




Poverty as a Catalyst for Cybercrime: Evidence from Agona Swedru, Ghana



Paul Kwasi Kumah¹ , Hubert Bimpeh Asiedu¹ , Charles Obeng¹ 
& Felix Awuah Obeng Senior¹ 

¹ Kwame Nkrumah University of Science and Technology, Kumasi-Ghana.

ABSTRACT

Despite numerous efforts by stakeholders and institutions to mitigate social inequality and cybercrime globally, “these issues persist, particularly in developing countries like Ghana, where cybercrime has become a primary pursuit for many young people. This study aimed to examine the effect of social inequality on cybercrime and the mediating role of financial constraints. Using a quantitative research survey and a simple random sampling technique, 397 individuals were surveyed. The study's findings revealed a positive and significant relationship between social inequality and cybercrime. There was also a significant positive relationship between social inequality and financial constraints. Additionally, a significant positive relationship was identified between financial constraints and cybercrime. The study also found a significant indirect effect of social inequality on cybercrime through financial constraints, indicating that financial constraints partially mediate the relationship between social inequality and cybercrime. Therefore, this study concluded that social inequality and financial constraints contribute significantly to the incidence of cybercrime in Agona Swedru and similar contexts. It is recommended that policymakers emphasize initiatives that promote equitable access to education, employment opportunities, and financial resources that alleviate the financial strain that pushes individuals towards cybercrime. By highlighting the link between social inequality and cybercrime while also revealing the mediating role of financial constraint, this study provides a comprehensive understanding of socioeconomic factors driving cybercrime.”

Correspondence

Paul Kwasi Kumah

Email:

paul.kumah@knust.edu.gh

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INTRODUCTION

Cybercrime has emerged as a pervasive and complex threat in this increasingly digitized world, transcending geographical boundaries and impacting individuals, businesses and nations alike.¹ Cybercrime as defined by Anderson and others encompasses traditional, transitional, and novel offenses unique to the Internet.² Traditional crimes, like tax fraud, have been shifted online with the increasing use of the Internet for tasks such as filing tax returns. Transitional crimes involve activities that were traditionally carried out offline but have now migrated online for reasons of scalability and convenience, as seen in cases like credit card fraud.³ If criminal behavior cannot be solely attributed to the pursuit of

¹ Shuai Chen et al., “Exploring the Global Geography of Cybercrime and Its Driving Forces,” *Humanities and Social Sciences Communications* 10, no. 1 (2023): 1–10.

² Ross Anderson et al., “Measuring the Cost of Cybercrime,” *The Economics of Information Security and Privacy*, 2013, 265–300.

³ Vaibhav Garg and L Jean Camp, “Why Cybercrime?,” *Acm Sigcas Computers and Society* 45, no. 2 (2015): 20–28.

profit by rational actors, what other factors might contribute to its occurrence? According to a Marxist perspective on crime, delinquent conduct is posited as a response to the underclass' resentment of oppression. This viewpoint takes into account both absolute and relative economic deprivation, encompassing an analysis of elements like poverty and unemployment in understanding criminal behavior.⁴ As societies become more interconnected, the relationship between social inequality and cybercrime has garnered attention within the realms of academia, policymaking, and law enforcement. After a long period of rising international inequality, the gap in average national incomes is narrowing.⁵ The Gini coefficient of international inequality, which accounts for population-weighted national incomes per capita, decreased from nearly 63 in 1980 to 53 in 2010.⁶ However, absolute disparities among countries remain significant. For instance, the average income in the European Union is 11 times higher than in sub-Saharan Africa, and in Northern America, it is 16 times higher. The difference between relative and absolute inequality is more than academic: perceptions of rising global inequality often focus on absolute differences. People experience absolute inequalities daily, affecting their living conditions and well-being.⁷

A significant portion of income inequality is due to disparities among social groups, though this varies by country. For example, in the mid-2000s, inequality among racial groups accounted for an estimated 50 to 70 percent of total inequality in South Africa, 30 to 50 percent in Guatemala, Panama, and Paraguay, but less than 15 percent in developed countries.⁸ Similarly, in a study in Ghana by Osei-Assibey, the study found a notable increase in income inequality over a specific period, revealing a growing gap between the poorest and richest quintiles. The study's statistics revealed a considerable decline in the average income of the poorest quintile, falling from 6.9 in the early 1990s to 5.2 in the mid-2000s.⁹ The study also found inequality in access to education. Thus, an analysis of the Gender Parity Index (GPI) in urban and rural areas reveals lower values across all educational levels in rural settings. Specifically, the GPI is 0.9 for primary education, 0.78 for secondary education, and 0.6 for tertiary education in rural locales. In contrast, urban areas exhibit higher GPI values of 1.01, 0.97, and 0.73 for primary, secondary, and tertiary education, respectively.¹⁰ This social disparity has a significant effect on financial inclusivity therefore impacting individual lives.

However, the prevalence of cybercrimes in Ghana has been attributed to the country's embracing of digital transformation.¹¹ However, socioeconomic factors, such as social inequality, financial constraint and unemployment have been identified to play a part.¹² Within the framework of the Sustainable Development Goal (SDG) 10, which aims to reduce inequality within and among countries and focuses on ensuring equal opportunities and reducing income disparities through policies that promote social, economic, and political inclusion, countries have institutionalized policies to mitigate and eliminate social inequalities.¹³ In relation to this goal, several social protection measures have been implemented by the president of Ghana to mitigate social inequality.¹⁴ These interventions include the Livelihood Empowerment Against Poverty (LEAP), the Ghana School Feeding Programme, the National Health Insurance Scheme, the Capitation Grant, Free School Uniform, Free Exercise books and Labour Intensive public works.¹⁵ On the other hand, the Ghanaian government for instance implemented the National

⁴ Garg and Camp, "Why Cybercrime?"

⁵ United Nations, *World Social Report - Inequality in a Rapidly Changing World* (Department of Economic And Social Affairs, 2020), <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/02/World-Social-Report2020-FullReport.pdf>.

⁶ Branko Milanovic, "Global Inequality Recalculated and Updated: The Effect of New PPP Estimates on Global Inequality and 2005 Estimates," *The Journal of Economic Inequality* 10 (2012): 1–18; United Nations, *World Social Report - Inequality in a Rapidly Changing World*.

⁷ United Nations, *World Social Report - Inequality in a Rapidly Changing World*.

⁸ Chris Elbers, *Re-Interpreting Sub-Group Inequality Decompositions* (World Bank Publications, 2005).

⁹ Eric Osei-Assibey, "Nature and Dynamics of Inequalities in Ghana," *Development* 57, no. 3 (2014): 521–30.

