International Journal of Health Sciences and Research
Vol.12; Issue: 5; May 2022
Website: www.ijhsr.org
Original Research Article *ISSN: 2249-9571*

Evacuation of Human Excreta and Threats of Faecal Peril among the Inhabitants of the Commune of Ngaba, City of Kinshasa

Déborah Mujinga Tshimungu[1], Augustin Kadiata Bukasa[1], AiméMunanga Kabasele[1], Ignace Balow' a Kalonji Kamuna[2], Jean Marie Emongo Laama[1], Jeannot Nkumbi Malu[3], Keith Akenda Yamba-Yamba[4]

[1]Section of Nursing Sciences, Higher Institute of Medical Techniques of Kinshasa: BP 774 Kinshasa XI, City of Kinshasa, Democratic Republic of Congo.
[2] Nutrition and Dietetics Section, Higher Institute of Medical Techniques of Kinshasa: BP 774 Kinshasa XI, City of Kinshasa, Democratic Republic of Congo.
[3] Community Health Section, Higher Institute of Medical Techniques of Kinshasa: BP 774 Kinshasa XI, City of Kinshasa, Democratic Republic of Congo
[4]General Reference Hospital of N'djili, City of Kinshasa, Democratic Republic of Congo

Corresponding author: Augustin Kadiata Bukasa

DOI: https://doi.org/10.52403/ijhsr.20220513

ABSTRACT

Objective: The purpose of this study is to evaluate the methods of evacuation of excreta and the threats of faecal peril in the commune of Ngaba.
Materials and Methods: The study is quantitative, correlational descriptive type. The heads of households of Ngaba constitute the population of our study from which we drew the sample of 384 heads of households. To achieve this, the survey was used as a method supported by questionnaire and observation techniques including the interview guide questionnaire and the observation grid as measuring instruments.
Results: The analyses showed that the presence of flies in the latrines (68.2%), the presence of odors (91.1%) and cockroaches (93.6%). Lack of lighting in the toilets (37.6%), toilet paper (47%), a door (31%), a paper bin (22%) and a water supply (76.7%). A significant proportion of households (14%) has a sanitation index of 12 people and cleaning the toilets is not daily for all the households surveyed. In bivariate analysis, we find that the level of study has an influence on the mode of evacuation of human excreta (X^2 of 10.057, $p = 0.0181$); there is a significant difference between knowledge of diseases linked to faecal peril and the mode of evacuation of human excreta, because the p value is less than 0.05 (p 0.001); the fact of having suffered for the last six weeks has an influence on the mode of evacuation (X^2 =32.33; p=0.001).

Keywords: Evacuation, human excreta, threats, faecal peril.

INTRODUCTION

Every year, about 1.8 million people, 90% of them children under five, mostly living in developing countries, die of diarrheal diseases. Of these diseases, 88% are attributable to poor water quality, In sufficient sanitation and poor hygiene. Also, 133 million people suffer from severe intestinal helminthiasis which often has serious consequences: cognitive impairment, dysenteric syndrome or anemia,

these diseases cause approximately 9400 deaths per year [(1)].

Excreta is a focus where certain species of flies proliferate and spread infection. They attract pets, especially rodents, creating an intolerable annoyance. Each of these factors plays a role in the spread of gastrointestinal disease, hence the need for the treatment of excreta or its proper disposal to eliminate its hazards [(2)].

In an unhygienic environment, faeces are likely to contain germs that can contaminate water and soil. And in developing countries, the right to water and sanitation is often a right recognized in theory, but not always in practice [(3,4)].

In recent years, sanitation has found its place on the international policy agenda. Although in 2002 sanitation was included in the Millennium Development Goals (MDGs) and more specifically in MDG 7, Target 10, which aims to halve the proportion of people without basic sanitation by By 2015, the number of those without access to sanitation was almost twice as high as those without a safe water supply in 2005. And today, the proportion of people n 'having no access to drinking water and basic sanitation is only increasing because at the national level, in most developing countries, hygiene and sanitation do not yet receive much attention. attention, despite the significant health consequences [(5)].

