Sahara Africa
<b>VIF</b>	Variance Inflation Factor
<b>UK</b>	United Kingdom
<b>USA</b>	United States of America

## **DEFINITION OF TERMS**

- Digital Credit -** Defined as loans that are accessed via a digital channel whether online, via a mobile device or via a third-party agent that facilitates digital credit processing remotely from loan applications, approvals, repayments, and collections
- Over-indebtedness –** Relates to an on-going basis – difficulties meeting (or falling behind with) financial commitments, such that net resources fail short persistently to meet debt payments and other obligations as they fall due.
- Youths –** Individuals aged between 18 – 35 years in Kenya, as defined by the 2010 Constitution
- Attitudes –** Relates to favourable or unfavourable evaluative reaction toward something or someone, exhibited in one’s beliefs, feelings, or intended behaviour.
- Debt literacy –** Relates to the ability to correctly assess debt contracts and compound interest when making financial decisions about loans, credit cards, interest rates, and fees.
- Delinquency -** Refers to a situation where a borrower is late or overdue on a financial obligation such as taxes or debt.

## ABSTRACT

Generally, youths are credit constrained and considered financially disadvantaged. However, In Kenya, over the years, they have continued to be financially included as a result of the growth of digital financial services. Digitally delivered financial services such as digital loans have been able to provide access to the credit to the youth, and they are the majority users of the products. However, cases of late repayments, defaults on loans, increased debt stress, and reduced living standards, as shown in studies, are indicating to problems of over-indebtedness in the digital credit market, especially with the youth as the majority demography of users. Studies show that some of the problems associated with digital loans are users not understanding the cost of borrowing. This problem might be exacerbated by low levels of financial/debt literacy among the youth. Thus, as studies show, the remedy could be in borrowers having financial education. However, also studies having indicated rampant cross borrowing in the digital credit market, and borrowers are holding more than one loan at a time. Literature has shown that over-indebtedness can be caused by many factors, including low levels of debt literacy, and having positive attitudes towards credit/debt. Further, previous studies on over-indebtedness focused on other credit products such as credit cards, conventional loans, mortgage debt, overdraft, payday loans and not on digital loans, which are delivered in a unique and non-conventional way. Due to the limitations of these prior studies, this study attempted to examine the effect of debt literacy and attitudes towards digital credit on the over-indebtedness of the youth digital borrowers. The study built its population and sampled from criteria of selection being a youth who have used digital credit at least once in Ruaraka Sub-county, and then using a systematic sampling method, 159 youth borrowers selected. The study employed a mix-method survey design where questionnaires were used to gather both quantitative and qualitative data from 150 youth digital borrowers. Further case studies were conducted on four non-random selected. The questionnaire was pre-tested on a sample of youth borrowers and changes made before the final survey was conducted. The tool was also examined for both validity and reliability. Using an SPSS data analysis software, the study conducted descriptive, bivariate and regression analyses to answer the research questions and test the hypotheses. Results of the descriptive analysis showed that the average age of youth borrowers in Ruaraka Sub-county was 25 and that many borrowers were men. The study also found that most of the farmers had a tertiary level of education and were either unemployed or students and led a single life. The average income of the youth borrowers was Ksh 17,690. Most of the youth borrowers were debt literate, but females, the younger, those with lower levels of education attained and income, demonstrated low levels of debt literacy compared to the others. The study also found out attitudes towards digital credit among the youth borrowers are moderately positive at 0.65. The bivariate relationships performed using chi-square tests showed that over-indebtedness differed across employment status, income, education, number of outstanding loans and self-assessed debt conditions. The results also showed that over-indebtedness differed across all indicators of attitudes towards digital credit. The regression results showed that knowledge on interest rates and borrowing without good reasons had a significant influence on digital credit over-indebtedness at 5% and 1% level of significance, respectively. This study concludes that youth digital borrowers who have knowledge of interest rates and borrow digital loans for good reasons are less likely to be over-indebted. The case studies analyzed showed disruption or loss in income, impulsive and loan self-defaulting also caused over-indebtedness. The study recommends that the government should have a framework for over-indebtedness in Kenya to understand the phenomenon better and have measures towards it. Programs on debt literacy should be out rolled to youth borrowers to help understand the cost of credit. Further research should also be carried out in this area to have a better understanding of the other causes of over-indebtedness in the digital credit market.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

Access to credit cited as one of the critical components for enhancing financial development, it has been seen to accelerate growth in incomes and alleviating poverty (Levine *et al.*, 2000, Clarke *et al.*, 2006). In Kenya, for as much as access to credit from formal financial institutions such as commercial banks and microfinance institution has improved, the digital credit has also significantly increased access and usage of credit to a large section of borrowers and specific demographics such as the youth, previously excluded from formal financial services (CBK, KNBS, FSD K, 2013; 2016; 2019). The remarkable rise in the increase of digitally delivered micro-credit is as a result of the transformation of financial services experienced fuelled by the mobile money ‘revolution’ (Micro Save, 2019). Since the launch of the first digital loan product (M-Shwari) by Safaricom and Commercial Bank of Africa (CBA) in 2012, the country has experienced a significant increase in the size of the digital credit market, both in terms of providers and the total amounts of loans. For instance, as of 2018, a total of 230 Billion Kenyan shillings have been disbursed by the M- Shwari platform alone, with the number of total platforms, estimated to be over forty-nine (Totolo, 2018). Between 2016 and 2018, it is estimated that 86 per cent of the loans advanced to Kenyan borrowers were in digital form (Micro Save, 2019)<sup>1</sup>.

In this paper, digital credit described as loans accessed via digital channels, whether on a mobile device, via online, or via a third-party representative that facilitates digital credit processing remotely from loan applications, approvals, repayments and collections (Owens, 2018). Digital loans are offered remotely, instantly and in an automated way (Chen & Mazer, 2016). Access to digital credit enables individuals to meet short term household and business liquidity needs (Izaguirre *et al.*, 2018), helping people seek future investments (Cook & McKay, 2015) and it allows individuals to close the gap between daily needs and irregular income (Storchi & Johnsons, 2016).

However, with the increase in access to digital credit products and the proliferation of digital lenders in the financial service sector, over-indebtedness of consumers is more and more

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<sup>1</sup> Besides, between November 2018 – March 2019 mobile lending firms disbursed a total of Sh112 billion to Kenyan borrowers. [Mobile lending firms disbursed Sh112bn to Kenyans in 4 months – Capital Business](#)

becoming a major concern among many Kenyans (Izaguirre *et al.*, 2018)<sup>2</sup>. The threat of over-indebtedness cannot be underestimated, as recent reports have shown the percentage of non-performing loans is relatively three times higher for digital loans (16 per cent) compared to conventional products (5 per cent) (Wamalwa *et al.*, 2019)<sup>3</sup>. In 2018 the number of digital non-performing loans increased to 923,560 from 666, 720 in 2017 (Micro Save, 2019). In the same study by Micro Save (2019) shows that apart from the elderly aged over 65 years, youth digital borrowers between 18-34 years account for the highest number of non-performing digital loans at 36%. Demand-side surveys have shown an increase in late repayments and delinquencies<sup>4</sup>. Moreover, debt stress has increased, and individuals are reducing food expenditure to repay loans (FSD Kenya, 2019). The trends, as mentioned earlier of late repayments, increase in delinquencies, and debt stress points to indicators that have previously used to measure over-indebtedness in several studies (Gathergood, 2012; Davydoff *et al.*, 2008; Schicks, 2013b). These concerns are relevant, especially when most digital credit consumers are the youth (Micro Save, 2019; CBK, KNBS & FSD K, 2016). The youth are known for possessing low levels of financial literacy levels, which hampers sound financial decision-making, thereby predisposing them to welfare-reducing credit or over-indebtedness. Over-indebtedness does not only present the risk of driving people into poverty (Porter, 2012) but also affects their health (Davydoff *et al.*, 2008) and deteriorates social relations (Schicks, 2014).

Access to high-interest, short-term consumer credit can be detrimental and, often trapping young borrowers in debt and exacerbating financial distress (Autio *et al.*, 2009). Studies also show that financial distress as a result of easy to access credit is compounded by limited financial/debt literacy (Lusardi and Tufano, 2009; 2015), or behavioural biases whereby borrowers attitudes are lenient towards debt and prefer current to future consumption (Chien & DeVaney, 2001; Abdul-Muhmin, 2008). This introduction has shown understanding the effect of digital credit on over-indebtedness using debt literacy and attitudes towards digital credit is a critical question and even more pertinent in Kenya, where there exist is no adequate research to explain the trends of indebtedness experienced.

The next section 1.2 is the background of the study, where the section provides a detailed description of the state of digital credit in Kenya and its relation to the youth.

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<sup>2</sup> See Daily Nation October 14<sup>th</sup> 2018 <https://www.nation.co.ke/business/996-4805260-1splhcz/index.html>

<sup>3</sup> Non-performing digital loans are those loans for which the outstanding amounts have not paid for more than 90 days.

<sup>4</sup> See CGAP 2018 Izaguirre & Mazer [How Regulators Can Foster More Responsible Digital Credit](#)

## **1.2 Background of the Study**

In this section, we will introduce the history and outline background information on the problem studied. The purpose of this section is to enrich the context of the study, as briefly detailed in the introduction section.

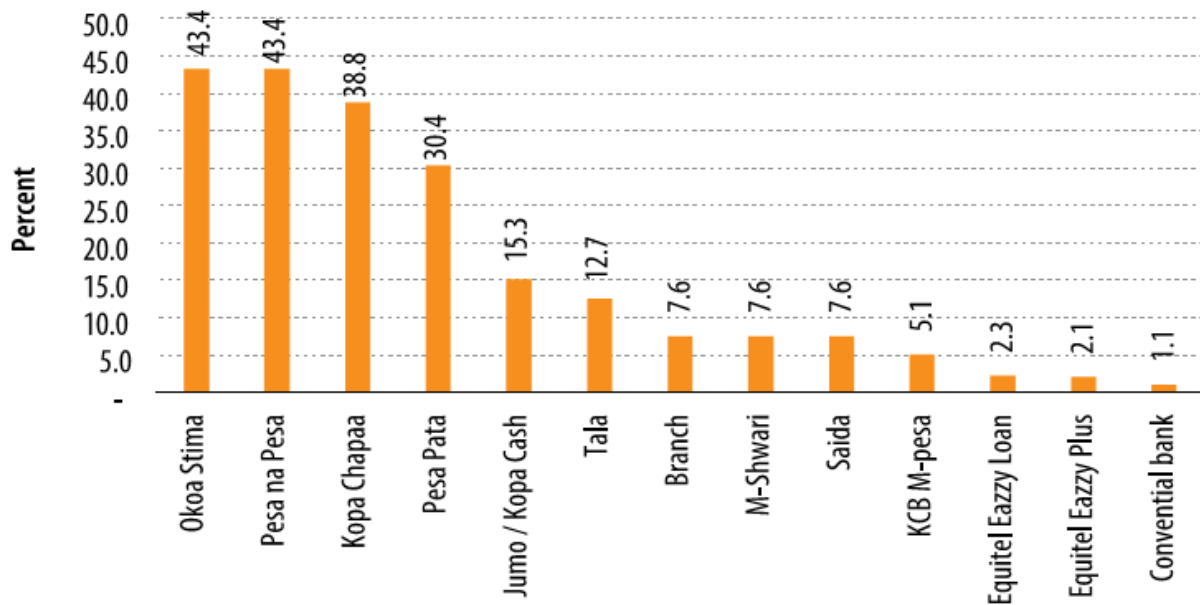
### **1.2.1 State of Digital Credit and the Youth in Kenya.**

In Kenya, the youth generally considered financially marginalized, especially those in the lower age groups (under 25 years), and thus considered credit constrained in formal financial institutions (CBK, KNBS & FSD K, 2013). A recent report by CBK, KNBS & FSD K (2019) notes that the financial inclusion of the youth between the age segments of 18-25 and 26-35 years increased by 11.9 and 13.4 points respectively from 2013 to 2019. Improvements in the delivery of digital financial services (DFS) and the innovation of financial products credited with the inclusion of the youth into formal financial systems. Financial products such as digital loans, in which delivery is in the form of non-traditional ways, have enabled groups such as the youth to access to finance, previously excluded or underserved by formal financial systems. According to the 2017 Fin Access Digital Credit Tracker, a demand-side survey, 27 per cent (or more than 6 million) of Kenyans have used digital credit, with over 60 per cent of the digital borrower's population (6 million users) being the youth (Totolo, 2018). Compared to the 36 years old and over (12 per cent), the 18-35 years old (26 percent), a digital loan is there most formal source of finance and has been instrumental in granting formal credit to the youth (FSD Kenya, 2019).

Proliferation in digital credit providers has led to increasing competition among service providers; in the attempt, there have been many concerns both from the supply-side and demand-side. From the supply-side, the primary concern is loan default. The risk associated with lending to high-risk borrowers such as the youth minimized by charging fees and interest rates that are relatively higher compared to traditional loans. CGAP (2017) indicates digital credit products in Kenya are relatively expensive; monthly percentage interest rates range from 2.1% to 43.4%, while the monthly interest rate for conventional loans averages at 1.3% (Figure 1).



**Figure 1.1: Monthly Interest rate for Selected Digital Credit Providers and Conventional Loans (%)**



Source: CGAP 2017 and digital credit providers

The figure above shows that digital loans, are more expensive than traditional credit and can be compared to payday loans in the Western countries, which are high-interest instant loans (Francis *et al.*, 2018). Like payday loans, the high fees and the interest rate levied on digital credit are associated with a reduction in income over time because it increases borrowers' cash outflows (Autio, 2009).

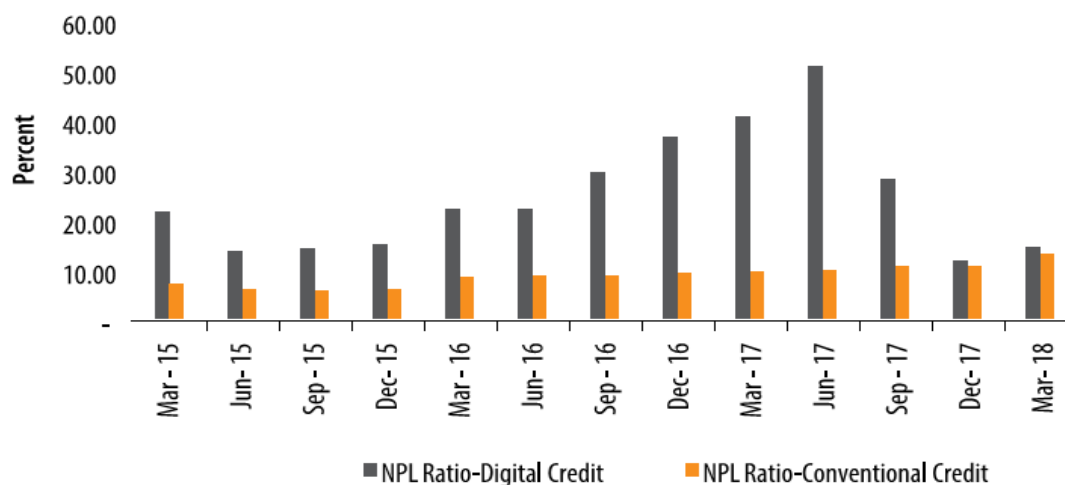
In a survey report by FSD Kenya and CGAP notes, in Kenya, 47 per cent of digital credit borrowers indicated that they had repaid a digital loan late (Kaffenberg *et al.*, 2018). It shows that late repayments of loans are widespread, and the numbers could be higher, considering it was a self-reporting survey. Furthermore, youth digital borrowers who experience financial difficulties in repaying their debts within a short period may borrow from other lenders to repay their loans. According to Totolo (2016), digital borrowers in Kenya exercise multiple borrowing. Over a third of the borrowers estimated to have access loans from more than one digital lender (Totolo, 2016). A report by Micro Save (2019), notes 38 per cent of borrowers who were negatively listed by the Credit Bureau held four or more digital loans before they were blacklisted, and owe the trend with struggles to repay. Such statistics mentioned above partly indicate that digital borrowers in Kenya are not 'threatened' by holding multiple debts, and their attitudes towards digital loans is an important aspect to understand. As explained in the literature review,

individuals with positive attitudes towards credit are likely to incur debt problems (Norvilitis *et al.*, 2006).

In the same survey by FSD Kenya, self-reported default rates stood at 12% of the population of digital borrowers ( 6 million users), with the numbers estimated to be higher due to fear of embarrassment or ambiguity of the word ‘default’ (Kaffenberg *et al.*, 2018). In Tanzania, a survey conducted by CGAP showed digital borrowers under the age of 25 recorded higher-than-average default rates despite taking most small amounts of loans (Izaguirre *et al.*, 2018). In case of a default occasioning an adverse listing by the credit reference bureaus. Such an occurrence can reduce their ability to access additional or higher-value loans in the future.

Data from the supply-side, indicate that the ratio of digital non-performing loans (NPL) to digital credit ratio for commercial banks between the period of March 2015 and March 2018 averaged at 21 per cent, which is considered high compared to the average NPL ratio of the banking industry which stood at 10.2 per cent.

**Figure 1.2: NPL Ratio for Conventional and Digital Credit, 2015-2018**



Source: CBK

Figure 1.2 shows that despite the NPL ratio for digital loans reducing drastically from June 2017, it remains significantly higher than that for conventional loans. The figure implies that a more significant proportion of digital borrowers’ default as compared to conventional credit borrowers (CBK, 2018). Related to the youth borrowers in Kenya, in 2019 they recorded among the highest number of digital credit NPL’s after the elderly aged over 65 years. They accounted for 36 per

cent of the digital credit NPL's from data supplied by 14 digital credit providers, which are the vast contributors to the digital credit supply (Micro Save, 2019).

According to the Fin Access survey, 2019 digital borrowers 1 in 2 digital borrowers are affected with debt stress, and it is more prevalent among digital borrowers compared to other formal borrowers (FSD Kenya, 2019). As a result of debt stress, the survey indicates 43.9 per cent of digital borrowers either sell an asset, reduce their food expenditure, borrow, or remove a child from school to repay a digital loan (ibid). Although digital loans providers a pathway to facilitate access to finance in terms bridging the gap to fulfil day to day needs (FSD Kenya, 2019), they also present a threat that could lead to risky credit booms (Izaguirre et al., 2018).

With high levels of late repayments, default rates and debt stresses already experienced, this is a signal pointing to debt problems<sup>5</sup>. As shown in the literature review, these factors compounded by poor financial literacy or borrowers not having adequate information on terms and conditions of loans when making borrowing decisions. Generally, youth are considered less financially literate. Empirical research across the globe has shown a lower level of financial literacy, notably among the youth (van Rooji et al., 2009; Lusardi *et al.*, 2010; Lusardi and Mitchell, 2011). The financially literate understand the terms and conditions of the credit, and hence, make intelligent credit consumption decisions (Lusardi & Tufano, 2009). FSD Kenya and CGAP in their survey studies, indicated unexpected fees and lack of understanding of digital loan fees and costs mentioned as problems associated with digital credit on the demand side (Totolo, 2016; Kaffenberg *et al.*, 2018). It points out to problems of financial/debt literacy among digital borrowers in Kenya, among them the youth. Lusardi and Tufano (2009) show the existence of a relationship between poor financial literacy among consumer credit users and the use of high-cost credit items. Disney & Gathergood (2012) proved that less financially literate credit consumers are probable to be over-indebted. Also, considering the youths are deemed less stable financially and seem disadvantaged, this exposes them to further financial problems (Lokken Worthy et al., 2010).

While the defaults levels still considered to be at low levels coupled with late repayments (Kaffenberg et al., 2018), and reduction in living standards to meet financial obligations (FSD Kenya 2019; 2016), points out to the problem of over-indebtedness (See Davydoff, 2008; Disney & Gathergood, 2012; Lusardi & Tufano, 2015). Over-indebtedness, according to Stuart Stamp

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<sup>5</sup> Indicators of over-indebtedness used in several studies. See Davydoff (2008); Gathergood & Disney, (2012); Lusardi (2015).

(2009), refers to an individual whom their net resources (net assets and income) leave them continually unable to meet necessary living expenses and debt obligations as they become due.

Concerns on over-indebtedness is a result of its devastating outcomes; it has both effects at the macro and individual level. At the macro level, associated with curtailing aggregate demand, inflation, reduced investments, employment, and overall growth of an economy (Ramos-Escamilla *et al.*, 2015; Du Caju, *et al.*, 2016). At the individual level, over-indebtedness is observed to trigger health-related outcomes, increase emotional afflictions (Gathergood, 2012) and poor health (Angel 2016). Studies have also shown that over-indebtedness may lead to reduced social cohesion (Porter, 2013) and increase the incidence of lower self-esteem (Wang, 2009). Furthermore, over-indebtedness has shown among the causes of family breakdowns, causing divorce rates to spike (Bridge & Disney, 2016).

This section has shown us the state of digital credit concerning the youths in Kenya. On the supply side, there are concerns of high-interest rates charged on the loans, while on the demand side cases of late repayments, defaulting and increased debt stress has emerged, bringing forth the issue of over-indebtedness.

### **1.3 Statement of the Problem**

Access to finance is vital in promoting financial inclusion (Demirgüç-Kunt, 2008; World Bank, 2008). Financial development implicitly leads to an increase in access to credit. Innovations in mobile financial technology widen access to finance for both businesses and individuals (Demirgüç-Kunt & Klapper, 2013). In Kenya, advancements in DFS has led to the development of innovative products that have advanced access to credit to marginalized groups such as the youth. Digital credit solutions have played a key role in closing the gap on financial inclusion and expanding financial freedom for the youth (CBK, KNBS & FSD K, 2013; 2016; 2019). However, as in microfinance, the threat of over-indebtedness seeks to derail the gains of inclusion attained with digital credit solutions (Engel *et al.*, 2014). On the supply side, high-interest rates on digital credit loans risk increasing the threat of over-indebtedness (CGAP, 2017). On the demand-side widespread late repayments, defaults on loans and increased debt stress and the high number of NPL's among youth digital credit borrowers indicate problems of indebtedness (Kaffenberg *et al.*, 2018; FSD Kenya, 2016; 2019; Micro Save, 2019). Users of digital credit products pointed out that 'unexpected fees' and lack of understanding of digital credit fees and costs as one of the problems associated with the digital credit market, indicating inadequate knowledge on debt literacy among users (Totolo, 2016; Kaffenberg *et al.*, 2018). While at the same time, increased

cases of cross borrowing and accumulation of digital loans, is a manifestation of positive attitudes towards digital credit (Kaffenberg et al., 2018). As such, using the youth who are the majority users of digital credit, this study seeks to understand over-indebtedness in the digital credit market through examining debt literacy and attitudes towards digital credit among the youth in Kenya.