¹⁰ World Bank Group, "Financial Inclusion: Financial Inclusion Is a Key Enabler to Reducing Poverty and Boosting Prosperity," 2022, <https://www.worldbank.org/en/topic/financialinclusion/overview#:~:text=Half of the adults around the world –,burdensome requirements involved in opening a financial account.>

¹¹ Edward Akuako, "The Sakawa Boys: A Critique of Policing of Cybercrime in Ghana.," 2022.

¹² INTERPOL, "African Cyberthreat Assessment Report Cyberthreat Trends," 2023.

¹³ United Nations, *World Social Report - Inequality in a Rapidly Changing World*.

¹⁴ Joyce Abebrese, "Social Protection in Ghana," *An Overview of Existing Programmes and Their Prospects and Challenges*. Friedrich Ebert Stiftung, 2011, 10–23.

¹⁵ Abebrese, "Social Protection in Ghana."

Cyber Security Policy and Strategy (NCSP&S) and the Cybersecurity Act as institutional frameworks to combat cybercrime.¹⁶

However, despite the numerous efforts by stakeholders and institutions to mitigate the issue of social inequality and cybercrime, social inequality and cybercrime continue to remain as global issues, particularly in developing countries like Ghana, particularly, Agona Swedru. A study by Akuako revealed that approximately 70% of young individuals in Agona Swedru are engaged in cybercrime (Sakawa) or express a desire to engage in such activities.¹⁷ Additionally, the existing literature acknowledges social inequality as a significant factor contributing to cybercrime; however, there is limited empirical research specifically examining the mediating role of financial constraints in the relationship between social inequality and cybercrime. Therefore, this study aims to fill this gap by examining the mediating effect of financial constraints between social inequality and cybercrime in Ghana, with a specific focus on Agona Swedru. Specifically, this study intended to examine the effect of social inequality on cybercrime; the effect of social inequality on financial constraints; the effect of financial constraint on cybercrime and the mediating role of financial constraints in the relationship between social inequality and cybercrime in Agona Swedru. This study is in four main sections, thus the introduction, literature review, methodology and presentation of findings. This study was guided by the following research questions.

1. What is the effect of social inequality on cybercrime at Agona Swedru?
2. What is the effect of social inequality on financial constraints at Agona Swedru?
3. What is the effect of financial constraints on cybercrime at Agona Swedru?
4. What is the mediating role of financial constraints in the relationship between social inequality and cybercrime in Agona Swedru?

LITERATURE REVIEW

Concepts

The study used three main concepts. The first concept is social inequality, which is often defined as the unequal distribution of resources, opportunities, and privileges within a society. According to Piketty, it is perpetuated through historical and institutional mechanisms, leading to disparities in income, wealth, education, and access to power.¹⁸ Research further emphasizes that social inequality impacts various aspects of people's lives, including health, education, and social mobility, and is shaped by social structures, institutions, and power relations.¹⁹

The second concept is financial constraints, which refer to barriers limiting individuals' or firms' access to and effective use of financial products and services.²⁰ Research highlights the role of financial literacy and access to banking services as a cause of financial constraint.²¹ Rajan also focuses on the challenges in accessing external funds due to factors like asymmetric information and collateral requirements. Additionally, Behrman and colleagues provide a broader perspective, discussing how financial constraints affect life-cycle financial decision-making, influenced by income volatility, liquidity constraints, and borrowing limitations.²²

The final concept is cybercrime, which encompasses criminal activities that involve computers, devices, or networks, as targets, tools, or evidence storage. Holt and Bossler define it broadly to include various offenses facilitated by technology.²³ Shaibu expands on this by including crimes directed at or facilitated by computing technologies, reflecting the adaptability of cybercriminals.²⁴ The United States

¹⁶ Ministry of Communications, "Ghana National Cyber Security Policy & Strategy. Republic of Ghana," July 2015, https://www.academia.edu/37141183/NATIONAL_CYBER_SECURITY_POLICY_AND_STRATEGY_REPUBLIC_OF_GHANA?pdf.

¹⁷ Akuako, "The Sakawa Boys: A Critique of Policing of Cybercrime in Ghana."

¹⁸ Thomas Piketty, "Capital and Ideology: A Global Perspective on Inequality Regimes.," *British Journal of Sociology* 72, no. 1 (2021).

¹⁹ Osei-Assibey, "Nature and Dynamics of Inequalities in Ghana."

²⁰ Annamaria Lusardi and Peter Tufano, "Debt Literacy, Financial Experiences, and Overindebtedness," *Journal of Pension Economics & Finance* 14, no. 4 (2015): 332–68.

²¹ Jere R Behrman et al., "How Financial Literacy Affects Household Wealth Accumulation," *American Economic Review* 102, no. 3 (2012): 300–304.

²² Behrman et al., "How Financial Literacy Affects Household Wealth Accumulation."

²³ Thomas J Holt and Adam M Bossler, "An Assessment of the Current State of Cybercrime Scholarship," *Deviant Behavior* 35, no. 1 (2014): 20–40.

²⁴ Abdul-Salam Shaibu, "Cybercrime: The Ghanaian Perspective," 2023.

Department of Justice categorizes cybercrime into activities targeting devices, using computers as weapons, and employing computers as accessories to crime, highlighting its diverse manifestations.

Cybercrime in Ghana

The prevalence of cybercrime issues in Ghana has increased in recent years.²⁵ For instance, the Cybercrime Unit of the Ghana Police Service has reported the following numbers of cybercrime cases from 2016 to 2022. Thus, 116 cases in 2016, 412 cases in 2017, 558 cases in 2018, 600 cases in 2019, 1097 cases in 2020, 1147 cases in 2021 and 1077 cases in 2022. These data have prompted the Police Service to enhance educational and awareness efforts among the public to mitigate the menace. The figures reveal a consistent upward trend in the number of cases from 2016 to 2021, with a slight decrease observed in 2022.²⁶

Cyber fraud in Ghana is the act of using the internet to unlawfully obtain money, food, services, etc., from individuals through deceptive means, commonly referred to as '419'. Instances of fraud within this realm of cybercrime encompass email fraud, criminal activities conducted via online banking, and fraudulent schemes on various regional payment and mobile banking platforms.²⁷ This is estimated to make up approximately 45% of all reported cybercrime cases in Ghana, according to information from the Cybercrime Unit of the Police Service.²⁸ For instance, in 2019 Bank of Ghana's year under review period; there was a 34.48% reduction in cyber fraud cases, declining from 174 instances in 2018 to 114 cases in 2019. Despite this decrease, cyber fraud still represented the largest attempted fraud amounting to GH¢ 50.54 million, with an actual loss of GH¢14.31 million.²⁹