In its study carried out in Niger, it is stressed that sanitation in urban and rural areas is today becoming a serious problem for African States where, for several years, we have observed increasing urbanization and significant spatial densification. Unfortunately, the sanitation infrastructure is very insufficient and very underdeveloped, leading to various diseases linked to living in an unhealthy environment [(6)].

The DRC is one of the countries with a low rate of coverage of drinking water needs estimated at 47%. That of basic sanitation at 14% for the country. According to the same report, the DRC has one of the highest infant mortality rates (156 deaths per 1000 births or 15.6%); this survey shows that the use of improved toilets is particularly low in the DRC, where it concerns only 14 percent of the population; in contrast, 72 percent use unimproved sanitation facilities. Level of access to means of solid and liquid waste removal and elimination of disease vectors from households is low [(7)].

In addition, the Democratic Republic of Congo loses nearly 192 billion Congolese Francs each year, which equates to US$208 million, or $3 per person per year, because: 46 million Congolese use unsanitary or shared latrines and 6.7 million have no latrines at all and defecate outdoors [(8)].

Current investments in sanitation by the Water and Sanitation Program in the DRC represent less than 0.1%, which is lower than the various estimates made. Therefore, increased investment in sanitation and hygiene promotion is needed not only to realize the benefits of sanitation in health and well-being, but also to avoid large economic losses[(8)] And improving sanitation would reduce morbidity attributable to diarrheal diseases by 32%. Hygiene interventions, including hygiene education and simple hand washing can reduce diarrheal disease cases by 45% [(2,9)].

Open defecation and lack of adequate sanitation create a source from which contagious diseases can spread, putting the whole society at risk; proper sanitation and improved hygiene can create barriers against the spread of these diseases [(8)].

According to the MICS 2010 survey, the problem of the evacuation of human excreta remains an ordeal in the city of Kinshasa in general, and in the commune of Ngaba in particular. There is no policy for the construction of improved latrines, which poses problems especially with the scarcity of tap water. The low level of education of the population, the lack of sufficient knowledge of hygiene and sanitation conditions are factors that amplify the situation [(7)].

This observation remains bitter in the majority of cases in the commune of Ngaba, most of the plots have latrines that do not

meet the standards, the maintenance of these remains a problem to be reviewed, which means that along the avenues, the stools are evacuated on the streets in plain sight, it is every day that the population is exposed.

To obtain answers to this concern, two specific questions are asked, namely: (1) What is the current state of the disposal of human excreta? (2°) Is there a relationship between certain characteristics of the respondents and the management of human excreta?

The purpose of this study is to evaluate the methods of evacuation of excreta and the threats of faecal peril in the commune of Ngaba, in order to contribute to the improvement of the health of the population by preventing diseases related to human excreta.

Two hypotheses are formulated with regard to different considerations: (1°) The current state of the evacuation of human excreta is characterized by the presence of non-compliant toilets in the plots of the commune of Ngaba; (2°) Diseases with faecal-oral transmission (diarrheal, typhoid fever, etc.) incurred by the population of Ngaba are linked to the mismanagement of human excreta.

MATERIALS AND METHOD

2.1 Presentation of the study environment

The commune of Ngaba is one of the 24 administrative communes of the city of Kinshasa in the Democratic Republic of Congo. It covers an area of 4Km².

According to the statistics available at the time of our study, it is subdivided into six districts: Baobab, Bulambemba, Luyi, Mateba, Mpila, Mukulua and includes 114 streets and 6973 plots.

2.2 Target population, Sampling technique and study sample

Heads of households in different neighborhoods of the commune of Ngaba constitute the target population of our study. Considering the level of responsibility in the households, the heads of households were targeted, in relation to the place they occupy in decision-making.

To constitute our sample, we used the probability sampling technique, more specifically the multi-stage systematic random sample.

The sample size will be at least 10% at all stages. After randomly drawing more than 60% of the districts, we will select the streets at the first level and the plots at the second level.

Using a drawing technique, we randomly selected 4 neighborhoods (66%) out of all 6 neighborhoods (Baobab with 13 streets and 910 plots; Bulambemba with 20 streets and 1248 plots; Mateba with 20 streets and 783 plots; finally Luyi with 18 streets and 1096 plots). The total number of plots for the 4 selected neighborhoods is 4037 plots.

