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The problem of women's "road unsafety" in Africa

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Abstract

Different studies have indicated that demographic factors (i.e., gender, educational level, age) plays a role in driving style. Gender has been considered in relation to risky driving behaviour in young drivers and in general, it has been found that, in terms of risk behaviour in road traffic, males are more willing to take risks than female. The data from the World Health Organization finds that many more males than females are casualties of road traffic crashes in Africa. In addition, while gender issues have been considered in a number of policy areas, little progress has been made in the transport and road safety sector. In this regard, this paper explores the involvement and perception of crash risk, attitudes and behaviours of African women, involvement in road traffic accidents, and the role of women in improving safety conditions in Africa. Several data sources were considered by the study and analysed: Road traffic crash data from the WHO road safety report; data on risk perceptions and attitudes from the international ESRA survey; and data on women's participation in the *SaferAfrica* dialogue platform. According to WHO data, 70% of the road traffic crash fatalities were male (202,029) and 30% of the fatalities were female (84,665) in Africa. For the descriptive comparison at the country by country level using data from ESRA survey, the results show that gender differences are evident in most countries, dependent on the question being asked. Women make up just 20% of stakeholders in Africa according to data from the *SaferAfrica* dialogue platform.

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1. Introduction

According to the Global Status Report on Road Safety 2018, around 1.35 million people die and 50 million are injured in road crashes every year (World Health Organization 2018). Road and roadside characteristics are a pivotal factor in the number of fatalities and serious injuries. Infrastructure is a factor that affects road user behaviour and consequently road traffic crash rates (Chhanabhai et al. 2017; González-Hernández et al. 2020). Road crashes remain a significant public health issue, where the role of gender is undeniable. Even when exposure is controlled for, males are more often involved in road crashes than females, including those involving a car, motorcycle, bicycle or on foot (Stimpson et al. 2013; Pulido et al. 2016; Prati et al. 2019). For example, although females represent 51% of the world's population, their share of road deaths is only 24% (Rodrigues et al. 2015).

As sustainability is becoming a common practice in planning transport systems and mobility services, the designation and management of gender issues are of paramount importance (Pirra et al. 2021). However, transport is one of several sectors that have traditionally been regarded as 'no place for women'. In many respects and in many countries, this may still be the case today (Turnbull 2013; Poveda-Reyes et al. 2021). While gender issues have been considered in a number of policy areas, little progress has been made in the transport sector (Ortega Hortelano et al. 2019). The transport sector remains male-dominated; few women are employed in the sector except in travel service occupations (e.g. as travel agents). The great majority of transport drivers and operatives are male, as are those employed in vehicle trades (e.g. as car mechanics) (Hamilton et al. 2005).

Women are also under-represented in professional and managerial positions within the sector, or in transport related public bodies; hence their influence over the decision-making process is very limited (Hamilton et al. 2005). Detailed and accurate statistics on the employment of women in the transport sector are hard to come by, especially for specific transport modes such as maritime, ports, inland waterways, civil aviation, road and railways (Turnbull 2013).

There is increasing evidence to suggest that transport is not gender neutral (Frye 2006). For example, women are currently underrepresented in the European transport sector accounting for only 22% of transport workers (Giannelos et al. 2018). The underrepresentation of women in the transport sector can be explained by several reasons: difficulty to find a work-life balance in shift work, lack of appropriate working environment and equipment, lack of training and life-long learning opportunities or inadequate targeted recruitment (Ortega Hortelano et al. 2019) persistence of stereotypes, harassment, and bullying (Pillinger 2017).

Women's place in society, both in developed and developing countries, means that they are less involved in decision-making processes than men. This is particularly true in the mobility and transport sector, traditionally seen as a male sector, whether it be in terms of the design of infrastructure, equipment or services (Duchene 2011).

Therefore, the objective of this paper is to explore the involvement and perception of crash risk, attitudes and behaviours of African women, involvement in road traffic accidents, and the role of women in improving safety conditions in Africa.