Research has identified a wide range of factors influencing the likelihood of consumer over-indebtedness (for a review, see Kamleitner and Kirchler, 2007). Among others, these factors include low financial literacy (e.g., Lusardi, 2008), and positive attitudes towards credit (e.g., Wang et al., 2011). Recently a new approach focusing on debt literacy has been examined to explain consumer use of credit and their over-indebtedness (Lusardi & Tufano, 2009; Disney & Gathergood, 2012). Empirical findings in these studies show that general literacy on financial matters is not adequate to participate in debt markets (Van Ooijen & Van Rooji 2014). The studies mentioned are pioneers in the debt literacy literature, and none has focused on digital loans as their unit of analysis. Digital loans are unique financial products concerning how they are delivered. Like debt literacy, studies on attitudes towards credit such as those of Lachance (2012), Wang et al., (2011), Castellani & DeVaney (2011) and Chien & DeVaney (2001) have not focused on digital credit. A study by Ash et al., conducted in the United Kingdom focused on payday loans which can be equated to digital loans in Kenya, but lacks geographical significance and did not also focus on the youth.

The general aim of this study first is to investigate whether debt literacy levels influence the over-indebtedness of youth digital borrowers<sup>6</sup>. This study would expand the domain of debt literacy on digital loans, as it is the first study on such a product. Secondly, it is to examine the influences of attitudes towards digital credit among the youth, which previous research has found to be significant determinants in examining credit use and debt acquisition (Abdul-Muhmin, 2008; Lachance, 2012). To summarize, this paper seeks to examine the relationship between debt literacy, attitudes towards digital credit and over-indebtedness on consumer credit debt among Kenyan youth.

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<sup>6</sup> Manifestations of over-indebtedness such as late repayment, defaulting on loans, reduction in living standards and increase debt stresses have already occurred among digital credit borrowers in Kenya. Various jurisdictions such as the EU (2010) conceptualizes over-indebtedness using some of the aforementioned as indicators. Considering the quality of social security in jurisdictions such as the EU and its definition of over-indebtedness, and quality of social security in Kenya, the definition and conceptualization of over-indebtedness should be broad, have depth and should be all-inclusive, considering the economic realities of this country and that of the EU.

#### **1.4 Research Questions**

The overall research question is to examine the relationship between debt literacy, attitude towards digital credit and indebtedness in Kenya. To help answer this question, the following specific research questions proposed.

1. What are the debt literacy levels among youth digital borrowers?
2. What are the attitudes towards digital loans among youth digital borrowers?
3. What is the relationship between debt literacy and digital credit over-indebtedness?
4. What is the relationship between attitudes towards digital loans and digital credit over-indebtedness?

#### **1.5 Research Objectives**

The specific research objectives to be achieved at the end of the study is to understand the following.

- i. To find out the debt literacy levels among youth digital borrowers in Kenya.
- ii. To find out the attitude towards digital loans among youth digital borrowers.
- iii. To understand the relationship between debt literacy and digital credit over-indebtedness among youth digital borrowers.
- iv. To understand the relationship between attitude towards digital loans and digital credit over-indebtedness.
- v. To determine the level of digital credit over-indebtedness among youth digital borrowers.

#### **1.6 Significance & Justification of the Study**

This research paper adds knowledge to literature and contributes to both practice and policy. The research paper is among the initial studies in Kenya to interrogate over-indebtedness in relation to digital credit products. Currently, there is no framework in Kenya to understand over-indebtedness; this study will contribute to the future when the framework is developed with regards to digital loans. Secondly, a measure of over-indebtedness for digital loans developed in this study. It approaches digital credit over-indebtedness in both a qualitative and quantitative manner. This is an addition to the literature in providing a different way of understanding the effects of digital loans on over-indebtedness.

Besides, the research paper is useful to digital credit providers, particularly when lending to the youth. While there are numerous institutions providing loans and closing the gap on financial access, most of the lenders are profit-oriented and are less interested in the outcomes of their lending practices. This study points some of the effects of digital lending and tries to understand

their causes. Eventually, such information will be helpful to digital loan providers in terms of ‘profiling’ digital borrowers and presenting loan products that minimize such effects.

Lastly, this study contributes to policy. The study looked at the status of indebtedness among youth borrowers. As the government of Kenya is inclined to pursue 100 per cent financial inclusion and increase access to finance to youths, the findings provide policymakers with empirical evidence on how to tackle the threat of over-indebtedness which is evident in the digital credit market and threats to erode the gains achieved. These research study recommendations will help the government to formulate and enact necessary policies to protect both the youth financial health and achieve further financial inclusion to the still financially marginalized youth.

In terms of justification of the study, in general, consumer credit has come to be regarded as empowering consumers to make better lives for themselves by leveraging future earning potential (Kilborn, 2005). However, there has been a rise in indebtedness levels across the globe, driven by an urge for ‘consumption’ and ease of credit products (Kus, 2015). In Kenya, there has been a remarkable high rise in the usage of digital loans by youths (Totolo, 2016). The reason for the choice of the study of youths and over-indebtedness is because they are considered financially disadvantage compared to other age groups (Lokken Worthy et al., 2010).

Kenya is the world’s hub of digital services when it comes to mobile money services and digital credit (Manyika et al., 2016). The choice of Ruaraka Sub-county as a study area is due to the concentration of the youth who use digital consumer credit in urban areas (Kaffenberg et al., 2019; Totolo, 2016)

Threats of over-indebtedness as a result of usage of digital loans influenced by personal characteristics and behaviours of digital borrowers have received very little attention in research, especially in Kenya, and that is why this study has focused on that.

### **1.7 Limitations of the Study**

This research study is geographical constrained to Ruaraka constituency (sub-county) in Nairobi, Kenya. Thus, the conclusions of the study are limited to the aforementioned geographical area. Application of the conclusions should be applied with such a limitation in mind. Although the study has internal validity, it lacks external validity in terms of applying to youth digital borrowers outside this location. To conclude, the application of findings to areas outside the study area should be made with caution.

This research also constrained itself to youth digital borrowers only. Thus, the focus on youth limits the application of the study findings to other age demographics. Also, the study focused on youth who had taken up at least one digital loan with various digital credit providers in Kenya. This means that youth who have used digital financial services for other services other than borrowing not included in the study. The findings are, thus, only relevant to youth who have taken up digital loans and not all youth in general.

In summary, this chapter has shown the basis, the purpose and the significance and the problem the study seeks to solve. The upcoming chapter discusses the literature review.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter consists of a review of the literature. It is presented in 5 sections, counting this introduction part as section 2.1. Section 2.2 outlines the theoretical review in which the financial capability theory is discussed. While section 2.3 describes the empirical literature, with a review of the literature on the definition & measurement of over-indebtedness (2.3.1) and causes of over-indebtedness (2.3.2). The conceptual framework follows in section 2.4, where the framework described and discussed. Lastly, section 2.5 summarizes the literature discussed in the previously mentioned sections.

#### **2.2 Theoretical literature review**

The theoretical literature review discusses the relevant theory to the study. This study was conducted within the theoretical framework of Financial Capability Theory. The theory explains the capabilities needed for youth digital borrowers to participate in the digital credit market and how they become over-indebted or not.

##### **2.2.1 Financial Capability Theory Model**

This study adopts the Financial Capability Theory to explain the relationship between debt literacy, attitudes towards digital loans and over-indebtedness. The model comes from various strands of literature that examine capabilities needed to be able to participate effectively in the financial markets.

The term “financial capability” used to describe people’s financial knowledge, confidence, and motivation to manage personal finances (Sherraden, 2015). It has evolved to encompass various concepts, and currently, there is no standard definition of the term. World Bank (2013) defines it as “the internal capacity to act in one’s best financial interest, given socioeconomic and environmental conditions. It encompasses the knowledge (literacy), attitudes, skills, and behaviour of consumers concerning understanding, selecting and using financial services, and the ability to access financial services that fit their needs” (World Bank, 2013, pg1). Thus, according to the World Bank, four components inform financial capabilities and include; knowledge, skills, attitudes & behaviour (World Bank, 2013). Moreover, individuals who possess such above qualities are most likely to achieve their financial goals, improve their welfare and hedge against financial risks and shocks.

This work builds on Amartya Sen, and Nussbaum's works on capability theory are the pillars that inform the concept of financial capability (Sherraden, 2015). Amartya regards capabilities as notions of freedoms that allow individuals to exercise their agency and take advantage of opportunities to change their lives. Nussbaum considers such 'capabilities' are possessed internally by individuals and include financial skills and education. As for Sherraden (2015), such capabilities consist of skills, knowledge, motivation and confidence<sup>7</sup>.

One of them component of financial capability this study looks at is financial literacy<sup>8</sup>. Mundy (2011) associates financial literacy with knowledge and skills. Such that when individuals have numeracy and literacy skills and know financial concepts and products are considered financial literate (World Bank, 2013). Financial education and literacy are important in improving peoples' ability to use financial services and make effective decisions with regards to present and future welfare. Houston (2012) connotes that people with a higher stock of human capital (financial literacy) stand a better chance of making effective borrowing choices. Huston (2010) theorizes one of the primary objectives of financial literacy/education is to tackle the effects of credit crises, bankruptcy, and consumer over-indebtedness. The above achieved by introducing consumers to financial products, concepts, terms, and calculations to prepare them in managing their finances more adequately (Betti *et al.*, 2007).

Another component of financial capability, in line with the World Bank (2013) conceptual framework, is attitude. One of the generally accepted models of financial literacy as suggested by Borden *et al* (2008) starts with financial education, which would result to financial literacy, improved financial attitudes and, eventually, better financial behaviours. Financial knowledge and skills play an important role in influencing individuals' attitudes towards their finances (Lusardi, 2009). Consumers who are financially literate stand a better chance to influence their financial attitudes and behaviours. Lyons (2008) supports the idea that financial literacy education would positively impact consumer financial attitude. Thus, financial capability needs also to focus on people's attitudes, such ability to understand how to save for the future (Mundy, 2011). World

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<sup>7</sup> While internal capabilities are important all authors appreciate the need for favourable external conditions. The emphasis is on individuals in improving their internal capabilities, as well as the external conditions should be favourable to facilitate the 'ability to act' on opportunities (Johnson & Sherraden, 2007; Sherraden 2015). Thus, a combination of both internal capabilities and external conditions are important in determining people's financial capabilities. Sherraden (2015) considers financial capability to be a component of both financial skills and knowledge and financial inclusion. Favourable external conditions would give individuals an 'opportunity to act', in the case of digital credit, access to favourable digital loans will enable people to exercise their financial capabilities, while the opposite may hinder their capabilities and putting them at worse situation.

<sup>8</sup> In this study focus will be on debt literacy, which is a sub-section of financial literacy. Knowledge and skills considered in debt literacy, is the ability to understand and calculate interest rates.

Bank posits some of the financial attitudes concepts as the ability to reasons for borrowing, saving or invest and what it will mean in the future (World Bank 2013).

When it comes to digital credit, having knowledge and skills in understanding financial products, their terms of interest (calculations) and overall money management skills is crucial in participating in the credit market. In summary, this study seeks to financial capabilities and how they can explain indebtedness among youths who consume digital credit.

### **2.3 Empirical literature review**

Section 2.3 provides a breakdown of the concept of over-indebtedness by highlighting what various authors have found out in their research. First, the empirical findings are on over-indebtedness and an exploration of the studies done on those factors that influence it. The study will undertake and the contextualization to personal indebtedness and variables that this study adopts to measure debt levels.

#### **2.3.1 Definition and Measurement of Over-Indebtedness.**

This sub-section reviews the various measurements and definitions of over-indebtedness (focusing on factors influencing personal over-indebtedness). The purpose is to bring out the different approaches and definitions to understanding of over-indebtedness.

The term over-indebtedness does not exist as a standardized term. Also, there has not been an agreed consensus on the definition of personal over-indebtedness, despite the need to have one and a practical way to measure it. According to Schicks (2013a), the definitions of over-indebtedness have varied partially because of; ‘threshold’ levels used in indicating over-indebtedness, the locus of the research and the availability of data (especially in developing countries). Currently, there is no standard structured analysis of over-indebtedness that exist (Schicks, 2013a). Despite this, several attempts have been made to define and analyze the various types of definitions (e.g. Betti *et al.*, 2007).

Some of the definitions put forward include that by Betti *et al.* (2007), which subjectively approaches the definition. According to the author, “a person is over- indebted if he or she considers that he or she has difficulties in repaying debts, whether consumer debt or a mortgage.” Schicks (2013; b) applies a consumer perspective definition that acknowledges the structural unduly sacrifices borrowers partake to meet repayment deadlines. The European Union (2008) in their study of understanding over-indebtedness used a specific definition which

operationalized over-indebtedness with regards to households as “on an on-going basis – difficulties meeting (or falling behind with) their commitments, whether these relate to servicing secured or unsecured borrowing or to payment of rent, utility or other household bills.” The EU definition of over-indebtedness takes into account some of the core elements of existing definitions, i.e., the importance of meeting payment obligations such as credit instalments and utility bills; the inability to meet the mentioned payments; the structural re-occurrence of the problem, meaning that financial difficulties are persistent and on-going; the assumption that standard of living should not be altered in order to meet contractual payments; and the illiquidity, meaning that the problem cannot be resolved through offsetting of assets (ibid).

Most scholars have approached over-indebtedness in three main frameworks as stated by Larsson *et al.* (2016), the first is, the administrative (official registration of non-payment, for example in a court of law or credit bureau). The second is the subjective approach, which considers debt perceptions of borrowers. Finally, the third is the quantitative method (uses the economic situation of a household to measure over-indebtedness, e.g. income-to-debt ratios).

In Kenya, the administrative way has proven rather ineffective; the existence of large networks of informal lendings makes it an unreliable way of determining whether people are over-indebted or not. When it comes to operationalization, there is ambiguity as to what is the threshold to consider one over-indebted or not. For example, individuals have been listed in credit bureaus over non-payment of monies owed as little as 2 USD. In 2016, a survey conducted by TransUnion, one amongst three leading licensed credit reference bureaus in Kenya, indicated 400,000 Kenyans of the 2.7 million who had been reported to a credit bureau with a negative listing for late repayment, were listed for loans of less than KSh200. This questions the effectiveness of relying on such a method as a measure of indebtedness. The subjective and objective approaches have remained somewhat useful in analyzing over-indebtedness, as documented in the existing literature.

The subjective model has been defined by Niemi-Kiesiläinen & Henrikson (2005, p. 6) as “means that the household’s perception of its ability to pay back its debts is the criterion for over-indebtedness.” Scholars such as (Betti *et al.*, 2007; Guerin *et al.*, 2009b; Fondeville *et al.*, 2010) in their studies have subjectively approached over-indebtedness. Their focus has been on the perceptions of debt holders about their debt. Some academics consider over-indebtedness as an individual event (Disney *et al.*, 2008). Guerin *et al.* (2009a) mentions that for borrowers, over-indebtedness may be a matter of perceptions and social consequences as opposed to a physical

problem of mismatch of revenues, assets, and debt. In that how individuals view their debt conditions is critical as opposed to their assets or incomes in relation to the amount of debt they hold. Debt situations are different and diverse in meaning. Guerin *et al.*, (2009b) asserts that whether a debt is considered a burden relies solely on the nature of the debt relationship with a borrower as opposed to only the amount he or she is owed. Moreover, borrowers are considered the best evaluators of their debt conditions. Self-reporting is a method used to analyze over-indebtedness and has been vital in bringing out the struggles or ‘sacrifices’ that borrowers have to endure to make debt payments (Schicks, 2013b).

Despite the case for subjective approach, understanding the phenomena of over-indebtedness in a quantitative dimension – the ratio between earnings and debt – is equally important. Schicks (2013a) acknowledges that definitions of over-indebtedness are seen more reliable if they are based on objective information. For example, Kappel (2010) objectively approached over-indebtedness by looking at monthly income’s vis a vis debt-related expense. The ratio of a household’s monthly repayments divided by its monthly net income, i.e. total monthly gross income minus total monthly expenses. The ratio used to indicate whether a household is over-indebted or not. The moment the ratio surpasses an indicated threshold, indebtedness changes to over-indebtedness. Over-indebtedness may happen, where repayment increases while net income does not increase respectively, or when net income decreases while repayments do not decrease simultaneously at the same rate.

Maurer and Pytkowska (2010) added to the quantitative way of looking at the extent of indebtedness by measuring debt service payments with regards to realized income. They constructed an Indebtedness Index. The following formula was used to develop the index: total monthly instalments on household debt/net monthly household income. In relation to their calculations of the Net Indebtedness Index clients were categorized into three groups:

- Over-indebted: Where 100% of borrower’s household net income used to service debt, at this point, the Net Indebtedness Index equals or exceeds 100%.
- At risk of over-indebtedness: Where over 75% of borrowers, household income is used to service debt. At this point, the Net Indebtedness Index is between 75% and 100%.
- Not over-indebted: Where less than 75% of borrower’s income used to service debt. Net Indebtedness Index is below 75%.

In a 2007 report, “Tackling Over-indebtedness,” which analysed over-indebtedness in Britain. Approached the phenomena in the approach, as mentioned earlier. The level of indebtedness was analysed both of how people perceive their debt burden and a percentage of household income with the debt they have accumulated.

**Table 2.1: How over-indebtedness measured in previous studies**

<b>Approach</b>	<b>Example of Study</b>	<b>Comment</b>
<b>Statistics on arrears</b>	Gathergood (2012)	Involves liabilities that are particularly a number of missed payments. The arrears might vary from one missed payment to several ones. It may also be measured in terms of how many days a borrower is late in making a payment that has fallen due (30-, 60-, 90-day period for delinquencies)
<b>Statistics on debt settlement</b>	Government-related procedures	Its related to legal procedures such as bankruptcies, insolvencies, summonses and regulated amicable debt settlement procedures.
<b>Self-assessment on financial burden</b>	Betti et al. (2007), Fondeville et al. (2010)	Involves surveys on individuals/households and their evaluation of how they feel about their debt conditions (over-committed or not)
<b>Other indicators such as debt-income ratio, debt-service burden ratio, and users of debt advice agencies</b>	Maurer & Pytkowska (2010), Kappel, (2010)	Focuses on debt ratios such as to income, servicing and others.

*Source: EU, 2008*

Over-indebtedness is multi-dimensional and complex and not easily measured and by using a single indicator. Indicators in the study of over-indebtedness have varied, as demonstrated by Schicks (2013; b). This study will approach over-indebtedness in digital credit in the way digital loans are offered and partially as conceptualized by Disney & Gathergood (2012)<sup>9</sup>. Over-indebtedness measured as both delinquencies on repayments and self-reported financial distress. The three measures of over-indebtedness that used were 1-month delinquency (positive listing) on at least one digital credit item, three-month delinquency (negative listing) on at least one digital credit item and a measure of self-reported over-indebtedness based on delinquency coupled with self-reports of ‘real financial problems.’ Furthermore, in this analysis, the reduction

<sup>9</sup> In digital credit, digital loans mostly have a 30-day period, thus a positive listing arises as a consequence of defaulting on a loan beyond the 30-day grace period and leads to charging of late repayments fees. While a negative listing is a result of default past 90-day grace period and leads to be being blacklisted by credit bureaus.

in food expenditure to pay loans is used to conceptualize a reduction in standards of living, which has been used as an indicator of over-indebtedness (Davydoff, 2008).

### **2.3.2 Causes of Over-indebtedness**

This sub-chapter introduces the various explanations for over-indebtedness, which commonly pointed out in the present literature. The literature on drivers of over-indebtedness can be detailed based on the occurrence of risk events, behavioural economics, supply-side factors, and demographic factors. However, further analysis will focus on personal characteristics and behaviour, debt literacy and attitude towards digital credit.

#### **2.3.2.1 Occurrence of Risk Events**

Over-indebtedness can happen because of the occurrence of some risky events which alter underlying conditions as previously agreed between a lender and a borrower (Keese, 2009). According to Kamleitner and Kirchler (2007), the incidences are financially relevant, and critical life events include loss of employment or disruption in a source of income, divorce or separation, and health shocks. The events lead to either fall in incomes or unexpected expenses (Gathergood, 2012). The correlations of such events and its relationship with over-indebtedness have documented extensively; unemployment & job loss (Davydoff *et al.*, 2008; Gloukoviezzoff, 2006; Haas, 2006; Du Caju, 2016; Anderloni & Vandone, 2008) illnesses (Himmelstein *et al.* 2005; Duflo, 2005). Changes in family structure, in the event of divorce or passing on of a family member, unforeseen expenses that erode incomes can also cause over-indebtedness (Hodson *et al.*, 2014).

#### **2.3.2.2 Supply-Side Factors**

Over-indebtedness can also happen due to supply-side factors (Hurwitz & Luiz, 2007). According to Schicks (2013a), lender behaviour can increase the risk of over-indebtedness through their marketing/advertising strategies. Competition among lenders has forced them to advertise their products in suggestive ways to manipulate the psychological biases of their borrowers (Harris & Albin, 2005). Such effects corroborated by Bertrand *et al.* (2010) suggested that aggressive loan advertising methods trigger consumers to borrow past reasonable limits. Similarly, a survey in Finland conducted among debt counsellors attributed the increase in indebtedness among Finnish consumers to highly visible marketing of consumer loans.