We set ourselves a sample a priori of 10%, in the second degree we selected 10% of the plots proportional to each street, ie by applying the sampling fraction.

The sample of our study is (4037/100x10) = 403.7 plots ≈ 404 plots.

The sampling fraction (404/4037) is 0.10. By applying this sampling fraction to the number of households in each neighborhood, we will have the following number of households selected per neighborhood for the 4 randomly selected neighborhoods: Bulambemba neighborhood (0.10x1248=125 plots); Luyi neighborhood (0.10x1096=110 plots); Baobab district (0.10x910=91 plots) and Mateba district (0.10x783=78 plots). The sum of the plots selected: 125+110+91+78=404 plots (households). So our sample size is 404 households.

If there are several households in the plot, we proceed by drawing lots/randomly from a single household.

To be selected to participate in the study, you must:

- Be one of the members/responsible for the household;
- Have lived in the neighborhood for at least 6 months;
- Be present on the day of data collection;

- Agree to participate voluntarily in the study.

2.3 Data collection method, technique and instrument

To carry out the study, we chose the method of prospective survey by questionnaire. This method was supported by structured interview techniques and observation. For this, we used an interview guide questionnaire and an observation grid.

2.4 Ethical Considerations

Participation in the survey was made after the participant's free and informed consent. Anonymity remains a guarantee in the recording of data and the publication of results. Investigators are required to respect the standards of confidentiality of the information recorded on the measuring instruments, provided by the participants.

2.5 Data processing and analysis plan

Data entry and analysis was done using Epi-Info software version 3.5 and STATA IC 12.0. The data was compiled, refined and then codified by creating new variables by the analyst.

In the descriptive analyses of the data, the calculation of numbers, frequencies and percentages and the Sanitation Index **(**Number of people in the plot/Number of toilets in the plot) were carried out.

cross tables have also been developed. The descriptive analyses used are:

In the bivariate analyses, we used Pearson's Chi-square test, Fischer's exact test and the probability p. The Chi-square test was used to compare the proportions and verify if there is a relationship between the risk of exposure and the evacuation of human excreta. With an α risk of 5%, any value of the probability $p < 0.05$ was considered significant.

RESULTS

3.1 Results on socio- demographic characteristics

Table 1: Distribution of subjects according to socio-demographic characteristics

Characteristics	Workforce (n=404)	%
Age		
< 20 years	19	4.7
20 – 29 years old	95	23.5
30 – 39 years old	113	27, 97
> 40 years	177	43, 8
Sex		
Male	128	31, 7
Feminine	276	68.3
Civil status		
Singles	81	20.0
Married)	296	73.3
Divorcee)	20	4.95
Widowed	07	1, 7
Household size		
≤ 5 people	88	21, 8
> 5 people	316	78.2
Educational level		
Unschooled	40	9, 9
Primary	100	24,8
Secondary	245	60.6
Higher/university	19	4, 7
Profession		
No occupation	162	40.1
Officials	57	14,1
Students	91	22.5
Tradespeople	74	18,3
Others	20	5.0
Number of people per plot		
1 – 5	85	21,0
6 – 10	182	45,0
11 – 15	109	26,9
16 – 20	28	6, 9
Number of latrines/plot		
1 latrine	366	90.6
2 latrines	38	9, 4

It emerges from this table N°1 that the age of the respondents varies from 19 to 65 years. The average age of 404 respondents is 35.9 years (standard deviation: 13.8 years), the age group 40 years and over is the most represented with 43.8%. The majority of respondents are female representing a proportion of 68.3%. With regard to marital status, the majority of the sample is made up of subjects with married status (73.3%). The data shows that the majority of households are larger than 5 people (78.3%). The overall average is 7.1 people per household (standard deviation: 2.8 people).

