



**Mixed
Migration
Centre**

A Sharper Lens on Vulnerability (North Africa)

A statistical analysis of the determinants of vulnerability to protection incidents among refugees and migrants in Libya

MMC Research Report, November 2020



Acknowledgements

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About this report

In recent years the concept of migrant vulnerability has been increasingly used as a lens for analysis and an operational category through which to pursue protection, assistance and the promotion of rights for all people on the move, regardless of their legal status. In particular, the International Organization for Migration (IOM) and the Office of the High Commissioner for Human Rights (OHCHR) have advanced this thinking through separate conceptual frameworks and guidelines.

Based on a dataset of more than 15,000 interviews with people on the move in West and North Africa between 2017 and 2019, the Mixed Migration Centre has conducted two new studies focusing on West Africa and Libya respectively. The studies draw upon different conceptualizations of vulnerability and use advanced statistical analysis on the determinants of vulnerability, to throw these complex relationships into sharper focus.

The following report covers Libya, the West Africa report is available here: <http://www.mixedmigration.org/resource/a-sharper-lens-on-vulnerability-west-africa/>

The information and views set out in this report are those of the author and the Mixed Migration Centre and do not necessarily reflect the official opinion of the Danish Refugee Council or any of the donors supporting the work of MMC or this report. Responsibility for the content of this report lies entirely with the MMC.

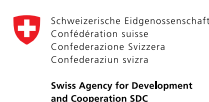
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About MMC

The Mixed Migration Centre (MMC) is a global network consisting of seven regional hubs (Asia, East Africa & Yemen, Europe, Middle East, North Africa, West Africa and Latin America & Caribbean) and a central unit in Geneva. The MMC is a leading source of independent and high-quality data, research, analysis and expertise on mixed migration. The MMC aims to increase understanding of mixed migration, to positively impact global and regional migration policies, to inform evidence-based protection responses for people on the move and to stimulate forward thinking in public and policy debates on mixed migration. The MMC's overarching focus is on human rights and protection for all people on the move.

The MMC is part of, and governed by, the Danish Refugee Council (DRC). While its institutional link to DRC ensures MMC's work is grounded in operational reality, it acts as an independent source of data, research, analysis and policy development on mixed migration for policy makers, practitioners, journalists, and the broader humanitarian sector. The position of the MMC does not necessarily reflect the position of DRC.

For more information on MMC visit our website: www.mixedmigration.org



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Acronyms and abbreviations

4Mi	Mixed Migration Monitoring Mechanism initiative
DRC	Danish Refugee Council
GNA	Government of National Accord
IOM	International Organization for Migration
LCG	Libyan Coast Guard
MMC	Mixed Migration Centre
OHCHR	Office of the High Commissioner for Human Rights
OLS	Ordinary least squares
UNHCR	UN Refugee Agency
UNSMIL	United Nations Support Mission in Libya

A note on terminology

This report uses statistical terms that may be unfamiliar to the general reader. For ease of comprehension and as a handy reference, these are explained below.

A **variable** is a category with more than one value. “Age” is a variable, for example, because not all participants in this study have the same age. When discussing the effect one class of variable has on another, the first class are called **independent variables** and the second **dependent variables**. The distinction between the two is not intrinsic; it depends on the chosen focus of study. For example, an investigation of road deaths might select “vehicle speed” as an independent variable and “accident rate” as a dependent variable and explore the correlations between them. A third class of variable, those that might also influence a dependent variable, but which are of secondary interest to the analysis, are known as **control variables**. The potential influence of such **confounding factors** needs to be eliminated (or controlled for) to minimise bias and more accurately assess the effect of the main independent variables of interest. By controlling for the influence of, for example, “vehicle type” and “weather conditions”, we can better isolate the effect of our specific variable of interest, which is “vehicle speed”, on the accident rate.

This report’s dependent variables consist of different types of **protection incident**, that is, an instance of abuse or exploitation that befell a refugee or migrant during the course of their journey up to the point of data collection (or, in the case of death, incidents that a refugee or migrant “witnessed”, and in the case of sexual abuse, that they “witnessed or experienced”).

The variables explored in this report (and explained in detail in subsequent sections) can be summarized as follows:

Independent variables

Nationality
Religion
Gender
Age
Education level
Use of smugglers
Previous abuses
Funding method of the journey

Dependent variables

Death
Extortion
Kidnapping/detention
Physical abuse
Robbery
Sexual assault/harassment

Control variables

Nationality
Religion
Gender
Age
Education level
Employment
Rural/urban home location
Journey length
Interview location

The report analyses how **likely** protection incidents are in the presence of specific independent variables. While in general usage the word “likely” tends to relate to *future* expectations, in this report it is frequently used as a shorthand to express statistical probability in an existing dataset.

Descriptive statistics are figures that *summarize* variables. The average age of participants, and the proportion of participants who experienced physical abuse, for example, are descriptive statistics. As their name indicates, descriptive statistics simply *describe* the data. They do not allow us to make inferences or assess relationships between variables.

By contrast, **regression analysis** is a statistical method that allows for the exploration of relationships between variables and how these influence each other. For example, we might find that the higher the vehicle speed is, the greater the accident rate. Based on a mathematical model, we can then predict the accident rate given a specific vehicle speed. For example, if you know that each increase of 10km/h is associated with an increase of one accident per driver on average, and that this relationship is linear, you might predict that an increase of 20km/h will result in an increase of two accidents per driver on average. This is why in regression analysis, independent variables are called *predictors*—in the case above, vehicle speed can be used to predict accident rates.

Three types of regression analysis are used in this report. In most analyses, we use (binomial) **logistic regression**. Logistic regression is used to predict a *categorical* outcome. In our case, we investigate the influence of independent variables on *whether or not* participants have experienced a given protection incident. For example, does being a woman lead to a higher likelihood of experiencing sexual abuse than being a man? We also use (multiple) **linear regression**. In linear regression, we do not just assess whether participants will experience protection incidents, but *how many* protection incidents. For example, given the age of a participant, how many protection incidents will they likely experience? Furthermore, we use **Poisson regression** to further triangulate the findings from the logistic and linear regression modelling given the nature of the data on protection incidents (i.e. non-negative integers where large counts are rare). In Poisson regression, we not only assess how many protection incidents a respondent has been exposed to, but also *how many protection incidents over a specific exposure period*.

Executive summary

Refugees and migrants from a wide range of countries and demographic groups travel to and through Libya for a multitude of reasons. Some are fleeing conflict or political oppression in their countries of origin, some are seeking better livelihoods for themselves through economic or educational opportunities abroad, some simply want to earn money and remit it to their families in their home countries, and some experience some combination of these factors. The journeys of people engaged in mixed migration to and through Libya tend to be long and perilous; over the past few years, news outlets, NGOs, and human rights watchdogs have extensively documented the dangers that refugees and migrants face along the routes to and through Libya. These include unlawful killings, torture and other ill-treatment, arbitrary detention and unlawful deprivation of liberty (kidnapping), rape and other forms of sexual and gender-based violence, slavery and forced labour, and extortion and exploitation by both state and non-state actors. Well over a third of the thousands of refugees and migrants surveyed in Libya by the Mixed Migration Centre (MMC) since 2017 reported experiencing one or more types of protection incident in that country.

An important gap in the existing research on abuses and protection violations in Libya is an understanding of why certain people on the move are vulnerable to such incidents. What, if any, are the links between someone's individual characteristics or migration behaviors and their vulnerability to experiencing a protection incident? For example, how strong are the relationships between say, being an Eritrean, being a woman, heading to Europe, or paying one's smuggler up front, and one's likelihood of falling victim in Libya to detention, physical abuse, or witnessing the death of a fellow migrant?

To answer these questions – to identify the demographic, social, and economic determinants of vulnerability to protection incidents – advanced statistical modelling was applied to a unique dataset of more than 5,000 refugees and migrants who reached Libya, largely from countries in West, Central and East Africa, and were surveyed by MMC's Mixed Migration Monitoring Mechanism initiative (4Mi).¹

Some key findings of the analysis include:

- **All refugees and migrants**, regardless of why they began their journeys, are vulnerable to several types of protection violations within Libya.
- **Refugees and migrants who intend to travel onwards from Libya to Europe** are more vulnerable to experiencing different types of protection violations in Libya.
- **Nigerian, Eritrean, and Chadian respondents** were significantly more vulnerable to protection incidents in Libya compared to other nationalities.
- **The religion of a migrant or refugee** (i.e. whether they are Christian or Muslim) does not appear to affect their vulnerability.
- **Women** were found to be considerably more likely than men to experience or witness sexual abuse.
- **Younger people** seem to be more vulnerable to protection incidents.
- **Having any form of education** seems to increase respondents' vulnerability to protection incidents.
- **Respondents who cited violence, armed conflict, and lack of rights** as reasons for migrating did not appear more vulnerable to protection violations than those who cited other drivers.

The findings from this report shed light on needs across different groups of refugees and migrants and on how humanitarian and development actors might help people to reduce their vulnerability to protection incidents. Moreover, the key finding that those fleeing violence or abuses were not more vulnerable in Libya than those who travelled for economic reasons underscores the value of adopting a mixed migration approach to policy and response formulation.

¹ The data used in this report is based on surveys with 5,659 refugees and migrants in Libya conducted between May 2017 and October 2019

1. Introduction

Well established mixed migration² corridors run between East and West Africa and Libya. Labour migration to Libya has been documented since the 8th century, as Libya was known as the “carrefour” or “crossroads” connecting North Africa and Mediterranean economies.³ Migration across these historical routes has continued until today. The discovery of oil in Libya in 1957 and subsequent economic growth has led the country to become one of the wealthiest in Africa, attracting migrants from neighbouring countries and regions. Such growth, coupled with the Libyan coast being a primary point of departure for people attempting to reach Europe, has continued to attract refugees and migrants to Libya, even after civil war broke out in 2011.

People on the move to and through Libya face multiple protection violations and human rights abuses both en route and once they have arrived within the country. Such violations have been well documented by international organizations, media, and watchdogs alike. The United Nations Refugee Agency (UNHCR) report *Desperate Journeys* suggests that “the vast majority of women and girls, as well as many men and boys had been victims of torture and sexual and gender-based violence, including sexual assault and rape, sometimes by multiple perpetrators” during their journeys.⁴ Beyond sexual exploitation and torture, a 2018 report by the Office of the United Nations High Commissioner for Human Rights (OHCHR) and the United Nations Support Mission in Libya (UNSMIL) detailed accounts of human rights abuses in Libya, including physical abuse, unlawful killings, as well as arbitrary detention by criminal gangs, traffickers, armed groups, smugglers, and state officials. UNSMIL reported serious violations within detention centres, including poor sanitary conditions, overcrowding, lack of sanitation facilities, denial of contact with the outside world and medical care, along with protection and human rights violations such as forced labour, sexual violence and physical violence including torture.⁵ Furthermore, several reports from UN organizations as well as the media have revealed people being sold and forced into slavery.⁶ In July 2020, a joint report by UNHCR and the Mixed Migration Centre (MMC) – *On this Journey, No One Cares if You Live or Die*,⁷ based on thousands of interviews, provided a detailed overview of the extent of human rights abuses and protection incidents, including locations and perpetrators, not only in Libya but also along mixed migration routes towards Libya from East and West Africa.

While the above reports underscore that refugees and migrants face a variety of protection incidents and human rights abuses during their journeys to Libya and after their arrival in the country, little is understood about the factors that determine vulnerability, or about why certain refugees and migrants are more likely to experience such abuses. The International Organization for Migration’s (IOM) migrant vulnerability model conceptualizes vulnerability as a function of individual, household, community, and macro-level factors.⁸ The International Centre for Migration Policy Development similarly examines vulnerability in terms of personal, contextual, and situational factors, equating vulnerability to susceptibility to trafficking and other abuses.⁹ OHCHR understands vulnerability as the inability to enjoy basic rights and as being at risk of violations and abuse.¹⁰ This study draws upon these different conceptualizations of vulnerability to design its model for data analysis.

A dearth of in-depth, quantitative data has made it difficult to estimate the extent and the distribution of protection incidents in Libya. This paper addresses this gap by analysing a unique dataset of 5,659 survey responses from refugees and migrants who have moved to Libya from countries in West, Central and East Africa. More specifically, it analyses the demographic, social, and economic determinants of vulnerability to protection incidents of people on the move in Libya, to learn what makes them more or less likely to experience protection abuses. For the purposes of this study, protection incidents include physical abuse, sexual abuse (experienced or witnessed), kidnapping, arbitrary detention, robbery, and witnessing another migrant’s death.