Other causes of over-indebtedness include and argued through behavioural sciences (See, Kilborn (2005); Anderloni & Vandone, 2008; Anderloni *et al.*, 2012). Cross borrowing has also

cited as a possible cause of over-indebtedness (Mutsonziwa & Fanta, 2019). Demographic factors such as gender, age, work status and marital status assist in understanding over-indebtedness (Schicks, 2014; Du Caju *et al.*, 2016; Disney & Bridges, 2016).

Matters of financial literacy (Gathergood, 2012; Lusardi and Tufano, 2015; Gathergood and Disney, 2011; Ironfield-Smith *et al.*, 2005) are key factors explaining over-indebtedness. At a macro-level, an increase in house prices, changes in the interest rate and general inflation are likely to result to over-indebtedness (Meniago *et al.*, 2013; Kim *et al.*, 2014).

### **2.3.2.3 Debt Literacy**

A substantive amount of literature concerns itself with consumers knowing about financial concepts and their ability to appropriately interpret financial data, often known as ‘financial literacy’ in understanding consumer decision making. Becchetti *et al.* (2013) defines financial literacy is a process by which financial consumers make better their understanding of financial concepts, services and products through information and develop the skills necessary to make informed choices. According to World Bank (2013) financial knowledge/literacy can construe to mean the knowledge and skills that are required for an individual to perform in a market of financial products actively. They further categorize financial knowledge and skills; as knowing basic financial concepts such as compound interest and inflation, which is crucial in debt management.

Empirical evidence already suggests there is a general adverse effect of low financial literacy on borrowers (Disney & Gathergood, 2011; Gerardi, Goette & Meier, 2010, 2013). Related to financial literacy is debt literacy, defined as the ability to apply basic knowledge about interest compounding to everyday financial choices and making informed decisions regarding debt (Lusardi & Tufano, 2009). Empirical literature conclusions show that ‘good’ financial literacy in itself may not be adequate to cover debt issues efficiently, this is evidenced by an observation where decisions concerning loans, particularly mortgages, do not allow individuals to learn from past debt behaviours (van Ooijen and van Rooij 2014). Furthermore, participation in the consumer credit market—as opposed to participation in other facets of the overall financial market (e.g., in the stock market or voluntary retirement saving schemes)—is not positively related to debt literacy (Disney and Gathergood, 2012). Such conclusion may point to mean that debt literacy is an even more demanding issue as compared to more broad financial literacy.

The relationship between debt literacy and over-indebtedness has been examined under various studies, either as a stand-alone concept and, or under financial literacy. Pioneer study on debt



literacy was conducted by Lusardi & Tufano (2009) in the USA using a representative sample from a survey conducted on 1000 American nationals in 2007 by TNS Global. The study indicated that debt literate individuals are better off in managing their debt. However, the youth (younger than age 30) were observed to have low levels of debt literacy, thus exposed to debt problems. Furthermore, it showed that individuals who had poor financial literacy held higher percentage of high-cost credit (for example payday loans) than those with higher literacy levels. Such types of credit increased the likelihood of experiencing over-indebtedness (Lusardi & Tufano, 2009). The study also indicated that younger respondents were among those who reported to experience difficulty with their debt conditions. Others included those with lower incomes and fewer financial assets.

A similar study by Disney and Gathergood (2012) examining the association between self-control, financial illiteracy and over-indebtedness on consumer credit debt in the UK, using survey done on a representative sample of UK households concluded that financial illiteracy is positively related with the possibilities of experiencing problems in debt payback, including credit delinquencies. The study used delinquencies on debt as indicators for over-indebtedness coupled with self-reporting. In the study, it was also observed over-indebtedness was common among household with younger respondents, with less education, higher rates of unemployment and lower annual incomes. Thus, the study denoted that individuals with low levels of financial literacy coupled with self-control problems faced over-indebtedness (Disney & Gathergood, 2012).

In a study by van Ooijen and van Rooij (2014), analyzing the relationship between debt literacy and mortgage loan decisions and the link with financial advice, noted poor levels of debt literacy increased the risk of mortgage defaults, and thus that of over-indebtedness. The study also documented higher levels of debt illiteracy in general compared to those of Lusardi and Tufano (2009) and Gathergood (2012)<sup>10</sup>.

In general, financial literacy levels are considered to be low and diversified across socio-demographic and economic structures (Lusardi & Mitchell, 2007; Brown & Graf, 2013, CBK, KNBS & FSD K, 2019). Related to the youth as a demographic, the levels are even lower, and many young people exhibit low levels of financial literacy. For instance, in Lusardi *et al.* (2010)

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<sup>10</sup> The difference in empirical outcomes is owed to the difference in the structure of the questionnaire and data collection medium (Cywnar *et al.*, 2018).

examining financial literacy in the USA among the youth, using data from the 1997 National Longitudinal Survey of Youth. Using three basic financial literacy questions, they noted less than a third of the young people possessed basic knowledge on interest rates, risk diversification and inflation. This indicated that financial literacy was poor among young adults. Other studies that have noted low levels of financial literacy among the youth include; van Rooij *et al.*, 2009; Lusardi and Mitchell, 2011; Lusardi and Tufano, 2015.

Among the youth, there exist gender differences with regards to financial literacy. In the same study by Lusardi *et al.* (2010), they reported low levels of financial literacy among young women in contrast to their male counterparts. Young women were less probable to answer correctly to the basic financial literacy questions asked; this suggested low levels of financial literacy among women youth. The gender disparities in debt literacy were further demonstrated in a recent financial access household survey, where knowledge on borrowing costs in Kenya was high among male respondents by 12% compared to women (CBK, KNBS & FSD K, 2019)<sup>11</sup>. Other studies that confirmed gender gaps in terms of financial literacy include; Lusardi & Mitchell, 2008, Lusardi & Tufano, 2009; Lusardi and Mitchell 2011; van Ooijen and van Rooij, 2014.

Authors have indicated financial skills such as calculation and understanding of interest rates, both simple and compound and comprehending time value for money are important skills to possess in a credit market. (Lusardi & Tufano, 2009; Disney & Gathergood, 2012, Fin Access, 2019). Youth borrowers who possess such skills are expected to have a good financial attitude and behaviour (World Bank, 2013). In a study by Autio *et al.* (2009) showed a lack of credit management skills, such as calculating interest rates and poor money management (budgeting expenditure) led to young adults to indulge in high-cost borrowing methods and pay more interest on their instant loans, and thus exposed to economic insolvency. Examining the use of high-cost methods of borrowing among the youth De Bassa Scheresberg (2013), revealed that young people with lower levels of education attainment registered the highest share in the usage of high-cost methods of borrowing. Furthermore, he showed that financial literacy mattered irrespective of education level attained; those who had poor levels of financial literacy were more probable to borrow at high costs, even after factoring in the influence of education. The low levels of financial literacy among young adults are seen as a driver for them to likely engage in riskier financial behaviours compared to other demographic groups (Nelson and Barry, 2005) exposing them to financial difficulties, and as such the importance of financial education cannot be underestimated, studies have shown financial education programs are vital in impacting

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<sup>11</sup> The survey included all adults in Kenya (+18)

financial skills. Chen and Volpe (1998), using survey data of 924 colleges in the USA examining personal financial literacy, the relationship between literacy and students' characteristics, and the impact of literacy on students' opinions and decisions. The study reported that students with a non-business major had less levels of financial knowledge. The study further posited that these students with less levels of financial knowledge were more probable to make poor personal financial decisions. A study by Xiao *et al.* (2014) was examining the effect of earlier financial literacy on later financial behaviour among college students in the USA based on data collected at a two-point time. They reported early financial literacy on college students reduced the risk of them engaging in risky borrowing behaviour. Apart from financial education programs, parents have shown to affect their children's financial management practices such as in Cude *et al.* 2006; Jorgensen and Savla, 2010.

Financial/debt literacy alone cannot be used to understand financial problems, and it is not the conclusion to good financial behaviour, knowing something to be true and acting on the same knowledge is not always the case (see, Mandell and Klein, 2009; Cole, Paulson, and Shastry, 2014). Alsemgeest (2015) recommends for the understanding of non-cognitive factors and how they influence financial behaviours. In this study, attitudes towards digital credit will assist debt literacy to understand the digital credit over-indebtedness of youth borrowers; the component is reviewed in the next section.

To summarize this section, this study adopted from the literature review of financial/debt literacy concerning over-indebtedness is the importance of debt literacy as a component of financial literacy and a desirable aspect of having; abilities to calculate interest rate, choose desirable credit products. Secondly, the literature has shown us the relationship between debt and literacy and over-indebtedness; the latter happens as a result of a deficiency in the former.

### **2.3.2.2 Young People's Attitude towards Digital Credit.**

One of the prepositions of this study is that a positive attitude towards digital credit is a possible explanatory factor to be perceived over-indebtedness of youth digital borrowers. This proposition is based on the literature on consumer credit/debt issues.

Attitude towards credit is an important factor in examining credit use and its outcomes (Kamleitner *et al.* 2012). A more positive attitude is associated with increased consumer credit use (Ironfield Smith *et al.*, 2005). On the other hand, it also related to rising consumer debts in various studies (Chien & DeVaney, 2001; Wang *et al.* 2011). The relationship between attitudes

and actual debt acquisition is extensively examined across various studies in Davies and Lea (1995) and Castellani & DeVaney, (2011).

Relating to demographics, attitudes towards credit tend to be more positive among young people compared to other age groups. In an explorative study conducted in the USA, which was looking at people's attitudes towards borrowing money to cover living expenses. Using multivariate regression analysis, Castellani & DeVaney, (2001) observed that young headed households with less income and outstanding late debt repayments were more likely to accept consumer credit to cover their living expenditure during a slump in household income. This was further confirmed by Chien & DeVaney (2001), who reported general attitudes towards using credit were more favourable among households in which the head was younger and unmarried. Other studies that partly support the conclusion include (Abdul-Muhmin, 2008; Lusardi, 2009; Autio, 2009) though recently, the conclusion mentioned above has been questioned by Lachance (2012) in his study of young adults' attitude towards credit.

Even within the demographics of young people, there exist gender differences in terms of attitudes towards debt. Literature findings are diverse on the influence of gender. A study conducted by Abdul-Muhmin (2008) investigating attitudes of consumers towards debt as a possible explanation for increasing consumer indebtedness in Saudi Arabia. Drawing findings from a convenience sample Abdul-Muhmin (2008) found out that young men tend to hold more positive attitudes towards credit compared to their women counterparts. Lachance and Legault (2007) corroborated the same in their study, which was looking at college students' consumption competence. In some studies, young women have shown more positive attitudes compared to men. In a book chapter highlighting the findings of a study investigating credit card practices of college students in the Midwest, the USA by Lyons (2008), showed that young college-going women exhibited a positive attitude towards credit card debt. Sample of the above studies is considered inconclusive, since it is mainly from samples of students, and cannot adequately assist to generalize the influence of gender on attitudes towards credit among non-students' population.

Young people who have dependants have shown to have negative attitudes towards credit in general. In a study by Lachance (2012) investigating attitudes of young adults towards credit in Canada, the study suggested that young people who have family dependents (children) tend to hold negative attitudes towards credit in general, as opposed to their counterparts who have no dependents. The study indicates that the attitude held is as a result of increases in perceptions of future financial risks of credit.

The level of education is also a factor in youth attitude towards credit. In the study by Abdul-Muhmin (2008) indicated that young Saudi men with higher levels of education held a positive view of debt. This was corroborated by Lachance (2012), who found a positive correlation between attitudes towards credit and education. Chien and DeVaney (2001) found that head of households who hold professional or managerial positions or who have high education levels are most probable to exhibit general and positive attitudes towards in favour of credit (Chien & DeVaney, 2001).

However, attitudes to the specific type of credit/debt often matter more than debt attitudes in general. Research has shown the existence of complex attitudes among youth concerning particular credit items and the purpose they fulfil in their lives. In a survey by a consumer association, showed that young people in the UK have a specific attitude towards short-term loans; they do not use them as 'last resort' form of finances, but rather as part of how they plan their regular finances (Consumer Finance Association, 2013). It is argued, from this perspective, that young people are rational borrowers and make positive choices in their decision to use short-term loans irrespective of their high-interest rates (Consumer Finance Association, 2013). In a study by Harrison *et al.* (2015) examining attitudes towards student debt among indebted undergraduates using a cross-national studying spanning England, New Zealand, and the US. They reported that young college students might hold positive attitudes towards student debt if they have higher expectations of what their education will provide in the future. When it comes to credit card debt, young people are seen to hold positive attitudes towards their usage. In the same study mentioned above by Chien and DeVaney (2001) found that younger consumers have more positive attitudes towards credit card use than do older consumers, because younger consumers believe that the potential to earn more money in the near future, thus they are willing to adjourn their payment.

Related to digital loans in Kenya as a credit item, in a qualitative survey study conducted in the United Kingdom by Ash *et al.*, (2016) showed access to digital forms of credit is changing people's use of credit and their understanding and experiences of indebtedness. It revealed speed and ease of the access of digital loans encourage people to see credit as money and not as a debt, which minimizes the consequences and implications of using digital loans (Ash *et al.*, 2018).

The sense of anonymity, privacy, and agency that digital credit platforms give to their consumers increases instances of borrowing (Ash *et al.*, 2016). Digital access to credit produces and reinforces risky and financially harmful behaviours such as impulsive borrowing and spending, which can contribute to financial hardship (Ash *et al.*, 2016). While this study comes close to

conceptualize digital credit in Kenya and attitudes towards it. Its unit of analysis is not the youth, and its relevancy reduces due to geographical differences.

A positive attitude towards credit is associated with higher credit use and accumulation of debt (Norvilitis *et al.* 2006). In a study conducted to examine the effects of student debt on individual outcomes of university students in New Zealand, confirmed that higher debt levels were associated with a more positive attitude towards debt (Zhang & Kemp, 2009) while negative attitudes towards credit have been associated with fears of over-indebtedness. In this study, the holding of multiple loans by digital credit borrowers and accumulation of debt conceptualizes the need to study youth borrower's attitudes and how they relate to their over-indebtedness.

In summary the main factors that are associated with positive attitudes towards credit/debit are; young headed households, young men, professional workers and the types of credit such as payday loans and credit card debt. Nevertheless, in general, positive attitudes lead to the accumulation of debt and thus increasing the risk of over-indebtedness.

## **2.4 Conceptual Framework**

The drivers of over-indebtedness are the independent variables, and here the evaluation will be done on debt literacy and young people's attitude towards digital credit.

The dependent variables are the indicators of over-indebtedness, one month and three-month delinquencies on digital credit and self-reported over-indebtedness on 'real' financial problems. The underlying assumption of the relationship between the independent and the dependent variable is that the factors, as mentioned above in the literature, may drive one to over-indebtedness.

Gender is a control variable; literature has shown that more male youths are financially literate compared to their female counterparts (Lusardi & Tufano, 2009). In terms of attitudes, most studies have shown that male youths are seen to have a more positive attitude towards credit (Abdul-Muhmin, 2008). The idea is that more male consumers exposed to the risk of over-indebtedness as a result of their attitude, and for women as a result of low levels of financial literacy.

Further, a study by Gathergood (2012) indicated that over-indebtedness is more common among younger respondents, with less education, and had lower rates of employment or unemployed.

In this study, therefore, the controlling variables suggest that for individuals to be likely over-indebted, aspects of gender, education and unemployment have to be considered. This way, the nuances as to why and how people get over-indebted can be better understood.

Figure 2.1: (Author's Conceptualization)

**Independent Variable**

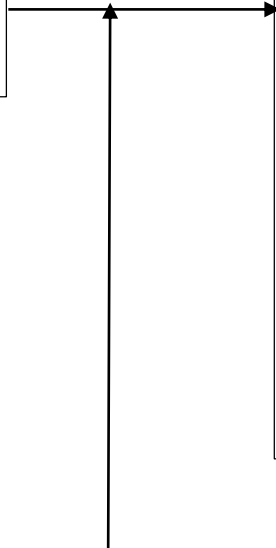
**Debt Literacy**  
A1) Knowledge on calculating interest rates.  
A2) Fines & penalties.  
A3) Self-assessed debt literacy levels.

**Young People Attitudes Towards Digital Loans**  
B1) Positive attitudes  
Or  
B2) Negative attitudes

**Dependent Variable**

**Over-indebtedness**  
C1) One-month delinquency on at least one credit item.  
C2) Three-month delinquency on at least one credit item.  
C3) Reduction on food expenditure.  
C4) Self-reported over-indebtedness.

**Control Variable**  
D1) Gender  
D2) Education  
D3) Employment  
D4) Income





Thus the hypotheses in this research paper are as follows;

H1 Low levels of digital debt literacy positively correlated to digital credit over-indebtedness.

H2 Positive attitudes towards digital credit positively correlated to digital loans over-indebtedness.

To summarize, this chapter has explained the theoretical framework in which the study is based on. The framework discusses the desired financial capabilities youth borrowers need to have to participate effectively in the digital credit market. The theoretical review focuses on the four components of financial capabilities which are knowledge, skills, attitudes, and behaviour. The financial capabilities framework posits that youth borrowers who have the qualities as mentioned above will act in their best financial interest when participating in the digital credit market to avoid over-indebtedness and vice versa. Thus, in explaining over-indebtedness experienced among youth digital borrowers, the theory is useful.

The empirical literature review communicates various issues. Foremost, the review on the association between debt literacy and over-indebtedness shows that few to no studies have interrogated this relationship. The review reveals that low levels of debt literacy influence over-indebtedness. However, related to digital credit as a credit item, there is only one study, and it focused on household indebtedness and not youth as a segment. Secondly, studies show that attitudes towards digital credit are an important aspect to study with regards to ‘appetite’ towards such loans. Research has shown positive attitudes towards credit linked to the accumulation of debt and financial/debt literacy is not sufficient alone to understand over-indebtedness and need to recognize non-cognitive influences such as attitudes. The empirical analysis segment also introduces a discussion on how over-indebtedness has been approached and measured in other studies. Here, the review gathers that over-indebtedness previously measured in three ways; quantitatively, qualitatively and using both methods. The review notes that the measures that use both approaches are more holistic and accommodative of people’s realities. Therefore, the study used both methods to examine the levels of over-indebtedness among youth digital borrowers.

Finally, the study acknowledges that other academicians have investigated the causes and measurements of over-indebtedness by considering variables that should be controlled for in this study on the link between debt literacy, attitudes towards credit and digital credit over-indebtedness. These factors include age, gender, education, employment status and income. Hence, the review acknowledged the influence of these factors on over-indebtedness and proposed to include them as control variables in the study.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter discusses the research methodology used in this study. Babbie (2010) defines methodology as the procedure for scientific investigation or science of finding out. As such, this chapter presents the procedure employed to investigate the link between debt literacy, attitude towards digital loans and digital credit indebtedness. The chapter presents, including the 3.1 introductions. Section 3.2 discusses the research design, followed by a detailed study site description in section 3.3. The targeted population discussed in section 3.4 and section 3.5 discusses sampling procedure and sample list. In section 3.6, the procedure for data collection outlined, while section 3.7 explains the data analysis procedure. Lastly, section 3.8 finalises on ethical considerations applied in this study.

#### **3.2 Research Design**

According to Bryman (2012), defined as a comprehensive plan or framework for collecting and analysing data. It facilitates the testing of hypotheses or answering specific research questions. The process includes data collection, the type of tools to be used in the data collection process, and the sampling methods employed (Bhattacharjee, 2012).

The research design to be employed in this study will be the mixed-method research design, comprising of both qualitative and quantitative data. The choice of mixed methods is to ensure the completeness of the research (Bryman, 2012). According to Bryman & Bell (2015), quantitative data consists of the collection of numerical data, and it exhibits the view of the relationship between theory and research as deductive with a conception of the existence of social reality. Structured questionnaires were used to randomly sampled youth who have accessed digital loans. It helped in answering whether there is any causality between debt literacy, attitudes towards digital loans and over-indebtedness. The qualitative method included case studies that were administered to selected youth digital borrowers to understand better the nuances on causes of digital credit over-indebtedness and debt conditions.

#### **3.3 Study Site**

The study was undertaken in Ruaraka Constituency, also a Sub-county in Nairobi City County in Kenya. It is was formed in 2013 as an electoral constituency, one of the 17 constituencies in the

county. Ruaraka, as a Sub-county, has five county ward representative areas namely Babadogo ward, Mathare North ward, Lucky Summer ward, Korogocho ward and Utalii ward.

**Table 3.1: Ruaraka sub-county wards, population, and area size**

<b>Ward</b>	<b>Population</b>	<b>Area (km<sup>2</sup>)</b>
<b>Babadogo</b>	30,741	1.95
<b>Utalii</b>	36,275	1.90
<b>Mathare North</b>	53,658	0.50
<b>Lucky Summer</b>	30,000	1.95
<b>Korogocho</b>	41,946	0.90

*Source: KNBS (2009)*

As per 2009 KNBS statistics, the sub-county population was at 192,620 people occupying 7.2 km<sup>2</sup> of land and considered amongst the most populous with others being Mathare, Embakasi North, and Kamukunji (KNBS, 2009). The study site selection is a result of Ruaraka Constituency being amongst the most densely populated sub-counties in Nairobi County, with an estimated population density of over 20,000 people per square kilometre<sup>12</sup>. Literature indicates that digital credit users are young people, mostly located in urban areas such as in Nairobi and Mombasa areas (Totolo & Gubbins, 2016; Kaffenberg *et al.* 2018). Accompanied by high rates of urbanisation, Ruaraka hosts a fair number of young populations from the colleges and universities located in Utalii Ward. The universities and colleges include KCA University, Utalii College, Kenya School of Monetary Studies, Kenya Institute for Survey and Mapping, and Institute of Energy Studies and Research.

The enumeration site is an area around Naivas Supermarket, Allsops in Utalii Ward (see Figure 3.1). As explained in the previous paragraph Utalii Ward hosts several colleges and a university, the area of enumeration mentioned is where most of the student's hostels are and where most young people and families reside. The neighbourhood boasts a high number of apartment buildings and very densely populated with a young population. The availability of supermarket, entertainment joints, cyber cafes, gym, and bus stop, has attracted a lot of young people. The underlying assumption is that in this area, it is highly likely that it is a high concentration of youth digital borrowers, thus potential respondents.