Respondents who have been to school have mostly only reached secondary level (60.7% of respondents), 34.7% have a low level of education (no schooling and primary). The number of subjects without profession dominates (40%). The pupil/ student profession is the most widespread with a rate of 22.5%. Among the

respondents, we find people dealing with trade (18.3%), civil servants (14.2%). The number of people per plot represents 45% for a plot of 6 to 10 people, 26.98% for that of 11 to 15 people, 21% for that of 1 to 5 people and 6.9% for the plot of 16 to 20 people. As for the number of latrines in the plot, 90.6% of the subjects have a latrine and 9.4% have 2 latrines.

The data in Table 2 show that the majority of households (88.9%) have an improved latrine against 11.1% for the unimproved type. Concerning the minimum depth of the latrines, only 17.3% are shallow and the stools are visible. Most latrines (82.7%) do not allow the visibility of stools.

Table 2: Distribution of respondents according to latrine characteristics

Characteristics	Workforce (n=404)	%
Types of latrines		
Improved	285	70.5
Not improved	119	29.5
Minimum septic tank depth		
Visible stools	70	17, 3
Invisible saddles	334	82.7
Minimum distance between toilet and water source		
less than 15m	73	18, 1
More than 15m	331	81.9
Maintenance of latrines		
Clean	128	31.7
Not clean	272	68.3
Latrine location		
External	401	99.3
Internal	03	0.7
Type of latrine construction		
cement block	211	52.2
adobe bricks	27	6.7
sheets	119	29.5
Others (bags, laundry, etc.)	47	11, 6
State of latrines		
Presence of flies	276 /404	68.2
Presence of odors	368 /404	91.1
Lighting presence	252 /404	62.4
Presence cockroaches	378 /404	93.6
Presence of toilet paper	214 /404	53
Presence of paper tray	323 /404	78
Presence of the door	279 /404	69.1
Presence of water reserve	94 /404	23.3
Cleaning Frequency		
If needed	62	15.3
1 time/day	306	75.7
1 time/week	36	8.9
Cleaning products used		
Water + soap	102	5.2
Creolin	276	8.3
Bleach	26	6.4
Hand washing after toilet		
Yes	387	5.8
No	17	4.2
Hand washing system		
Faucet	219	4.2
bucket near toilet	136	3.7
Bucket in the toilet	49	2.1

A large number of toilets (81.9%) are located more than 15 m from the water source, 18.1% of the toilets are located less than 15 m from the water source. A significant proportion (31.7%) of toilets are not kept clean. In relation to the location of latrines, 99.3% of latrines are external against 0.7% which are internal. Regarding the nature of construction of the latrines, 52.2% are built in cement block, 29.4% in sheets, 11.6% in others (bags, linens etc.), 6.7% are in bricks adobes.

Concerning the state of the latrines, it appears that: in 68.2% of the latrines, flies are present, 91.1% of the latrines give off odors, 62.4% of the latrines have light/lighting, in 93, Cockroaches are present in 6% of latrines, 53% of latrines have toilet paper, 78% of latrines have a paper bin and 23.3% have a water reserve. Regarding security during use, 69.1% of latrines are secured by doors. Concerning the water reserve, the observation is bitter, only in 23.3% of the latrines there is a water reserve.

The data also mentions that regarding latrine cleaning, 75.7% of latrines are cleaned once a day, 15.3% are cleaned when needed and 8.9% are cleaned once a week. The majority of latrines (68.3%) are cleaned with Creoline, 25.2% with soapy water and 6.4% with bleach and other water. The majority of respondents (95.8%) wash their hands after using the toilet. The system used to wash hands is the tap (54.2%). A small number wash in a bucket placed next to the toilet (33.7%), a small proportion resort to a bucket placed in the toilet (12.1%).

Table 3: Sanitation indices of surveyed households

Number of people per latrine	Workforce (n=404)	%
2 persons	4	0.99
3 people	12	2.97
4 people	19	4.7
5 people	36	8.9
6 persons	28	6.9
7 people	24	5.9
8 people	111	27.5
9 people	37	9.2
10 people	40	9.9
11 people	30	7.4
12 people	58	14.4
16 people	4	0.99
17 people	1	0.25

With regard to Table 3, the data show that 27.5% of households have a sanitation index of 8 people per latrine, 14.4% have a sanitation index of 12 people per latrine, followed by 9.9% with 10 people and 9.2% with 9 people.