2. Methodology

Several data sources were considered by the study and analysed: Road traffic crash data from the WHO road safety report; data on risk perceptions and attitudes from the international ESRA survey; and data on women's participation in the SaferAfrica dialogue platform.

2.1. WHO road safety report

The World Health Organisation (WHO) publishes every three years the Global status report on road safety with related data for more than 180 countries. The Global status report on road safety is developed through an iterative and consultative process with participating states. Based on the reported number of road traffic deaths and the source of data of each country, adjustments are made to account for the potential under-reporting due to differences in definitions as well as limitations in the Civil Registration and Vital Statistics (CRVS) in many countries. This process results in an estimated number of fatalities.

2.2. ESRA survey

The ESRA initiative is a joint initiative of road safety institutes, research centres, public services, and private sponsors from all over the world. The aims of the project are: (1) to collect and provide internationally comparable data on the current road safety situation in countries across the world, (2) to provide scientific support for road safety policy at national and international levels, (3) to develop a series of reliable, cost-effective, and comparable road safety performance indicators, and (4) to develop time series on road safety performance (Meesmann et al. 2019).

At the heart of the project was an online survey, using representative samples (at least 1000 road users) of the national adult population of each of the participating countries. A common questionnaire was developed and translated into 33 different languages. The subjects of the survey included the attitudes towards unsafe traffic behaviour, self-declared (unsafe) behaviour in traffic, and support for road safety policy measures (Torfs et al. 2016; Meesmann et al. 2018).

The first edition of the ESRA survey (ESRA1) was conducted in 2015 in 17 European countries (first wave). The initiative raised a lot of interest in the international road safety community. Subsequently, 21 additional countries, mostly non-European, joined ESRA in two additional waves conducted in 2016 and 2017. In total, the first edition of ESRA covered almost 40,000 respondents from 38 countries across the world (Pires et al. 2020).

For this study, ESRA data was used to analyse gender differences in self-reported data on driving behaviour and attitudes in the following five African countries participating in ESRA2 (2018): Egypt, Kenya, Morocco, Nigeria, South Africa. The resulting sample consists of 3,411 individuals: 1,925 males (56.44% of the sample) and 1,486 females (43.56% of the sample) equally distributed in the five countries studied.

2.3. SaferAfrica dialogue platform

The concept of *SaferAfrica* was based on the idea that Europe can play an important role by supporting African countries in improving road safety and achieving the Action Plan targets. In this view, the project aimed at building favourable conditions and opportunities for the effective implementation of road safety actions in African countries by setting up a Dialogue Platform between Africa and Europe (González-Hernández et al. 2021; Usami et al. 2021).

The overall concept of *SaferAfrica* was depicted by a pyramid, articulated in three levels (Figure 1). The top of the pyramid represents road safety and traffic management actions oriented to the “Safe System approach”. The other two levels represent the Dialogue Platform. Of these two levels, the higher one is a decision-making level, namely the Institutional level (in blue), while the lower one constitutes the Technical level (in red). These two levels are closely interconnected to foster the appropriate match between African road safety policy evolution, application, knowledge enhancement and institutional delivery capacity.

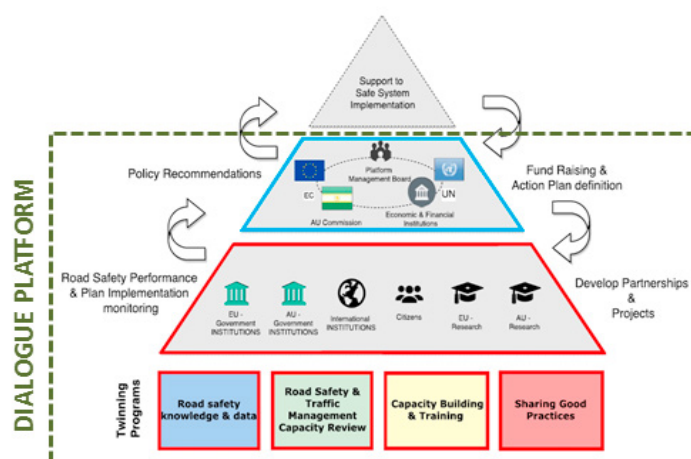


Figure 1 - The overall concept of SaferAfrica (Usami et al. 2021).