Also, unauthorized access occurs when criminals, without permission, target the digital and networking systems of their victims with the intent to steal valuable network resources, collect user information, pilfer data and documents, disrupt data-related activities, or inflict damage on or corrupt systems.³⁰ Examples of such intrusions include hacking and data breaches. For instance, the hacking incidents involving Ghanaian government websites in early 2015 exemplify attacks directed at government technology infrastructure. In 2016, the Electoral Commission of Ghana experienced a website hack during the transmission of election results.³¹

Again, gold fraud in Ghana takes place when individuals involved in gold scams share counterfeit images and videos advertising or showcasing gold purportedly for sale. In certain instances, these representations later prove to be gold-plated tungsten.³² For example, in September 2020, a businessman lost One Million Dollars (\$1m) to a gold scam in Ghana.³³ Such a form of scam is most often successful because Ghana is believed to be endowed with gold and most victims believe the fraudsters to be gold dealers so far as they are from Ghana. For example, a report revealed that Ghana became the premier gold-producing country in Africa and sixth in the world with a production of 138.7 tons in 2020.³⁴

Additionally, in recent years, Ghana has unfortunately witnessed a surge in real estate scams and fraud. These deceitful activities entail misleading individuals into investing in properties that either do not exist or do not justify the amount paid, presenting a substantial risk to both potential buyers and sellers.³⁵ Similar to online gold fraud, this scheme involves perpetrators reaching out to victims, primarily Ghanaians residing abroad, offering assistance in constructing houses in Ghana.³⁶ An illustration of such a scenario surfaced in an online publication, *The Herald*, in November 2023. The incident involved a dispute over a three-bedroom apartment in Accra, owned by Imperial Homes Limited, a real estate

²⁵ Shaibu, "Cybercrime: The Ghanaian Perspective."

²⁶ Kofi Koranteng Adu and Emmanuel Adjei, "The Phenomenon of Data Loss and Cyber Security Issues in Ghana," *Foresight* 20, no. 2 (2018): 150–61.

²⁷ Bank of Ghana, "The 2019 Fraud Review Report," 2019, bog.gov.gh.

²⁸ Shaibu, "Cybercrime: The Ghanaian Perspective."

²⁹ Bank of Ghana, "The 2019 Fraud Review Report."

³⁰ Shaibu, "Cybercrime: The Ghanaian Perspective."

³¹ BBC News, *Ghana election commission website hit by cyber-attack-* (2016). Retrieved from: <https://www.bbc.com/news/world-africa-38247987>

³² Akuako, "The Sakawa Boys: A Critique of Policing of Cybercrime in Ghana."

³³ Ghana Web, "Gold Scams in Ghana - Mitigating the Risk of Fraud," 2020, Gold Scams in Ghana - Mitigating the risk of fraud (ghanaweb.com).

³⁴ Ghana Web, "Gold Scams in Ghana - Mitigating the Risk of Fraud."

³⁵ Boateng, R., "Real Estate Scams and Fraud," *The Business & Financial Times*, 2023, thebftonline.com.

³⁶ Akuako, "The Sakawa Boys: A Critique of Policing of Cybercrime in Ghana."

developer. This disagreement resulted in allegations of fraud, prompting Ernest Danso to file a complaint at the Airport Police Station. Danso claimed that he had paid \$270,000 as the apartment's purchase price. However, after residing in the property for three years, his ownership was challenged, leading to his forceful eviction and abandonment of his belongings. Court proceedings unveiled that the same property had been sold to another individual for \$1 million USD. The central issue revolved around certain officials at Imperial Homes Limited forging their superior's signature to sell the house without providing proper notice to the company.³⁷

Moreover, in the realm of cyberspace, online dating and romance scams manifest through the 'man-woman format' or 'gender role' as well as 'gender-swapping'.³⁸ This entails 'male switching' scammers posing as females on the internet by creating deceptive profiles featuring sensual images of women, often models, to entice men (particularly those from Western countries) into relationships with the ultimate aim of financial exploitation. Achieving success in these scams involves the adept use of skills and tactics in the art of deception to establish seemingly authentic connection.³⁹ Additionally, an online romance scam could take place when a perpetrator (Male or female) assumes a false online identity to establish trust and affection with a victim. Exploiting the illusion of a romantic or intimate connection, the scammer manipulates and steals from the victim, often by coercing them into sharing nude photos. Subsequently, these photos may be used to extort money, with threats of publication if the victim fails to comply with regards to the males, young men pose as females to entice other men, particularly sugar daddies, a practice commonly referred to as 'KKD'.⁴⁰ In a recent study by Abubakari (2023), the findings suggest that the sociocultural backgrounds of female scammers, when coupled with the inherent opportunities provided by the internet, significantly contribute to the emergence of women in online romance frauds in the Tamale region of Ghana.⁴¹ According to Business World Publishing, Ghana's Cyber Security Authority estimates that victims have suffered losses of 49.5 million Ghanaian cedi (\$4.5 million) due to identity theft schemes since the beginning of the year. In the same report, it was asserted that, in every slum in Accra, eight out of every ten youths are engaged in online romance scams.

THEORETICAL FRAMEWORK

In this study, Robert K. Merton's Strain Theory was utilized, chosen for its ability to offer a conceptual framework that elucidates how social inequality, generating strain, can potentially compel individuals to resort to cybercrime as a coping mechanism, with financial constraints serving as a mediating factor in this dynamic.

Merton developed the Structural Strain hypothesis as an extension of Emile Durkheim's Anomie hypothesis, which is rooted in the framework of structural functionalism.⁴² Durkheim's seminal works, *The Division of Labor and Suicide*, elucidated the emergence of anomie during periods of significant social transformation.⁴³ Robert K. Merton's strain theory, proposed in 1938, suggests that crime is a result of the strain or disconnect between culturally prescribed goals and the legitimate means available to achieve those goals. Merton argued that societies promote certain culturally approved goals, such as wealth and success, and individuals are expected to strive toward these goals. However, not everyone has equal access to the approved means (legitimate avenues) to achieve these goals.⁴⁴

In the context of this study, social inequality can be seen as a form of societal strain.⁴⁵ When certain groups face limited access to resources, opportunities, and legitimate means of achieving success, they may experience strain or frustration. The inability to attain socially prescribed goals through

³⁷ The Herald, "Imperial Homes Caught up in US\$270,000 Fraud Case," 2023, <https://theheraldghana.com/imperial-homes-limited-property-caught-up-in-us270000-fraud-case/>.

³⁸ J. Burrell, *Invisible Users: Youth in the Internet Cafés of Urban Ghana* (The MIT Press, 2012).