<sup>12</sup> Statistics obtained from the Nairobi County Health Sector Strategic and Investment Plan 2013/2014-2018/2019 (revised 2017)

**Figure 3.1: Study Site Map**



*(Source: Google Maps, 2019)*

### **3.4 Unit of analysis and Target Population**

The unit of analysis was youth digital borrowers. The constitution of Kenya categorises a youth as an individual between the ages of 18-35 years. The study unit of analysis was restricted to only youth who had taken up digital loans at least once, irrespective of the frequency.

The study targeted youth borrowers in Ruaraka Sub-County. It was assumed that the Ruaraka sub-county is an urban area and fits the description of where digital users are. As discussed earlier, this study constrained itself to youth borrowers who had taken up a digital loan from any provider at least once. However, no data was available on youth digital borrowers who had borrowed at least once in Ruaraka sub-county. Thus, as discussed in section 3.5, the researcher had to build up a population sample.

### **3.5 Population List & Sample**

The study required a mapping exercise to build a population list to sample from (See appendix II). The mapping procedure was conducted to identify individuals who had used digital credit at least once in the enumeration area. The mapping exercise was conducted between 25th – 29th July 2019. To avoid bias, buildings were pre-selected randomly before the start of the survey. They were picked by skipping a building and choosing the next one. A total of 16 buildings were

accessed, and up-to-date information was collected. The information sorted was; status on the usage of digital credit (any provider), basic demographics (student or not) and house/apartment number. During the survey, an analysis domain was established, the domain specified in individual characteristics of being a student or not. It was necessary to ensure that the census was not populated by students residing in the area alone and the estimates on all categories of youth to be reliable. At the end of the process, a total of 318 digital youth borrowers were identified through the simple mapping exercise.

Systematic sampling then used to identify respondents, from the population of youth digital borrowers in the enumeration area, a total of 159 individuals identified. This was done by picking every 2nd individual from a population of 318 youth digital borrowers. Interviews were conducted with a total of 150 individuals using a questionnaire (see appendix I), achieving a 94.3 per cent success rate.

In summary, the study used a population of 318 youth digital borrowers who had taken up a digital loan from any provider in Ruaraka sub-county. From the population, a sample of 159 youth digital borrowers drawn through systematic sampling employed. In the end, the study reached 150 respondents. The next section discusses the sample size and how the data was collected.

### **3.5.1 Sample size**

The sample frame of the study includes a representative sample of youth borrowers in the enumeration area. For a population of fewer than 318 individuals in the enumeration area, at least 30% of the total population is a representative size (Borg and Gall, 2003). This study achieved 47% of the total population sampled.

### **3.6 Data Collection and Sources**

This study proposed to gather both qualitative and quantitative data. Quantitative data collected through interviews administered via questionnaires on youth digital borrowers that borrowed at least one digital loan from any provider, as discussed in section 3.5. Furthermore, qualitative data gathered through case studies from four youth borrowers.

The collected data corresponded with the data needs table, which is essential to align research questions with the methodology used. It helps in constructing a data collection instrument as well as identifying the sources of data, as shown in Table 3.6. The data needs table was built

based on both the research questions and conceptual framework in section 1.4 and section 2.4, respectively. Thus, the questions in the survey instrument were as a result of the data needs table shown below.

**Table 3.2: Data needs table**

Research Question	Data Needed	Source	Type of Data	Tool
<b>1. Debt Literacy</b>				
What are the debt literacy characteristic of youth digital borrowers?	Knowledge on interest rates (A1)	Borrower	Quantitative	Questionnaire
	Knowledge on fees, penalties and/or loan terms (A2)	Borrower	Qualitative	Questionnaire
	Self-assessment on debt literacy (A3)	Borrower	Quantitative	Questionnaire
<b>2. Youth Attitudes</b>				
What are the attitudes of the youth towards digital credit?	Perceptions on digital loans (B1) Positive or (B2) Negative	Borrower	Qualitative	Questionnaire
<b>3. Indicators of over-indebtedness</b>				
What are the indicators of digital credit over-indebtedness?	(C1) One month loan delinquency.	Borrower	Quantitative	Questionnaire
	(C2) Three month loan delinquency.	Borrower	Quantitative	Questionnaire
	(C3) Reduction in food expenditure.	Borrower	Qualitative	Questionnaire
	(C4) Self-assessment on over-indebtedness.	Borrower	Qualitative	Questionnaire
What is the relationship between debt literacy, attitudes towards digital loans and over	A1, A2, A3) Levels of debt literacy vis a vis delinquencies.	Borrower	Quantitative	Questionnaire
	B1, B2) Type of attitude towards digital loan vis a vis delinquencies.	Borrower	Quantitative	Questionnaire

*Source: Author's conceptualisation (2019)*

### 3.6.1 Data Collection Methods and Tools

To collect data from the sampled youth borrowers, a structured questionnaire developed and administered on them. The survey questionnaire was formed through Qualtrics

(www.qualtrics.com) to ensure logic flow. The questionnaire was established based on the literature as per (Gathergood, 2012 & Lachance, 2012). The questionnaire collected data on the respondents' financial characteristics, literacy levels, attitudes towards digital loans and over-indebtedness. Categorically, the questionnaire outlined the following main areas (see Appendix I for full questionnaire):

Block A: Bio Data Information.

Block B: Debt Literacy Information.

Block C: Attitudes Information.

Block D: Financial Characteristics Information.

The questionnaire administered via face-to-face interviews with the researcher. The average time per interview was 25mins. This method is effective in reducing non-response errors. Prior to the administration of the tool, it was pretested, as explained in the next section.

### ***3.6.2 Questionnaire Pretesting***

A sample of youth borrowers who did not take part in the final survey were recruited for the pretesting of the questionnaire through a pilot study. The pretesting was conducted via an online platform (Qualtrics), the respondents identified purposively, and questionnaires emailed to them. In total, ten respondents participated in the survey. The participants in the pretesting were encouraged to comment and make suggestions to improve the clarity of the questions, relevancy and instructions given. The comments helped in revising some questions on financial characteristics. For instance, there was confusion on 'months behind since uptake' as a measure of over-indebtedness. To conclude, the pretesting helped to improve the reliability of the questionnaire.

### ***3.6.3 Questionnaire Reliability & Validity***

The research study construct validity was ensured through inferring the concepts of attitude, debt literacy and over-indebtedness from the literature available. As for content validity, addressed by deriving the indicators from theories of over-indebtedness. Furthermore, consultancy to enrich the study sought from the research supervisor. In this study, internal validity which guarantees that changes in the dependent variable are resultant to the independent variables and not via other external variables was ensured by including identified control variables in the regression model. The randomisation of the sampling procedure of youth digital borrowers assured the representativeness of the sample.

### **3.6.4 Data Analysis**

This section entails data processing and analysis. Data analysis is a detailed process of examining a mass collection of data for discussion and interpretation purposes. Kothari (2004) defines it as the process of inspecting, cleansing, transforming, and studying data to discover useful information, suggesting conclusions, and supporting decision-making tools. The data collected was majorly qualitative; it was coded, entered, and analysed via Statistical Package for Social Sciences version 23 (SPSS). In conclusion, the study employed bivariate and regression analysis, descriptive analysis, and thematic analysis.

The researcher used descriptive analysis to show frequencies, percentages, mean scores and cross-tabulation for some of the variables in the study. The bio-data information was mainly presented descriptively, as presented in the tables in the findings section. Qualitative data were such that on attitudes and other responses were ranked and quantified through a Likert scale. OLS Multiple regression models used to interrogate the relationships between the dependent variables and the independent variables. Themes emerging from the case studies were analysed through thematic analysis.

### **3.7 Ethical Considerations**

Key ethical considerations were undertaken during the data collection process for this study and conformed to social sciences standards and codes, as indicated by Bhattacharjee (2012). First, verbal consent sought from all the respondents who participated in this study since the first census survey. Respondents in all levels informed on the purpose of the study and what it sought to achieve. An introduction letter from the researcher's academic institution shown to all respondents (attached as Appendix III). Interviewees were allowed to ask any questions with regards to the study.

Secondly, anonymity and privacy ensured by the researcher for all the respondents who participated in the study survey. This was addressed by ensuring that no names were recorded; participants in the census survey were identified by their apartment or house numbers. Case studies respondents were also identified through the same process. The respondents were guaranteed their confidentiality through verbal means and that the contents of the survey interviews would be used for research purposes only.

As required by the National Commission for Science, Technology, and Innovation (NACOSTI), a research license for the study sought. It was granted under licence number NACOSTI/P/19/463 (See Appendix IV).



## **CHAPTER FOUR**

### **FINDINGS**

#### **4.1 Introduction**

This chapter contains findings and discussions of the study. The survey comprised 23 questions covering the respondent's demographics, debt literacy and attitudes, information, and financial characteristics. The debt literacy and attitudes data are particularly detailed: respondents were asked questions on debt knowledge. As explained in section 3.5, this study anticipated reaching 159 interviewees in Ruaraka Sub-county. Nonetheless, only 150 respondents took part in the study at the end of the survey. Hence, the study reached 94 per cent of the preconceived sample, which is considered a success rate compared to the average survey response rates by Baruch & Holtom (2008), which stands at 52.7%. The lack of a 100 per cent response rate, as discussed in section 3.5, was due to refusal call among some of the potential respondents<sup>13</sup>.

The chapter is organized into four segments, including this introduction. The next segment, 4.2, discusses the descriptive analysis results and the characteristics of the sample.

#### **4.2 Characteristics of the sample & Descriptive Analysis**

This segment presents the characteristics of the sample analyzed. Descriptive analysis conducted on all variables. They include age, gender, marital and employment status, level of education, debt literacy levels, attitudes' towards digital credit, monthly income and debt conditions, both self-assessed and real. The descriptive analysis outlined in the form of figures and tables, and the discussion is based partly on previous empirical evidence and comparison among variables.

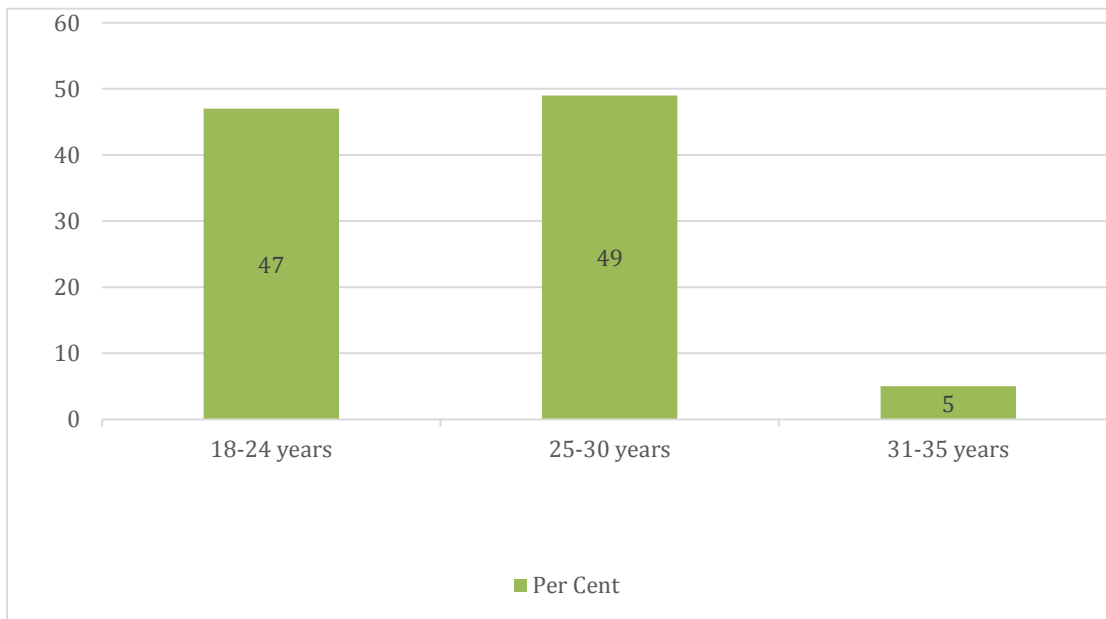
##### **4.2.1 *Ages of Youth Digital Borrowers***

The age of digital credit borrowers, as suggested by empirical evidence, affects all three main variables of this study, as demonstrated in the conceptual framework section 2.4. Figure chart 4.1 shows the age brackets of the youth digital borrowers in Ruaraka Sub-county and their percentages.

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<sup>13</sup> The potential respondents were not home for three consecutive times, while some cancelled the interview after conforming their availability.

**Figure 4.1: Age Structure of the Youth Digital Borrowers**



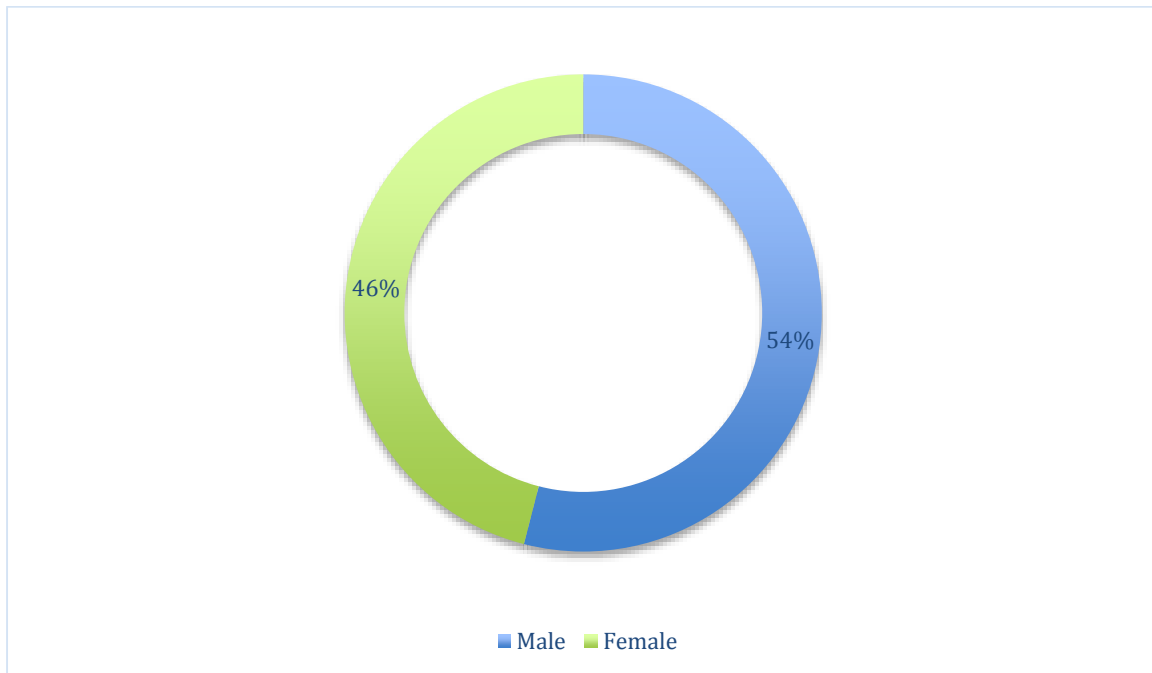
*Source (Survey Data, 2019)*

In this study, see that majority of the respondents were aged between 25-30 years and made up 48.7% of the analysed sample. They were followed closely by age bracket 18-24 years at 46.7 per cent. Furthermore, individuals aged between 31-35 years represented 4.7% of the sample. The mean age of the youth digital borrowers in Ruaraka Sub County is 25 years. In this survey, the results indicate age bracket 18-30 years made up over 90 per cent of the sample; this statistic can be explained by the existence of younger youths in the enumeration area due to proximity to tertiary institutions, as indicated in section 3.4. Also, in other studies, empirical evidence suggests that youth under the age of 25 years are the majority in the population of digital borrowers (Micro Save, 2019).

#### **4.2.2 Gender**

As explained in the conceptual framework, gender is a controlling variable in this study. The discussion in section 2.4 posits that sex of the borrower's influences financial/debt literacy levels, attitudes, and over-indebtedness (also affects other variables). Figure 4.2 presents the descriptive results for gender.

**Figure 4.2: Proportion of respondents by gender**



*Source (Survey Data, 2019)*

This study indicated that a majority percentage of youth digital borrowers (54 per cent) are male. This is almost consistent with the demographics of digital borrowers in Nairobi County as the data from the demand-side surveys conducted by FSD Kenya shows that about 54.1 per cent of digital borrowers in Nairobi are male from a sample size of 250 respondents (Totolo, & Gubbins, 2018)<sup>14</sup>. Moreover, across the country, the proportion of female to male digital borrowers stands at 45% female to 55% male (Kaffenberg *et al.*, 2018). It is a significant statistic and relates to results in this study but differ in terms of sample size and demography focus. In summary, there is still a gap between males and females when it comes to the usage of digital credit; the analyzed results show that the majority of youth digital borrowers in Ruaraka Sub-county are male.

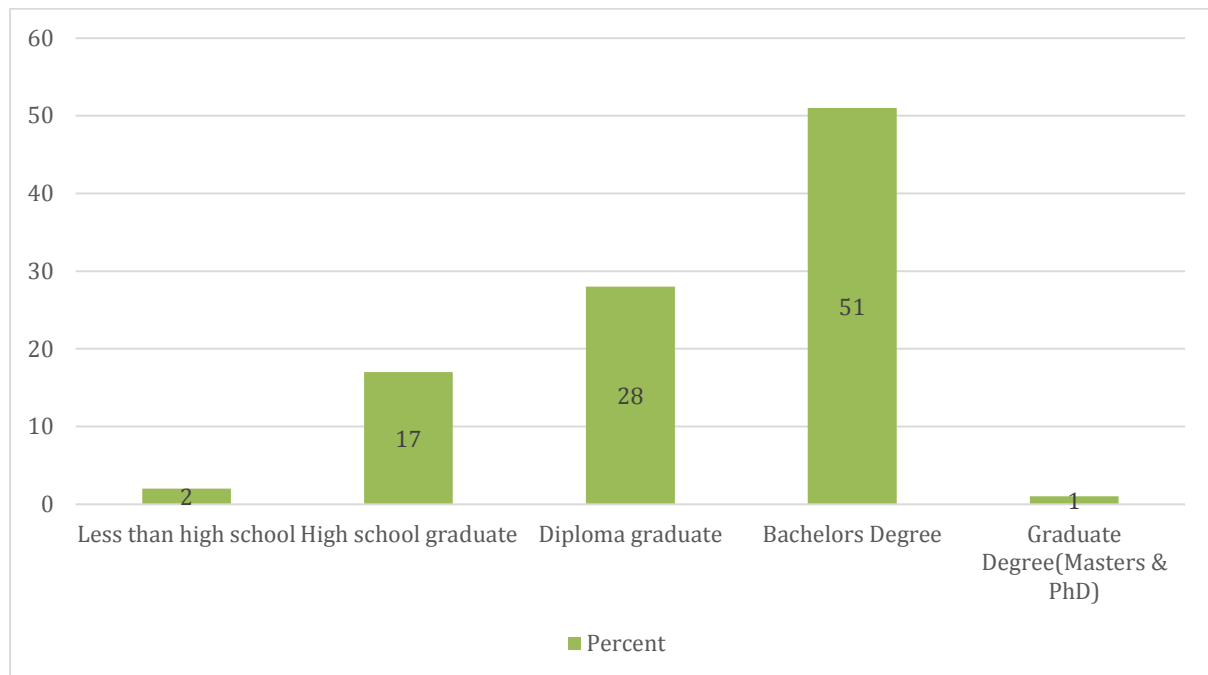
#### **4.2.3 Level of Education**

The empirical literature on section 2.3 has indicated the importance of education in studies of over-indebtedness. Education is an important controlling variable in understanding attitudes towards credit (Abdul-Muhmin, 2008), debt literacy (Gathergood, 2012) and over-indebtedness (Gathergood, 2012). Figure 4.3 shows the levels of education among youth digital borrowers in Ruaraka Sub-county.

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<sup>14</sup> Data was sourced from Fin Tracker Access 2017

**Figure 4.3: Education Attainment Levels**



*Source (Survey Data, 2019)*

The study findings show that a large number of youth digital borrowers (80.6 per cent) had tertiary level of education (either completed or some level) with the remaining 19.4% having high school or less than high school level of education<sup>15</sup>. Previous literature shows that users of digital credit are generally educated (FSD Kenya, 2018; Micro Save, 2019) with levels even higher in urban areas (Totolo, & Gubbins, 2018). The higher levels of education among the youth digital borrowers in Ruaraka Sub-county partly explained by the high prevalence of literacy levels in Nairobi County (KNBS, 2017) and proximity of enumeration area to higher education institutions as indicated in section 3.3. In summary, the average youth digital borrowers considered adequately educated as per the study.

#### **4.2.4 Employment**

Previous empirical literature, as described in section 2.3, also show an association between employment and credit usage, over-indebtedness, among other variables explained in this study. The descriptive results on the employment status of youth digital borrowers as presented below.

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<sup>15</sup> At the time of the survey, focus on education level was both on the attained or current level.

**Table 4.1: Employment Status of Youth Digital Borrowers**

<b>Status</b>	<b>Frequency</b>	<b>Per cent</b>
Employed	38	25.35
Self Employed	38	25.35
Unemployed/Students	74	49.30
<b>Total</b>	<b>150</b>	<b>100.00</b>

*Source (Survey Data, 2019)*

The research survey found that the number of youth digital borrowers who are wage-employed or run their own business has no major statistical difference compared to those who are unemployed, the former was at 50.7% while the latter at 49.3%<sup>16</sup>. The results are inconsistent with the profiling of digital borrowers as being wage-employed (Totolo, & Gubbins, 2018).

#### 4.2.5 Marital Status

Table 4.2 displays the detailed results of the marital status of youth digital borrowers. Marriage has a relationship with debt attitudes, as discussed in section 2.4.