Table 4: Distribution of subjects according to their knowledge of diseases related to faecal peril

Diseases	Workforce (n=404)	%
Typhoid fever	273 /404	67.6
Diarrhea	286 /404	70.8
Cholera	237 /404	58.7
Dysentery	89 /404	22
Verminoses	254 /404	62.9

In general, we see from Table 4 that diseases related to faecal peril are relatively well known to respondents. Indeed, the vast majority of respondents 286 out of 404 (i.e. 70.8%) think of diarrhoea, 273 out of 404 i.e. 67.6% are aware of typhoid fever, 254 out of 404 i.e. 62.6% spoke of verminosis, 237 out of 404 or 58.7% cited cholera and a small proportion know dysentery. The other diseases known to the population and which are not linked to faecal peril were not included in the results. This is the case with malaria, for example.

Table 5: Distribution of subjects according to the illnesses they suffered before the survey

Diseases suffered by households in the last 6 weeks	Workforce (n=404)	%
Predominant diseases		
Dysentery	34	8.5
Parasitosis	165	40.8
Typhoid fever	205	50.7
Mode of treatment received		
Have received the treatment in a medical structure have	245	60.6
Received only a medical prescription	50	12.4
Self-medication	109	27.0

The data in Table 5 show that in the last 6 weeks before the survey, the majority of respondents (50.7%) suffered from typhoid fever, followed by 40.8% who suffered from parasitosis. And in most cases, they used a medical structure to receive care (60.6%).

3.2. Results of bivariate analyses

Table 6: Association between level of education and disposal of excreta

Characteristics	Evacuation mode		X2	P
Study level	**Improved (n=285**	**Unimproved (n=119)**		
Without level	24	16	10.1	0.018
Primary	76	24		
Secondary	170	75		
Higher/university	15	4		

The data in table 6 show a value of X^2 of 10.057 (*p=0.0181*), we find that the difference is significant at the 5% level, this confirms that the level of study has an influence on the mode disposal of human excreta.

Table 7: Link between knowledge of diseases and mode of evacuation

Knowledge of diseases	Evacuation mode		x2 -	P
	Unimproved	**Improved**		
Typhoidfever	**(n=104)**	**(n=300)**		
no	96	58	174.34	0.001
Yes	8	242		
Diarrhea	**(n=112)**	**(n=292)**		
No	97	36	202.24	0.001
Yes	15	256		
Cholera	**(n=120)**	**(n=282)**		
No	110	61	168.92	0.001
Yes	10	221		
Verminoses	**(n=104)**	**(n=300)**		
No	95	72	144.44	0.001
Yes	9	228		

The data in Table 7 show that there is a significant difference between knowledge of diseases linked to faecal peril and the mode of evacuation of human excreta, since the p value is less than 0.05 (i.e. 0.001).

Table 8: Association between the state of health of heads of household and mode of disposal of human excreta

State of health of heads of households	Evacuation mode		x2 -	p
	Unimproved (n=287)	**Improved (n=117)**		
Not sick	112	12	32.33	0.0001
Sick	175	105		

The data in Table 8 indicate the value of X^2 =32.33 (p=0.001) a value greater than the tabular X^2 ·This shows that the fact of having suffered the last six weeks influences the mode of evacuation .

Table 9: Link between non-washing of hands and suffering from diseases linked to faecal peril.

Characteristics	Faecal Peril Diseases		X^2	P
	Not sick (n=112)	Sick (n=292)		
Hand washing				
Don't wash your hands	47	99	1.49	0.22
wash your hands	65	193		

The data in Table 9 indicate the value of $X^2 = 1.49$ (p=0.22), a value lower than the tabular value of 3.84. The difference is not significant, non-washing of hands does not influence the occurrence of diseases related to faecal peril.

DISCUSSION

4.1 Main Features

The results of our study show that the majority of respondents are aged 40 and over (43.8%), this is the category of the professionally (economically) active population. The average age of all respondents is 35.9 years (standard deviation: 13.8 years). With regard to sex, the data show a predominance of the female sex (68.3% against 31.7%). These characteristics are similar to those noted in certain studies carried out in the DRC, where the female sex predominates slightly over the male, i.e. 50.6% against 49.4% [(7)].