³⁹ Abdul-Razak Kuyini Alhassan and Abukari Ridwan, "Identity Expression—the Case of 'Sakawa' Boys in Ghana," *Human Arenas* 6, no. 2 (2023): 242–63.

⁴⁰ Shaibu, "Cybercrime: The Ghanaian Perspective"; Akuako, "The Sakawa Boys: A Critique of Policing of Cybercrime in Ghana."

⁴¹ Yushawu Abubakari and Mateusz Blaszczyk, "Politicization of Economic Cybercrime: Perceptions Among Ghanaian Facebook Users," *Deviant Behavior* 45, no. 4 (2024): 483–502.

⁴² Merton, R. K. (2017). *Social structure and anomie*. In *Gangs* (pp. 3-13). Routledge

⁴³ Huma Akhtar Malik and Fizana Ashraf Malik, "Emile Durkheim Contributions to Sociology," *Sociology* 6, no. 2 (2022): 7–10.

⁴⁴ R. K. Merton, "Social Structure and Anomie," in *Gangs*, ed. Jacqueline Schneider (London: Routledge, 2017), 3–13.

⁴⁵ Carter Hay and Katherine Ray, "General Strain Theory and Cybercrime," *The Palgrave Handbook of International Cybercrime and Cyberdeviance*, 2020, 583–600.

conventional means can lead individuals to engage in alternative and, at times, deviant paths, including cybercrime. Also, financial constraints can exacerbate the strain experienced by individuals facing social inequality. Limited financial resources can intensify the perceived gap between societal expectations and the means available to achieve success. In such circumstances, individuals might resort to cybercrime as a way to address financial constraints and fulfill societal expectations, even if through illegitimate means.⁴⁶

This focused on four of Merton's modes of individual adaptation to this strain. The first mode is conformity. This represents the mode of adaptation where individuals both accept the cultural goals endorsed by society and adhere to the prescribed means of achieving them. Thus, individuals pursue success and wealth through socially approved channels. Merton's theory recognizes conformity as the ideal adaptation, emphasizing the alignment of personal aspirations with societal expectations.⁴⁷ In the realm of cybercrime, individuals exhibiting conformity may align with culturally endorsed goals of financial success through legal means, such as traditional employment or entrepreneurship.⁴⁸ Research suggests that financial strain can influence cyber-crime engagement, with some individuals choosing conformity as a response. Conformity, in this instance, aligns with traditional paths despite financial limitations.⁴⁹

The second mode is innovation, which occurs when individuals accept cultural goals but reject or modify the prescribed means, leading them to seek unconventional or deviant methods to achieve success. This adaptation highlights the creativity and resourcefulness of individuals who, facing limited opportunities, find alternative paths to realize their ambitions.⁵⁰ However, society often labels these innovations as criminal, exemplified by white-collar crimes or entrepreneurial endeavors operating in legal grey areas. In this context, financial constraints as a result of social inequality may drive individuals to innovate, seeking alternative means to achieve success. Studies like Holt and Bossler's exploration of strain theory and computer crime found that individuals experiencing financial difficulties may turn to innovative criminal activities, including cybercrime, as an alternative means to attain success.⁵¹

The third mode is ritualism, which describes individuals who abandon the pursuit of cultural goals but rigidly adhere to the prescribed means. These individuals exhibit a ritualistic, rule-bound lifestyle, suggesting a form of adherence to societal expectations even in the absence of goal attainment.⁵² This adaptation may manifest in individuals who, disillusioned by their inability to achieve societal success, find solace in maintaining routine and conformity to societal norms. In this context, individuals facing financial constraints may adopt a ritualistic adherence to prescribed means while abandoning the pursuit of societal success. This withdrawal from success-seeking behavior aligns with the concept of ritualism within Merton's framework. For instance, a study by Wilson & Seigfried-Spellar indicated that individuals who ritualistically engage in legal online activities, such as routine online jobs, may withdraw from traditional societal expectations while still adhering to prescribed means in the cyber domain.⁵³

The final mode is rebellion-adaptation, where individuals reject both cultural goals and means, aspiring to replace them with alternative goals and means that often involve social or political change. This form of adaptation reflects a conscious rejection of the existing societal structure and a desire to establish a new order or value system.⁵⁴ In the study's context individuals experiencing financial constraints due to social inequality may adopt a rebellious stance against the perceived injustices embedded in the societal system. In the realm of cybercrime, this rebellion could manifest as hacktivism—a form of online activism that employs hacking or cyber-attacks to advance a social or political agenda. Thus, rebellion in this context goes beyond mere criminality and becomes a form of digital activism, wherein individuals leverage their technical skills to challenge societal norms and advocate for change.

⁴⁶ Hay and Ray, "General Strain Theory and Cybercrime."

⁴⁷ R. K. Merton, *Social Theory and Social Structure* (Simon and Schuster, 1968).

⁴⁸ Hay and Ray, "General Strain Theory and Cybercrime."

⁴⁹ Nigel C Wilson and Kathryn C Seigfried-Spellar, "Cybervictimization, Social, and Financial Strains Influence Internet Trolling Behaviors: A General Strain Theory Perspective," *Social Science Computer Review* 41, no. 3 (2023): 967–82.

⁵⁰ Merton, "Social Structure and Anomie."

⁵¹ Holt and Bossler, "An Assessment of the Current State of Cybercrime Scholarship."

⁵² Merton, *Social Theory and Social Structure*.

⁵³ Wilson and Seigfried-Spellar, "Cybervictimization, Social, and Financial Strains Influence Internet Trolling Behaviors: A General Strain Theory Perspective."

⁵⁴ Merton, "Social Structure and Anomie."

For instance, the hacking incidents involving Ghanaian government websites in early 2015 exemplify attacks directed at government technology infrastructure.⁵⁵ All these were actions towards the state as a result of the unfair allocation of national resources and state power.