**Table 4.2: Marital Status of Youth Digital Borrowers**

<b>Status</b>	<b>Frequency</b>	<b>Per cent</b>
Single	129	86.00
Married	21	14.00
<b>Total</b>	<b>150</b>	<b>100.00</b>

*Source (Survey Data, 2019)*

The research study found that most youth digital borrowers (86 per cent) were unmarried and leading a single life at the time of the survey. Empirical evidence indicates a relationship between young unmarried individuals and their attitudes towards debt, as demonstrated by (Chien, & DeVaney, 2001). Young unmarried individuals tend to hold more favourable attitudes towards debt compared to the married; this will be further examined later in the discussions.

#### 4.2.6 Income

Column Chart 4.6 below represents the descriptive analysis of the income of youth digital borrowers in Ruaraka Sub-county.

<sup>16</sup> It should be noted the number of unemployed has a considerable number of university students, due to the proximity of enumeration area to tertiary institutions.

**Figure 4.4: Monthly Income (%)**



*Source (Survey Data, 2019)*

This study revealed that the most indicated level of income was in the range of less than Ksh 10,000 at 44% and representing 66 respondents, with the majority being in the age bracket of 18-24 years<sup>17</sup>. Only 3 per cent of the respondents representing three individuals indicated an income of Ksh 56,000 and above. The results of the survey on incomes of digital borrowers are consistent with the Micro Save report (2019), which indicated monthly incomes to be Ksh 5,150 to Ksh 20,600<sup>18</sup>. The mean monthly income for the youth digital borrowers was Ksh 17,690.

Youth digital borrowers who considered themselves unemployed or students had the lowest levels of income. Their income ranged between less than Ksh 10,000 and Ksh 10,000 – 24,000. As indicated in some of the case studies, source of income from the students or the unemployed can be associated with funds from family and relatives, educational funds from HELB, and betting rewards. On the other hand, the salaried employed or self-employed had the highest level of income.

<sup>17</sup> Monthly range of income included all sources; labour income, upkeep money from family and friends. Gifts and other personal benefits.

<sup>18</sup> As per the Micro Save (2019) report, the monthly income was between 50-200 USD. Exchange rate currently stands at 103 KSh to 1USD.

**Table 4.3: Compares the descriptive statics and summarizes the samples results**

<b>Descriptive</b>	<b>Adam (2020)</b>	<b>Totolo &amp; Gubbins (2018)</b>	<b>Micro Save (2019)</b>
Sample Characteristics	<b>N=150. Sample under 35 years. Ruaraka Constituency.</b>	<b>N=3100. Nationwide survey of all ages.</b>	<b>N=50. Representative survey of all ages.</b>
Age	Majority of the users are between (25-30) years.	Majority of the users	Majority of the users are between 25-34 years
Gender	Male still dominant at 54%	Males are still majority	Male still dominant at 54%
Level of education	Completed tertiary or more	Completed tertiary or more	Majority completed secondary school
Employment status	Majority employed or self-employed.	Majority employed	Majority owned their business or employed
Marital status	Most are not married	<sup>19</sup>	-
Income	Majority earned less than KSh 10,000	-	Between KSh 5000 – 10,000 per month

*Source: Various authors (Totolo & Gubbins, 2018; Micro Save, 2019; Khalid, 2019)*

### **4.3 Debt Literacy**

As discussed in section 2.4 (conceptual framework), debt literacy is one of the key concepts investigated in this study. In this survey, to understand the levels of debt literacy among youth digital borrowers in Ruaraka Sub-county, two questions were designed as per the features of the digital loans. Categorically, interviewees were asked questions that evaluated their knowledge on interest rate calculation or facilitation fees charged on digital products, and the charges levied once someone defaults on a digital loan<sup>20</sup>.

Quantifying respondents' incorrect and correct responses allowed this study to categorize research participants according to their corresponding levels of financial knowledge and to examine the relationship between digital credit debt knowledge and over-indebtedness later in this study. As discussed in the literature review, the study appreciated previous approaches in measuring debt literacy. (See section 2.3 & 2.4)

The first and second question, measuring knowledge on the interest rate or facilitation fees, and knowledge on penalties and fees were presented as follows.

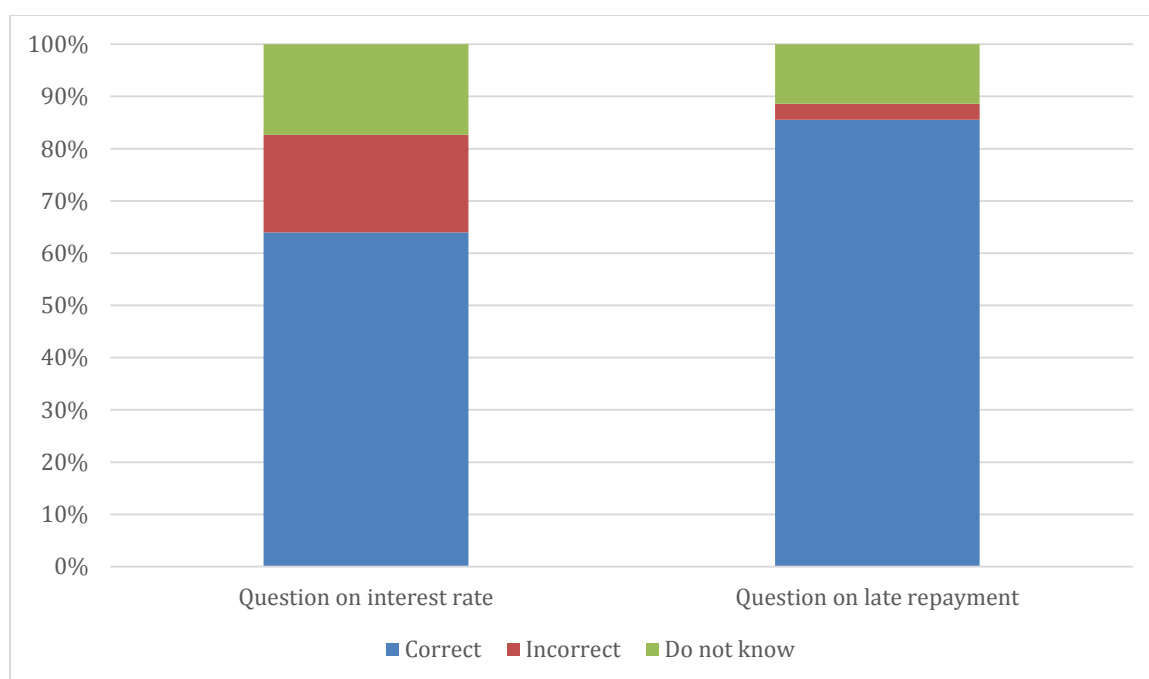
<sup>19</sup> The variable was not studied in the study, hence no data on it.

<sup>20</sup> Most digital loans in Kenya are offered on a monthly period, for instance, M Shwari. However, others are also offered quarterly, half a year or even two weeks. Default on loan is also known as positive listing which happens on the first day of default.

1. Njoroge has taken a Tala loan of Ksh 1,000 the facilitation fee he is charged is 10% of the loan for a period of 30 days. If he didn't pay anything off, at this facility fee, how much will he pay after 30 days?

2. Muthoni owes (anadaiwa) M- Shwari a loan of Ksh 1000 which is overdue and has been rolled over for a further 30 days at a fee of 75 Ksh. How much will she pay in total at the end of the 30 days? Figure 4.4 reports the responses to the two questions and sought to answer the research question 'what are the debt literacy levels among youth using digital loan's.

**Figure 4.5. Debt Literacy**



Source (Survey Data, 2019)

Facilitation fees or interest rates play an important role in determining the cost of borrowing in digital loans. The respondents asked to accurately compute 10 per cent facilitation fees (simple interest rate) on a Ksh 1,000 loan. The survey found that knowledge on interest rates or facilitation among youth borrowers is generally high, 64 per cent of the respondents answered the facilitation fees' cost correctly, while 18.7 % gave a wrong answer. A proportion close to 17.3% indicated that they 'did not know' the answer to the question asked. Van Rooji *et al.* (2011) reported that respondents who identify with 'do not answer' have the lowest level of financial knowledge. On the other hand, over 9% of the interviewee's overrated by a wide margin the amount of money (plus interest) paid at the end of the month, and their answers labelled as the 'incorrect.' The survey results indicate there exists a population of youth borrowers in Ruaraka



Sub-county that have limited knowledge on interest rate knowledge, which is a key tool to have in the credit market in general.

Knowledge of late repayment penalties and fees is key in understanding the 'true' cost of a loan in the case of missed payments. Most digital loans in Kenya have 30-day duration before penalties are constituted. The survey showed most youth digital borrowers in Ruaraka Sub-county understand and can compute additional costs/penalties, a total of 84.7 per cent of the respondents computed correctly, while the numbers of those who 'did not know' how to comprehend and compute reduced to 11.3%<sup>21</sup>.

To summarize: debt illiteracy is not high but still a concern. Slightly more than two-thirds of the respondents can correctly respond to question on the simple interest rate, with the rest unable. It means that some youth digital borrowers in Ruaraka Sub-county can choose expensive digital loan products because they do not know how to calculate interest rates irrespective of other factors such as behaviour biases.

#### ***4.3.1 Who is more debt literate?***

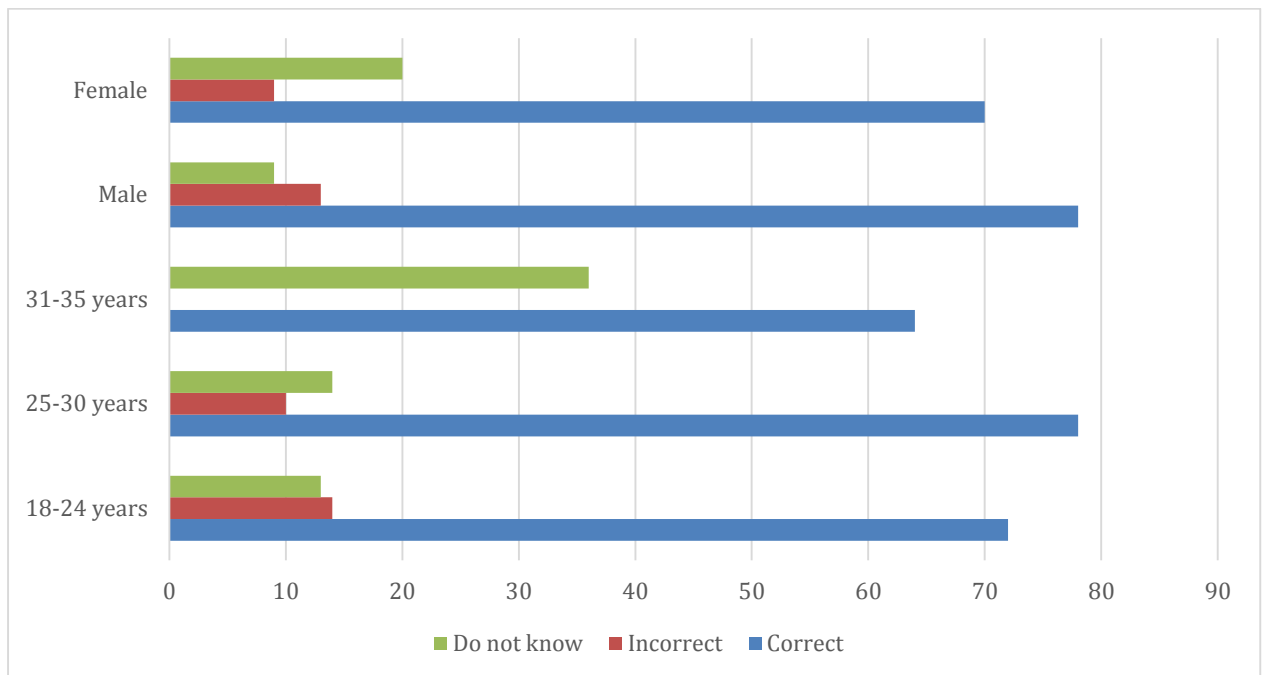
As per the survey results, certain demographics of the youth are more debt literate compared to the others. Figures 4.5, 4.6 and 4.7 below show the ranging of responses to the literacy questions across gender, age groups, education levels, employment and marital status, and monthly income. The females display the lowest amount of knowledge on interest rates and late repayment fees. Not only were they less likely to answer the questions on debt literacy correctly, but they were also more probable to respond with 'do not know.' On age groups, youth respondents between the age group of 25-30 years performed best on the literacy questions and had more correct answers compared to their counterparts in the age group of 18-24 years. The response levels for the age group 31-35 years had no incorrect answers but had 'do not know' as answers<sup>22</sup>. Thus, debt literacy in a single cross-section, we cannot differentiate the direction of illiteracy between age and cohort effects.

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<sup>21</sup> The question was also testing ability to understand the language used by digital loan providers when constituting late repayment penalties. The question was adopted as per M-Shwari late repayment text

<sup>22</sup> The weight of the responses of age 31-35 years was affected by their low numbers in the survey as respondents. N=7

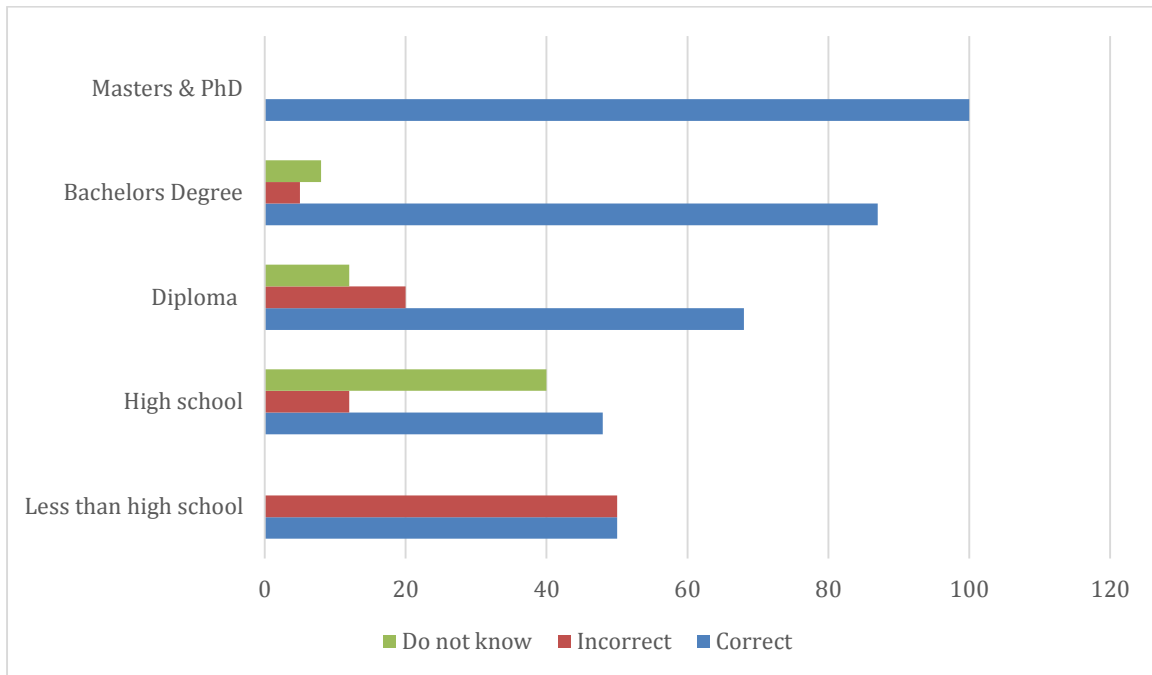
**Figure 4.6: Debt Literacy levels across gender and age groups.**



*Source (Survey Data, 2019)*

There are clear cut differences between youth debt literacy and education levels. In each of the two questions, youth with lower levels of educational attainment were much less probable to answer correctly than were those with higher levels of education. Figure 4.7 shows that debt literacy increases with the education level of respondents. , 100% 'correct' score for respondents who have a Master's degree, while on the other end is a 50% 'correct' score for individuals who have less than high school education, and which is also the lowest among all levels in education. In addition to that, the lower levels of educational attainment had the highest level of incorrect answers or 'do not know' as an answer. For instance, the less than high school group has a 50% score for 'incorrect,' the highest amongst all levels of education attained. The reason for such difference is that financial literacy linked with young individuals who have high levels of education, a conclusion which has been confirmed in many studies including in De Bassa Scheresberg (2013).

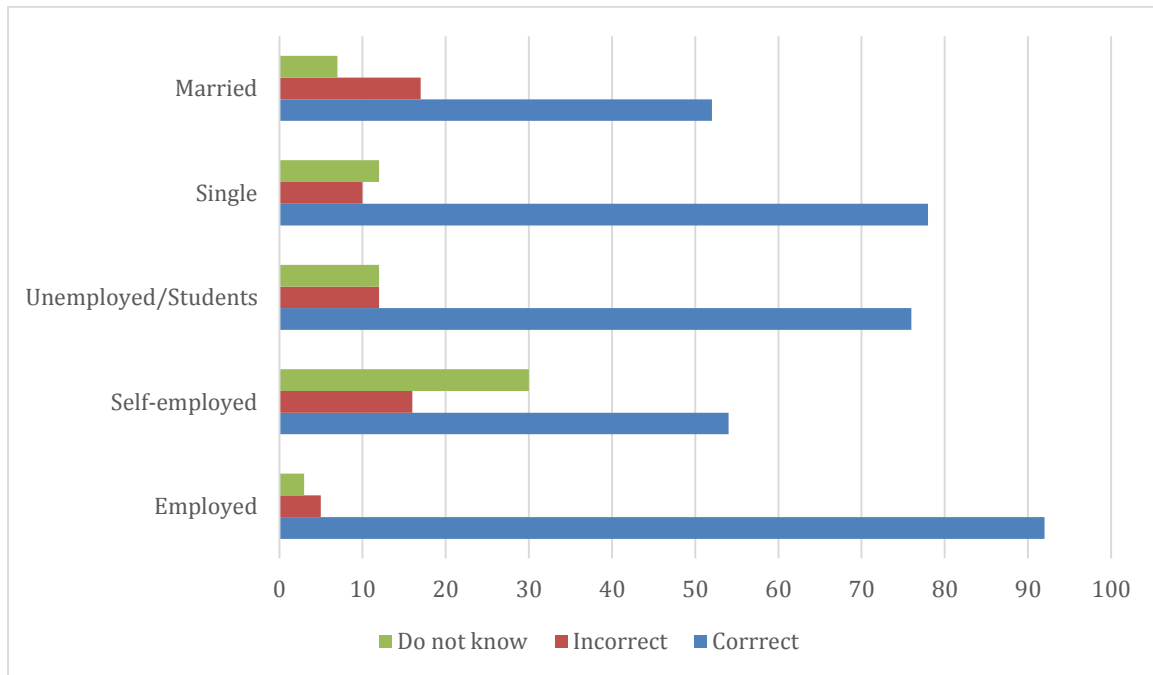
**Figure 4.7: Debt literacy levels across education levels.**



*Source (Survey Data, 2019)*

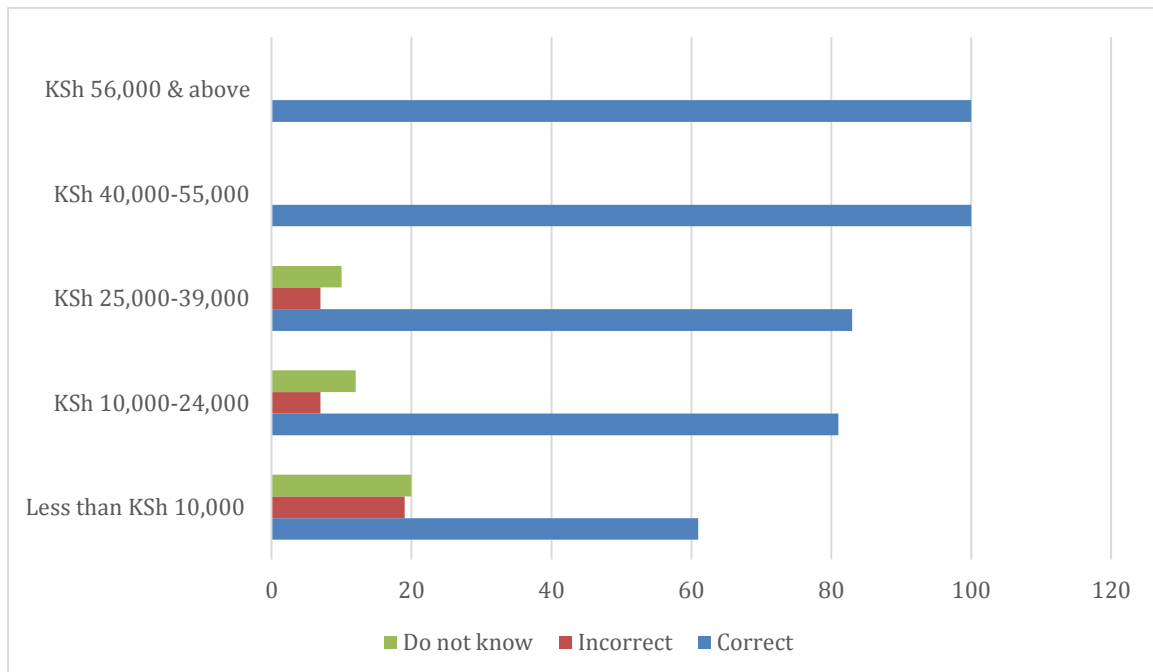
The survey also indicates that youth borrowers who are not married have a high number of respondents who are debt literate compared to the married. Nevertheless, the scores of 'incorrect' and 'do not know' are almost similar between the married and non-married youth. Most wage employed respondents can be considered debt knowledgeable compared to the self-employed and unemployed/students.

**Figure 4.8: Debt literacy levels across marital and employment status**



*Source (Survey Data, 2019)*

**Figure 4.9: Debt literacy levels across Income brackets.**



*Source (Survey Data, 2019)*

In figure 4.9, debt literacy increases sharply with income. 100% of respondents with income above Ksh 40,000 answered the questions to debt literacy correctly. Those who earn below Ksh 40,000 the scores of their 'do not know' were increasing, while the scores of their 'correct' were decreasing as you go lower in the income groups. In summary, the survey finds that debt literacy is less across respondents with low monthly income, the unemployed and the relatively younger.