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- 2 Mixed migration refers to cross-border movements of people including refugees fleeing persecution and conflict, victims of trafficking and people seeking better lives and opportunities. Motivated to move by a multiplicity of factors, people in mixed flows have different legal statuses as well as a variety of vulnerabilities.
 - 3 De Haas, H. (2006) [Trans-Saharan migration to North Africa and the EU: historical roots and current trends](#). Migration Policy Institute; Braudel, F. (1995) *The Mediterranean and the Mediterranean world in the age of Philip II*. Berkeley: University of California Press.
 - 4 UNHCR (2018) [Desperate Journeys – Refugees and Migrants Arriving in Europe and at Europe’s Borders](#), p. 19.
 - 5 UNSMIL & OHCHR (2018) [Desperate and Dangerous: Report on the human rights situation of migrants and refugees in Libya](#).
 - 6 IOM (2017) [IOM Learns of “Slave Market” Conditions endangering Migrants in North Africa](#); CNN (2017) [People for sale: Where lives are auctioned for \\$400](#).
 - 7 Breen, D. (2020) [‘On this journey, no one cares if you live or die’ - Abuse, protection, and justice along routes between East and West Africa and Africa’s Mediterranean coast](#). MMC & UNHCR.
 - 8 IOM (2019). [Handbook on Protection and Assistance for Migrants Vulnerable to Violence, Exploitation and Abuse](#)
 - 9 ICMPD (2019). [The Strength to Carry On: Resilience and Vulnerability to Trafficking and Other Abuses among People Travelling along Migration Routes to Europe](#)
 - 10 OHCHR/Global Migration Group (2017) [Principles and Guidelines, supported by practical guidance, on the human rights protection of migrants in vulnerable situations](#).

Such information is important because it sheds light on needs across different groups of refugees and migrants and, importantly, on how humanitarian and development actors might increase people's capacity to reduce their vulnerability to protection incidents. A recent MMC study of what makes refugees and migrants vulnerable to detention found certain demographic profiles as well as social and economic characteristics to be relevant factors.¹¹ As a follow-up, this study extends its analysis beyond detention to the broader concept of protection.¹²

This paper is structured as follows: Section 2 sets out the background of mixed migration routes and describes the protection landscape in Libya before synthesizing the literature on protection vulnerabilities there. Section 3 presents an overview of the methodology and outlines the data used, the modelling strategy, and methodological limitations. Section 4 presents, for each dependent variable, some background material and descriptive statistics, a related hypothesis, and the findings of the regression analysis of the 4Mi data.¹³ Section 5 consists of a summarizing conclusion, while Section 6 outlines the implications of the findings for programming and policy and outlines possible future avenues for research.

11 Mixed Migration Centre (2019) [What makes refugees and migrants vulnerable to detention in Libya? – A microlevel study of the determinants of detention](#). Mixed Migration Centre.

12 In parallel to this study, MMC also conducted similar analysis in West Africa, based on 4Mi interviews in Burkina Faso, Mali and Niger: Mixed Migration Centre (2020) [A sharper Lens on Vulnerability – A statistical analysis of the determinants of vulnerability to protection incidents among migrants and refugees on the move in West Africa](#).

13 See section 3.1 for details of the 4Mi project.

2. Background and hypotheses on vulnerability

2.1 Mixed migration routes to and through Libya

In addition to being a country of destination and origin, Libya is a key transit country for refugees and migrants, with the majority of Central Mediterranean crossings to Italy and Malta departing from Libyan shores.¹⁴ There are two primary entry routes to Libya: through Sabha in the west, and Al Kufra in the east. Refugees and migrants entering from Algeria or Niger typically take the western entry point to Libya, while those entering from Chad and Sudan take the eastern entry point.¹⁵

The IOM's Data Tracking Matrix estimated that there were 584,509 migrants residing in Libya in mid-2020.¹⁶ The majority of migrants and refugees are from sub-Saharan African countries (60 percent), followed by North Africa (32 percent) and the Middle East and Asia (8 percent).¹⁷ The main countries of origin were Niger (20 percent), Egypt (17 percent), Chad (16 percent), Sudan (14 percent), and Nigeria (7 percent).¹⁸ Previous studies have documented different levels of vulnerability depending on the origin country. For instance, a report by UNSMIL and OHCHR suggests that Eritreans and Somalis are particularly vulnerable to captivity, torture and extortion, due to their increased likelihood of receiving asylum in Europe, and connection to diaspora communities.¹⁹ Refugees and migrants from sub-Saharan African countries are believed to be particularly vulnerable because of racial discrimination and xenophobia.²⁰

2.2 Libya's protection landscape

Libya is neither a signatory to the 1951 Refugee Convention nor its 1967 Protocol. The country did ratify the 1981 African Charter on Human and Peoples' Rights (in 1985) and the 1969 OAU Convention Governing the Specific Aspects of Refugee Problems in Africa (in 1981), both of which recognize the right to seek and receive asylum and prohibit expulsions. In the early 2000s, the government of Muammar Gaddafi began to cooperate with Europe over irregular migration as part of its efforts to improve its relationship with the European Union and to incentivize foreign investment in Libya. Visa restrictions for residence and labour were introduced for citizens of Arab and African countries, leading many individuals who resided in the country to become "illegal." A series of expulsions, particularly of sub-Saharan Africans, followed in the subsequent years, including 54,000 expelled in 2004, 84,000 in 2005 and 64,330 in 2006.²¹

In 2010, the government introduced Law No. 19, which marked a shift toward the criminalization of migration in Libya. Under this law, migrants who enter the country illegally – which includes refugees and asylum seekers – are at risk of detention and forced labour for an undefined period of time, after which they are expelled from the country. With Libya's domestic legislation focused on combatting "illegal migration" and its weak support of international asylum norms, every refugee and migrant who enters the country irregularly risks the violation of their right to protection.²²

Since the popular uprising and subsequent overthrow of Muammar Gaddafi in 2011, Libya has experienced persistent violence and insecurity. The internationally recognized Government of National Accord (GNA) controls the area around the capital, Tripoli, while eastern Libya and much of the south is controlled by the Libyan National Army as well as other armed groups and non-state actors.²³ The deterioration of the security situation has effectively collapsed national

14 From 2014 to 2017, 90 percent of arrivals to Europe along the Central Mediterranean route (CMR) departed from Libya, making the country a well-known point of transit. In 2018 and 2019, departures from Libya to Europe decreased dramatically in favor of the Western and the Eastern Mediterranean routes. That said, the share of dead and missing migrants along this section of the CMR have increased, and the route from Libya across the sea remains the deadliest. UNHCR (2018) [Central Mediterranean situation..](#)

15 UNHCR (2019) [Mixed Migration Routes and Dynamics in Libya in 2018.](#)

16 IOM-DTM (2020) [Libya's Migrant Report July-August 2020 Mobility Tracking Round 32.](#)

17 Ibid.

18 Ibid.

19 UNSMIL & OHCHR (2018) op. cit.

20 Sunderland, J. (2019) [No Escape from Hell -EU Policies Contribute to Abuse of Migrants in Libya.](#) Human Rights Watch; Amnesty International (2017) [Libya's dark web of collusion: Abuses against Europe-bound refugees and migrants](#)

21 Migration Policy Centre (2013) [MPC Migration Profile: Libya](#)

22 UNHCR (2019) [Operational Portal, Refugee Solutions: Libya.](#)

23 UNSMIL & OHCHR (2018) [Desperate and Dangerous: Report on the human rights situation of migrants and refugees in Libya.](#)

institutions and severely compromised the rule of law.²⁴ Across Libya, hundreds of armed groups or militias with sub-national affiliations exercise de facto control over localities, some of which are involved with human trafficking, human smuggling, and detention as a source of funding for their activities.²⁵

In 2017, the GNA partnered with Italy and the European Union to prevent the arrival of irregular migrants to Italy. The deal, which was endorsed by European leaders in the 2017 Malta Declaration, encompassed the funding and training of members of the Libyan Coast Guard (LCG) to prevent boats carrying refugees and migrants from departing Libyan waters to cross the Mediterranean. Several protection organizations, including UNHCR, have criticized the interception and return of refugees and migrants to Libya, which UNHCR does not consider to be a safe country. Moreover, refugees and migrants at the hands of the LCG have reportedly experienced beatings, extortion, hunger, and rape according to a lawsuit filed with the European Court of Human Rights.²⁶

According to a 2019 Human Rights Watch report, the EU's focus on reducing irregular migration since 2015 has made human smuggling in Libya a more lucrative business by pushing smuggling activities farther underground, increasing smugglers' own risks, which are then offset to "clients" through the raising of fees.²⁷ The same report argues that this situation has increased the risks for refugees and migrants as smugglers attempt to increase profits through extortion and ransom. Additionally, data collected in 2019 on Libya by MMC's Mixed Migration Monitoring Mechanism initiative (4Mi) suggest that smugglers were the perpetrators of 55 percent of sexual abuse cases and 49 percent of physical abuse cases against surveyed refugees and migrants.²⁸ Amnesty International has documented several accounts of abductions by smugglers and numerous instances in which smugglers handed refugees and migrants over to authorities for detention upon arrival in Libya.²⁹ (Among the hypotheses this paper explores is that people on the move who use smugglers to facilitate their journey are more vulnerable than those who do not.)

In sum, Libya's political fragmentation and consequent lack of rule of law, coupled with the lack of a domestic legal framework for refugees and the criminalization of irregular migration, renders refugees and migrants in Libya particularly vulnerable to protection violations. A 2018 report by UNSMIL notes that once refugees and migrants enter Libya "they become vulnerable to unlawful killings, torture and other ill-treatment, arbitrary detention and unlawful deprivation of liberty, rape and other forms of sexual and gender-based violence, slavery and forced labour, extortion and exploitation by both State and non-State actors."³⁰ Human rights violations are commonplace, as the political climate has cultivated a fertile environment of illicit and criminal activities including the trafficking of human beings.³¹

24 Ibid.

25 Italian Institute for International Political Studies (2018) [Libya between conflict and migrants: rethinking the role of militias](#).

26 Forensic Architecture (2017) [Sea Watch vs the Libyan Coast Guard](#).

27 Sunderland, J. (2019) [No Escape from Hell - EU Policies Contribute to Abuse of Migrants in Libya](#). Human Rights; Watch Amnesty International (2017) [Libya's dark web of collusion: Abuses against Europe-bound refugees and migrants](#).

28 Mixed Migration Centre (2020) [Protection risks within and along routes to Libya—a focus on physical abuse](#); Mixed Migration Centre (2019) [Protection risks within and along routes to Libya—a focus on sexual abuse](#).

29 Amnesty International (2017) [Libya's dark web of collusion: Abuses against Europe-bound refugees and migrants](#).

30 UNSMIL & OHCHR (2018) [Desperate and Dangerous: Report on the human rights situation of migrants and refugees in Libya](#).

31 Micallef, M. (2017) [The Human Conveyor Belt: trends in human trafficking and smuggling in post-revolution Libya](#). Global Initiative Against Transnational Organized Crime.

2.3 Hypotheses on vulnerability

Drawing upon the aforementioned studies on mixed migration dynamics, in-depth reporting on protection violations in Libya, past MMC research, and migration theory, Table 1 below sets out the key hypotheses to be tested to more precisely understand what factors – or independent variables – make refugees and migrants vulnerable to protection incidents within Libya. The table includes brief syntheses of relevant academic and policy literature.

