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Profile of Work Accidents in the Building and Public Works Sector BTP about 8 Companies in Conakry

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Results: This descriptive and analytical cross-sectional study was carried out in eight construction companies over a 7-month period from November 25, 2020 to June 27, 2021.

The majority of workers (94.5%) were employed on construction sites.

Accidents occurred most frequently in the afternoon and morning, with 55% and 43.75% respectively.

Conclusion: Accidents in the construction sector represent a real occupational health problem. Of the 400 workers who suffered an accident, 40% were under 25 years of age; around 30% had a secondary education; 52.3% did not have sufficient PPE; 80% of accidents were caused by inappropriate gestures and 99.5% had received no safety training.

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I. INTRODUCTION

The building and civil engineering sector is a vast one, encompassing a wide range of activities including the construction, repair, renovation and demolition of structures [1].

Regardless of the cause, an industrial accident is considered to be any accident that occurs to a worker as a result of or in the course of work, whether or not the worker is at fault.

- An accident to an employee during the journey to and from work is also considered an accident at work;
- The employee's principal residence, a stable secondary residence or any other place to which the

employee habitually travels for family reasons, and the place where the employee performs his or her work or receives his or her remuneration.

- The place of work and the restaurant, canteen and, in general, the place where the worker usually takes his meals, provided that the journey has not been interrupted or diverted by a reason of personal interest or independent of the employer;
- Accident to a worker during a journey, the cost of which is borne by the employer [2].

In the course of their activities, workers are subjected to a variety of exposures, including dusts and fumes, asbestos, uncomfortable postures, heavy loads, harsh weather conditions, working at heights, noise and tool vibrations, to name but a few. The causes of accidents and illness in this sector are well known, and almost all of them are avoidable

However, this sector remains at high risk of occupational accidents leading to work stoppage, loss of productivity, permanent disability and even death [3].

According to the ILO, in 2020, 23,846,159 non-fatal accidents occurred in industries in 71 countries. The construction sector alone is responsible for almost 13% of these accidents [4].

In France, a 2010 study by Tissot C. on the analysis of accidents in the building and civil engineering sector reported that 4,385 accidents occurred in the building and civil engineering sector, i.e. 29% of all recorded accidents between 1991 and 2008.

In Morocco, in 2018, Hami H et al. reported 305 work-related accidents, or 26.2%, between 2008 and 2009 in their study of construction and public works accidents in Morocco [5].

In Senegal in 2018, Dia SA et al. reported in their study on the characteristics of occupational accidents and the fate of victims, that the building and civil engineering sector was the biggest source of occupational accidents, with 22.6% of occupational accidents reported between 2002 and 2006.

It was against this background that we initiated this study, the general aim of which was to assess the factors contributing to occupational accidents in the building and civil engineering sector [6].

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II. METHODOLOGY

Setting: the city of Conakry served as the setting for this study.

Material: workers on construction sites in Conakry.

Selection criteria

Inclusion criteria: workers who had suffered a work-related accident on site and who agreed to participate in our study were included.

Non-inclusion criteria: workers who had suffered accidents unrelated to construction activities were not included, nor were workers who were absent during the survey period.

Data entry and analysis: our data were analyzed using epi-info software version 7.2.2.1.6.

Ethical considerations: workers were included on the basis of free and informed consent; anonymity and confidentiality of data were respected.

III. RESULTS

Table I: Distribution of workers by nature and site of injury

Variables		numbers (N=400)	Percentages (%)
Nature of injury	wounds	350	87,5
	Burns	4	1,0
	bruises	36	9,0
	Muscle pain	5	1,3
	Fractures	4	1,0
	Eye injury	1	0,2
Site of injury	Upper limbs	182	45,5
	Lower limbs	178	44,5
	Abdomen	2	0,5
	pelvis	6	1,5
	skull	20	5,0

Table II: Socioprofessional data

Characteristics	Number (N=400)	Percentages (%)
Age groups		
15 à 25	163	40,75
26 à 35	135	33,75
36 à 45	78	19,5
46 à 55	24	6,0
Average age: 28,9975		Extrême : 15 years and 55 years
gender		
male	400	100,0
Marital status		
Single	215	53,8
Maried	195	46,2
Education level		
Noschooling	121	30,2
Primary	78	19,5
Secondary	166	41,5
higher	35	8,8
Vices		
smoking	318	79,5
alcohol	21	5,25
Indianhemp	2	0,5
Alcohol + Tobacco	7	1,75
none	59	14,75
Profession		
bricklayers	141	35,2

Table III: Distribution of workers by nature and site of injury

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Nature of injury	wounds	350	87,5
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Tableau IV: Repartitions en fonction des moyens de prevention existants

Moyens	Effectif (N)	Pourcentage(%)
Protection collective		
Chantier	N=33	
Suffisants	32	97
Insuffisants	1	3
Formation sécurité	N=400	
Reçus	2	0,5
Non reçus	398	99,5
Protection individuelle		
Suffisants	191	47,8
Insuffisants	209	52,2
Surveillance médicale		
Oui	0	0,0
Non	400	100,0

IV. DISCUSSION

The majority of workers (94.5%) were employed on building sites.