#### ***4.3.2 Who thinks they are financially/debt literate***

In determining the self-assessed level of debt literacy among the respondents, the study asked the respondents the question outlined below. The phrasing of this self-evaluation statement was as follows:

*On a scale from 1 to 5, where 1 means far below average and 5 means far above average, how would you assess yourself in terms of financial/ debt knowledge<sup>23</sup>?*

In the survey, this question was asked for several reasons. First, to compare and evaluate the responses to this self-evaluation measure of financial knowledge with the responses of a more objective approach pursued in the previous section to ascertain if youth borrowers know how much they know. Second, the previous question asked on digital credit debt literacy covered explicit concepts, and barely exhausted the list of issues that can affect debt behaviour in general. This question seeks answers on 'overall financial knowledge' and thus is more comprehensive and accommodative. Third, it provides an opportunity for respondents with a straightforward question to respond about how they perceive the status of their financial knowledge without calculations.

Responses to the self-reported financial/debt knowledge across the whole sample presented in table 4.4. Opposite to the findings showed in the previous parts; most respondents appraised themselves above average or average in terms of their debt knowledge. The means score for the sample studied was 3.26, with more than 70% of the participants choosing a score as high as 3 or 4. Surprisingly, only 3% of the respondents chose 1 as their score, a striking fact given the almost 24% of the respondents answered 'did not know' or had a wrong answer in answering questions assessing debt literacy. This phenomenon is well researched, such as in Lusardi and Tufano (2015), relatively a mismatch of responses in answering questions assessing their financial/debt literacy against their actual financial knowledge.

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<sup>23</sup> The scores for far above average = 5 and far below average = 1

**Table 4.4: Descriptive results of self-assessment on debt literacy**

**How would you self-assess yourself in terms of financial/debt knowledge on a scale of 1 to 5?**

<b>Scale</b>	<b>Frequency</b>	<b>Percent</b>
Far above average	21	14
Slightly above average	24	16
Average	82	55
Slightly below average	19	13
Far below average	4	3
<b>Total</b>	<i>150</i>	<i>100.0</i>

*Source (Survey Data, 2019)*

In general, disaggregated results on self-assessed financial knowledge shows a pattern with our previous objective measures of debt literacy, indicating self-consciousness. For instance, young women self-assessment levels of financial/debt knowledge are much less compared to their male counterparts. Unemployed/students and respondents with less income also gave a lower self-assessment compared to their counterparts.

Nonetheless, there is evidence of disparities between self-assessed financial knowledge and real measures of debt literacy. Individuals with lower levels of education displayed low levels of debt literacy across the two questions, but still ranked themselves highest in terms of financial knowledge: for example, respondents with less than high school education had 100 per cent score and for those with high school level of education had 65 per cent score<sup>24</sup>. The level of self-confidence displayed, coupled with a lack of cognition or skill could put the less educated at a position of making poor financial decisions or vulnerable to predatory lenders.

#### **4.4 Attitude towards Digital Loans**

Empirical evidence has shown that there is a relationship between attitudes towards credit and over-indebtedness. Various concepts of attitudes towards digital credit were examined with nine 5-point Likert scale and the descriptive results are presented in Table 4.5 as follows.

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<sup>24</sup> Previously the debt literacy score for these two groups was 50% and 48% respectively.

**Table 4.5: Descriptive results for items on attitudes towards digital credit (n=150)**

Items	Percentages				
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
There are more advantages than disadvantages to using digital credit.	4.0	15.3	18.0	50.0	12.7
Digital loans are 'money' readily available on my phone	2.7	13.3	9.3	50.0	24.7
Prefer to use digital loans compared to other sources of credit	10.7	21.3	13.3	32.0	22.7
Prefer digital loans because they are readily available.	8.0	4.0	21.3	42.0	24.7
Prefer digital loans because no one knows I have borrowed apart from provider	5.3	15.3	15.3	39.3	24.7
Digital loans lead to debt problems.	5.3	10.7	17.3	24.0	42.7
Everyone should use loans at least from one provider	6.7	32.0	30.7	25.3	5.3
Nowadays, you have to use digital loans	8.0	34.7	31.3	19.3	6.7
Sometimes I borrow digital loans without good reasons.	14.0	40.7	6.7	26.0	12.7

*Items marked (.) constituted the attitudes measure scale*

*1=Strongly disagree, 5=Strongly agree*

*Source (Survey Data, 2019)*

The study findings in the table showed that out of the total respondents surveyed (n=150), 62.7 per cent strongly agree or rather agree that using digital loans today has more advantages than they are disadvantages. With 19.3% strongly disagreeing or rather disagree with the statement, while 18% of the respondents were neutral. One aspect, however, common to all respondents was: almost over 74% strongly agreed or rather agreed with the statement that digital loans are 'money' available on their phones.

Over fifty-four per cent of the respondents preferred to use digital loans as their first choice of credit compared to family, friends, and banks (traditional loans). While 32% of those surveyed, digital credit does not rank first as their choice of credit. When it comes to understanding why digital loans are preferred, a majority of the respondents at 66.7 per cent strongly agree or rather agree that they prefer digital loans because they are available on their phones, while 21.3% did seem not to agree or disagree if the availability of digital credit in their phones influences their digital credit borrowing behavior.

A total of 39.3 per cent of the respondents seem to agree that they prefer digital loans because no one knows that they have borrowed a loan. With ‘neither agree nor disagree’ and ‘disagree’ both tying at 15.1%. However, 42.7 per cent and 24%, respectively, strongly agree or rather agree that digital loans lead to debt problems.

On the other end of the spectrum, 38.7% of the respondents did not agree that everyone should use digital loans at least from one provider, while 31percent maintains an average position. Whether nowadays you have to use a digital credit, 42.7 per cent believe that should not be the case compared to 26% of the respondents. On the final question, most of the respondents at 54.7% disagreed that they sometimes borrow digital loans without good reasons, while 38.7 per cent believe on the contrary.

A factor analysis conducted to detect the relationship between items of attitudes towards digital credit and reduce redundancy among the items. Following factor analysis, four items – which are kept to create a dimensional scale to measure attitudes towards digital credit among youth borrowers<sup>25</sup>. The items scored were totaled up to indicate a composite attitude indicator; the higher the score, the more favorable the attitudes.<sup>26</sup> The mean score for attitude was 12.52/20<sup>27</sup>. It means that attitude towards digital loans among the youth digital borrowers is moderately positive. The findings are consistent with those of Lachance (2012), which showed that attitudes towards credit among young adults are not largely positive as perceived by previous studies (see section 2.3). Like Lachance (2012), this study included all types of youths (workers, students, single, married, highly educated and non-educated) compared to other previous studies which segregated demographics of the youth and mainly done on students.

The slightly positive attitude towards digital credit suggests the youth digital borrowers in Ruaraka Sub-county at this early stage of their lifespan, and some careers showed favorable attitudes towards digital loans as a result of the nature of the loan and how it is delivered. For instance, youths in Ruaraka Sub-county see digital loans to have more advantages, privacy and somehow convenient compared to traditional loans (See Table 4.5). However, in the same breadth, the not very positive attitudes towards digital loans show they are cautious of the effects the loans can cause. For example, they acknowledge that digital credit can lead to debt problems. In summary, youth digital borrowers in Ruaraka sub-county have moderate positive attitudes towards digital loans.

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<sup>25</sup> Using SPSS dimension factor was executed, and the four statements were chosen for further analysis.

<sup>26</sup> See Lachance (2012) on young adults’ attitudes towards credit.

<sup>27</sup> The 4\*5 scale shows the score falls on ‘Agree’ rounded off to the nearest one.



**Table 4.6: Summary descriptive results for attitude towards digital credit (composite attitude indicator)**

<b>Statements<sup>28</sup></b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
More advantages to using digital credit	3.5200	1.028	1	5
Digital loans are easily accessible	3.7133	1.125	1	5
*Digital loans lead to debt problems	2.1200	1.666	1	5
*Borrowing without good reasons	3.1733	1.425	1	5
<b>Total</b>	12.5266	5.244		

*Total scale for all items used in the attitude scale= 4\*5*

*1=Strongly disagree, 5=Strongly agree*

*\* Reverse recoding for the items to reflect the scale*

#### **4.5. Over-indebtedness and its measures**

This section presents the descriptive results on delinquency and the results on the level of over-indebtedness. The measures will be explained in detail as they contain both qualitative and quantitative approaches.

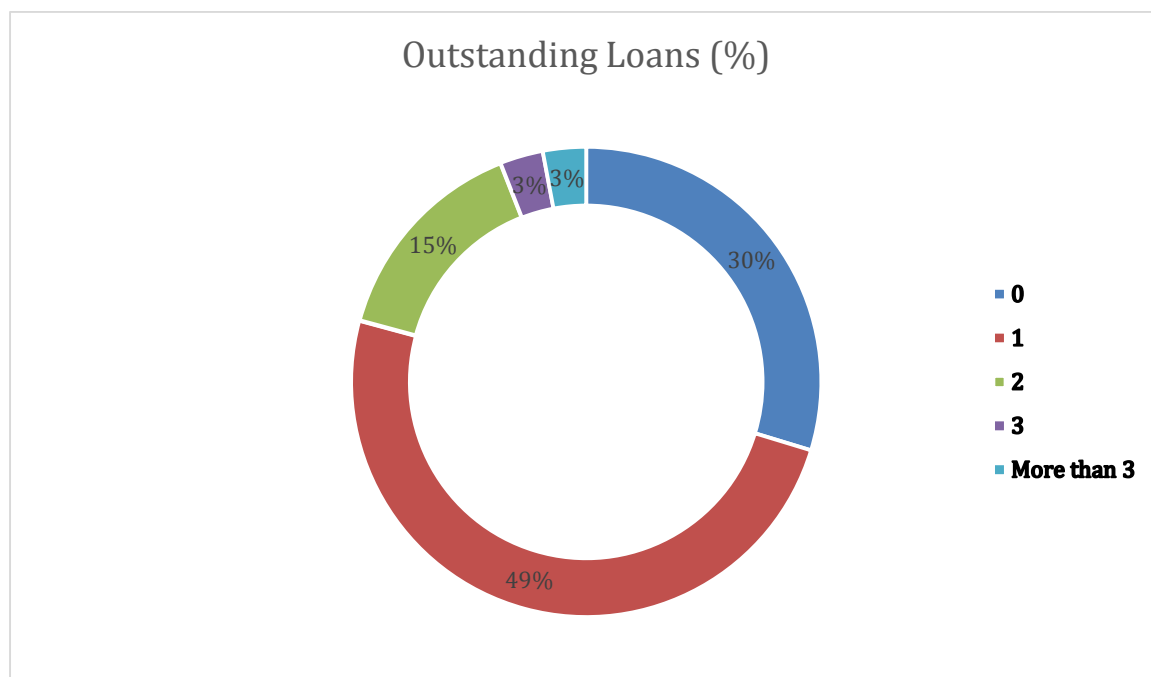
##### **4.5.1 Number of Outstanding Digital Loans**

As the results show in figure 4.10 below, almost 70 per cent of youth digital borrowers in Ruaraka Sub-county had at least one outstanding loan during the conduct of the survey. The results further show that only 5.4 per cent of the youth digital borrowers had at least three or more digital loans. The study also shows that 29.7 per cent of the youth borrowers had no outstanding loans at all during the survey.

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<sup>28</sup> For the first two statements the respondent got a higher score if they strongly agreed and for the second two statements, respondent got a higher score if they strongly disagreed.

**Figure 4.10: Summary descriptive results of number of outstanding loans among youth digital borrowers**

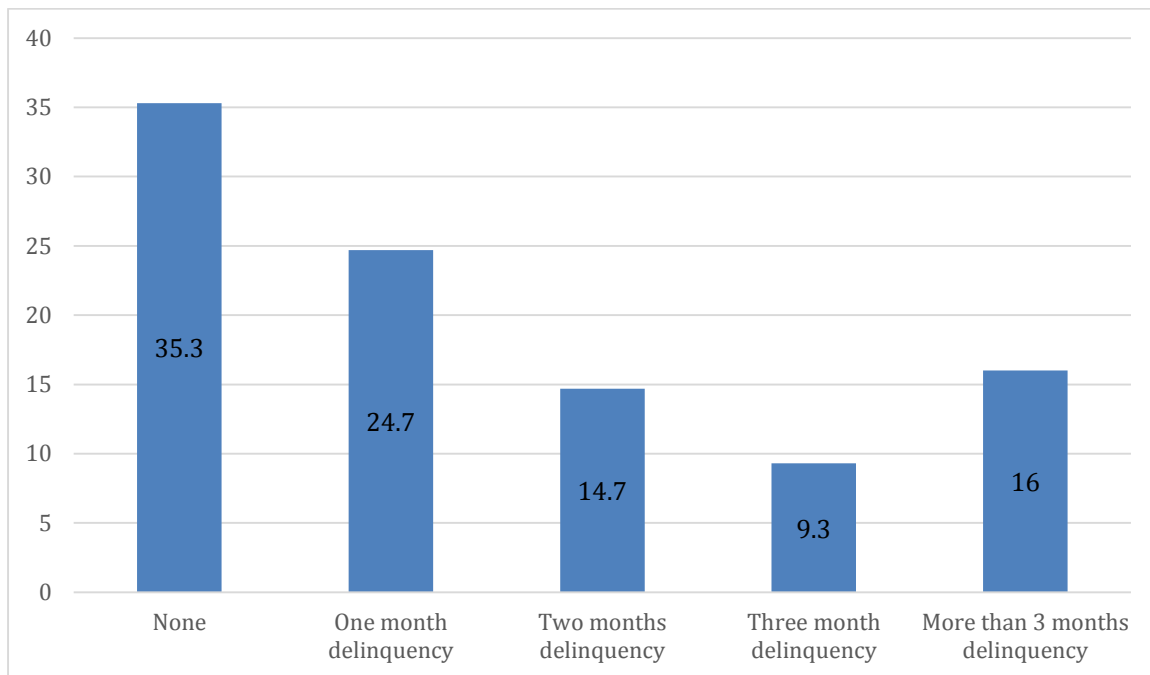


*Source (Survey Data, 2019)*

#### **4.5.2 Measures of Over-Indebtedness**

As discussed in section 2.4 in the conceptual framework, our focus in this sub-section will be on the indicators of over-indebtedness, which measures delinquency on digital credit. Delinquency is one of the measurements (objective) for over-indebtedness in this study to indicate over-indebted individuals. The three measures of over-indebtedness presented in the conceptual framework include 1-month delinquency on at least one digital credit item, 3-month delinquency on at least one digital credit item and a measure of self-assessment over-indebtedness based on self-reports of 'real debt problems.' Delinquency on the questionnaire constituted 'months behind on a digital credit item since uptake.' The column chart below represents the percentage of youth borrowers and the number of months there are behind since the uptake of digital loan.

**Figure 4.11: Loan Delinquency (%)**



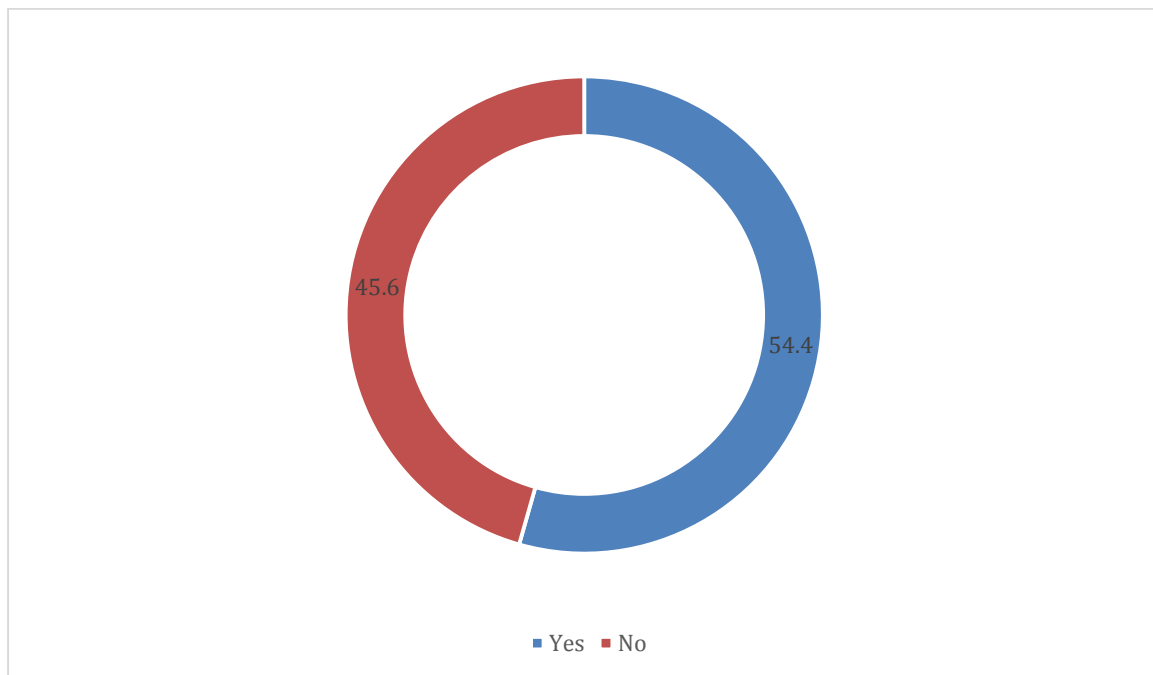
*Source (Survey Data, 2019)*

In this analysis, youth digital borrowers who had no loan arrears constituted the majority and represented 35.3 per cent (Obs. 53) of the sample. Those who had exactly one-month delinquency on a digital credit item their frequency was 37, translating to 24.7 per cent of the sample. Furthermore, those who had precisely a three-month delinquency on a digital credit item constituted 9.3 per cent (Obs. 13) of the sample. The result further shows that those who were exactly two months behind payments to their digital loans were 14.7 per cent. The study also indicated that some youth digital borrowers were more than three months, delinquency at 16 per cent.

#### **4.5.3 Reduction on Food Expenditure**

As discussed in the literature review, reduction in food expenditure is a common indicator in measuring debt stress (FSD Kenya, 2019) and part of indicators of over-indebtedness (Davydoff, 2008). As indicated in figure 4.12, the results show that over 54.4 per cent of youth digital borrowers in Ruaraka Sub-county reported having reduced their food expenditure at one point this year in order to repay a digital loan they took. The remaining 45.6 per cent indicated that contrary to the above statement.

**Figure 4.12: Reduction in food expenditure**



*Source (Survey Data, 2019)*

#### **4.5.4 Self-reported Over-indebtedness**

This survey also sought to establish whether youth digital borrowers face difficulties paying off their debts. Whilst recognizing the possible inadequacies associated with individual self-assessed measures of debt conditions, these assessments reveal more information on borrowing limitations and borrowers' interest in additional credit. To measure self-reported debt conditions, the following question was asked as presented in Table 4.7:

*Which of the following best describes your current debt position?*

**Table 4.7: Summary descriptive results for current debt position (n=150)**

<b>Items</b>	<b>Frequency</b>	<b>Percent</b>
I have too much debt right now and may have difficulty paying it off	27	18.0
I have about the right amount of debt right now and I face no problem with it	54	36.0
I have too little debt right now, I wish I could get more	36	24.0
I just do not know	33	22.0

*Source: Survey Data (2019)*

The self-reported measure of over-indebtedness has been used widely subjectively (See section 2.3). In this survey, there was one question that measured over-indebtedness presented in Table 4.7 word to word. Respondents who chose item number one as their answer, self-reported to have problems with their current debt condition. The results indicate 18 per cent (Obs. 27) of youth digital borrowers choose ‘I have too much debt right now and may have difficulty paying it off’ compared to 36 per cent (Obs. 54) who chose item number 2 as their answer. Twenty-two per cent (Obs. 33) of the respondents were unsure about their debt conditions, while the remaining 24 per cent needed more debt.

Further analysis of self-reported debt levels, the study shows the statistics of different groups in univariate terms against indebtedness self-assessment. Table 4.8 reveals that without regarding those who are at ease with their debt situations, those who feel they are experiencing difficulty with debt belong to the following descriptive groups; the younger, female, either self-employed or unemployed/students, married and with lower incomes.

**Table 4.8: Characteristics by self-assessed debt levels**

<b>Group</b>	<b>Unit</b>	<b>Difficulty with debt</b>	<b>Right amount</b>	<b>Too little</b>	<b>Just do not know</b>	<b>N</b>
<b>Age of respondents</b>						
18-24 years	%	20.00	48.57	10.00	21.42	70
25-30 years	%	17.81	27.40	34.25	20.55	73
31-35 years		0.00	0.00	57.14	42.86	7
<b>Gender</b>						
Male		21.00	37.03	23.46	18.52	81
Female		15.00	34.78	24.64	26.08	69
<b>Employment Status</b>						
Employed		5.26	44.74	44.74	5.26	38
Self-employed		23.68	28.95	15.79	31.58	38
Unemployed/Students		21.62	35.14	17.56	25.68	74
<b>Marital Status</b>						
Single		17.05	40.31	20.93	21.71	129
Married		23.81	9.52	42.86	23.81	21
<b>Education Level</b>						
Less than high school		100.00	0.00	0.00	0.00	3
High school graduate		7.69	34.62	38.46	19.23	26
Diploma Graduate		9.52	26.19	23.81	40.48	42
Bachelor's Degree		23.38	44.16	18.18	14.28	77
Graduate Degree (Masters & PhD)		0.00	0.00	100.00	0.00	2
<b>Monthly Income</b>						
Less than Ksh 10,000		25.75	33.33	18.18	22.72	66
Ksh 10,000-24,000		21.17	26.08	32.61	19.56	46
Ksh 25,000-39,000		0.00	57.14	19.04	23.81	21
Ksh 40,000-55,000		0.00	46.15	38.46	15.38	13
Ksh 56,000 & above		0.00	50.00	0.00	50.00	4

#### **4.5.6 Levels and measures of *Over-indebtedness***

Over-indebtedness in this study has been analysed and understood both quantitatively and qualitatively and by using both approaches. In the conceptual framework, the indicators for over-indebtedness were indicated and presented below to show the levels of over-indebtedness in Ruaraka Sub-county using the different measures.