Table 1: Hypotheses on vulnerability

Independent variable	Synthesis of relevant literature	Hypothesis
Nationality	Eritreans and Somalis are particularly vulnerable to captivity, torture and extortion, due to their increased likelihood of receiving asylum in Europe, and connection to diaspora communities. ³² These nationalities are deemed more “valuable”, which may make them more vulnerable. East Africans are among the most vulnerable groups in Libya and the journeys for East Africans have become longer and more dangerous. ³³ Certain East African nationalities are particularly vulnerable to detention. ³⁴	Certain nationalities are more vulnerable to protection abuses than others.
Religion	Christians are vulnerable to abductions, torture, theft and physical abuse on account of their religion. ³⁵ Christian women are more exposed to sexual abuse since they are perceived to have “loose sexual mores”. ³⁶	Christians are more vulnerable to protection incidents in Libya compared to Muslims.
Gender and age	Young men may be more vulnerable to protection incidents in Libya due to their perceived labour potential; some migrants are forced to work to pay off smuggler fees and to pay their way out of detention. ³⁷ Some migrants are sold as slaves and must pay or work to be freed. ³⁸	Young men are especially vulnerable to protection incidents in Libya.
Education	Education makes refugees better able to anticipate risks and plan their movements. ³⁹ Higher education in particular is key to refugee protection and durable solutions. ⁴⁰ Education can help people on the move overcome physical and psychological obstacles specific to displacement by promoting wellbeing and cognitive development; help deal with trauma and restore a sense of security, independence, and dignity; decrease the risk of recruitment by armed groups; and reduce the chances of young women and girls entering into early marriages or engaging in ‘survival sex’. ⁴¹	Migrants with very little or no education are more vulnerable to protection abuses than those with at least a moderate degree of education.

32 UNSMIL & OHCHR (2018) [Desperate and Dangerous: Report on the human rights situation of migrants and refugees in Libya](#).

33 UNHCR (2019) [Mixed Migration Routes and Dynamics in Libya in 2018](#).

34 Mixed Migration Centre (2019) [What makes refugees and migrants vulnerable to detention in Libya? – A microlevel study of the determinants of detention](#).

35 Amnesty International (2015) [Libya is full of cruelty: Stories of abduction, sexual violence and abuse from migrants and refugees](#).

36 UNSMIL & OHCHR (2018) [Desperate and Dangerous: Report on the human rights situation of migrants and refugees in Libya](#).

37 Ibid.

38 IOM (2017) [IOM Learns of “Slave Market” Conditions endangering Migrants in North Africa](#); CNN (2017) [People for sale: Where lives are auctioned for \\$400](#)

39 Kunz, E. (1973) [The Refugee in Flight: Kinetic Models and Forms of Displacement](#). International Migration Review.

40 UNHCR (2017) [DAFI Programme](#).

41 Bonfiglio (2020) [Student, Migrant, Refugee or Both? Exploring Refugee Agency and Mobility through Tertiary Education in Kenya, South Africa and Uganda](#). Doctoral dissertation, Maastricht University.

Smuggler Interactions	Many protection incidents, especially those involving sexual and physical abuse, occur at the hands of smugglers. ⁴² Smugglers have been known to abduct migrants and refugees and/or hand them over to authorities for detention upon arrival in Libya. ⁴³ The way refugees and migrants pay their smugglers impacts their vulnerability to detention in Libya. ⁴⁴	Refugees and migrants who use smugglers are more vulnerable to protection incidents than those who do not. Refugees and migrants who pay their smuggler upon arrival to Libya are less vulnerable to protection abuses than those who pay upon departing from their origin countries.
Prior experience of violence, insecurity, and persecution	Mixed migration drivers associated with the origin country may affect vulnerability to protection incidents. 4Mi survey respondents who cited war, violence, and a lack of rights as reasons for migrating are more vulnerable to detention compared to those citing other drivers. ⁴⁵ This suggests that previous experiences with persecution and/or other protection incidents may make refugees and migrants more likely to experience protection incidents in Libya because, for example, having been forced to flee their homes they might have travelled without proper documentation, or they might have been unable to fully plan their trip. In short, past vulnerabilities may influence current vulnerabilities.	Refugees and migrants who move due to factors related to violence and persecution in their origin countries are more vulnerable than those who have moved for other reasons.
Intended destination	4Mi respondents who sought to migrate onwards to Europe were twice as likely to be detained in Libya compared to those seeking to remain in Libya or to migrate to a non-European country. ⁴⁶ This may be due to the fact that many are detained after a failed attempt to cross the Mediterranean. It is not clear, however, whether respondents who seek to reach Europe are also more vulnerable to other protection incidents. People who seek to travel to Europe might utilize different smuggling networks, or they might be willing to take more risks than other respondents.	Refugees and migrants with an intended destination of Europe are more vulnerable.
Means of financing steps of the journey	Along the Central Mediterranean route, refugees and migrants work for smugglers to fund portions of their journey, pay bribes to pass certain territories or check points, and experience robbery. ⁴⁷ It is therefore possible that how refugees and migrants access money along the route, or the ways in which they finance different steps of their journey, may make them more or less vulnerable to protection abuses.	Carrying cash or working along the route may increase respondents' vulnerability to protection abuses.

42 Mixed Migration Centre (2020) [Protection risks within and along routes to Libya—a focus on physical abuse](#); Mixed Migration Centre (2019) [Protection risks within and along routes to Libya—a focus on sexual abuse](#).

43 Amnesty International (2017) [Libya's dark web of collusion: Abuses against Europe-bound refugees and migrants](#).

44 Mixed Migration Centre (2019) [What makes refugees and migrants vulnerable to detention in Libya? – A microlevel study of the determinants of detention](#).

45 Mixed Migration Centre (2019) [What makes refugees and migrants vulnerable to detention in Libya? – A microlevel study of the determinants of detention](#).

46 Ibid.

47 UNSMIL & OHCHR (2018) [Desperate and Dangerous: Report on the human rights situation of migrants and refugees in Libya](#).

3. Methodology

3.1 Sampling, data collection and validation

This report analyses data collected by MMC through its flagship data collection project: the Mixed Migration Monitoring Mechanism initiative (4Mi). The 4Mi project collects primary data on people on the move along mixed migration routes using a regular, standardized, quantitative, and globalized, system.⁴⁸ The data used in this report is based on surveys with 5,659 refugees and migrants in Libya conducted in Libya between May 2017 and October 2019. The 4Mi survey consists of a series of structured questions related to profiles of refugees and migrants, routes, protection incidents along the route, needs versus assistance received, among other variables. Moreover, the survey also includes an open-ended question in which respondents provide additional details on their experiences and human rights abuses along their journey. The enumerators are themselves refugees and migrants, which enables unique access to mobile communities. Enumerators are chosen in part based on their country of origin being among those that are more representative of the refugee and migrant populations in the country where the survey is conducted (a trend that may change over time). New monitors are periodically hired, further diversifying the sample of refugees and migrants surveyed. Data collection takes place at known mixed migration “nodes” and “hotspots” – urban centres, key towns and spaces of entry or departure, and along mixed migration routes – where there is a large presence of people on the move.

Due to the difficulties of collecting data on people on the move, the sensitivity of the topic, and security concerns in Libya, enumerators employ a non-randomized, purposive sampling strategy. Survey respondents are primarily identified through snowball sampling. Enumerators seek to balance the number of male and female respondents, and to diversify contact points and origin countries. No distinction is made in the sampling process between migrants, asylum-seekers, and refugees. Individuals under the age of 18 are excluded from the sample. Refugees and migrants who had been continuously living in Libya for more than two years are also excluded, since the focus of this research is on people in the process of moving rather than on those who have settled in Libya over the longer term.

To provide a brief overview of the sample: 56 percent of the respondents are men, while 44 percent are women. The sample is composed of over 35 nationalities, across Africa, Asia, and the Middle East. The majority of the respondents originate from countries in West Africa (69 percent), while 8.5 percent originate from East Africa, 11 percent from Central Africa and 12 percent from North Africa.⁴⁹ The average age of our respondents is 30 years. Some 54 percent identify as Christian, while 45 percent identify as Muslim. Few respondents reported having no education (7 percent); most finished either primary school or secondary school (64 percent), and 10 percent had attained tertiary education. Prior to migration, many people had worked as labourers (31 percent), or in the service industries (25 percent), or as farmers (14 percent); 11 percent reported having had no job, and 11 percent had been students. Some 19 percent of respondents mentioned migrating due to factors related to violence, insecurity and persecution.⁵⁰

To ensure data validity and quality, 4Mi enumerators receive training on interviewing techniques, the 4Mi survey, ethics in the field, and protection before being deployed to collect data. 4Mi project officers and data officers supervise the enumerators and hold monthly calls to discuss quality and data collection issues. Data officers review all survey data to ensure quality control, based on checking: a) the time taken to complete the survey; b) the location where the survey was recorded; c) actual completion of the survey; and d) identification of repetitive responses and outliers. Supervisors conduct ad-hoc spot checks on enumerators to ensure compliance with data collection protocols. Any submitted questionnaire which does not meet the data quality requirements is discarded.

Survey respondents are informed that answers remain anonymous: no data are collected on respondents' names or other personally identifying information. Participants are also informed that they can withdraw at any time during the

⁴⁸ For more information on the 4Mi project, please see <http://www.mixedmigration.org/4mi/>

⁴⁹ This paper follows UNDESA Statistics Division's geographic classification scheme in defining Central, East and West Africa. Central Africa includes Angola, Cameroon, Chad, Congo-Brazzaville, Democratic Republic of Congo, Equatorial Guinea, Gabon and Sao Tome and Principe. East Africa includes Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mayotte, Mozambique, Réunion, Rwanda, Seychelles, Somalia, South Sudan, Uganda, United Republic of Tanzania, Zambia, and Zimbabwe. North Africa includes Algeria, Egypt, Libya, Morocco, Sudan, Tunisia, and Western Sahara. West Africa includes Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Saint Helena, Senegal, Sierra Leone, and Togo.

⁵⁰ When asked about the determinants of movement, respondents cite several factors, including economic conditions, war, lack of rights, lack of social services, as well as personal reasons such as divorce and domestic violence etc. For more details on the drivers of mixed migration, see MMC (2019) [4Mi Snapshot on the Drivers of Mixed Migration to and through Libya](#).

interview and can opt not to answer any question. For particularly sensitive topics – for instance, those concerning sexual abuse – respondents are not directly asked if they themselves have experienced this type of protection incident. Instead, respondents are asked if they have “witnessed or experienced” sexual abuse.

3.2 Modelling strategy

This report sets out the results of an investigation into the demographic and socioeconomic determinants of vulnerability to a set of protection incidents that have been selected as the study’s dependent variables. More specifically, it investigates the impact of a range of demographic, social, economic and political factors — our independent variables — on the likelihood of refugees and migrants experiencing certain protection incidents. This was achieved by analysing 4Mi survey data on questions about whether respondents had experienced physical abuse, robbery, kidnapping and/or detention; had witnessed/experienced sexual abuse; and/or had witnessed another migrant’s death.⁵¹ Note that the first four dependent variables are “personal” (the incident happened to the respondent), while sexual abuse could refer either to the respondent or another migrant/s. Death always refers to other migrants. Based on these questions, several variables were calculated. The first was a binary variable which takes the value 1 if a respondent experienced/witnessed one or more protection incidents, and the value 0 if a respondent did not experience/witness any. The second considered the number of incidents a respondent experienced.

To identify the effect of the independent variables on vulnerability, the data was subjected to regression analysis to hold confounding factors constant. Several different models were used to assess the robustness of the results. First, a logistic regression model was applied which considers the binary outcome variable (whether a respondent has experienced any protection incident). The second set of models used an ordinary least squares (OLS) regression to consider the number of protection incidents each respondent had experienced or witnessed.⁵² Qualitative insights drawn from the open-ended section of the 4Mi survey were then used to corroborate quantitative findings when possible. This allowed for data triangulation to further understand the results of the quantitative analysis. In the Section 4 of this paper, which presents the results of the modelling, qualitative data are highlighted either when they align with the quantitative results or when they contrast with it.