Additionally, this study is framed within the economic deprivation theory. This theory is often associated with the sociologist, William Julius Wilson, who emerged prominently in the 1980s. Economic deprivation theory highlights how economic inequality and limited access to resources drive crime.⁵⁶ That is, the frustration and relative deprivation experienced by individuals in disadvantaged communities often lead to increased criminal behavior as a response to perceived social and economic injustices.⁵⁷

In the context of this study, the economic deprivation theory argues that social inequality creates an environment where certain groups have significantly fewer opportunities to achieve economic stability through legitimate means. This lack of opportunity can result in feelings of frustration and injustice. In the digital age, the internet provides a new avenue for these individuals to address their economic grievances. Cybercrime, which can include activities such as hacking, online fraud, and identity theft, offers a seemingly accessible way to achieve financial gain. Furthermore, financial constraints further exacerbate this issue. Individuals struggling with poverty may perceive cybercrime as a viable alternative to improve their economic situation. The anonymity and relative safety of committing crimes online can make cybercrime an attractive option compared to traditional forms of crime, which might carry higher risks of detection and punishment.⁵⁸

CONCEPTUAL FRAMEWORK

A conceptual framework can be visualized as an interconnected network of concepts forming a cohesive understanding of a phenomenon or phenomena, akin to a structured plane.⁵⁹ It goes beyond being a mere assortment of concepts, instead, it is a construct in which each concept contributes significantly.⁶⁰ Conceptual framework analysis offers advantages such as flexibility, adaptability, and a focus on comprehension over prediction.⁶¹ The subsequent presentation of the study's conceptual framework is informed by both theoretical insights and empirical evidence.

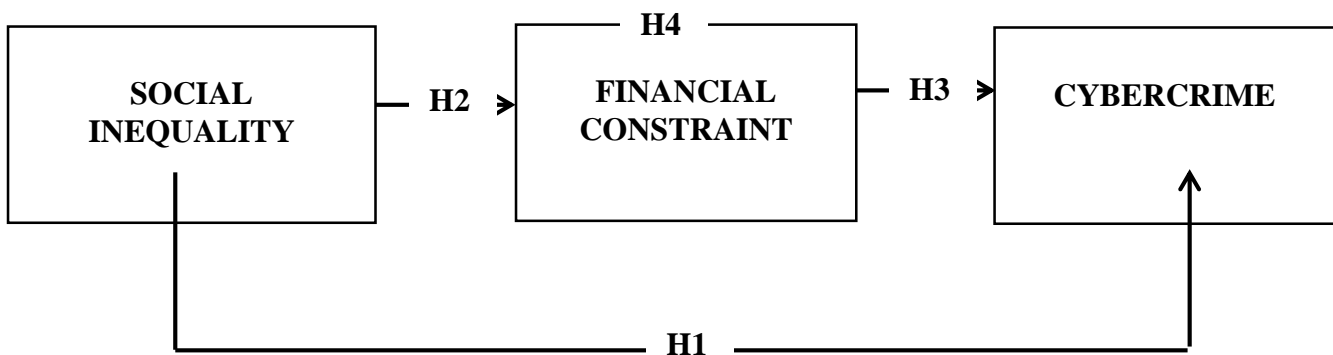


Figure 1: Conceptual Framework depicting the relationship between social inequality, financial constraint and cybercrime.
Source: (Researchers' construct 2023)

⁵⁵ Shaibu, "Cybercrime: The Ghanaian Perspective."

⁵⁶ William W Hansen et al., "Poverty and 'Economic Deprivation Theory' Street Children, Qur'anic Schools/Almajirai and the Dispossessed as a Source of Recruitment for Boko Haram and Other Religious, Political and Criminal Groups in Northern Nigeria," *Perspectives on Terrorism* 10, no. 5 (2016): 83–95.

⁵⁷ Robert Agnew, "Strain, Economic Status, and Crime," *The Handbook of Criminological Theory*, 2015, 209–29.

⁵⁸ Agnew, "Strain, Economic Status, and Crime."

⁵⁹ E. E. Shikalepo, "Defining a Conceptual Framework in Educational Research," 2020,

<https://www.researchgate.net/publication/342010918>.

⁶⁰ Yosef Jabareen, "Building a Conceptual Framework: Philosophy, Definitions, and Procedure," *International Journal of Qualitative Methods* 8, no. 4 (2009): 49–62; Shikalepo, "Defining a Conceptual Framework in Educational Research."

⁶¹ Jabareen, "Building a Conceptual Framework: Philosophy, Definitions, and Procedure."

The conceptual framework above is a diagrammatic representation of the relationship between social inequality, financial constraint, and cybercrime. In the diagram, H1 represents hypothesis 1, and H2, H3, and H4 represent hypotheses 2, 3, and 4 respectively.

Despite a substantial body of research establishing a positive relationship between social inequality and cybercrime,⁶² as well as between social inequality and financial constraints, and financial constraints and cybercrime;⁶³ there is a notable gap in examining the mediating role of financial constraints in the relationship between social inequality and cybercrime. Thus, empirical investigations that specifically test this mediating effect remain sparse. As such, this study aims to empirically examine the mediating role of financial constraints in the relationship between social inequality and cybercrime in Ghana. By integrating insights from strain theory, which posits that financial constraints can intensify the strain resulting from social inequality, this research provides a more nuanced understanding of how social inequality translates into cybercrime through the intermediary of financial pressures.⁶⁴

METHODOLOGY

This study adopted a quantitative survey research design because of its systematic and organized method of gathering and analyzing numerical data to validate hypotheses, investigate relationships, and draw statistical conclusions.⁶⁵ Quantitative research uses statistical methods for data analysis and interpretation.⁶⁶ To gather quantitative data, the research used the probability sampling design known as the simple random sample approach. This sampling technique was used to ensure that every young individual in Agona Swedru has an equal chance of being included in the research, thus improving the representativeness and generalizability of the findings.

The chosen study area is Agona Swedru, the capital of the Agona West Municipal Assembly with an overall population of close to 160,000 with 85,000 females and 75,000 males. The town is located North-East part of the central region, directly North of Winneba about 30km from the Accra – Cape Coast road.⁶⁷ The choice of this case is motivated by the prevalence of cybercrime activities in the community. As stated by Ninson, Agona Swedru is recognized as the central hub of cybercrime, particularly the practice known as "sakawa," in Ghana.⁶⁸ For example, research conducted by Akuako indicated that around 70% of young individuals in Agona Swedru are involved in cybercrime, specifically "Sakawa" or scamming, or aspire to participate in these illicit activities.⁶⁹ Therefore, understanding the impact of social inequality on cybercrime, with a focus on how financial constraints mediate this relationship is crucial to devise effective strategies to combat cybercrime in Ghana, specifically in Agona Swedru.

The selection of the optimum sample size followed the Yamane calculation, which is based on the total number of youth in Agona Swedru (12284).⁷⁰ Therefore, the survey utilized 397 young individuals in Agona Swedru. The study employed structured questionnaires as its primary data collection method, featuring closed-ended questions using a five-point Likert scale (ranging from Strongly Agree to Strongly Disagree) for responses. Respondents were randomly selected and given the questionnaire in internet cafes, returning it upon completion.