The first measure was quantitative and was indicated in the conceptual framework as 1 and 3-month delinquency rates. At 1-month delinquency a borrower usually a positive listing and charged penalty fees which are added to the initial loan. The results indicated that 24.7 per cent (Obs. 38) of the sample of youth digital borrowers in Ruaraka Sub-county had one-month delinquency, and late repayment charges already added to their loans. At 3-month delinquency, a youth digital borrower usually faces a negative listing and their loans considered NPL and

reported to credit reference bureaus to be blacklisted<sup>29</sup>. The results indicate at three-month delinquency, the number of youth digital borrowers was 9.3 per cent (Obs. 14) respectively are considered over-indebted. As such, quantitatively the level of over-indebtedness among youth digital borrowers using 1 and 3-month indicators stands at 24.7 and 9.3 per cent, respectively. The delinquency at two-month and over three months are inconclusive since those at two months are yet to be negative listed, and there are additional fees charged, while those over three months have been negative listed and blacklisted and no any additional measures can be taken on them.

Using the second measure of self-reported approach to over-indebtedness. The study found out 18% of youth digital borrowers in Ruaraka Sub-county (27 observations) chose statement 1, which denotes self-declared over-indebtedness. Thus, the individuals consider their debt conditions to be worse and face difficulties in paying the debt, a clear indication for over-indebtedness. On analysing who among the individuals who considered themselves over-indebted and had any loan arrears, the study found out at exact one-month delinquency, it was 1.3% (Obs. 2), while at precisely 3-month delinquency with self-reported over-indebtedness, the results showed that 5.33 per cent of the sample (Obs. 8).

Generally, 'reduction in food expenditure' as one of the indicators for over-indebtedness showed 54.4 per cent of the respondents had reduced their food budget to pay for digital loans they owed, and this was demonstrated by either skipping meals or forgoing certain foods to save. Taking both measures, in the reduction of food and the 1 and 3-month delinquency rates, respectively, results indicate 12.66 and 6.66 per cent of the sample were over-indebted.

To summarize the state of digital credit over-indebtedness in Ruaraka Sub-county using a mix method approach in overall stands at 26.5 per cent of the sample of the youth digital borrowers and are considered over-indebted<sup>30</sup>.

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<sup>29</sup> Some digital credit providers report their delinquent customers to credit bureaus after four months.

<sup>30</sup> The 25.6 per cent sample of over-indebted youth arrived at by adding the percentages of individuals who reported themselves indebted and had loan arrears at 1 and 3-month and which stood 1.3 and 5.33 per cent respectively, with individuals who had loan arrears at 1 and 3-month and reduced their food expenditure which stood at 12.66 and 6.66 respectively.

#### 4.6.0 Bivariate Analysis

**Table 4.9. Bivariate relationships between predictors and delinquency (months behind)**

<b>Group</b>	<b>p-value</b>	<b>Pearson's R</b>
Age of respondents	0.1554	-0.056
Gender	0.2023	-0.145
Employment Status	0.0013***	0.008
Marital Status	0.1881	0.031
Education Level	0.0000***	0.160*
Monthly Income	0.0003***	-0.093
No. of Outstanding Loans	0.0000***	0.503***
Reduction in food expenditure	0.0000***	— <sup>31</sup>
Debt Conditions	0.0000***	-0.527***
<b>Debt Literacy</b>		
Debt literate on interest rates	0.3355	-0.154
Debt literate on late repayment	0.0954	-0.015
Self-assessment on debt literacy	0.1934	0.058
<b>Attitude towards digital credit</b>		
More advantage to using digital loans	0.0005***	0.183**
Easily accessible over mobile phone	0.0005***	-0.077
Digital loans lead to debt problems	0.0157***	0.067
Borrowing without good reasons	0.0000***	-0.257***

\*\* Significant at 5% level; \*\*\* Significant at 1% level.

Source: Survey Data (2019)

The bivariate analysis presented in Table 4.9 reports the Chi-square results and the delinquency levels among different groups of youth digital borrowers. First, there exists no statistical significance between the youth borrower's age of respondents and delinquency. On the other hand, Pearson's correlation shows that the relationship between age and delinquency is negative. Moreover, a weak one, though the younger the youth digital borrower is, the likelier he/she can be indebted<sup>32</sup>. It can be understood to mean the financial positions of younger youth digital borrowers are unstable as indicated by Lokken Worthy *et al.* (2010) and thus, the results.

Secondly, the results also report that gender has no statistical significance with delinquency; Pearson's Chi-square value is 0.2023, which is way above 5% and 1% significance levels. Furthermore, a weak and negative relationship displayed between sex and delinquency, and it shows that female youth digital borrowers are likely to be in debt compared to their male counterparts.

<sup>31</sup> No correlation statistics for non-numerical data

<sup>32</sup> See the summary of Pearson's correlation values for the main variables discussed in the literature review.



Thirdly, the study also found that youth digital borrowers who were unemployed or students were more likely to be over-indebted compared to the self-employed and wage-employed. A two-sample t-test showed that the difference in delinquency to employment status is statistically significant ( $p = 0.0013$ ). It can be interpreted to mean wage employed youth borrowers are cushioned by their predictable monthly income from debt shocks compared to the self-employed who can be affected by the loss of income and the unemployed/students who are dependants or have no sources of income at all.

Fourth, there exists a positive but weak relationship between marital status and delinquency levels. The Chi-square significance value indicates there is no statistical significance between marital status and delinquency. The results suggest that unmarried youth are most likely to face debt delinquencies as opposed to the married.

Pearson's correlation coefficient indicates that the relationship between the delinquency and level of education is a statistical significance and positive. For levels in education, the study indicated that indebtedness rose as the level of education increased. For instance, those with higher levels of education, especially at the bachelor's level, show a higher margin of over-indebted compared to the non-over-indebted. The asymptotic significance (2 sided) indicated that the levels of over-indebtedness differed among different education levels attained and were statistically significant ( $p = 0.0000$ ). These results can be partly explained by the familiarization of university and post-university youth borrowers with student loans, and thus conditioned to holding debt hoping in future they will settle them as evidenced in one of the case studies.

Over-indebtedness differed across the monthly range of incomes. Digital youth borrowers with incomes less than Ksh 10,000 and Ksh 10,000-24,000 were more over-indebted compared to other monthly income ranges. This suggests the less the amount of income, the higher the likelihood of over-indebtedness. These differences are statistically significant, and the correlation relationship is weak, and negative, indicating higher incomes can cushion youth digital borrowers from debt problems, and thus not to be indebted as opposed to the ones whose incomes are low.

The number of outstanding loans held by youth digital borrowers in Ruaraka Sub-county during the survey differed across the over-indebted and non-over-indebted. Those who had more than three outstanding loans reported a nil percentage of non-over-indebtedness. The per cent of non-over-indebtedness decreased with the number of outstanding loans. Pearson's correlation indicates the existence of a strong and negative relationship between the number of loans held and delinquency. It suggests the occurrence of over-indebtedness can be associated with the

number of outstanding loans held by a youth borrower. The statistical difference is also significant and stood at ( $p < 0.0001$ ).

Debt conditions as an indicator of self-assessed over-indebtedness were statistically significant and negatively correlated to delinquency. The p-value ( $p < 0.0001$ ) was also statistically significant. This means individuals who self-proclaimed to be facing financial difficulties were also behind in terms of their digital loan payments.

The bivariate analysis of various elements testing the attitudes of youth digital borrowers towards digital credit indicated that all the elements were statistically significant (Chi-square). Correlation results showed a positive relationship between ease of access of digital loans on mobile phones and digital loans leading to debt problems, while the rest indicated a negative correlation. However, the analysis of attitudes towards digital credit and debt literacy variables are inconclusive since they require a full model relationship (with control variables) to fully show the effect of both variables on attitudes on digital credit over-indebtedness in conjunction with control variables. The model would be attempted in the next section.

To summarize, the section on the bivariate analysis performed through running chi-square tests. The findings have indicated that non-over-indebted and over-indebted differ across employment, education, attitudes towards digital credit, debt conditions, monthly income, and number of outstanding loans. The results have also shown the non-over-indebted and over-indebted do not differ under six items; age, gender, debt literacy, marital status, self-reported debt literacy and reduction in food expenditure.

#### **4.7.0 Regression Analysis**

This section shows the results of the regression analysis performed to test the hypotheses outlined in section 2.4. It seeks to answer the two main questions that were the purpose of the study. The first question would seek to answer whether debt literacy determines the indebtedness of youth digital borrowers in Ruaraka Sub-county. The second question to be answered is whether there is any relationship between attitudes towards digital credit and over-indebtedness. The bivariate analysis in the previous section was inconclusive in showing the full model relationship between the independent variables mentioned and the dependent. The regression analysis presumed a linear relationship and, therefore, performed using the Ordinary Least Squares (OLS) technique. A multicollinearity test conducted, and the analysis showed that independent variables were not correlated. All variables in the regression model had a Variance

Inflation Factor (VIF) of below 2.7, indicating no multicollinearity. The regression analysis is presented in one part as a combined analysis of the two variables against over-indebtedness.

#### 4.7.1 Effect of debt literacy and attitudes on over-indebtedness of youth digital borrowers.

As described in section 2.4, over-indebtedness determined by delinquency is the dependent variable, while the two variables, debt literacy and attitudes towards digital credit, are the independent variables assisted by the control variables. Table 4.10 below presents the full model regression results on the effects of debt literacy and attitude on over-indebtedness of youth digital borrowers.

**Table 4.10: Regression analysis results**

Variable	Coefficient	Std. Error	p-value	VIF
Debt literacy (interest rate)	-0.233	0.113	0.040**	1.401
Debt literacy (late repayment fees)	0.261	0.142	0.068	1.538
Digital credit is more advantageous	0.136	0.115	0.239	1.116
Digital loans are more accessible	-0.024	0.109	0.827	1.133
Digital loans lead to debt problems	-0.053	0.113	0.641	1.105
I borrow without good reasons	0.238	0.114	0.040**	1.187
Gender	-0.470	0.250	0.063	1.197
Education	0.467	0.154	0.003***	1.293
Employment	-0.150	0.169	0.376	1.512
Income	-0.220	0.130	0.094	1.522
Constant	0.894	0.529	0.093	
Sum of squares residuals	271.200	Durbin Watson		2.226
F (10, 139)	2.258	P-value (F)		0.018
R-squared	0.140	Adjusted R-squared		0.078

\*\* p<0.05; \*\*\* p<0.001.

Source: Survey Data (2019)

The results indicated that the full model could only explain 14 per cent of the relationship of the variance in the over-indebtedness of youth digital borrower as presented by the R2 value. A small R2 value could be as a result of a small N compared to the number of variables used in the study. The significance of the F-statistic value was 2.258 (p <0.05), meaning the model was fit to explain the relationship between debt literacy and over-indebtedness. It demonstrates that at least one of the predictors has a significant effect on over-indebtedness.

On debt literacy, the results showed that knowledge on interest rate has a negative and significant effect on over-indebtedness ( $\beta = -0.233$ ,  $p < 0.05$ ). It means that the relationship between interest rate knowledge and over-indebtedness is inversely correlated. On the second

variable of debt literacy, knowledge on late repayment fees, results indicated the relationship was insignificant and positively affected over-indebtedness ( $\beta = 0.261$ ,  $p = 0.068$ ). This regression analysis results above with regards to debt literacy, which means that youth digital borrowers in Ruaraka Sub-county who have low levels of knowledge on interest rates are more likely to be digital credit over-indebted. It is consistent with the findings of Gathergood (2012) on financial literacy and over-indebtedness, he found that individuals who had less financial literacy were more likely to face delinquencies, and the results also corroborated with Lusardi (2009; 2015). The different results indicate by bivariate analysis can be explained with a controlled linear regression analysis has indicated the opposite.

On perceptions of digital credit having more advantages than disadvantages, the perception had a positive effect on digital credit over-indebtedness but an insignificant one ( $\beta = 0.136$ ,  $p = 0.239$ ). It means that digital credit has more advantages compared to its disadvantages did influence the over-indebtedness of youth digital borrowers in Ruaraka Sub-county. On the second perception that digital credit is easily accessible, the effect was both insignificant and negative on digital credit over-indebtedness ( $\beta = -0.024$ ,  $p = 0.827$ ). This means that easy accessibility of loans did not influence on over-indebtedness. On the third perception, of whether digital loans lead to debt problems or not, there was a negative effect on over-indebtedness and an insignificant one ( $\beta = -0.053$ ,  $p = 0.641$ ). The last perception of attitudes towards digital credit, on borrowing without good reasons, the effect on over-indebtedness was positive and a significant one ( $\beta = 0.204$ ,  $p = 0.038$ ). The results indicated that as borrowing without good reasons increases, also over-indebtedness increases, thus the youth digital borrowers in Ruaraka Sub-county who borrow without good reasons are most likely end up in financial difficulties and hence over-indebtedness. These results are consistent with the literature on the disadvantages of impulsive borrowing, which leads individuals to debt traps and eventually over-indebtedness, as demonstrated by Lachance (2012).

In this model, with regards to the results of the control variables, the study showed that gender, income, and employment had a negative effect on over-indebtedness, and they have no significant effect on over-indebtedness. Irrespective of the significance level, this means individuals with lower levels of employment and income are likely to be associated with over-indebtedness. On the other hand, education had a positive correlation and a significant one with over-indebtedness. It suggests that youth borrowers with higher levels of education in Ruaraka Sub County can be associated with digital credit over-indebtedness.

To summarize, the section on regression analysis, the results show that knowing interest rates is an essential factor when participating in the digital credit market. It helps in knowing the cost of borrowing, thus avoiding high-cost loans, which can lead to over-indebtedness. On the other hand, knowledge on late repayments in the digital credit market is not outstanding quality, and this explained by the fact that digital credit providers usually charge late repayment after a customer has already defaulted. On attitudes towards digital credit, borrowing without good reasons shows to affect the over-indebtedness of youth digital borrowers in Ruaraka Sub-county. Thus, youth borrowers who borrow without any substantive purpose or engage in impulsive borrowing are likely to end up in debt. Other elements of attitudes towards digital credit did not show any significance to the over-indebtedness of youth borrowers. Thus the contribution of this study to the scant literature on general effects of digital credit is financial literacy, especially knowledge on interest rates is vital for youth who participate in the digital credit market, while funds borrowed in the digital credit market for not good reasons are likely to put youth borrower in debt.

**Table 4.11: Summary of Hypothesis Analysis Results**

Hypothesis (H <sub>0</sub> )	Results	Conclusion
There is no statistical significance and relationship between debt literacy and over-indebtedness	Knowledge on interest rate $p < 0.0046^{**}$	<b>Rejects null</b>
	Knowledge on penalty fees $p = 0.068$	<b>Failed to reject</b>
There is no statistical significance between attitude towards digital credit and over-indebtedness	Digital credit is more advantageous $p = 0.239$	<b>Failed to reject</b>
	Digital loans are more accessible $p = 0.827$	<b>Failed to reject</b>
	Digital loans lead to debt problems $p = 0.641$	<b>Failed to reject</b>
	I borrow without good reasons $p < 0.040^{**}$	<b>Rejects null</b>

\*\*  $p < 0.05$ ; \*\*\*  $p < 0.001$ .

Source: Survey Data (2019)

#### 4.8 Case Studies

Considering the causes of personal over-indebtedness are substantive and diverse, and the quantitative results in this study did not give pathways to understand over-indebtedness further, this study proposed to use case studies to allow for new insights on over-indebtedness with its relation to digital credit products. This study used four cases for knowledge generation and indicative information on other causes of digital credit over-indebtedness. The case studies data were analysed qualitatively in a logical approach by identifying, examining, and interpreting

themes. Case study data reduced by developing categories and codes, and content themes arrived through relating them with the empirical literature.

First, from the findings of this study, the relationship between debt literacy, attitudes towards digital credit and over-indebtedness of youth digital borrowers is neither confirmed nor rejected, it shows other factors can be used to explain youth borrowers digital credit over-indebtedness, as demonstrated in the literature review in section 2.3. A summary of causes of over-indebtedness includes the occurrence of risky events; according to Kamleitner and Kirchler (2007), such events include; loss of employment or disruption in a source of income, divorce or separation, and health shocks. The events lead to either fall in incomes or unexpected expenses (Gathergood, 2012). Causes of over-indebtedness as a result of supply-side factors include; aggressive loan marketing (Bertrand *et al.*, 2010; Harris & Albin, 2005). Other causes of over-indebtedness include and can be explained through behavioural sciences (See, Kilborn (2005); Anderloni & Vandone, 2008; Anderloni *et al.*, 2012). Demographic factors such as age, gender, work status, marital status (Schicks, 2014; Du Caju *et al.*, 2016; Disney & Bridges, 2016. Issues of financial literacy (Gathergood, 2012; Lusardi and Tufano, 2015; Disney and Gathergood, 2011; Ironfield-Smith *et al.*, 2005) are essential factors explaining over-indebtedness. At a macro-level, an increase in house prices, changes in the interest rate and general inflation are likely to lead to over-indebtedness (Meniago *et al.*, 2013; Kim *et al.*, 2014).

From the case studies analysis, some elements in factors such as the occurrence of risk events and behavioural and psychological influences were identified. It was also realized youth digital borrowers who were over-indebted, their causes of over-indebtedness could be traced from one or more causes mentioned above at the same time.

The narratives transcripts for the four cases are given in Appendix 4.4. Their descriptive analysis presented in table 4.12. The cases included three males and one female youth digital borrowers. All except case 3, who only completed primary school education, have tertiary education qualifications. For case 2 and 4 requested not to specify their incomes in the key in-depth interviews, while case 1 had no steady work engagement, and considered himself unemployed.

**Table 4.12: Youth Digital Borrowers Characteristics (Source: Case Studies, 2019)**

Case	Age	Gender	Education	Income (Ksh)	Employment Status
A	24	M	Bachelor's Degree	6000	Unemployed

B	30	F	Certificate Level	Unspecified	Self-employed
C	28	M	Primary Level	14,000-18,000	Both employed & Self-employed
D	26	M	Bachelor's Degree	Unspecified	Employed

(Source: Case Studies, 2019)

#### 4.8.1 Emerging issues from the case studies

This section discusses the theme identified in the four case studies analyzed. Some of the themes identified in previous pieces of literature on causes of over-indebtedness mentioned above. Furthermore, themes not anticipated from the empirical literature emerged from some of the cases. These are ‘self-induced over-indebtedness’ and perception on the reduction of food expenditure as manifestations of over-indebtedness. Below, we discuss each of these in turn.

- The occurrence of financially relevant risky events from the cross-case analysis can be associated with over-indebtedness. Events such as disruption/loss of income, unexpected expenses, and reduction in business, are documented in the cases, as causes of over-indebtedness even among borrowers with adequate debt literacy. For example, Case A argues because of finishing university, income in the form of student loans ceased and has not been able to repay his digital loans ever since.

*“When I finished university that was when my debt problems started. I had no money to repay my loans, since my HELB income had ended” (Respondent, 47).*

In Case 3, according to the respondent, he was introduced to digital loans as a result of an unanticipated expenditure. The unexpected expenditure forced him to re-borrow every month to manage his needs and forced to reduce food expenditure to repay debts.

*“My kid joined primary school, and I was required to buy new books to respond with the new curriculum. I realized he also needed new school uniform, which I had not budgeted for, I had to borrow from M-Shwari so that I could attend to my child needs. Since then I have not recovered, now every month I need to re-borrow.” (Respondent 89)*

- Under the general theme of behavioural aspects, psychological influences, the lack of self-control has been identified as one of the critical aspects that can lead to over-

indebtedness (see Gathergood, 2012). However, with the nature of digital loans impulsive borrowing is rife as demonstrated in both Case D and A. For instance, in Case D he had indicated that his borrowing was very intense, and most of the time, he had no reasons for borrowing.

*“I am addicted to these digital loans, sometimes I take these loans to buy alcohol and even bet, considering they are not even essential in my life” (Respondent, 34)*

For the latter, the borrowing was so frequent, and convenience was vital to him, considering the student funds are also loans, and he continued to borrow even after clearing university shows how impulsive he became with digital borrowing.

*“I have continued borrowing for a while, and now I have four outstanding digital loans from M-Shwari, O-Kash, Branch and Opesa” (Respondent, 47)*

- Financial literacy identified as a general theme; under it, focusing on debt literacy is an important skill to possess in the digital credit market. Apparently, in several cases, where individuals had adequate interest rates ended up in debt. For instance, in cases A and D, both informants had a degree in the general field of business studies, and at some point, learnt about simple interest rates, which is an important skill to possess when participating in borrowing.

*“I do not consider the cost of borrowing when applying for digital loans” (Respondent, 47)*

- While 'self-induced over-indebtedness' can be categorized under behavioural/psychological theme, it presents itself as a new concept and emerging trend in the field of digital credit. Unlike traditional loans, digital loans are easily accessible to most borrowers due to the nature of how they are delivered, coupled with constant marketing's, they have become irresistible to most youth digital borrowers. As established in the quantitative results, youth borrowers need to have good reasons when borrowing digital loans, absence of that risks over-indebtedness. In the case of D, the respondent acknowledges not being able to exercise self-control when it comes to borrowing. This led him to purposely default on two loans so that he can be blacklisted and be denied loans in the future.

*“... So I decided not to pay and be blacklisted, and not be able to borrow anymore, by now I should have been blocked by providers” (Respondent, 34)*



- Another emerging theme is that the perceptions of symptoms of over-indebtedness also emerged as a concept. In most cases, individuals did not consider a reduction in food expenditure through instances such as skipping meals to repay a debt as a sign being over-indebted. For example, in Case D, the informant reported that he had to skip meals several times, in order to save money for debt repayment, but such an act to him does not constitute a sign of over-indebtedness.