3.3 Predictors of vulnerability

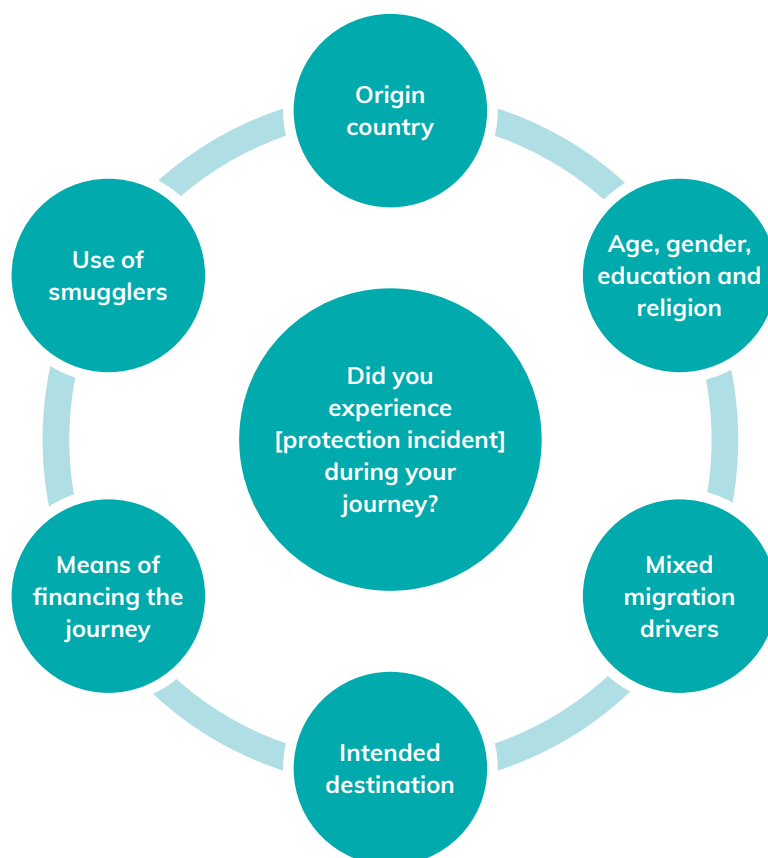
To investigate what make refugees and migrants less or more vulnerable to protection incidents, this study assessed six independent variables related to each of the hypotheses set out above in Section 2.3. As shown in Figure 1 below these include demographic characteristics such as gender, age, religion, origin country, and education, as well as respondents’ use of and interaction with smugglers. As MMC has previously shown, smugglers are the most-cited perpetrators of protection incidents in Libya.⁵³ But since most respondents reported using a smuggler to facilitate their journey there was not enough variance in the sample to assess the impact of use versus non-use of smugglers. However, payment arrangements with smugglers, as well as the timing of payments, were investigated. Mixed migration drivers related to violence, insecurity and persecution were also explored. The assumption here was that past experience with persecution and/or protection incidents may make refugees and migrants more likely to experience protection incidents in Libya. The impact of refugees’ and migrants’ intended destination was examined to understand if respondents who seek to reach to Europe might be more vulnerable because, for instance, they utilize different smuggling networks, or might be willing to take more risks, than respondents whose intended destination was Libya or another African country. Finally, the model includes variables on how respondents financed the steps of their journey, including whether they carried all the cash they required, stopped to work along the route, and/or had access to digital money. Carrying cash or working along the route may increase respondents’ vulnerability to robbery or physical or sexual abuse, respectively.

51 The exact questions asked were: Did you experience any physical abuse or harassment (of a non-sexual nature) during your journey?; Have you been kidnapped or otherwise held against your will during your journey?; Have you ever been robbed during your journey?; Have you been detained by the police, military, militia or immigration officials during your journey?; Did you witness or experience any sexual assault or harassment during your journey?; Did you witness any migrant deaths during your journey?

52 Poisson models were also estimated to further assess the robustness of the result.

53 See for example: MMC (2019) [Protection risks within and along routes to Libya – A focus on sexual abuse](#).

Figure 1. Analytical model



3.4 Control strategy

The 4Mi dataset allows researchers to build robust regression models. Alongside the independent variables outlined above, other factors which might affect vulnerability to protection incidents were controlled for. For example, to accurately assess the extent to which a migrant/refugee's gender affects the likelihood of them falling victim to robbery we may need to eliminate (control for) the possible influence (or statistical bias) of their age or nationality.⁵⁴ In so doing, we distinguish between "given" demographics, factors connected to social status, and factors connected to the route (see Table 2 below). The regression models incorporate these different sets of variables systematically to analyse the robustness of their results.

Table 2. Control Strategy

Control Variable Type	Control Variables
"Given Demographics"	Nationality Gender Age Religion
Social Status	Level of education Previous sector of employment (or unemployment) Type of home location in country of origin (rural, semi-urban, or urban)
Route	Journey length ⁵⁵ Interview location ⁵⁶

⁵⁴ And indeed vice versa, which explains the overlap between the list of independent and control variables.

⁵⁵ Journey length is controlled in all models to account for differences in "exposure time" along the journey.

⁵⁶ Location of interview is important to control for since the different locations will capture differences in geographical places our respondents have visited. Location of interview within Libya is controlled for to account for heterogeneity.

This control strategy therefore helps to isolate the effect of, and relationships between, the variables of interest while holding constant other, so-called “confounding” factors. However, as discussed below, some confounding factors cannot be controlled for. For example, in the case of “social status”, one can imagine that a migrant’s or refugee’s wealth correlates with both their vulnerability to protection incidents and their level of education. Unfortunately, the 4Mi survey does probe respondents’ wealth, meaning that “omitted-variable bias” cannot be excluded. Nevertheless, 4Mi offers the most rigorous dataset available for this type of model and can provide the basis for future research on protection for those on the move.

3.5 Limitations

This study faces several potential sources of bias. The first is linked to how 4Mi survey questions about protection incidents are formulated. While reported incidents of physical abuse, kidnapping, robbery, and detention relate to the **direct** experience of respondents, those of sexual abuse/exploitation may in some cases relate – and those of death will always relate – to incidents witnessed by the respondent. It is therefore possible that data on sexual abuse and death are overestimates (e.g. if two people travelling together witnessed the same death or instance of sexual abuse/exploitation). At the same time, it is also likely that the stigma attached to death and sexual abuse/exploitation lead to underreporting of such incidents by 4Mi respondents.

Second, the 4Mi sample is not (and does not claim to be) representative of the wider population of people on the move in Libya (or anywhere else 4Mi conducts surveys). Primarily, this is because the total number of refugees and migrants is not known and 4Mi cannot carry out random sampling. Instead, it must rely on snowball sampling and the networks of its enumerators. (The distribution of nationalities in the 4Mi Libya dataset, for example, differs substantially from that in the IOM’s Displacement Tracking Matrix, which at the last count covered more than 580,000 migrants.)⁵⁷ Moreover, 4Mi has strict criteria for who it surveys. In particular, it is geared to understanding the experiences of refugees and migrants while they are on the move, and so it surveys only those who have been in Libya for less than two years. The non-representativeness of the sample has implications for the interpretation of 4Mi data, and conclusions cannot be drawn about the larger population of people on the move. However, given the difficulties in collecting data on people on the move, the 4Mi dataset remains one of the most valuable sources of unique information about the experiences of refugees and migrants and, by extension, about the broader protection environment in Libya.

Third, as previously mentioned, there are various overlapping factors affecting the vulnerability of refugees and migrants in Libya which are not wholly captured by the 4Mi survey. If such factors affect both vulnerability **and** the independent variables of interest, there is a risk of omitted-variable bias. For example, wealth, social class, and language might affect vulnerability as well as education and phone possession. However, while limited in some regards, given the comprehensive nature of the 4Mi survey, the regression model controls for many variables related to demographics, family, and social status, as discussed in Section 3.4 above. Finally, reporting bias, which stems from the fact that the protection incidents are self-reported and not observed by the researchers, cannot be excluded. Respondents may be reluctant to divulge their experiences of protection incidents with 4Mi enumerators, leading to a risk of underreporting. 4Mi attempts to mitigate this risk by using members of migrant communities to conduct surveys as a trust-building measure.

While the abovementioned limitations mean the results of the regression analysis should be treated with caution, the 4Mi survey dataset has enabled researchers to build advanced regression models to analyse refugee and migrant vulnerability. It is important to highlight that while the results presented here do not (necessarily) extend to larger refugee and migrant communities in Libya, they still provide a basis for evidence-based protection programming (see Section 6).

⁵⁷ IOM-DTM (2020) [Libya’s Migrant Report – Key Findings – Round 32, July-August 2020](#). It should be noted that DTM data is not necessarily representative of the full migration picture in Libya either.

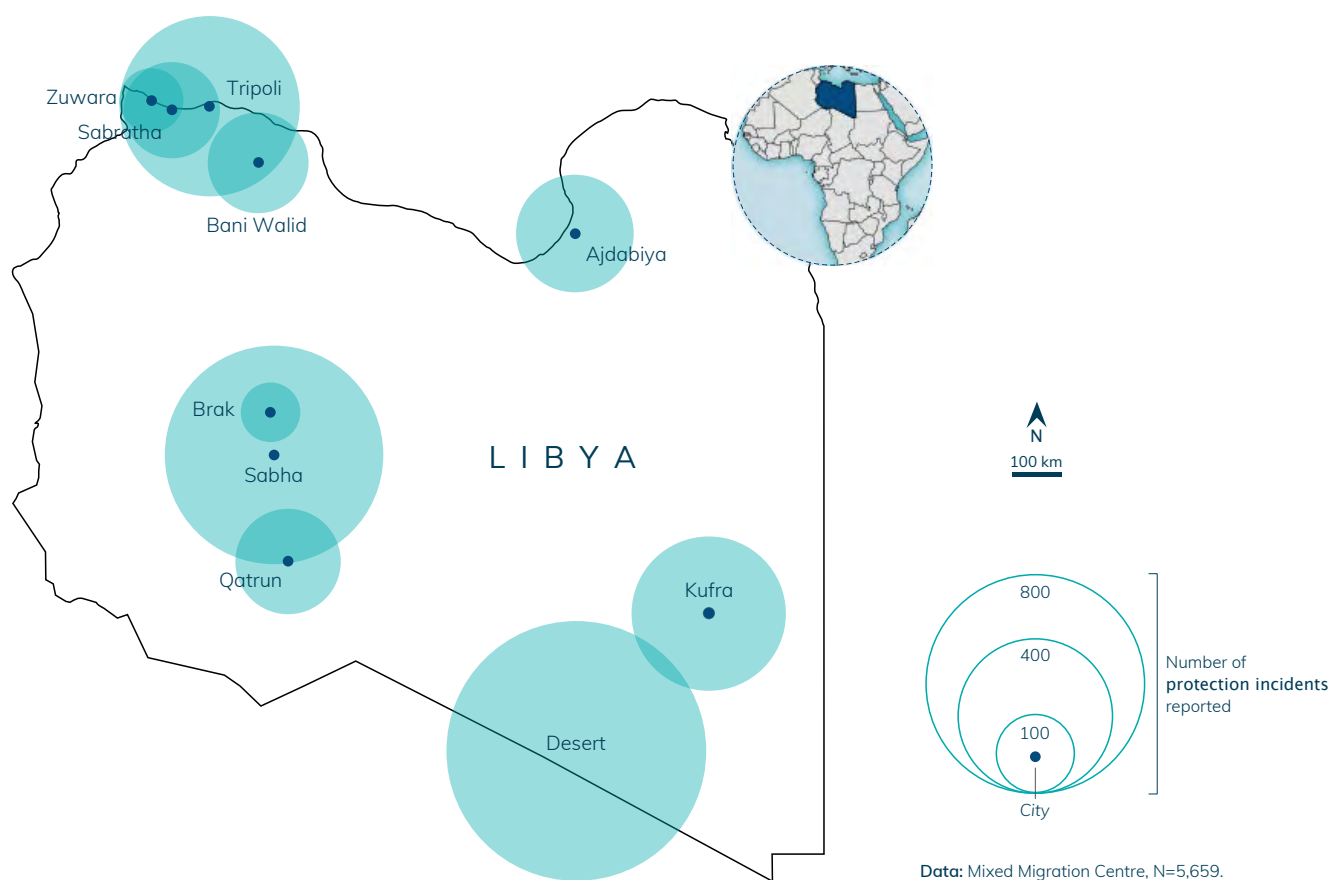
4. Findings

This section examines the extent and range of protection incidents experienced (or in some cases witnessed) by 4Mi respondents. It presents each of the selected independent variables in turn, first highlighting relevant descriptive statistics from the 4Mi survey as well as some qualitative responses. It then sets out the findings of the regression analysis to explore what factors make refugees and migrants vulnerable to protection incidents.

4Mi data reveal that 37 percent of surveyed individuals experienced one or more protection incident within Libya. This number is remarkably high, and it supports previous reports that suggest the situation for refugees and migrants within Libya is precarious. When disaggregated, physical abuse is the most prevalent protection incident reported by both men and women in Libya, with 21 percent of the total sample answering “Yes” to the question “Did you experience any physical abuse or harassment (of a non-sexual nature) during your journey?” The second most-cited protection incident reported is robbery (14 percent) followed by detention, death and sexual abuse, each at 12 percent. Five percent of the sample reported having been kidnapped.