Tissot C. in 2010 in France [6] reported that 73% of accident victims worked in the construction industry.

Growing real estate development would seem to justify this result.

Most accidents occurred in the afternoon and morning, with 55% and 43.75% respectively.

Dia SA et al. in 2018 in Senegal [7] reported 44% of accidents in the morning and 26.7% in the afternoon.

Accumulated fatigue due to work in the morning, leading to reduced vigilance in the afternoon, could justify our result.

Accidents were most often caused by workers making inappropriate gestures, with a high frequency of 80% [8].

Dia S.A et al. in Senegal in 2018 had reported that the majority of accidents, i.e. 19.5%, occurred through inappropriate gestures.

Non-compliance with safety instructions by unskilled workers would explain our result.

Building materials were the main causative agents of injuries, with a high frequency with a high frequency of 67.5% [9].

Dia S.A et al. in Senegal in 2018 [3] had reported that 30% of the vulnating agents involved were hand tools.

Inappropriate exposure of construction material would explain our result.

Wounds were the most common type of lesion, accounting for 87.5%.

ABBAS R. A et al. in 2013 in Egypt [18] had reported that the majority of injuries were cuts/lacerations 30.9% and contusions 28.6%.[10].

The frequent handling of certain tools and cutting materials by workers without PPE would explain our result.

Injuries were most common in the upper and lower limbs, with 45.5% and 44.5% respectively. [11]

Chau N. et al. in 2004 in France [15] reported that 40.7% of injuries were located in the upper limbs and 30% in the lower limbs. [12].

The natural position of the limbs as a result of the demands placed on them during work activities would explain our result.

Workers who recovered without sequelae were the most common, with 83.75%.

In 2007, Malle S. in Mali [20] reported 73.09% recovery without sequelae.

This high frequency of healing without after-effects may be due to the low severity of the lesions.

None of the workers benefited from medical surveillance, i.e. 100%.

Adane M.M et al. in 2013 in Ethiopia [13] reported that 90% of victims had received no medical supervision.

The recruitment of workers by companies for work of limited duration and ignorance of the legal predispositions of work would explain our result.

The collective protective equipment in place was sufficient in number on almost all sites. Almost all sites, i.e. a frequency of 97.73%.

The usefulness of collective protection equipment in construction work could explain this result.

With regard to PPE, more than half the workers did not have enough of it for a frequency of 52.25%.

Mayuri B. et al. 2015 in India [14] had reported that 43.2% of workers had only helmets and 33.2% had no PPE at all.

Ignorance of the protective effect and benefits of PPE would explain our result.

The majority of accident victims (72%) were not wearing PPE at the time of the accident.

Radwa S. et al. in 2020 in Egypt [15] reported that 65.2% of workers were not wearing PPE at the time of the accident.

The majority of construction sites, i.e. 82%, did not have an emergency box.

According to IRIS-ST's 2017 national survey-Artisanal du BTP in France [16], the presence of a first-aid kit in the workplace was reported in 92% of cases. Our result would be due to non-compliance with regulatory measures by health and safety managers on worksites.

The majority of workers had no safety training (99.5%).

Tadesse et al. in 2016 in Ethiopia [17] had reported that 83.7% of workers with work-related injuries had not received safety training on construction sites.

The lack of implementation of training programs for workers to better understand the risks would explain our result.

V. CONCLUSION

Accidents in the construction industry represent a real occupational health problem. Of the 400 workers involved in accidents, 40% were under 25 years of age; around 30% had a secondary education; 52.3% did not have sufficient PPE; 80% of accidents were caused by inappropriate gestures and 99.5% had received no safety training.

There is a need to promote workplace legislation and regulations.

Further prospective studies need to be carried out to assess environmental safety factors on construction sites and other risk factors (particularly behavioral) for work-related accidents in the building and civil engineering sector.

List of abbreviations

AKC: Agglos Kipe Construction.

AT: Accident at work.

BTP: Building and public works.

CBITEC: China bengbu international technology economic.

CDD: Contrat à durée déterminée.

CDI: Contract for an indefinite period.

CNSS: Caisse nationale de sécurité sociale (National Social Security Fund).

Coll. Collaborator.

EBC: Entreprise Bilama Construction.

ECIED BTP: ENTREPRISE BATIMENT ET TRAVAUX PUBLICS.

EGGC: Entreprise guinéenne de génie civil.

EPI: Equipement de protection individuel.

FSTS: Faculty of Health Sciences and Techniques.

GROUPE GUICOPRES BTP: Building and public works company.

IRIS-ST: Institute for Research and Innovation in Occupational Health and Safety.

J-KARODASE CONSTRUCTION: Construction company.

ILO: International Labor Organization.

UGANC: Université Gamal Abdel Nasser de Conakry.

SO-SAFILS ET AFRICA GERMANI: CONSTRUCTION COMPANY.

SST: Health and safety at work

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