*“I can’t say I am in much debt because of skipping meals. it is okay with me that’s normal especially if you are a young man in this city” (Respondent, 34)*

Minor themes such as age and income are only found in individual cases as parameters that increase incidences of over-indebtedness. Youth borrowers who earn lower incomes and are younger risk over-indebtedness compared to others.

**Table 4.13: New Themes Identified in Case Studies**

New Emerging Themes	Case
Self-induced over-indebtedness	In case D, the respondent defaulted on purpose, so as to avoid the anticipated burden of future loans.
Perception on indicators of over-indebtedness (Food expenditure reduction)	All cases. Did not consider reduction in food budget as a symptom for over-indebtedness but rather a tool for managing expenses.

*(Source: Case Studies, 2019)*

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

In the preceding chapter, the research paper discussed the findings of the data analysed. In this last chapter, there are four sections which include this introduction part 5.1. Following is the summary of the findings in section 5.2, then the study's conclusions in section 5.3. Conclusions of the study presented in accordance with the research questions that study aimed to solve. Lastly, section 5.4 discusses the recommendations of the study, and they inform policy, practice, and further areas for research.

#### **5.2 Summary**

The research paper primary purpose was to examine whether debt literacy and attitudes towards digital credit influence digital credit over-indebtedness among youth digital borrowers in Ruaraka Sub-county. The study was motivated the increase in occurrences that considered as signs of over-indebtedness among the financial at-risk group (youth) as per literature. Thus, the study hypothesised influences of such occurrence was because of low levels of debt literacy and positive attitudes towards digital credit. The study was undertaken in Ruaraka constituency because the area is urban and densely populated, which increases the likelihood of youth digital borrowers to be sampled. Thus, two surveys were conducted to establish a population of youth digital borrowers and samples from their respondents. A total of 318 youth digital borrowers were identified in the census, and 159 youth were a sample from it. Using a standardised questionnaire, youth digital borrowers were interviewed, and data were collected and analysed to hypothesise the study. The analysis includes descriptive analysis and bivariate and results were presented on tables and charts.

Descriptive analysis showed that usage of digital credit among the younger ages of the youth (18-30 years) was becoming popular. They represented over 90 per cent of the population sample. The results also reveal that most youth digital borrowers were men (54 per cent) compared to women (46 per cent). On education, the results indicated that over 80 per cent of the youth digital borrowers had tertiary level of education, and this was in tandem with studies done by FSD Kenya, which indicates that digital borrowers are educated. Most youth digital borrowers in Ruaraka Sub-county were either were mainly unemployed/students and represented almost over 50 per cent of the analysed sample. The results also showed that most youth digital borrowers were single (86 percent).

Furthermore, the mean average income among borrowers was Ksh 17,690 per month. The results also revealed that the debt literacy levels were moderately high, but there was concern on knowledge on interest rate among specific demographics such as among the female, unemployed/students, and younger age groups. This result is consistent with the literature available on financial literacy. On self-reported debt literacy, the results showed that most youth digital borrowers ranked themselves as having average knowledge on debt matters. Youth digital borrowers' attitudes towards digital credit were slightly positive; the composite attitude indicator was 13/20 (scale 1-20); this result was consistent with literature available on young people's attitudes towards debt. Over 50 percent of the youth digital borrowers had at least one outstanding loan. The level of over-indebtedness measured using both objective and subjective measures was at 26.5 percent of the sample, over a half percent of the youth borrowers had at one time reduced their food expenditure in order to repay their digital loans.

The findings of the bivariate analysis showed that delinquency on digital loans differed across employment status, attitudes towards digital credit, monthly income, and education, number of outstanding loans and among self-reported debt conditions. The results also showed that delinquency on digital loans did not differ across age, gender, debt literacy, marital status, among others.

The regression analysis for debt literacy on over-indebtedness showed that only knowledge on interest rate had a significant influence on the over-indebtedness of youth digital borrowers. The results also showed that only one element of attitudes towards digital credit 'sometimes I borrow without good reasons' had a significant effect on over-indebtedness. Thus, the result for the regression analysis indicated having knowledge on interest rates and planning for borrowing is important for youth's who consume digital loans. Further analysis showed that education as a control variable had a significant effect on over-indebtedness, while the other's gender, income and employment lacked statistical significance. The regression analysis was performed and interpreted at a 5 percent level of confidence.

Case studies conclusions showed youth digital borrowers can be indebted through other means such as occurrence of financially risky event for example loss in a source of income and unemployment. Also, youth digital borrower affected by psychological influences and are 'addicted' to borrowing digital loans frequently induce 'self-over-indebtedness' by overstaying their loans to avoid 'future' debts.

The following section discusses the conclusions of the study. The discussions will be based on the research questions outlined in section 1.4 and the study findings discussed in chapter 4.

### **5.3 Conclusions**

The research paper aimed to establish the features of youth digital borrowers with regards to digital credit over-indebtedness in Ruaraka constituency. Several features of youth digital borrowers were studied based on the primary data collected through questionnaires. The results were presented in the form of tables and charts, from the analysis, it was found that there exist a relatively young population of youth digital borrowers in Ruaraka Sub-county. Many of the youth borrowers from the sample were male. Education was prominent; at least 90 percent of the sample had a secondary school education. From the sample, most of the youth digital borrowers were unemployed/students and unmarried. Other than the demographic attributes of the youth digital borrowers, the study also revealed that the bulk of the borrowers had monthly mean income of Ksh 17,690.

This study also sought to understand the attitudes of the youth towards digital credit. The results showed that youth digital borrowers in Ruaraka Sub-county had a generally slightly positive attitude towards digital credit. This result was both inconsistent and consistent with previous literature, but the difference in sample diversity of the youth can explain the different outcomes of the major studies conducted on attitudes of the youth.

The study also aimed to determine debt literacy levels among youth digital borrowers. The results indicated that debt literacy levels were moderately high across the sample but differed across demographics, with most affected being women, unemployed and the younger.

The levels of over-indebtedness were also shown, using the mix-method approach, the study indicated that 25.6 of the sample was considered over-indebted (n=150). In terms of the relationship between over-indebtedness and debt literacy & attitudes towards digital credit, the hypotheses confirmed interest rates skills and effective planning during borrowing are important qualities to possess for youth borrowers.

Cases studies shown over-indebtedness among youth digital borrowers can be as result of unemployment, loss of income, and psychological influences which promotes addiction to digital loans.

The next sections discuss recommendations as identified in the study.

### **5.4 Recommendations**

This study considers several recommendations for practice, policy and suggests further areas for research based on the findings and conclusions of the research paper. Foremost, in terms of the

government, there is a need to be a regulatory framework in the following areas: a clear framework of over-indebtedness policy, where there are definitions and indicators where we can conclude on over-indebted levels. Currently, there is no policy framework that apart from declaration of bankruptcy by the courts, thus making it difficult to understand the indebtedness levels in both digital credit and traditional loans. Having a framework on over-indebtedness can help in determining and interventions appropriately without going back on the benefits we have achieved on financial inclusion as a result of digitally delivered loans.

There is a need for further product development and design in the area of loan periods. This can be achieved by segmenting the market further between different types of borrowers. In the same stance, most digital credit providers notify their customers to read the terms and conditions of their loan products on either links or apps. Most borrowers ignore the ‘terms and conditions’ because of how they are presented; innovative ways should be used to make sure borrowers engage with ‘terms and conditions.’

Secondly, there should be efforts by both government and digital credit providers to invest in the financial literacy of digital credit borrowers. As evidenced in the study, usage of digital credit requires knowledge on matters such as understanding interest rates and its calculation. A public-private partnership focusing on the financial education of youth digital borrowers should be pursued.

Thirdly, the study recommends that credit delivery algorithms should intensify focus on artificial intelligence to understand customer’s behaviours and attitudes towards digital loan products. Repayment behaviours are important in estimating debt burdens, while understanding borrowing time period can help credit providers to anticipate unnecessary borrowing. The recommendation would go a long way in helping to reduce impulsive borrowing and reducing debt burdens, by allocating credit which minimises the effects of over-indebtedness.

Finally, the study opines that further research be pursued in the areas of causes and determinants of digital credit indebtedness to have a holistic understanding of over-indebtedness in the digital credit market and their influences. Such areas can include the influence of aggressive digital loan advertising, high-interest rates and facilitation fees, among other issues. Given the uniqueness of Kenya being the pioneer of the mobile money market and digital credit, there is a need to carry out more research to inform the progress achieved and failures encountered in the digital credit space.



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## APPENDIX I: DIGITAL CREDIT SURVEY QUESTIONNAIRE

This survey is intended to examine debt literacy, attitude towards digital loans and digital credit indebtedness among youth in Kenya. Please find few minutes to respond to it. Your specific answers to the questions in the questionnaire will enable me to complete my master's thesis at the Institute of Development Studies, University of Nairobi. All information will be treated with confidentiality. I assure you that all information will be strictly for research purposes.

### Start of Block: Bio Data Information

#### Q1 answers seeks to answers the youth age category

Q1 Age

- 18 - 24 (1)
  - 25-30 (2)
  - 31-35 (3)
- 

#### Q2 answers D1

Q2 Gender

- Male (1)
  - Female (2)
- 

#### Q3 answers D3

Q3 Employment Status

- Employed (1)
  - Self Employed (2)
  - Unemployed/Students (3)
- 

***Q4 seeks to profile and build on indicators***

Q4 Marital Status

- Single (1)
  - Married (2)
- 

***Q5 answers D2***

Q5 Education Level

- Less than high school (1)
- High school graduate (2)
- Diploma Graduate (3)
- Bachelor's Degree (4)
- Graduate Degree ( Masters & PhD) (5)



End of Block: Bio Data Information

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Start of Block: Financial/Debt Literacy

Q6 answers A1

Q6. Njoroge has taken a *Tala* loan of 1,000 ksh, the facilitation fee he is charged is 10% of the loan for a period of 30 days. If he didn't pay anything off, at this facility fee, how much will he pay after 30 days?

- 850 (1)
  - 1000 (2)
  - 1100 (3)
  - 1500 (4)
  - Do not know (5)
- 

Q7 answers A2

Q7 'Muthoni owes (anadaiwa) M- Shwari a loan of Ksh 1000 which is overdue and has been rolled over for a further 30 days at a fee of 75 ksh. How much will she pay in total at the end of the 30 days?

- 925 (1)
  - 1075 (2)
  - 1000 (3)
  - 1100 (4)
  - Do not know (5)
- 

**Q8 answers A3**

Q8 How would you self-assess yourself in terms of financial/debt knowledge in a scale of 1 to 5?

- Far above average (5)
- Moderately above average (4)
- Average (3)
- Moderately below average (2)
- Far below average (1)

**End of Block: Financial/Debt Literacy**

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**Start of Block: Attitude Towards Digital Credit**

**Q9 to Q17 answers B1 & B2**

Q9

**There are more advantages to using digital credit than the disadvantages**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
- 

**Q10 Digital loans are ‘money’ readily available on my phone**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
-

**Q11 I prefer to use digital loans compared to other source of credit like from family, friends or banks**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
- 

**Q12 Digital loans are available on my phone that's why I prefer them**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
-

Q13

**I prefer digital loans, because no one knows I have borrowed a loan**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
- 

Q14 **Digital loans lead to debt problems**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
-

**Q15 Everyone should use digital loans at least one from one provider/platform**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
- 

**Q16 Nowadays you have to use digital loans**

- Strongly agree (1)
  - Agree (2)
  - Neither agree nor disagree (3)
  - Disagree (4)
  - Strongly disagree (5)
-

**Q17 Sometimes I borrow digital loans without good reasons**

- Strongly agree (1)
- Agree (2)
- Neither agree nor disagree (3)
- Disagree (4)
- Strongly disagree (5)

**End of Block: Attitude Towards Digital Credit**

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**Start of Block: Financial characteristics of survey respondents**

**Q18 answers D4**

Q18. What is the range of your monthly income?

- Less than Ksh 10,000 (1)
- Ksh 10,000 - Ksh 24,000 (2)
- Ksh 25,000 - Ksh 39,000 (3)
- Ksh 40,000 -Ksh 55,000 (4)
- Ksh 56,000 and above

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Q19 Currently do you have any digital loans arrears, if yes indicate the total amount in Ksh?

---

**Q20 answers C1 & C2**

Q20. What is total number of digital loans outstanding, if any?

- 0 (1)
  - 1 (2)
  - 2 (3)
  - 3 (4)
  - More than 3 (5)
- 

Q21 If yes, how many months behind for each since uptake?

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**This question will be the basis for case studies, Q22 answers C3**

Q22 Have you ever reduced food expenditure to pay digital loans? If yes, how frequent?

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**This question will be the basis for case studies Q23 answers C4**



Q23. Which of the following best describes your current debt position?

- I have too much debt right now and I have or may have difficulty paying it off. (1)
- I have about the right amount of debt right now and I face no problems with it. (2)
- I have too little debt right now, I wish I could get more. (3)
- I just do not know. (4)

**End of Block: Financial characteristics of survey respondents**

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Thank you for your time.

## APPENDIX II: METHODOLOGY OF MAPPING

- **Rationale of the mapping exercise.**

The researcher realizes that there is no pre-existing population for youth digital borrowers in Ruaraka Constituency and obtaining it from digital credit providers is near impossible due to issues of data privacy. As such it was necessary to conduct a mapping exercise at the area of enumeration.

The mapping exercise sought to identify youth who are digital credit borrowers in Ruaraka Constituency. Ruaraka Constituency is among the 17 constituencies located in Nairobi County, largely considered as an urban area and one of the most four populated sub counties in Nairobi<sup>33</sup>. The mapping exercise was conducted in Utalii Ward, areas around Naivas Supermarket (Allsops). The availability of supermarket, entertainment joints, cyber cafes, gym, and bus stop in the area has attracted a lot of young people. The neighbourhood is also highly densified with student population studying across various institutions located in Utalii Ward (Ruaraka, Constituency). There is KCA University, Utalii College, Institute of Energy and Research, Kenya School of Monetary Studies and some small colleges which offer professional courses in the area.



Source: Google maps (2019).

<sup>33</sup> See Nairobi City County Health Sector Strategic and Investment Plan 2014- 2019. (Revised 2017)

The mapping exercise targeted all categories of youth (18 – 35 years) as defined by the Constitution of Kenya living in the identified enumeration area. About 318 youth digital borrowers from any digital credit provider were identified through a mapping exercise which was conducted on 25<sup>th</sup> – 29<sup>th</sup> July 2019. To avoid bias, buildings were pre-selected in a random way before the start of survey. They were picked by skipping a building and choosing the next one. A total of 16 buildings were accessed and data collected.

The main objective of the mapping exercise was to collect up-to-date information, and the information sorted was status on usage of digital credit (any provider), basic demographic (student or not) and house number. During the survey, an analysis domain was established, the domain specified in individual characteristics of being a student or not. This was necessary to ensure that the census was not populated by students residing in the area alone and the estimates on all categories of youth to be reliable.

The short interviews were structured in a way that where an individual is not a digital credit user he/she skipped and for the next individual. The interviews conducted were brief and took a minimum of 5 minutes. The information was captured as notes and the details needed were; confirmation of usage of digital credit, house/apartment no. and whether student or not. The notes coded in a logic manner, and each identified prospective respondent was given a numerical number.

- The data has been coded in an excel sheet; The columns are as follows.
  - I. House number
  - II. Student or not
  - III. Confirmation of usage/ provider name

## APPENDIX III: INTRODUCTION LETTER



### UNIVERSITY OF NAIROBI INSTITUTE FOR DEVELOPMENT STUDIES

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Email: [director-ids@uonbi.ac.ke](mailto:director-ids@uonbi.ac.ke)

2/7/2019

Our Ref: T51/7460/2017

TO WHOM IT MAY CONCERN

RE: KHALID TWAHIR ADAM - T51/7460/2017

This is to confirm that **Mr. Khalid Twahir Adam** is a bona fide student of the University of Nairobi, Institute for Development Studies (IDS). He is currently pursuing studies leading to the award of the degree of Master of Arts in Development Studies.

*Mr. Khalid Twahir Adam is collecting data on his MA research project titled: "Young adults use of digital credit influenced by financial literacy and attitudes towards credit and their experiences of indebtedness: A case of University going students".*

Any assistance offered to him will be highly appreciated.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Karuti Kanyinga".  
A circular official stamp of the Institute for Development Studies, University of Nairobi. The stamp contains the text "Institute for Development Studies" and "UNIVERSITY OF NAIROBI". The date "3 JUL 2019" is stamped in the center.

**Prof. Karuti Kanyinga**  
Director-IDS

Copy to: Student file

/wmm

## APPENDIX IV: NACOSTI RESEARCH PERMIT

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 624339	Date of Issue: 05/September/2019
<b>RESEARCH LICENSE</b>	
	
<p>This is to Certify that Mr.. Khalid Adam of University of Nairobi, has been licensed to conduct research in Mombasa, Nairobi on the topic: Financial ( Debt) Literacy, Attitudes Towards Digital Credit and Over-indebtedness among youth in Kenya for the period ending : 05/September/2020.</p>	
License No: NACOSTI/P/19/463	
624339 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code: 
<p>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</p>	

## APPENDIX V: CASE STUDIES

### Case A

Brian (not his real name) is 24 years old recent university graduate. He lives in Allsops area in Mathare North ward with his older brother, and not married. Currently, he considers himself unemployed but does casual jobs whenever they are available to sustain his needs and earns up to Ksh 6,000 a month.

Brian has been a regular user of digital credit products for the last four years. His first encounter with digital credit was during his days in university, through a friend, he was introduced to digital borrowing. During the time he was in university he was used to borrow from different platforms of digital credit providers. To Brian the borrowing was a result to cover for his day to day needs as he awaits funds from the Higher Education Loans Board (HELB) funds to reflect in his account. Brian has a degree in Business Management, and has no problem understanding the cost of the facilitation fees and penalties for late repayment. He would immediately offset his digital debts once he received the funds from HELB. Most of the times almost all of his funds would go to repaying the loans, but in the process built himself a good credit history. To him credit was good, the 'oil' he needed to push through campus, as he awaits to graduate and to get a good job. After finishing university, he continued borrowing to finance his unemployed life. He intensified his multiple borrowing to assist his brother pay rent and cater for utilities and his personal needs. Due to his regular borrowing and limited income, he has defaulted on four loans from four providers namely; M Shwari, Branch, O-kash and Opesa. Attempts to repay the loans in small bits has render him low on liquidity most of the times and ended up re-borrowing. He has already been listed at the Credit Bureau Reference (CRB), but still can access credit from some loan apps. He hopes to find a job and repay his loans.

### Case B

Chemjor (not her real name) is a 30-year-old woman who is married with one child. She lives in a rented apartment block in Githurai but operates her own fast-food eatery with her husband at Ruaraka constituency (Utalii ward). She commutes every day with the husband to their workplace.

Chemjor has post-secondary education and possess a certificate in refrigeration. She identifies as a waiter and helps her husband who cooks in their eatery. In their eatery sales can be low especially when students from nearby colleges and university are on holidays, who are the biggest

buyers of their chips and chicken. Early this year she took a 90-day digital loan (KCB M Pesa<sup>34</sup>) of KSh 40,000 to supplement another loan the husband took from a ROSCA to jointly purchase an oven to bake cakes and diversify their business. At the time taking the loan she did not consider the interest rates; her focus was on the quantity of funds she could get instantly.

*“Nilitaka pesa kwa haraka ili tununue hii oven na bwanangu, because kulikuwa na mtu ako China na anazileta on order, na anachukua muda kurudi China. KCB ni bank yangu but kama ningeapply loan kupitia bank yenyewe ingechukua time kupata hio loan kwa haraka ilinibidi nitumie app”.*

Despite the cake business venture being profitable, she is unable to pay the loan on time, because the profits compete to pay the two loans they took and managing household and family expenses. She is currently facing the threat of being blacklisted and the interest rates are accumulating. When she fails short of her house budget, she has undertaken to borrow small amounts of money from other digital credit providers which is able to pay.

An analysis of Chemjor digital credit usage journey shows some certain behavioural traits; she still possesses positive attitudes towards digital credit and digital credit products are

### **Case C**

Morris is a 28-year-old casual labourer who works as a butchery attendant in Mathare North ward, Ruaraka. He is a married and a father to one kid, and an only provider to his home. He lives in a rented one-roomed house in Mathare area 1. The butchery work earns him a salary of KSh 8,000 and sells *mutura* in the evening as his own business and brings him profits ranging from KSh 200 – 350 per day.

He is a primary school graduate who has worked in informal jobs for more than 10 years. He borrows monthly to manage household needs, the need for the borrowing is a result of his kid who joined primary school this year, dented his monthly budget from buying school uniform and books. He does not see the need of knowing the cost of borrowing since he does not have a smartphone and his borrowing choices are limited to M Shwari which is has a prominent USSD platforms. Given the opportunity he would borrow more loans to expand his *mutura* business to an eatery.

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<sup>34</sup> KCB M Pesa is a digital loan platform operated by both Safaricom and Kenya Commercial Bank.

Despite paying almost a half of his salary to paying loans and borrowing almost immediately to cover household expenses and needs, he still believes his debts are manageable. Reducing food expenditure is a normal occurrence to him and does not associate it with difficulty in paying debts or a debt cycle.

#### **Case D**

Francis is a 26-year-old cashier who works as a cashier in one of the leading supermarkets in Kenya. He is single and lives alone currently in Allsops, Ruaraka.

Francis is a University graduate and holds a degree in accounting and has been working for three years now, but he does not consider the cost of borrowing when taking digital loans. He is frequent borrower of digital loans and mostly uses the loans to finance his 'impulsive buying' behaviour of non-essential needs. He considers himself 'addict' to the loans and decided to self-default on two loans from M Shwari and Tala so that he can be blacklisted and be denied loans to control the 'behaviour'.

Previously, he has reduced his food expenditure by skipping meals to save and pay the loans. For instance, he would avoid buying lunch meals at work and save to repay loans. He has also several times had to resell his personal items he bought to pay the loans later. Francis believes his is young and does need loans for now and consider his savings account would be provide the finances when he will intend to invest.