The prevalence of protection incidents in Libya appears to vary by location. While the data are biased based on the route taken, they indicate that most incidents occurred in the desert, especially physical abuse, sexual abuse, and death. 4Mi respondent testimony further support the dangers faced in the desert. A Nigerian man recounted: “We have been systematically robbed of our valuable things by the smugglers or drivers and the robbery normally take place in the middle of the desert route from Sabha to Tripoli.” The quantitative and qualitative data support recent reports which suggest that the desert is a particularly dangerous place.⁵⁸ Many incidents were also reported in Sabha and Tripoli (see Figure 2 below).⁵⁹

Figure 2. Protection incidents by location in Libya



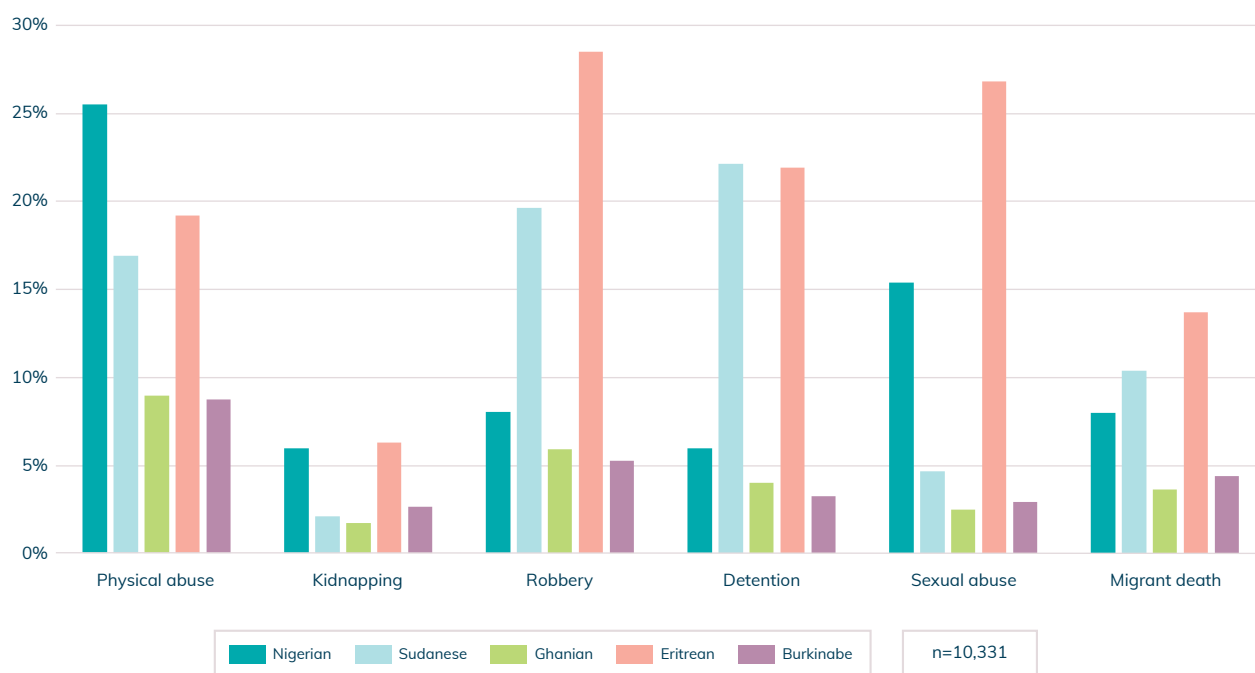
58 UNHCR (2018) [Desperate Journeys – Refugees and Migrants Arriving in Europe and at Europe's Borders](#); Breen, D. (2020) [‘On this journey, no one cares if you live or die’- Abuse, protection, and justice along routes between East and West Africa and Africa's Mediterranean coast](#). MMC & UNHCR.

59 Note that the reported locations of incidents depend largely upon location of interview. Comparison between locations might therefore be misleading.

4.1 Nationality

When disaggregating the data by nationality, Eritreans most commonly reported experiencing protection incidents (70 percent of 365 respondents). The particular vulnerability faced by Eritreans in Libya has been widely documented by human rights organizations.⁶⁰ Of the refugees and migrants coming to Libya from neighbouring countries, nearly half (49 percent) of surveyed Sudanese (n=627), 40 percent of Chadian (n=312), and 30 percent of Nigerien respondents (n=301) reported experiencing a protection incident in Libya.⁶¹ Farther afield, Nigerians (31 percent, n=2,107), Beninese (26 percent, n=134) and Cameroonians (21 percent, n=265) reported experiencing a protection incident more frequently than Ivoirians (18 percent, n=150), Burkinabe (16 percent, n=343), Malians (16 percent, n=147), and Ghanaians (15 percent, n=526). In order to have sufficiently large sub-samples to analyse, here we examine only nationalities with at least 100 respondents. Overall, descriptive statistics suggest that Eritreans and Sudanese are more exposed to protection incidents compared to other nationalities (see Figure 3, below).

Figure 3. Reported protection incidents by respondents' nationality



Hypothesis: Certain nationalities are more vulnerable to protection abuses than others.

As previously noted, several studies have suggested that certain nationalities, particularly East African nationalities, are more vulnerable than others to human rights abuses and detention in Libya. This paper builds upon such work by analysing whether certain nationalities are also more vulnerable to physical and sexual abuse, detention, robbery, kidnapping and witnessing another migrant's death.⁶² Using four different regression models, survey data on nationalities represented by at least 100 4Mi respondents were analysed to isolate the effect of coming from a particular origin country.

⁶⁰ Sunderland, J. (2019) [In a Man's Death, a Glimpse of Libya's Horrors](#); Human Rights Watch; Amnesty International (2016) [Through their eyes: refugees' own accounts of abuses in Libya](#).

⁶¹ Ethiopian and Somali respondents were excluded from the analysis given their low sample size numbers. While results should be taken with caution, 46 of 63 surveyed Ethiopians and 17 of 21 surveyed Somalis cited experiencing a protection incident.

⁶² HRW (2006) [Stemming the Flow: Abuses Against Migrants, Asylum Seekers and Refugees](#); HRW (2009) [Pushed Back, Pushed Around](#).

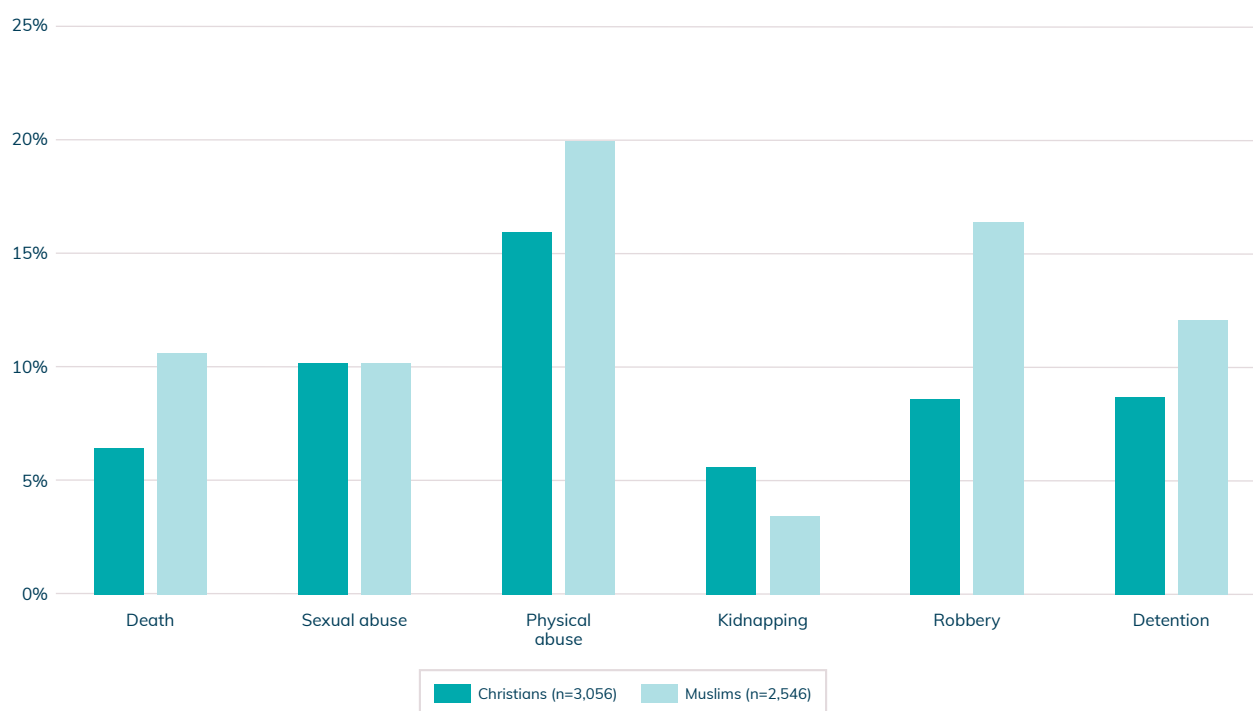
By controlling for confounding factors the regression analysis revealed that:⁶³

- **Nigerian, Eritrean, and Chadian respondents were significantly more vulnerable** to protection incidents in Libya compared to other nationalities. All four regression models support this.
- **These findings align with existing qualitative studies** that highlight the vulnerability of Eritreans, and with MMC research that suggests Nigerian women may be vulnerable to sexual abuse.
- While the descriptive statistics suggest Sudanese nationals are especially vulnerable to experiencing protection incidents in Libya (nearly half of surveyed Sudanese reported a experiencing a protection incident), the regression analysis found that **being Sudanese did not show signs of significance** when accounting for the set of control variables. Rather, it was **the age and gender of Sudanese respondents that made them vulnerable** to experiencing protection incidents.

4.2 Religion, gender and age

With regard to whether Christians are more vulnerable to protection incidents in Libya than non-Christians, 4Mi data show the opposite to be the case when descriptive statistics alone are considered: people who self-identify as Muslims experienced protection incidents more often than Christians, although the difference is not very large (see Figure 4 below). Sixteen percent of Muslim respondents compared to 8 percent of Christian respondents reported to have been robbed during their time in Libya. Muslims are also over-represented when it comes to experiencing detention, physical abuse, and witnessing death, although the differences are not significant.

Figure 4. Reported protection incidents by respondents' religion

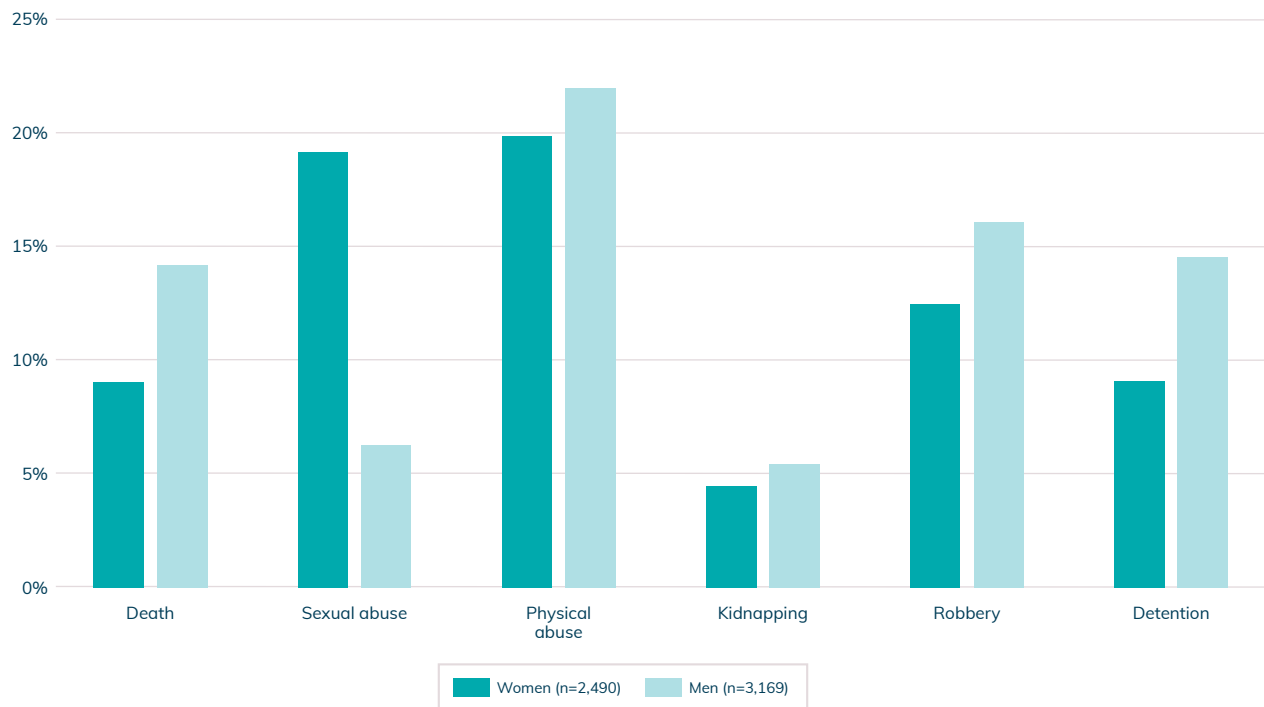


Hypothesis: Christians are more vulnerable to protection incidents in Libya compared to Muslims.