The Institutional level of the Dialogue Platform (DP) comprises representatives of existing institutions and competent authorities at the country and continent levels tackling regulatory, financing and planning issues in the

different fields involved in road safety. The actors belonging to this level include: the African Union, economic and financial institutions (e.g. African Regional Economic Communities), multilateral development banks and other relevant international organisations working in the African continent. The Technical level of the DP comprises both African and European government and research institutions, international institutions and organisations for citizen representation (e.g. NGOs).

3. Results

3.1. WHO road safety report

According to the distribution of fatalities by gender in Africa, based on data estimated and included in the last report of WHO (2018), 70% of the fatalities were male (202,029) and 30% of the fatalities were female (84,665), while the estimated road traffic death rate (per 100,000 population) is 38.05 and 15.89 respectively.

In three countries (Morocco, Mauritius, and Seychelles), the percentage of female fatalities is lower than 20%. Twenty-five Countries show a percentage of female fatalities higher than the average value of the entire continent (30%). The highest value of percentage of female fatalities is recorded for Mauritania and the lowest one for Morocco.

3.2. ESRA survey

This section presents the means and tests of the significance of the difference between the two gender groups in each ESRA Africa country for each aggregate variable.

3.2.1. Personal Acceptability of risky driving behaviours

The aggregated score of personal acceptability of risky driving behaviours includes the following items: How acceptable do you, personally, feel it is for a car driver to...? drive when he/she may be over the legal limit for drinking and driving, drive 1 hour after using drugs (other than medication), drive faster than the speed limit inside built-up areas, drive faster than the speed limit on motorways/freeways, not wear a seatbelt while driving, transport children in the car without securing them (child's car seat, seatbelt, etc.), talk on a hand-held mobile phone while driving, read a text message/email or check social media (e.g. Facebook, twitter, etc.) while driving.

As shown in Table 1, the test of the analysis of variance showed significant gender differences for one (South Africa) out of the five countries and the Africa region of the ESRA sample. For both cases, males perceived higher personal acceptability of risky driving behaviours than females.

Table 1. Mean, standard deviation and partial eta square for the analysis of variance of gender difference for the score of personal acceptability of risky driving behaviours by African countries.

Country	Gender				η^2
	Males		Females		
	Mean	SD	Mean	SD	
Egypt	22.61	8.48	21.12	9.07	<0.01
Kenya	17.35	6.25	16.52	5.52	<0.01
Morocco	20.39	8.23	20.29	8.69	<0.01
Nigeria	17.42	5.98	17.03	5.99	<0.01
South Africa	18.90**	7.19	17.29	5.68	0.01
Africa	19.26***	7.50	18.33	7.18	<0.01

Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean

3.2.2. Self-efficacy in risky behaviours

The aggregated score of self-efficacy in risky behaviours includes the following items: To what extent do you agree with each of the following statements? I trust myself to drive after having a glass of alcohol, I have the ability

to drive when I am a little drunk after a party, I am able to drive after drinking a large amount of alcohol (e.g. half a litter of wine), I trust myself when I drive significantly faster than the speed limit, I am able to drive fast through a sharp curve, I trust myself when I check my messages on the mobile phone while driving, I have the ability to write a message on the mobile phone while driving, I am able to talk on a hand-held mobile phone while driving

As shown in Table 2, the test of the analysis of variance showed significant gender differences for three (Egypt, Kenya, and South Africa) out of the five countries and the Africa region of the ESRA sample. For all the countries where gender difference was significant, males declared higher level of self-efficacy in risk behaviours than females.

Table 2. Mean, standard deviation and partial eta square for the analysis of variance of gender difference for the score of self-efficacy in risk behaviours by African countries.