In this study social inequality was measured as the independent variable; financial constraint was also measured as the mediating variable and cybercrime as the dependent variable. To measure social inequality, the study used indicators such as income disparity, educational attainment, and access to social and political resources. The survey questions were designed to capture participants' perceptions of their

⁶² Hay and Ray, "General Strain Theory and Cybercrime"; Jiyong Park et al., "The Economics of Cybercrime: The Role of Broadband and Socioeconomic Status," *ACM Transactions on Management Information Systems (TMIS)* 10, no. 4 (2019): 1–23.

⁶³ Tope Shola Akinyetun, "Poverty, Cybercrime and National Security in Nigeria," *Journal of Contemporary Sociological Issues* 1, no. 2 (2021): 86–109; Shaibu, "Cybercrime: The Ghanaian Perspective."

⁶⁴ Merton, "Social Structure and Anomie."

⁶⁵ Alan Bryman, *Social Research Methods* (Oxford university press, 2016).

⁶⁶ Bryman, *Social Research Methods*.

⁶⁷ Ghana Statistical Service, "The 2021 Population and Housing Census of Ghana General Report. Vol 3B," 2021, [https://census2021.statsghana.gov.gh/gssmain/fileUpload/reportthemesub/2021 PHC General Report Vol 3B_Age and Sex Profile_181121b.pdf](https://census2021.statsghana.gov.gh/gssmain/fileUpload/reportthemesub/2021%20PHC%20General%20Report%20Vol%203B_Age%20and%20Sex%20Profile_181121b.pdf).

⁶⁸ Comfort Ninson, "Internet Fraud and Its Socio-Economic Implications for Peace and Development of Agona Swedru (Ghana)" (University of Cape Coast, 2017).

⁶⁹ Akuako, "The Sakawa Boys: A Critique of Policing of Cybercrime in Ghana."

⁷⁰ Taro Yamane, *Statistics an Introductory Analysis*, 2nd ed. (New York: Harper and Row, 1967).

economic status compared to others in their community, the level of education they have achieved and their access to opportunities and privileges. These measures reflect an emphasis on the structural aspects of inequality, as well as Wilkinson and Pickett's focus on the distribution of societal benefits and burdens and Collins's view on differential access to valued resources and opportunities.⁷¹ Also, financial constraints were also assessed using items that examine barriers to accessing financial services, literacy, and resources. Participants were asked about their ability to obtain credit, their understanding of financial products, and their overall financial health. The measures included questions about access to banking, credit availability, and financial planning capabilities, aligning with Lusardi and Tufano's focus on financial literacy and service access, Rajan's insights into external funding limitations, and Behrman and colleagues broader view of financial constraints affecting life-cycle decisions.⁷² Moreover, the study measured cybercrime involvement by querying participants about their engagement in various types of cybercriminal activities. These activities included unauthorized access to computers, use of computers to commit fraud, and involvement in cyber-attacks. The questions were designed to capture the breadth of cybercrime as defined by Holt and Bossler, encompassing both crimes where technology is the target and those where it is the tool.⁷³ Additionally, the measures considered Shaibu's definitions, assessing crimes directed at technology infrastructure and those facilitated by computer networks or devices, including the storage of illegal data.⁷⁴

Analyses

The study aimed to analyze the effect of social inequality on cybercrime and the mediation role of financial constraint in this relationship. To test the hypotheses and explore the mediating role of financial constraints, the study used the Andrew F. Hayes PROCESS macro for SPSS. This sophisticated statistical tool is designed specifically for mediation and moderation analyses.⁷⁵ The choice of this method was driven by the need for a robust analysis that could uncover the nuanced relationships between social inequality, financial constraints, and cybercrime. The Hayes PROCESS tool facilitates the estimation of direct and indirect effects, offering a comprehensive examination of the proposed mediation model.⁷⁶ This table below depicts a multi-correlational analysis showing the relationship between all the variables employed in the study. To test the relationship between the variables, the Pearson correlation test was employed.

PRESENTATION OF FINDINGS

Multicollinearity Result

Table 1 depicts a multi-correlational analysis showing the relationship between all the variables employed in the study. To test the relationship between the variables, the Pearson correlation test was employed. From Table 1, gender has a negative correlation with Age (-0.214) at a significant level of 0.01. This suggests that there might be a relationship between gender and age, where differences in age distribution could be influenced by gender. Additionally, Marital Status has a positive correlation with Age (0.458) and Education Qualification (0.177) at significant levels of 0.01. This indicates that older individuals and those with higher education levels are more likely to be married. Moreover, Education Qualification has positive correlations with Age (0.266) and Marital Status (0.177) at significant levels of 0.01. This implies that older individuals and those who are married tend to have higher education qualifications. Social Inequality shows a negative correlation with Gender (-0.158) at a significant level of 0.01. This suggests that there could be gender-related differences in social inequality, and women could experience higher levels of social inequality compared to men.

⁷¹ Piketty, "Capital and Ideology: A Global Perspective on Inequality Regimes"; Richard Wilkinson and Kate Pickett, *The Inner Level: How More Equal Societies Reduce Stress, Restore Sanity and Improve Everyone's Well-Being* (Penguin, 2019); P. H. Collins, *Intersectionality as Critical Social Theory* (New Zealand: Duke University Press., 2019).

⁷² Lusardi and Tufano, "Debt Literacy, Financial Experiences, and Overindebtedness"; Raghuram G Rajan, "Has Finance Made the World Riskier?," *European Financial Management* 12, no. 4 (2006): 499–533; Behrman et al., "How Financial Literacy Affects Household Wealth Accumulation."

⁷³ Holt and Bossler, "An Assessment of the Current State of Cybercrime Scholarship."

⁷⁴ Shaibu, "Cybercrime: The Ghanaian Perspective."

⁷⁵ Andrew F Hayes, "The PROCESS Macro for SPSS and SAS," 2016.

⁷⁶ Hayes, "The PROCESS Macro for SPSS and SAS."

Additionally, Financial Constraints do not show significant correlations with Age, Gender, Marital Status, or Education Qualification. However, Financial Constraints have a positive correlation with Social Inequality (0.312) at a significant level of 0.01. This indicates that individuals experiencing higher levels of social inequality are more likely to face financial constraints. Also, cybercrime shows positive correlations with Age (0.244), Marital Status (0.100), Social Inequality (0.388), and Financial Constraints (0.231) at significant levels of 0.01 and 0.05, respectively. This suggests that older individuals, those who are married, and those experiencing higher levels of social inequality and financial constraints are more likely to encounter cybercrime.