63 See Appendix 7.1 for relevant regression tables.

When disaggregating the data by gender, 19 percent of women respondents cited that they had experienced or witnessed sexual abuse compared to 6 percent of men (see Figure 5). Qualitative data support the quantitative analysis. For example, a 29-year-old Chadian woman explained, “I emigrated due to difficult conditions in my home, [was] subjected to sexual abuse, a long journey, and the hot desert.” A 29-year-old married woman from Nigeria reported that many female migrants are being sexually abused, often by smugglers: “Many of the male professional smugglers normally take advantage and sexually harass their new female migrants because the female migrants are still vulnerable, and they don’t know anywhere or anyone to report the act of misconduct of the smuggler (...) anyone who resist them will be severely punished or raped.”

Figure 5. Reported protection incidents by respondents’ gender



While the descriptive statistics in Figure 5 reveal that women respondents indeed report sexual abuse more often than men, surveyed men appear to report every other type of protection incident more often.

Hypothesis: Young men are especially vulnerable to protection incidents in Libya, save for sexual abuse.

By controlling for confounding factors, the regression analysis revealed that:⁶⁴

- **Being Muslim does not show signs of significance** in relation to protection vulnerability.
- By extension, **4Mi survey data do not support the contention that either Christians or Muslims are more vulnerable** to protection incidents.
- While the data suggest that male 4Mi respondents are more vulnerable than their female counterparts to protection incidents, when disaggregating by type and number of protection incident, **women are found to be considerably more likely than men to experience/witness sexual abuse.**
- All four regression models suggest **younger people are more vulnerable** to protection incidents.

⁶⁴ See Appendix 7.2 for relevant regression tables.

4.3 Education

Academic literature and humanitarian reporting suggest a clear (and inverse) correlation between the level of a migrant's or refugee's education and their vulnerability to protection incidents during their journey (see Table 1 above).

Hypothesis: refugees and migrants with very little or no education are more vulnerable to protection incidents than those with at least a moderate degree of education.

Seven percent of the 4Mi respondents surveyed in Libya reported having no education. Almost two-thirds (64 percent) had finished either primary school or secondary school, and 10 percent had attained tertiary education.

The descriptive data on education could lead one to assume that people with higher levels of education would be less vulnerable to experiencing protection abuses. To better understand the potential role of education in protection vulnerability, this study analysed the effects of different levels of education, as compared to no education.

By controlling for confounding factors, the regression modelling suggests:⁶⁵

- Having **any form of education seems to increase respondents' vulnerability** to protection incidents. This contrasts with initial assumptions that people with higher levels of education would be less vulnerable to experiencing protection abuses.
- However, **as more controls are incorporated into the modelling, the effect of education on protection vulnerability decreases**, particularly in the cases of vocational and tertiary education.
- Important caveats:
 - **Risk of omitted-variable bias:** 4Mi data lack information that would provide controls for wealth and other confounding factors that could simultaneously drive both vulnerability and education.
 - **Risk of reporting bias:** educated respondents may be more inclined to report incidents compared to less educated respondents.
- Overall, it is plausible that **people with education may be more vulnerable, but not necessarily because of their education**, but rather because of additional factors which correlate with education and protection violations.

4.4 Use of smugglers

Many refugees and migrants rely on smugglers to facilitate their journeys to North Africa and to Europe. Due to a lack of variation in the 4Mi dataset considered in the analysis (most respondents used a smuggler) it was not possible to test whether the use of a smuggler alone increases the likelihood of experiencing protection incidents.

Hypothesis: Those who pay their smuggler upon arrival in Libya are less vulnerable to protection incidents than those who pay upon departing from their origin countries.

It was possible, however, to analyse how different interactions with smugglers affect the vulnerability of people on the move. This was achieved by examining different smuggler payment modalities. More specifically, the modelling analysed the varying impact on vulnerability of settling the smuggler fee a) on arrival b) on departure, c) half at arrival and half at departure, and d) through work along the journey.

⁶⁵ See Appendix 7.3 for relevant regression tables.

Among pertinent qualitative data from the 4Mi survey was an account from a 20-year-old Nigerian man of how he was beaten and forced to work to settle his smuggler fee:

He (the smuggler) started to treat me badly every day. He ordered his Ghetto boss to be giving me six strokes of cane every morning until I find solution on how I'm going to pay the balance. When the suffering was too much for me, I talked to his friend to beg him on my behalf and his friend did so. The man told him to send me to Tripoli here so that his friend that will receive me will find me work and collect the balance from me.

By controlling for confounding factors, the regression modelling shows that:⁶⁶

- **The timing of smuggler payments matters.**⁶⁷ Refugees and migrants who pay their smuggler upon arrival in their destination, and those who pay half of the fees on departure and the balance upon arrival, are less vulnerable than those who pay all of the fees upfront. This may be because paying upon arrival incentivizes smugglers to facilitate a safe journey.
- **Those who work throughout the journey to pay the smuggler seem to be particularly vulnerable.**

4.5 Previous experience of abuse

Existing literature and 4Mi survey findings suggest an association between certain factors that lead refugees and migrants to leave their country of origin and their subsequent vulnerability to protection incidents. For example, 4Mi respondents who cited war, violence, or a deprivation of rights as migration drivers were found to be more vulnerable to detention in Libya compared to those citing other drivers. This suggests that previous experiences with persecution and/or other protection incidents may make refugees and migrants more likely to experience such abuses in Libya.

Hypothesis: Refugees and migrants who move due to factors related to violence and persecution in their origin countries are more vulnerable than those who have moved for other reasons.

If such a causal correlation exists, it could be because, for example, having been forced to flee their homes in haste, such migrants and refugees might have travelled without documentation, or they might have been unable to fully plan their trip. In short, past vulnerabilities may influence current vulnerabilities.

By controlling for a range of confounding factors, the regression modelling showed that:⁶⁸

- Contrary to expectations, **respondents who cited violence, armed conflict, and lack of rights as reasons for migrating did not appear more vulnerable to protection violations.**⁶⁹
- **All migrants, regardless of why they began their journeys, are vulnerable to several types of protection incident within Libya.**

⁶⁶ See Appendix 7.4 for relevant regression tables.

⁶⁷ The result is significant at the 1 percent level, and robust across different models (see Appendix 7.4 for OLS and Poisson models).

⁶⁸ See Appendix 7.5 for relevant regression tables.

⁶⁹ The result holds in all the specified models. See Appendix 7.5 for the OLS and the Poisson specifications.

4.6 Intended destination

According to data from the 4Mi survey conducted in Libya, respondents who planned to migrate onwards to Europe were twice as likely to be detained in Libya compared to those seeking to remain in Libya or to migrate to a non-European country.

Hypothesis: Refugees and migrants with an intended destination of Europe are more vulnerable than others.

This apparent greater risk of detention among those planning to reach Europe may relate to the fact that many refugees and migrants are detained immediately after a failed attempt to cross the Mediterranean. It is unclear, however, whether respondents who seek to reach Europe are also more vulnerable to other protection incidents. People who seek to travel to Europe might use different smuggling networks, or they might be willing to take more risks than other respondents.

By controlling for a range of confounding factors, the regression modelling suggests that:

- **Refugees and migrants who intend to travel onwards from Libya to Europe are more vulnerable to experiencing different types of protection violations in Libya** compared to those seeking to remain in Libya or to migrate to a non-European country.
- One of the regression models indicates that those who intend to migrate to Europe are 33 percent more likely to experience a protection incident.

4.7 Means of financing steps of the journey

Available literature and descriptive statistics show that along the Central Mediterranean route, many refugees and migrants work for smugglers to fund portions of their journey or to pay bribes to pass through certain territories or checkpoints, and that some of them experience robbery. It is therefore possible that the manner in which refugees and migrants access money along the route, or the ways in which they finance different steps of their journey, affects their vulnerability to protection abuses.

Hypothesis: Carrying cash or working along the route may increase vulnerability to protection abuses.

Refugees and migrants pay for their journeys in a number of ways, including doing paid work along the route, carrying all the cash they need, and accessing digital money.

By controlling for confounding factors, the regression modelling revealed that:

- **Refugees and migrants who work along the route to finance the different steps of their journey were considerably more vulnerable** than those who do not. This suggests that working along the route may expose refugees and migrants to different abuses.
- **Those who use digital money transfer services to access funds during their journey are less vulnerable** to protection violations.⁷⁰ This suggests that using secure ways to access money might be a strategy for reducing vulnerability.
- **Carrying cash was not a clearly significant factor** with regard to vulnerability (modelling results were inconclusive on this point).

⁷⁰ The result is similar in all the specified models. See Appendix 7.7 for the OLS and Poisson output.

4.8 Synthesis

This section explored the effects on vulnerability of nationality, religion, gender, age, education, smuggler-payment methods, migration drivers, intended destinations, and types of finance. Hypotheses about these factors were subjected to different types of regression analysis to better isolate and understand the associations between the dependent and independent variables selected for this study. Table 3 below synthesizes the main findings together with some more technical statistical information.

Table 3. Vulnerability to protection incidents in Libya: synthesis of regression model findings

Independent variable	Value: association	Synthesis of findings
Nationality	Chadian: Positive (***) Eritrean: Positive (***) Nigerian: Positive (***) Sudanese: ~ Cameroonian: ~ Beninese: ~	All regression models show a positive and highly significant coefficient on Nigerian, Chadian, and Eritrean refugees and migrants, when comparing them to the larger sample. ⁷¹ This suggests people of these nationalities are more vulnerable to protection incidents. The result is in accordance with previously published literature detailing the specific vulnerabilities of Eritrean migrants to abuse.
Religion	~	The coefficient “Muslim” does not show signs of significance. This suggests that we cannot claim that Christians or Muslims are more vulnerable to protection incidents.
Gender & age	Male: Positive (***) Age: Negative (***)	In all models, being male is positive and highly significant, which suggests that men are more vulnerable compared to women. However, women are considerably more likely to experience/witness sexual abuse compared to men. The coefficient on age is negative and significant in all the models, which indicates that young people are more vulnerable than older people.
Education	Positive (***)	Having an education – as opposed to having no education – seems to increase protection vulnerability, which is in contrast to the hypothesis. However, as more controls are incorporated in the models, the effect seems to decrease, especially for vocational and tertiary education. ⁷² The result should be treated with a high degree of caution since there are several potential biases.
Smuggler interactions	Payment at departure: ~ Half payment at departure and half at arrival: Negative (***) Payment at arrival: Negative (***) Payment through work: Positive (***)	As there is insufficient variation in the 4Mi data to test if the use of a smuggler increases the likelihood of experiencing protection incidents, the analysis focussed on how interactions with smugglers might affect the vulnerability of people on the move, by examining different payment modalities. The result clearly shows that the timing of smuggler payment matters. The regression tables suggest that refugees and migrants who pay their smuggler on arrival at the destination, or half at departure and half upon arrival, are less vulnerable. In contrast, those who pay their smugglers through work are significantly more vulnerable.
Prior experience of violence, insecurity, & persecution	Negative (***)	People who cited war, violence, or persecution as a mixed migration driver were significantly less vulnerable to experiencing protection incidents. ⁷³ It therefore cannot be safely asserted that people who migrated because of violence, insecurity and persecution are more vulnerable to protection abuses within Libya. The result has implications for protection response within Libya and stresses the importance of a mixed migration focus in both policy and responses, as it suggests that all migrants, regardless of the reasons for movement are vulnerable to several protection incidents within Libya.
Intended destination	Positive (***)	‘Europe as intended destination’ is positive and significant in all models, which suggests that those who intend to migrate onwards to Europe are more vulnerable compared to those seeking to remain in Libya or migrate to a third non-European country.
Access to money along the route	Carrying cash: ~ Working along the journey: Positive (***) Digital money transfer: Negative (***)	Those who worked during their journey were considerably more vulnerable compared to those who did not. Accordingly, those who used digital money transfer services to access money were less vulnerable compared to those who did not. ⁷⁴ Thus, people with secure ways of accessing money are less vulnerable compared to those who are working along the journey.