Country	Gender				η^2
	Males		Females		
	Mean	SD	Mean	SD	
Egypt	13.28*	5.08	12.6	4.65	0.01
Kenya	14.75**	6.14	12.91	5.43	0.01
Morocco	12.34	4.96	11.90	5.08	<0.01
Nigeria	14.29	5.79	13.21	6.44	<0.01
South Africa	16.95***	7.12	13.84	5.64	0.03
Africa	14.43***	6.09	12.98	5.57	0.02

Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean

3.2.3. Perception of risky behaviours

The aggregated score of risk perception of risky behaviours includes the following items: How often do you think each of the following factors is the cause of a road crash involving a car? driving after drinking alcohol, driving after taking drugs (other than medication), driving faster than the speed limit, using a hand-held mobile phone while driving, using a hands-free mobile phone while driving, inattentiveness or day-dreaming while driving, driving while tired.

As shown in Table 3, the tests of analysis of variance showed significant gender differences for three out of the five countries and the Africa region of the ESRA sample. Gender differences are not significant for Kenya. For three out of five countries where gender difference was significant, females declared higher risk perception of risky behaviours than males, except in Morocco, where males had a higher risk perception.

- Table 3. Mean, standard deviation and partial eta square for the analysis of variance of gender difference for risk perception of risk behaviour score by African countries.

Country	Gender				η^2
	Males		Females		
	Mean	SD	Mean	SD	
Egypt	26.44	11.44	26.66	12.88	<0.01
Kenya	32.39	8.88	3.81	7.77	<0.01
Morocco	27.54*	10.97	26.03	13.67	0.01
Nigeria	31.03	9.13	32.63*	9.82	0.01
South Africa	26.54	10.09	30.05*	9.27	0.03
Africa	28.76	10.39	29.86**	11.05	<0.01

- Note: ***p<.001, **p<.01, *p<.05. The symbol of significance is presented next to the significantly highest mean

3.3. SaferAfrica Dialogue Platform

Stakeholders can be defined as “those who have an interest in a particular decision, either as individuals or

representatives of a group. This includes people who influence a decision, or can influence it, as well as those affected by it” (Hemmati et al. 2002). The SaferAfrica project aims at producing knowledge to influence road safety funding, policies and interventions in Africa. While the project does not entail taking any decisions in road safety, any organization involved directly or indirectly in the existing decisional processes on road safety is a potential stakeholder of interest.

Core stakeholders, essential to this process, were country governments and state agencies, like ministries, road safety agencies and road authorities. Non-governmental organizations are also important players actively participating to improve road safety conditions in Africa. A third category is represented by business profit organizations, such as road safety consultants and providers of products and services aimed at improving road safety. These stakeholders can be also categorized according to three main layers: international, national and local (González-Hernández et al. 2021).

During the three years of the project 192 stakeholders who represent 40 of the African countries took part in the platform. The stakeholders can be also categorized by gender. According to Ortega Hortelano et al., (2019), gender differences exist with regard to access to transport and mobility, transport safety, personal security, and participation in the transport sector. While gender issues have been considered in a number of policy areas, little progress has been made in the transport sector. The distribution of SaferAfrica stakeholders by gender was represented by 18% females and 82% males.

Figure 2 illustrates the distribution of SaferAfrica stakeholders by type of organization in each African region. The majority of them belongs to the public and no-profit sector. In Eastern Africa and Western Africa there are the lowest percentages of stakeholders from ministries and similar central public institutions with 46% and 48%, respectively. In Southern Africa there is a good involvement of stakeholders from government agencies and NGOs, while in Western Africa from NGOs and road safety agencies. A Road safety agency seems not to be involved in any of the Northern African countries. NGOs are represented in all the five regions with percentages ranging from 8% in Northern Africa to 23% in Eastern Africa.