Table 1: Multicollinearity analysis

Variables	1	2	3	4	5	6	7
1 Age	1						
2 Gender	-.214**	1					
3 Marital Status	.458**	.076	1				
4 Education qualification	.266**	.068	.177**	1			
5 Social Inequality	.137**	-.158**	.027	.037	1		
6 Financial constraints	.053	-.079	-.033	-.082	.312**	1	
7 Cybercrime	.244**	-.192**	.100*	-.059	.388**	.231**	1

***Correlation is significant at the 0.01 level (2-tailed).*
**Correlation is significant at the 0.05 level (2-tailed).*

Mediation Analysis Results

From Table 1 above the effect of social inequality on cybercrime is significant ($p < 0.01$), with a positive coefficient of 0.5309. The confidence interval does not cross zero, indicating a robust positive relationship between social inequality and cybercrime. This suggests that higher levels of social inequality are associated with higher levels of cybercrime. Therefore, H1 is accepted, as there is a positive significant relationship between social inequality and cybercrime. Also, the effect of social inequality on financial constraints is also significant ($p < 0.01$), with a positive coefficient of 0.3727. The confidence interval confirms the significance of this relationship, indicating that higher social inequality is linked to greater financial constraints. Therefore, H2 is accepted, as there is a positive significant relationship between social inequality and financial constraint. Additionally, the effect of financial constraints on cybercrime is significant ($p < 0.05$), with a positive coefficient of 0.1535. The confidence interval shows that this effect is statistically significant, suggesting that greater financial constraints are associated with higher levels of cybercrime. Therefore, H3 is accepted, because there is a positive significant relationship between financial constraint and cybercrime. Moreover, the indirect effect of social inequality on cybercrime through financial constraints is significant ($p < 0.05$), with an effect size of 0.0378. This indicates that financial constraints partially mediate the relationship between social inequality and cybercrime. The confidence interval supports the significance of this mediation effect, showing that part of the impact of social inequality on cybercrime operates through financial constraints. Therefore, H4 is accepted, thus there is a positive significant mediating role of financial constraint in the relationship between social inequality and cybercrime.

Table 2: Result of direct path and mediation analysis

EFFECT TYPE	PATH	EFFECT	SE	P	LLCI	ULCI
DIRECT	SI → CC	.5309	.0733	.0000	.3868	.6750
	SI → FC	.3727	.0521	.0000	.2604	.4881
	FC → CC	.1535	.0613	.0126	.0330	.2739

INDIRECT	SI → FC → CC	.0378	.0200		.0241	.2516
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NB: *SI*=Social Inequality, *FC*=Financial Constraint and *CC*= Cybercrime.

DISCUSSION

The effect of social inequality on cybercrime in Agona Swedru

The aim of the first objective of this study was to determine the effect of social inequality on cybercrime and the study revealed a positive and significant relationship between social inequality and cybercrime indicating that higher levels of social inequality are associated with increased levels of cybercrime. This finding is consistent with both Merton's strain theory and social deprivation theory which posits that societal strain arises when there is a disjunction between culturally prescribed goals and the means available to achieve them.⁷⁷ Social inequality exacerbates this strain by creating significant barriers for certain groups to access resources and opportunities, thereby increasing the likelihood of deviant behavior, including cybercrime. Empirically, this relationship is echoed in previous studies, which found that economic inequality correlates with higher rates of cybercrime.⁷⁸ Similarly, Akinyetun highlights that individuals facing economic hardships due to unequal resource distribution are more prone to engaging in cybercriminal activities.⁷⁹ Eboibi also emphasizes that persistent social inequalities in Ghana contribute to the high incidence of cybercrime despite national efforts to combat it.⁸⁰ These studies collectively reinforce the idea that social inequality fuels the strain that drives individuals towards cybercrime as an alternative means of achieving societal goals.

The relationship between social inequality and financial constraint

Additionally, the aim of the second objective was to determine the relationship between social inequality and financial constraint, and from the study's results, there is a significant positive relationship between social inequality and financial constraints; suggesting that greater social inequality is linked to higher financial constraints. This relationship is a critical component of Merton's framework, as financial constraints represent a tangible manifestation of the societal strain caused by inequality. Individuals from marginalized groups often face significant financial barriers that limit their ability to achieve culturally endorsed goals through legitimate means.⁸¹ Empirical evidence supports this connection. Akinyetun and Abubakari both discussed how social inequalities drive economic challenges and financial limitations and found that the financial strain experienced by individuals is not merely a personal issue but a reflection of broader structural inequalities that hinder economic mobility and access to legitimate opportunities.⁸²

The relationship between financial constraint and cybercrime

Furthermore, the third objective of this study aimed to determine the relationship between financial constraint and cybercrime and the study's result found a significant positive relationship between financial constraints and cybercrime, indicating that higher financial constraints are associated with increased levels of cybercrime. This finding aligns with Merton's mode of adaptation known as innovation, where individuals accept societal goals but resort to unconventional or illegitimate means to achieve them due to the lack of legitimate opportunities.⁸³ Financial constraints heighten the strain, pushing individuals to seek alternative methods, including cybercrime, to meet their financial needs. Similarly, research by Holt and Bossler, and Akinyetun provided empirical support for this relationship. They argued that financial difficulties compel individuals to innovate in criminal ways, such as engaging in cybercrime, to bridge the gap between their financial realities and societal expectations. This behavior is a direct response to the

⁷⁷ Merton, "Social Structure and Anomie"; Agnew, "Strain, Economic Status, and Crime."

⁷⁸ Park et al., "The Economics of Cybercrime: The Role of Broadband and Socioeconomic Status."

⁷⁹ Akinyetun, "Poverty, Cybercrime and National Security in Nigeria."

⁸⁰ Felix E Eboibi, "Concerns of Cyber Criminality in South Africa, Ghana, Ethiopia and Nigeria: Rethinking Cybercrime Policy Implementation and Institutional Accountability," *Commonwealth Law Bulletin* 46, no. 1 (2020): 78–109.

⁸¹ Hay and Ray, "General Strain Theory and Cybercrime."

⁸² Akinyetun, "Poverty, Cybercrime and National Security in Nigeria"; Yushawu Abubakari, "The Espouse of Women in the Online Romance Fraud World: Role of Sociocultural Experiences and Digital Technologies," *Deviant Behavior* 45, no. 5 (2024): 708–35.