*** p<0.01, **p<0.05, * p<0.1⁷⁵ ~no statistical significance detected

71 A “positive coefficient” here means that coming from Nigeria, Chad, or Eritrea increases the likelihood of 4Mi respondents reporting protection incidents. “Highly significant” indicating that within the specified model, that those with the indicated nationalities were more susceptible to experiencing a protection incident as compared to their peers is likely not just due to chance.

72 The result is very similar when we estimate OLS models and Poisson models (see Appendix 7.3).

73 The result holds in all the specified models. See appendix 5 for the OLS and the Poisson specifications.

74 The result is similar in all the specified models. See Appendix 7.7 for the OLS and Poisson output.

75 The asterisks indicate the probability of a finding being wrong: *=less than 1 in 20. **= less than 1 in 100. ***=less than 1 in 1,000.

5. Conclusion

This report investigated the factors impacting the vulnerability of refugees and migrants surveyed by 4Mi to protection incidents in Libya. Here, protection incidents include physical or sexual abuse, robbery, kidnapping, detention, and witnessing another migrant's death. It analysed the demographic, social, and economic determinants of vulnerability of people on the move using a unique dataset drawn from 5,659 surveys conducted in Libya between May 2017 and October 2019. From the summary statistics, **4Mi data reveal that 37 percent of all surveyed individuals experienced one or more protection incident within Libya**. This proportion is remarkably high and supports previous reports that suggest that the situation for refugees and migrants within Libya is critical.

Physical abuse is the most prevalent protection incident reported by both men and women, experienced by 21 percent of the respondents. The second most-cited protection incident reported is robbery (14 percent) followed by detention, death and sexual abuse, each at 12 percent. Five percent of the whole sample reported having been kidnapped. The data reveal specific gender dynamics in protection in that **sexual abuse is more prevalent for women**, with 19 percent of the female respondents having experienced or witnessed sexual abuse compared to 6 percent of male respondents.

This study highlights the importance of applying more advanced statistical analysis to available data. By subjecting the factors that affect the vulnerability of refugees and migrants in Libya to advanced statistical modelling, this report throws the complex relationships between different factors and people's vulnerability into sharper focus. More specifically, it enriches our understanding of the concept of refugee and migrant vulnerability by seeking to isolate factors which could make people on the move in Libya more susceptible to experiencing incidents and determining the effects of each of these factors when confounding factors are held constant. Thereby, it is hoped, this study makes an important contribution to existing work on the vulnerability of people on the move.

The regression analysis reveals that nationality seems to play a large role in determining respondents' vulnerability to protection violations. **Respondents from Chad, Eritrea, and Nigeria were significantly more vulnerable compared to respondents from other African countries**, even when a large number of control variables were considered. Based on the fact that these origin countries are located within Central, East, and West Africa respectively, vulnerability cannot be attributed solely to the route that refugees and migrants take to and through Libya. Additionally, **men were overall found to be more vulnerable compared to women, except in relation to sexual abuse**. The modelling, however, did not show that religion played a significant role in protection vulnerability, and thus we found **no evidence that Christians are more vulnerable to experiencing protection incidents**, as has often been asserted in the literature. Moreover, **respondents who migrated due to factors related to conflict, violence and persecution were not found to be more vulnerable compared to those who migrated for other reasons** (i.e. economic, familial, environmental etc.). This stresses the **importance of the mixed migration focus** in policy and response, as it suggests that **all** migrants, regardless of the reasons for movement, are vulnerable to a variety of protection incidents within Libya. Finally, the way in which refugees and migrants arrange the payment to their smuggler, and how they access money along their journey also matter. Specifically, **those who worked along the journey were considerably more vulnerable than those who used digital money**. **Paying a smuggler upon arrival or having agreed to pay half at departure and half upon arrival, also decreased the vulnerability of respondents**. Such payment arrangements might therefore reduce protection vulnerabilities along the migration journey as they give the smuggler an economic incentive to facilitate a safe journey.

6. Implications and recommendations

The findings of this study have various implications for protection programming within Libya, policy, and future research.

6.1 For programming:

- **Use a routes-based approach to develop and implement protection programming.** The research presented suggests that Eritreans and Nigerians are the most vulnerable to protection violations. Therefore, targeted programming for these groups should be undertaken in Libya, as well as in origin and transit countries (including Arabic language training or information campaigns on risks associated with the journey), to reduce refugees' and migrants' vulnerabilities before they arrive in Libya.
- **Provide gender-sensitive programming to refugees and migrants, particularly in regard to sexual exploitation and abuse faced by women on the move.** Some 19 percent of the female respondents experienced or witnessed sexual abuse.
- **Consider options of digital cash programming when possible.** The findings suggest that refugees and migrants who access money through digital money transfer are less vulnerable to experiencing protection incidents than those who carry cash along the route.
- **Geographically tailor protection programming.** The findings suggest that the majority of protection incidents reported by 4Mi respondents in Libya occurred in the desert (Kufra district), especially physical abuse, sexual abuse and witnessing another migrant's death. Many protection incidents were also reported in Sabha and Tripoli. Protection programming should therefore specifically seek to work in these locations and to alert refugees and migrants to the specific risks in these areas.

6.2 For policy:

- **Engage local civil society actors and Libyan authorities to promote a domestic legal framework for refugees and migrants** that focuses on protection, irrespective of legal status.
- **Create complementary protection pathways in countries of intended destination** through employment schemes and higher education, to create opportunities for safe routes out of Libya, for both migrants and refugees.
- **Place human rights at the centre of all approaches.** The human rights of refugees and migrants should be at the centre of programming and support for Libya, taking into account the OHCHR Recommended Principles and Guidelines on Human Rights at International Borders. These principles recommend that legislative provisions be proportionate and that criminal penalties be applied, where appropriate, for offenses committed against migrants at international borders.

6.3 For further research:

- **Expand research and data collection on refugee and migrant protection in Libya.** While this report contributes to understanding the factors that impact refugees' and migrants' vulnerability to protection incidents, there remains a lack of data on protection in Libya. Specifically, there is a lack of data on refugees and migrants who are more settled in Libya and may have very different experiences with protection and human rights violations than those actively on the move.

7. Appendices

Table 0. How to read a logistic regression table

	(1)	(2)	(3)	(4)
VARIABLES	Simple	Demographics	Family Factors	Social Status
Muslim	-0.102*** (0.0379)	-0.130*** [0.0375]	-0.126*** [0.0374]	-0.0650 [0.0414]
Gender		0.105*** [0.0303]	0.0905*** [0.0312]	0.131*** [0.0331]
Age		-0.0160*** [0.00232]	-0.00942*** [0.00277]	-0.0147*** [0.00286]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	0.594*** (0.0476)	1.172*** [0.0834]	1.067*** [0.0851]	0.972*** [0.119]
Observations	5,659	5,653	5,653	5,309
R-squared	0.170	0.188	0.190	0.233

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Independent variables
(are used to explain/predict dependent variables).

This is the **standard error**, or 'typical' error. We can simplify by saying that the lower the error, the better the model.

Control variables
(factors related to the dependent variables which are held constant in analysis to better understand the effect between the independent and dependent variable):

The majority of the analysis presented in this report uses 4 models with building with four sets of control variables. The first model does not include controls, the second model incorporates demographics, the third model includes family factors, and the last model also includes factors relating to social status.

All models controlled for "exposure time" or journey length, and city of interview.

This is the **regression coefficient**, and provides 2 pieces of information:

- (1) Whether the association is positive or negative. A positive coefficient means being a Muslim increases likelihood of the number of protection incidents, where as a negative coefficient, suggests that being Muslim **decreases** likelihood of experiencing protection incidents
- (2) Whether the association is **statistically significant**. In other words, whether or not the association is 'real' (as opposed to merely due to chance). In this case, 3 levels are used:
 *The chance that the finding is wrong is less than 1 in 10
 ** The chance that the finding is wrong is less than 1 in 20
 ***The chance that the finding is wrong is less than 1 in 1,000

A coefficient without an asterisk is statistically not significant.

For example, Muslims are less likely than others to report protection incidents, and the chance that the finding is wrong given the current model is less than 1 in 1,000.

Dependent variables
(are explained/predicted by independent variables)

For the OLS modelling, the dependent variable is the number of reported protection incidents. In the logistic models presented, the dependent variable is binary, and accounts for if the respondent reported 1 or more protection incidents.

R-squared is a measure of how well the whole model explains the data. For example, a R2 of 0.233 means that 23.3% of the variation in the number of protection incidents is explained by all the independent variables (demographics, family factors, and social status) taken together.

7.1 Nationality

Table A1. Logistic estimation: Nationality

	(1) Nigerian	(2) Sudanese	(3) Ghanaian	(4) Eritrean	(5) Burkinabe	(6) Chadian	(7) Nigerien	(8) Camer- oonian	(9) Ivorian	(10) Malian	(11) Beninese
VARIABLES											
Nigerian	0.454***										
	(0.095)										
Sudanese		0.14									
		(0.175)									
Ghanaian			-0.314**								
			(0.0164)								
Eritrean				0.613***							
				(0.161)							
Burkinabe					-1.212***						
					(0.181)						
Chadian						0.459***					
						(0.175)					
Nigerien							-0.720***				
							(0.168)				
Cameroonian								-0.115			
								(0.178)			
Ivorian									-0.669**		
									(0.265)		
Malian										-1.303***	
										(0.295)	
Beninese											-0.181
											(0.025)
Controls	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
Journey length (log)	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
City of Interview	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-1.157	-0.848	-0.854	-0.846	-0.852	-0.983	-0.865	-0.847	-0.861	-0.808	-0.866
	(0.301)	(0.294)	(0.295)	(0.294)	(0.295)	(0.298)	(0.294)	(0.294)	(0.295)	(0.294)	(0.294)
Observations	5,659	5,659	5,659	5,659	5,659	5,659	5,659	5,659	5,659	5,659	5,659
R-Squared	0.172	0.168	0.169	0.171	0.177	0.169	0.171	0.168	0.169	0.172	0.168

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

7.2 Religion, gender and age

Table A2. Logistic estimation: Religion, Gender and Age

VARIABLES	(1) Simple model	(2) Demographics	(3) Family factors	(4) Social status
Muslim	-0.0156 (0.0705)	-0.0778 [0.0719]	-0.0676 [0.0718]	0.0933 [0.0786]
Male		0.165*** [0.0629]	0.144** [0.0645]	0.227*** [0.0698]
Age		-0.0233*** [0.00522]	-0.0133** [0.00626]	-0.0247*** [0.00673]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.457*** (0.0962)	0.419** [0.186]	0.250 [0.194]	0.182 [0.272]
Observations	5,659	5,653	5,653	5,309

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Table A3. Logistic estimation: Religion, gender and age (Disaggregated by incident number and type)

VARIABLES	(1) Robbery	(2) Physical abuse	(3) Detention	(4) Kidnapping	(5) Sexual abuse	(6) Death
Muslim	0.0952 (0.104)	0.158* [0.0904]	-0.396*** [0.120]	-0.400** [0.160]	-0.143 [0.110]	0.00416 [0.114]
Gender	0.304*** (0.0974)	0.341*** [0.0841]	0.804*** [0.115]	0.534*** [0.152]	-1.320*** [0.114]	0.541*** [0.114]
Age	-0.0224** (0.00909)	-0.0286*** [0.00878]	-0.00225 [0.0103]	-0.0395** [0.0170]	-0.0542*** [0.0126]	-0.0324*** [0.0110]
Controls	ALL	ALL	ALL	ALL	ALL	ALL
Journey length (log)	YES	YES	YES	YES	YES	YES
City of interview	YES	YES	YES	YES	YES	YES
Constant	-2.257*** (0.378)	-1.839*** [0.387]	-1.775*** [0.430]	-5.042*** [0.743]	-1.455*** [0.480]	-2.577*** [0.463]
Observations	5,314	5,314	5,314	5,314	5,314	5,314