Regarding civil status, the majority of our respondents, i.e. 73.3%, are married, this is consistent with the study conducted in Cameroon by N guedjo, where the heads of households surveyed are mostly married [(10)].

In the population studied in Kinshasa, the majority of households (78.2%) are made up of more than 5 people. The average household size is 7.1 people (standard deviation: 2.8 people). The poverty engendered by a very large household does not make it possible to mobilize financial resources for health-related needs, nor to provide schooling. The self-medication rate among patients is high, at 19.6%. The World Bank, basing itself on household income and expenditure, establishes an association between poverty and numerous descendants [(11)]. Tshimungu et al. found an average household size of 6.4 people (standard deviation: 2.4 people) [(12)].

Starting from the level of education, the majority of respondents (60.6%) have a secondary education level, followed by primary level subjects, ie 24.8%; 4.7% having completed their studies at a higher level and 9.9% without a level. This is in line with the study done in Kinshasa in the Ngaba area where the majority of respondents had secondary education, i.e. 51.9% (Kalonga, 2009). Education determines knowledge, decision-making autonomy and openness to innovation [(13)].

In relation to the profession, 40.1% of respondents have no profession, 22.5% are students, 18.3% are traders, 14.1% are civil servants. This shows the real situation in the city of Kinshasa where there are not enough jobs.

4.2 Disposal of human excreta

The majority of subjects questioned admit to evacuating human excreta in the latrines, it is the improved type which is the most used 70.5% against 29.5%. This agrees with the 2010 MICS survey report which says that a significant proportion (29.5%) of Kinshasa's population uses unimproved latrines. A significant proportion (17.3%) have septic tanks where stools are visible [(7)]. The majority of toilets (81.9%) are located more than 15 m from the water source and only 31.7% of latrines are kept clean.

Regarding location, the majority of latrines are external (99.3%). As for the type of construction, the majority of latrines (52.2%) are built in cement block, 29.4% in sheets, 11.6% in other materials (bags, linens) and 6.7% in adobe bricks. (52%) in sheets (29.4%), these last 3 materials are easily destroyed by rain and rust.

In relation to the state of sanitary facilities, the majority of latrines are in the following unpleasant conditions: The massive presence of flies (68.2%); the presence of bad smells sometimes from stools and urine on the slab (91.1%); the presence of cockroaches (93.6%), the presence of lighting (62.4%), the presence of toilet paper (53%), the presence of a door (69%), the presence of a bin paper (78%),

the presence of a water reserve (23.3%). The observation is bitter, the current state of the evacuation of human excreta is characterized by the presence of non-compliant toilets in the plots.

Regarding hygiene measures, the maintenance of latrines is done as follows: the majority of households (75.7%) clean once a day against 15.3% who do it as needed and 8, 9% once a week. This cleaning is mostly done with creolin (68.3%). A good number of households (25.2%) use soap and water, only 6.4% use bleach, vim etc. The results of our study corroborate those of a study carried out in Morocco by Rajaonera which states that the washing of latrines was carried out once a day by 59% of households in Antananarivo and by 42% in Toliary[14]

According to the sanitation index (number of people per latrine) in Table 3, indices ranging from 11 to 18 people per latrine are contrary to the standards advocated by several authors (at least 10 people per defecation hole) [15] .

4.3 Diseases linked to faecal peril

As for the practice of hand washing, 95.8% of respondents confirmed washing their hands after going to the toilet, which is a good practice for the reduction of diseases of dirty hands. This result corroborates that found by Rajaonera, M where 96.4% of households practice hand washing after defecation in Antananarivo and 94.5% in Toliary[14] .

The most used handwashing system in Kinshasa is the tap (54.2%), followed by the bucket of water near the toilets 33.7% and bucket of water in the toilets 12.1%. The big problem is that water rarely flows from taps in Kinshasa. The risk of not washing your hands after going to the toilet is certain.