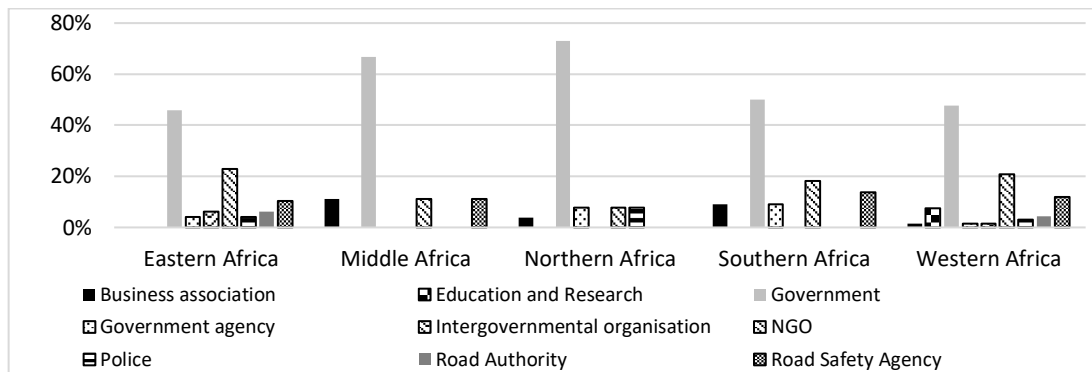


Figure 2 - Percentage of involved stakeholders by African region

After the characterization by type of organization, the stakeholders were classified by their role within their organization. There was a predominant number of people with a managerial and supervisory role within their organization (49%). In many cases they represent a department or an area director of a public organization. Road safety experts and professionals represent 14% of cases, while 19% cover the category of support, operational, technical or skilled positions. Similarly, 28% of the stakeholders did not indicate their role within the organization. With regard to the distribution of SaferAfrica stakeholders by role within their organization and gender. The professional role is the one with the highest participation by females (26%), while the role with the lowest participation of females is the operational and technical one with 13%.

4. Discussion and conclusions

This paper explored the involvement and perception of crash risk, attitudes and behaviours of African women, involvement in road traffic accidents, and the role of women in improving safety conditions in Africa. Several data

sources were considered by the study and analysed: Road traffic crash data from the WHO road safety report; data on risk perceptions and attitudes from the international ESRA survey; and data on women's participation in the *SaferAfrica* dialogue platform.

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For the descriptive comparison at the country by country level using data from ESRA survey, the results show that gender differences are evident in most countries, dependent on the question being asked. However, while these observed differences are statistically significant, the magnitude of these differences is typically small. For the countries where gender differences are statistically significant, males typically report higher rates of risky driving behaviours. According to data from *SaferAfrica*, females represent only 20% of stakeholders in Africa. This large difference in percentages does not occur only in Africa. For example, in the European transport sector, women are underrepresented compared to their male counterparts (22% of workers are female). An analysis of the 769 transport researchers working in 21 European projects (selected from the TRIMIS database) and 223 organizations, found that approximately 22% of the researchers are females (Ortega Hortelano et al. 2019).

The inclusion of women in training and employment programs to improve understanding of gender problems and concerns, would allow them to be better articulated in policies and projects in all transport sectors. In addition, greater female participation in decision-making bodies is expected to allow decisions to be based on the needs of both genders (United Nations Economic Commission for Africa 2019).

One of the limitations of the study is self-reporting. In fact, self-reported data are vulnerable to a number of biases (Choi & Pak 2005; Krosnick & Presser 2010): bias through misunderstanding of questions (e.g. questions with difficult words, long questions); or recall error – unintentional faulty answers due to memory errors; desirability bias – the tendency of respondents to provide answers which present a favourable image of themselves, e.g. individuals may over-report good behaviour or under-report bad, or undesirable behaviour. Women tend to have greater social desirability. However, in the specific area of driving behaviour, men may perceive social desirability in reporting risky behaviour that they may not have had, in order to display "typically male" behaviour (Pires et al. 2020). Despite having a representative sample of surveys for each of the five African countries analysed, the conclusions cannot be generalized to the whole continent.

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Database

The ESRA database can be consulted at the following link

<https://app.powerbi.com/view?r=eyJrIjoiM2Y5MzEwYTMtMTE1Mi00MzNkLWFiOWQtNmU2ZWNiM2RhYzJlIiwidCI6IjlkMWIxYjYyLWE5ZTAtNDg1Mi1hMTEwLWZlYzRmZDc1N2M2ZSIsImMiOj99&pageName=ReportSection9fbd3f40b24badccab99>