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Table A4. OLS estimation: Religion, gender and age

VARIABLES	(1) OLS Simple	(2) OLS Demographics	(3) OLS Family Factors	(4) OLS Social Status
Muslim	-0.102*** (0.0379)	-0.130*** [0.0375]	-0.126*** [0.0374]	-0.0650 [0.0414]
Gender		0.105*** [0.0303]	0.0905*** [0.0312]	0.131*** [0.0331]
Age		-0.0160*** [0.00232]	-0.00942*** [0.00277]	-0.0147*** [0.00286]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	0.594*** (0.0476)	1.172*** [0.0834]	1.067*** [0.0851]	0.972*** [0.119]
Observations	5,659	5,653	5,653	5,309
R-squared	0.170	0.188	0.190	0.233

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Table A5. Poisson estimation: Religion, gender and age

VARIABLES	(1) Poisson Simple	(2) Poisson Demographics	(3) Poisson Family Factors	(4) Poisson Social Status
Muslim	-0.101*** (0.0345)	-0.140*** [0.0349]	-0.127*** [0.0349]	-0.0582 [0.0369]
Gender		0.125*** [0.0319]	0.114*** [0.0328]	0.168*** [0.0343]
Age		-0.0219*** [0.00274]	-0.0128*** [0.00331]	-0.0207*** [0.00351]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.628*** (0.0552)	0.108 [0.0980]	-0.0605 [0.104]	-0.163 [0.149]
Observations	5,659	5,653	5,653	5,309

Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

7.3 Education

Table A6. Logistic estimation: Education

VARIABLES	(1) Simple model	(2) Demographics	(3) Family factors	(4) Social status
Education ref.cat.; No education				
Primary school	0.636*** (0.137)	0.514*** [0.140]	0.497*** [0.141]	0.488*** [0.164]
Secondary school	0.648*** (0.126)	0.517*** [0.130]	0.513*** [0.130]	0.534*** [0.161]
Vocational training	0.992*** (0.140)	0.990*** [0.144]	0.980*** [0.145]	0.525*** [0.180]
Tertiary education	1.026*** (0.150)	0.925*** [0.157]	0.909*** [0.157]	0.414** [0.211]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-1.147*** (0.135)	-0.137 [0.219]	-0.272 [0.226]	0.202 [0.271]
Observations	5,621	5,615	5,615	5,334

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Table A7. OLS estimation: Education

VARIABLES	(1) OLS Simple	(2) OLS Demographics	(3) OLS Family Factors	(4) OLS Social Status
Education ref.cat.; No education				
Primary school	0.443*** (0.0615)	0.377*** [0.0610]	0.364*** [0.0612]	0.337*** [0.0664]
Secondary school	0.439*** (0.0529)	0.339*** [0.0551]	0.336*** [0.0549]	0.286*** [0.0665]
Vocational training	0.604*** (0.0579)	0.554*** [0.0598]	0.546*** [0.0596]	0.277*** [0.0720]
Tertiary education	0.760*** (0.0714)	0.670*** [0.0759]	0.658*** [0.0755]	0.365*** [0.0890]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	0.0377 (0.0599)	0.790*** [0.0975]	0.707*** [0.0998]	0.972*** [0.119]
Observations	5,621	5,615	5,615	5,309
R-squared	0.185	0.201	0.203	0.233

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Table A8. Poisson estimation: Education

VARIABLES	(1) Poisson Simple	(2) Poisson Demographics	(3) Poisson Family Factors	(4) Poisson Social Status
Education ref.cat.; No education				
Primary school	0.604*** (0.0822)	0.516*** [0.0830]	0.505*** [0.0830]	0.478*** [0.0968]
Secondary school	0.552*** (0.0780)	0.463*** [0.0789]	0.458*** [0.0789]	0.400*** [0.0958]
Vocational training	0.792*** (0.0838)	0.777*** [0.0850]	0.768*** [0.0850]	0.351*** [0.105]
Tertiary education	0.939*** (0.0858)	0.875*** [0.0872]	0.853*** [0.0873]	0.438*** [0.115]
Controls	No	Demographic	Demog + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-1.321*** (0.0839)	-0.406*** [0.123]	-0.537*** [0.127]	-0.163 [0.149]
Observations	5,621	5,615	5,615	5,309

Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

7.4 Smuggling payment

Table A9. Logistic estimation: Smuggling payment

VARIABLES	1	2	3	4
Payment at departure	-0.0632			
	[0.0931]			
Half at departure and half at arrival		-1.116***		
		[0.0895]		
Payment at arrival			-0.707***	
			[0.133]	
Payment through work				0.840***
				[0.120]
Controls	ALL	ALL	ALL	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	0.190	0.305	0.145	0.226
	[0.272]	[0.272]	[0.274]	[0.273]
Observations	5,309	5,309	5,309	5,309

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Table A10. OLS estimation: Smuggling payment

VARIABLES	(1) OLS Payment at departure	(2) OLS Half at departure/Half on arrival	(3) OLS Payment on arrival	(4) OLS Payment through work
Payment at departure	0.0862**			
	[0.0435]			
Half at departure and half on arrival		-0.510***		
		[0.0310]		
Payment on arrival			-0.0964	
			[0.0631]	
Payment through work				0.562***
				[0.0761]
Controls	ALL	ALL	ALL	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	0.960***	1.052***	0.963***	1.013***
	[0.118]	[0.116]	[0.120]	[0.119]
Observations	5,309	5,309	5,309	5,309
R-squared	0.234	0.265	0.233	0.246

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Table A11. Poisson estimation: Smuggling payment

VARIABLES	(1) Poisson Payment at departure	(2) Poisson Half at departure/Half on arrival	(3) Poisson Payment on arrival	(4) Poisson Payment through work
Payment at departure	0.0471			
	[0.0464]			
Half at departure and half on arrival		-0.805***		
		[0.0480]		
Payment on arrival			-0.196***	
			[0.0635]	
Payment through work				0.417***
				[0.0482]
Controls	ALL	ALL	ALL	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.166	-0.0890	-0.155	-0.154
	[0.149]	[0.147]	[0.149]	[0.149]
Observations	5,309	5,309	5,309	5,309

Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

7.5 Mixed migration drivers

Table A12. Logistic estimation: Mixed migration drivers

VARIABLES	(1) Simple model	(2) Demographics	(3) Family factors	(4) Social status
Violence, war and a lack of rights	-1.015***	-1.014***	-1.007***	-0.753***
	(0.0891)	[0.0888]	[0.0889]	[0.101]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.335***	0.471**	0.336*	0.390
	(0.0748)	[0.190]	[0.198]	[0.274]
Observations	5,659	5,653	5,653	5,309

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Table A13. OLS estimation: Mixed migration drivers

VARIABLES	(1) OLS Simple	(3) OLS Demographics	(3) OLS Family Factors	(4) OLS Social Status
Violence, war and a lack of rights	-0.547***	-0.535***	-0.530***	-0.379***
	(0.0497)	[0.0500]	[0.0498]	[0.0545]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	0.578***	1.196***	1.105***	1.069***
	(0.0371)	[0.0827]	[0.0844]	[0.117]
Observations	5,659	5,653	5,653	5,309
R-squared	0.197	0.213	0.215	0.243

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

Table A14. Poisson estimation: Mixed migration drivers

VARIABLES	(1) Poisson Simple	(2) Poisson Demographics	(3) Poisson Family Factors	(4) Poisson Social Status
Violence, war and a lack of rights	-0.567***	-0.555***	-0.548***	-0.345***
	(0.0404)	[0.0409]	[0.0410]	[0.0463]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.612***	0.158	0.0161	-0.0101
	(0.0457)	[0.0988]	[0.104]	[0.150]
Observations	5,659	5,653	5,653	5,309

Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

7.6 Intended destination

Table A15. Logistic estimation: Intended destination

VARIABLES	(1) Simple model	(2) Demographics	(3) Family factors	(4) Social status
Europe as intended destination	0.495***	0.325***	0.326***	0.287***
	(0.0712)	[0.0750]	[0.0751]	[0.0793]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.925***	0.0146	-0.157	-0.186
	(0.102)	[0.209]	[0.216]	[0.289]
Observations	5,659	5,653	5,653	5,309

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A16. OLS estimation: Intended destination

VARIABLES	OLS Simple	OLS Demographics	OLS Family Factors	OLS Social Status
Europe as destination	0.174***	0.0887***	0.0901***	0.0756**
	(0.0351)	[0.0330]	[0.0330]	[0.0353]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	0.343***	1.053***	0.946***	0.870***
	(0.0533)	[0.0978]	[0.0988]	[0.128]
Observations	5,659	5,653	5,653	5,309
R-squared	0.173	0.189	0.191	0.234

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A17. Poisson estimation: Intended destination

VARIABLES	(1) Poisson Simple	(2) Poisson Demographics	(3) Poisson Family Factors	(4) Poisson Social Status
Europe as destination	0.195***	0.0791	0.0785	0.0702
	(0.0460)	[0.0502]	[0.0501]	[0.0510]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.895***	0.0138	-0.152	-0.253
	(0.0818)	[0.139]	[0.143]	[0.195]
Observations	5,659	5,653	5,653	5,309

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

7.7 Means of financing steps of the journey

Table A18. Logistic estimation: Means of financing steps of the journey

VARIABLES	(4)	(5)	(6)
Carrying Cash	0.000879		
	[0.0860]		
Work		0.407***	
		[0.0847]	
Transfer			-1.035***
			[0.0838]
Controls	ALL	ALL	ALL
Journey length (log)	YES	YES	YES
City of interview	YES	YES	YES
Constant	0.182	-0.231	0.436
	[0.272]	[0.283]	[0.271]
Observations	5,309	5,309	5,309

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A19. OLS estimation: Means of financing steps of the journey

VARIABLES	(4) OLS Carrying Cash	(5) OLS Work	(6) OLS Transfer
Carrying Cash	0.0371		
	[0.0412]		
Work		0.242***	
		[0.0537]	
Transfer			-0.483***
			[0.0402]
Controls	ALL	ALL	ALL
Journey length (log)	YES	YES	YES
City of interview	YES	YES	YES
Constant	0.968***	0.726***	1.110***
	[0.119]	[0.133]	[0.116]
Observations	5,309	5,309	5,309
R-squared	0.233	0.238	0.259

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A20. Poisson estimation: Means of financing steps of the journey

VARIABLES	(1) Poisson Carrying Cash	(2) Poisson Work	(3) Poisson Transfer
Carrying Cash	-0.0388		
	[0.0416]		
Work		0.210***	
		[0.0389]	
Transfer			-0.575***
			[0.0450]
Controls	ALL	ALL	ALL
Journey length (log)	YES	YES	YES
City of interview	YES	YES	YES
Constant	-0.158	-0.374**	0.0125
	[0.149]	[0.153]	[0.149]
Observations	5,309	5,309	5,309

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

7.8 Route within Libya

Table A21: Logistic estimation: Route within Libya

VARIABLES	Simple model	Demographics	Family factors	Social status
Eastern route in Libya	0.435***	0.448***	0.407***	0.102
	(0.107)	[0.109]	[0.109]	[0.121]
Controls	No	Demographic	Demographic + Family	ALL
Journey length (log)	YES	YES	YES	YES
City of interview	YES	YES	YES	YES
Constant	-0.770***	-0.104	-0.235	-0.101
	(0.106)	[0.192]	[0.196]	[0.272]
Observations	5,659	5,659	5,659	5,314

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.



The MMC is a global network consisting of seven regional hubs and a central unit in Geneva engaged in data collection, research, analysis and policy development on mixed migration. The MMC is a leading source for independent and high-quality data, research, analysis and expertise on mixed migration. The MMC aims to increase understanding of mixed migration, to positively impact global and regional migration policies, to inform evidence-based protection responses for people on the move and to stimulate forward thinking in public and policy debates on mixed migration. The MMC's overarching focus is on human rights and protection for all people on the move.

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