Data relating to illnesses suffered by respondents during the last six weeks before the survey were collected: 48.8% suffered from typhoid fever, 45.8% from verminoses, 16.3% diarrhea and 8.4% dysentery. These results are superior to those found by Nguedjo, P. in his study on geomatics and analysis of sanitation and health risks in urban areas , which for its part typhoid had a rate of 22.3%, diarrhea had a rate of 12.7%, and intestinal helminthiasis (worm infections) a low rate of 1.3% [10] .

In connection with the treatment, only 292 patients out of 482, or 60.6%, received treatment. Among them, 213 patients (72.9%) consulted a care provider and 79 patients (27.1%) practiced self-medication.

Regarding knowledge of diseases related to faecal peril, the study that 70.8% cited diarrhea, 67.6% typhoid fever, 62.9% verminosis, 58.7% spoke of cholera and 22 % cited dysentery.

4.4 Results of bivariate analyses

In bivariate analysis, certain statistical differences were sought. The level of education has an influence on the mode of evacuation of human excreta, this joins the writings of Rajaonera, M. "households headed by illiterates are much more disadvantaged in terms of access to latrines" [14] .

Knowledge of diseases related to faecal peril has an influence on the mode of evacuation of human excreta. We note that the more the population has knowledge of the disease, the more it takes protective and preventive measures.

The fact of having suffered the last six weeks before the survey is not linked to the mode of evacuation of excreta. This finding is contrary to the WHO statement that 88% of diarrheal disease (including cholera) is attributable to poor sanitation [9] ; and the writings of Diwete et al. quoted by KalongaPandi: “poor faecal evacuation promotes the spread of gastrointestinal diseases including cholera, typhoid and paratyphoid fever, dysentery etc. [16])

The study shows that there is no relationship between the application of certain hygiene measures (non-washing of hands) and the appearance of diseases linked to faecal peril. This result is contrary to the data according to Leejong-Wook cited by

Kalonga Pandi, A. where 88% of diarrheal diseases are attributable to poor hygiene [16].

4.5 Testing assumptions

The analyses showed: The presence of flies in the latrines (68.2%), the presence of odors (91.1%) and cockroaches (93.6%). Lack of lighting in the toilets (37.6%), toilet paper (47%), a door (31%), a paper bin (22%) and a water supply (76.7%). A significant proportion of households (14%) has a sanitation index of 12 people and cleaning the toilets is not daily for all the households surveyed. This allowed us to confirm our first hypothesis according to which: In the commune of Ngaba, the current state of the evacuation of human excreta is characterized by the presence of non-compliant toilets in the plots. Certain hygiene measures recognized as useful, particularly hand washing, in this study have no significant relationship with the appearance of diseases linked to faecal peril (X^2 =1.49, p=0.22).

The fact of having suffered from faeces-related diseases is not associated with the mode of evacuation of excreta (X^2 =0.0036, p=0.95). These results invalidate the second hypothesis according to which diarrheal diseases and typhoid fever incurred by the population of Ngaba are linked to human excreta. However, it should be noted that water rarely flows from the taps, and people using the tap to wash their hands after going to the toilet would have potentially biased the statistics.

CONCLUSION

Exposure to human waste is a global cause of disease. By improving sanitation and hygiene conditions, these diseases can be brought under control.

Our study dealt with the evacuation of human excreta and the threat of faecal peril among the inhabitants of the commune of Ngaba, city of Kinshasa. It was undertaken with the aim of verifying the current status of human excreta disposal and faecal-related diseases among the inhabitants of Ngaba, with a view to contributing to the improvement of the health of the population.

The analyses showed: The presence of flies in the latrines (68.2%), the presence of odors (91.1%) and cockroaches (93.6%). Lack of lighting in the toilets (37.6%), toilet paper (47%), a door (31%), a paper bin (22%) and a water supply (76.7%). A significant proportion of households (14%) has a sanitation index of 12 people and cleaning the toilets is not daily for all the households surveyed.

In bivariate analysis, we find that the level of study has an influence on the mode of evacuation of human excreta (X^2 of 10.057, $p = 0.018$); there is a significant difference between knowledge of diseases linked to faecal peril and the mode of evacuation of human excreta, because the p value is less than 0.05 (ie 0.001); the fact of having suffered for the last six weeks has an influence on the mode of evacuation (X^2 =32.33; p=0.001).