⁸³ Merton, "Social Structure and Anomie."

strain imposed by financial constraints, showcasing the adaptability and resourcefulness of individuals under pressure.⁸⁴

The role of financial constraint in the relationship between social inequality and cybercrime

Moreover, the study intended to examine the mediating effect or role of financial constraint in the relationship between social inequality and cybercrime and the study's findings revealed a significant positive effect of social inequality on cybercrime through financial constraint, indicating that financial constraints partially mediate the relationship between social inequality and cybercrime. This mediation effect highlights the pathway through which social inequality translates into increased cybercrime, emphasizing the role of financial constraints as a critical intermediary. Merton's Strain Theory provides a theoretical basis for understanding this mediation. The strain resulting from social inequality manifests itself as financial constraints, which in turn drive individuals towards deviant behaviors such as cybercrime.⁸⁵ Similarly, this finding aligns with Akinyetun and Abubakari, who both discussed how social inequality drives economic challenges and financial limitations and asserted that social inequality drives individuals towards cybercrime, underscoring the role of financial constraints as a mediator between social inequality and deviant behavior.⁸⁶ This pathway underscores the importance of addressing financial constraints as a means of mitigating the impact of social inequality on cybercrime.

POLICY IMPLICATIONS

Based on the study's findings, it is clear that social inequality and financial constraints significantly contribute to the incidence of cybercrime. Addressing these underlying issues requires targeted and practical interventions.

Policy interventions can draw on these findings to formulate effective strategies. Firstly, addressing social inequality through targeted economic policies is paramount. Initiatives that promote equitable access to education, employment opportunities, and financial resources can alleviate the financial strain that pushes individuals towards cybercrime. By reducing the disparity in economic resources, such policies aim to diminish the societal strain that leads to criminal behavior. Secondly, policies should focus on enhancing cybersecurity measures while simultaneously addressing the underlying economic motivations for cybercrime. Investments in cybersecurity infrastructure and law enforcement capabilities are crucial. However, complementing these efforts with programs aimed at enhancing digital literacy, providing vocational training, and fostering legitimate digital entrepreneurship can offer alternative pathways for individuals currently at risk of engaging in cybercrime due to financial constraints.

Thirdly, regulatory frameworks need to be adaptive and responsive to the evolving nature of cyber threats. Policies that encourage cooperation between governmental agencies, private sectors, and international bodies can strengthen cybersecurity defenses while also addressing the socio-economic factors contributing to cybercrime. This holistic approach recognizes that effective cybercrime prevention requires not only robust technical measures but also comprehensive social and economic interventions.

CONCLUSION

This study effectively demonstrated significant relationships between social inequality, financial constraints, and cybercrime. The findings indicate that higher levels of social inequality are associated with increased cybercrime, highlighting the barriers marginalized groups face in accessing resources and opportunities. Additionally, social inequality is linked to greater financial constraints, which in turn drive individuals towards cybercrime as a means of achieving societal goals. Financial constraints were found to partially mediate the relationship between social inequality and cybercrime, highlighting the need to address these financial barriers to mitigate the impact of social inequality on cybercrime. These insights

⁸⁴ Holt and Bossler, "An Assessment of the Current State of Cybercrime Scholarship"; Akinyetun, "Poverty, Cybercrime and National Security in Nigeria."

⁸⁵ Malik and Malik, "Emile Durkheim Contributions to Sociology."

⁸⁶ Akinyetun, "Poverty, Cybercrime and National Security in Nigeria"; Abubakari, "The Espouse of Women in the Online Romance Fraud World: Role of Sociocultural Experiences and Digital Technologies."

underscore the importance of comprehensive strategies aimed at reducing social and economic disparities to curb cybercrime and promote societal well-being.

LIMITATIONS AND FUTURE RESEARCH

The study provided a comprehensive understanding of the relationship between social inequality and cybercrime, however, the study primarily focused on social inequality and financial constraints as key factors influencing cybercrime. However, it did not account for other socioeconomic variables, such as educational attainment, employment status or access to social services, which could also significantly impact cybercrime rates. Future research should adopt a more holistic approach by including a broader range of socioeconomic indicators to provide a more comprehensive understanding of the factors that contribute to cybercrime.

Additionally, the study's findings are largely based on data from specific geographical regions, particularly Ghana, and may not be universally applicable. Cultural and regional differences can affect the nature and extent of social inequality and its relationship with cybercrime. Future research should aim to include diverse geographical and cultural contexts to test the generalizability of these findings and understand how local conditions influence the dynamics of social inequality and cybercrime.

Additionally, the study presents a cross-sectional analysis that captures data at a single point in time. This approach limits the ability to observe changes and trends over time, which are crucial to understanding the evolving nature of social inequality and cybercrime. Longitudinal studies are needed to track these variables over extended periods, providing insights into how changes in social inequality and financial constraints impact cybercrime rates over time.

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ABOUT AUTHORS

Rev. Fr. Dr. Paul Kwasi Kumah is an ordained Priest of the Catholic Archdiocese of Kumasi, Lecturer in sociology with research interest in crime, education, and religion. He holds a PhD in Sociology from the KNUST, MPhil in Sociology from the KNUST, M.Ed. in Educational Administration from the University of Cape Coast, PGDE in Education from the University of Cape Coast, Bachelor of Arts in Sociology and the study of Religions from the University of Ghana, Legon, Bachelor of Sacred Theology from the Pontifical Urbaniana University in Rome. Rev.Fr. Dr. Kumah has Certificates in Criminology from the University of Queensland, Australia, Philosophy from the St. Paul's Major Seminary in Accra and Sacred Theology from the St. Peter's Major Seminary in Cape Coast, Ghana. Research interests include Sociology of Education, Criminology and criminal Justice and Religion.

Dr. Hubert received his B/A in Sociology and Study of Religion from the University of Ghana, Legon in 2004 and moved on to attain his MPhil in Sociology of Education at the University of Cape Coast, Ghana in 2011. He later had his PhD in Sociology at the University of Auckland, New Zealand in 2018. His other qualifications are Postgraduate Diploma in Education, University of Cape Coast (2004), and Postgraduate Diploma in Organizational Development, University of Cape Coast (2014). His reseaech interest includes education, Gender and criminology.

Mr. Charles Obeng is currently a Teaching and Research Assistant in the Department of Sociology and Social Work at Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana. He holds a Bachelor of Arts in Sociology (KNUST) with first-class honors. He is a multi-disciplinary trained researcher whose works extend into various areas of sociology and health. His research interests include education, public health, criminology, business and politics. His current studies focus on examining the impact of health information technology on patients care quality and efficiency in public hospitals in Ghana, as well as enhancing students' interest and academic performance through innovative teaching methods such as discussion and multimedia.

Mr. Felix Awuah Obeng Senior is an emerging Scholar who holds an Honours degree in Sociology from Kwame Nkrumah University of Science and Technology (KNUST), Ghana, where he is currently pursuing his MPhil in Sociology. His research focuses on three key areas: Crime and Deviance, Sociology of Food and Nutrition, examining cultural practices and food security; and Indigenous Knowledge and Practices. Through his involvement in multiple research projects, he contributes to both academic discourse and social development initiatives.