Acknowledgement: The authors gratefully thank who participated in this study.

Conflict of Interest: The authors have no conflict of interest to declare.

Source of Funding: None

Ethical Approval: Approved

REFERENCES

1. World Health Organization. Diarrheal disease. 2012. [Internet]. Available at: https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease
2. Kpizingui E. Health education guide applied to water, hygiene and sanitation for municipal actors responsible for implementing the Democratic Party of Ivory Coast and beneficiary populations, International Association of Francophone Mayors/ Association of Mayors of the Central African Republic, 2013. [Internet]. Available at: https://www.pseau.org/outils/ouvrages/amca_aimf_guide_d_education_sanitaire_appliquee_a_l_eau_l_hygiene_et_l_assainissement_2013.pdf

3. Gabert, J. Mémento de l'assainissement : Mettre en oeuvre un service d'assainissement complet, durable et adapté. Quae Éditions du GRET.2017. http://memento-assainissement.gret.org/IMG/pdf/memento-assainissement.pdf
4. Ministry of Water, Environment, Regional Planning and Urbanism. National Sanitation Policy of Burundi and Operational Strategy Horizon 2025. March 2013. online at:https://www.pseau.org/outils/ouvrages/meeatu_politique_nationale_d_assainissement_du_burundi_et_strategie_operationnelle_horizon_2025_2013.pdf
5. Regnault-Tharp S, Machin H. Sanitation and hygiene in developing countries: identifying obstacles and providing responses. Tearfund Democratic Republic of the Congo; 2006.
6. Djariri L. Reducing the cost of sanitation works as part of the productive sanitation project in Aguie, Niger. Thesis for obtaining the specialized master's degree in sanitary and environmental engineering, International Institute of Water and Environmental Engineering, Niger; 2009.
7. Multiple Indicator Cluster Survey: Final Report Kinshasa, Democratic Republic of Congo. 2011.
8. Lugaka E. Economic impacts of poor sanitation in Africa, Democratic Republic of Congo: Water and sanitation program. 2012.
9. Kpizingui E. Health session participant workbook. training for the elaboration of the integrated communal development plan of the city of Bangui, Central African Republic; 2012.
10. Nguedjo P. Geomantics and analysis of sanitation and health risks in urban areas: case of the Mbanya watershed in the city of Douala. Dissertation presented with a view to obtaining a professional Master's degree in Geomatics, University of Ngaoundere, Cameroon; 2011.
11. Tshimungu Kandolo F. Health problem of sent developing countries. Higher Institute of Medical Techniques of Kinshasa, Democratic Republic of Congo; 2010.
12. Tshimungu Kandolo F, Al. Sociodemographic, clinical and epidemiological characteristics of Human African Trypanosomias in Kinshasa. Health book; 2009.
13. Ministry of Planning and Reconstruction. Multiple Indicator Survey 2001, National Survey on the Situation of Children and Women. Democratic Republic of Congo; 2001.
14. Rajaonera M. knowledge, attitudes and practices in water and sanitation, National Institute of Hygiene Statistics in the provinces of Antananarivo and Toliary. Analysis report, Madagascar; 2004.
15. Potter A, al. Assessing Sanitation Service Levels, International Water and Sanitation Center. 2nd edition. The Netherlands; 2012.
16. Kalonga Pandi A. Assessment of knowledge on the parameters affecting peri-residential insalubrity in the Ngaba health zone. Thesis presented and defended with a view to obtaining the degree of licentiate in Community Health, Unpublished, Higher Institute of Medical Techniques of Kinshasa, Democratic Republic of Congo; 2009.

How to cite this article: Déborah Mujinga Tshimungu, Augustin Kadiata Bukasa, AiméMunanga Kabasele et.al. Evacuation of human excreta and threats of faecal peril among the inhabitants of the commune of Ngaba, City of Kinshasa. *Int J Health Sci Res.* 2022; 12(5):98-107. DOI: *https://doi.org/10.52403/ijhsr.20220513*

******