

Knowledge on Breast Cancer and Practice of Self-Examination among Schoolgirls in Democratic Republic of the Congo

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Abstract

Background: The breast cancer represents a major problem of public health in Democratic Republic of the Congo. This study aims at assessing the knowledge about breast cancer and the practice of breast self-examination among schoolgirls, and to propose effective intervention measures to promote early diagnosis and treatment of breast cancer in Mbuji mayi.

Methods: This was a descriptive & cross-sectional study conducted from December 18, 2019 to March 18, 2020 including 962 schoolgirls. Data analysis was achieved with SPSS software package, version 16.0.

Results: Schoolgirls (61.75%) know about breast cancer; 26.72% are aware of its existence through a Medical Officer. The risk factors of breast cancer were unknown (59.56%) and for 47.56% of schoolgirls, breast self-examination was a preventive way, whereas 61.64% did not know about breast self-examination. But 61.85% were not used to breast self-examination. The knowledge on breast cancer, the risk factors and the practice of breast self-examination were statistically linked to age with respectively P-value=0.001; 0.0286 and 0.01. In 53.15%, self-examination of the breast was performed respecting the principles and mostly in erect position (48.51%). Breast own-examination was performed once monthly in 31%, flat hand was the most used technique (54.22%), and 56.44% of schoolgirls claimed not to feel pain during the breast palpation process.

Conclusion: According to the results, the sensibilization should be focused on knowledge, practice of breasts self-examination of an organization of screening campaigns.

Keywords: Breast cancer; Knowledge; Self-examination; Schoolgirls; DR Congo

Introduction

The breast cancer is the most frequent cancer in women worldwide, the second cause of death after the lung cancer. In Europe, 275 100 new cases of breast cancer were estimated in 2012; this cancer represents the quarter of all cancers. The risk for a woman to experience the breast cancer is estimated at 8% during her expectancy. It has been proven that early diagnosis of breast cancer at an early development stage could make its management more effective, cheaper and could improve the global prognosis [1,2].

The screening methods of breast cancer include self-examination, clinical breast examination, mammography and MRI. Breasts self-examination and lymph nodes areas is known and performed by most of occidental women, it enables early diagnosis of breast cancer in 85% of cases [1-4]. The learning of this self-exam should

be performed individually by a medical officer or a paramedical and the technique spread through Medias [4]. In women practicing self-examination, the diagnosis of breast cancer is made before the extent to the lymph nodes in 2.7%; the survival after treatment is of 75% up to 5 years [5-8]. In Democratic Republic of the Congo (DRC), breast cancer is the second most common cancer in Congolese women after that of the cervix. By lack of early detection and means to seek treatment, 44% of women die of breast cancer. Studies conducted by Mashinda KD, et al., demonstrated that the breast cancer was found in 13.7% in teenagers, dominated by adenofibroma [2]. However, in the Democratic Republic of the Congo few studies exist on the knowledge of breast cancer and breast self-examination in high-educated girls.

In Mbuji mayi, the breast cancers are not rare. Breast self-examination was only practiced by 1% of girls [1]; which justify the

choice of this topic. Most of teenagers are not informed about self-examination of breast. We asked ourselves some questions whose answers should be a step forward in the control of this phenomenon: What could be the degree of knowledge on breast cancer among schoolgirls? What are the knowledge status and practice of self-examination of breast among those schoolgirls? Therefore, a research on the topic is of paramount importance. Henceforth, the study aims at assessing the knowledge about breast cancer and the practice of breast self-examination among schoolgirls, and to propose effective intervention measures to promote early diagnosis and treatment.

Materials and Methods

Study design

Eight schools were selected in Mbuji mayi, Province of Kasai-oriental, in Democratic Republic of the Congo, of which four are located in Kanshi township (Muanjadi Grammar School, Sainte Thérèse Grammar School, Bukasa Nsende College and Prince de l'Académie high school) and four in Dibindi township (Saint Clément I College, Bianka Grammar School, Eureka Kasai IV College and Ecole de Métier high school). These schools were chosen because they are all dedicated to education of girls. To collect data, a questionnaire form was used. This was a descriptive cross-sectional study conducted from December 18, 2019 to March 18, 2020.

Sample size and participants

Considering the prevalence found by Mashinda KD, et al., [2] who demonstrated that breast cancer was present in 13.7%, the sample size was calculated as follows: $n = (1.96)^2 \times p \times q / d^2 = (1.96)^2 \times p \times q / d^2$

- 1, 96: corresponding value to confidence level of 95%
- p: prevalence=0.137
- $q = 1 - p = (1 - 0.137) = 0.863$
- d: degree of precision needed=0.02
- $n = (1.96)^2 \times (0.137 \times 0.863) / (0.02)^2 = 1135.5$

Then the number 1136 was obtained. Some questionnaire forms (174) were discarded because they were not relevant or because they were not completely filled. Finally the sample size was constituted of 962 schoolgirls from third to sixth form of the above named high schools, who filled out completely the questionnaire. They ranged from 14 to 22 years old, because our study focused on teenagers.

Study variables

Knowledge about breast cancer: breast cancer existence awareness and knowledge acquisition source, breast cancer risk factors awareness, prevention, skills on own-examination of lymph nodes areas. Practice of breast self-examination: knowledge and skills on self-examination of breast, cycle stage and position adopted for breast self-examination, frequency of self-examination, technique performed and the feelings experienced.

Data analysis

The collected data were encoded on Excel, and then transferred to SPSS software package, version 16.0. The significance threshold was set to $p < 0.05$ for a confidence interval of 95%. Chi-square was used to verify association between different factors.

Ethical consideration

Anonymity and respect of confidentiality of data were assured. The consent was obtained orally after the schoolgirls were informed about the purpose of the investigation.

Results

Knowledge on breast cancer

Most of schoolgirls (594) i.e., 61.75% know about the existence of breast cancer. The source of acquisition of information on the existence of breast cancer in teenagers was mostly from Medical officer (26.72%). More than half of schoolgirls (573) i.e., 59.56% do not know about the existence of breast cancer risk factors. One hundred and four girls (26.74%) among schoolgirls claimed that bearing money on the breasts in their bra could be a risk factor of breast cancer. Most of schoolgirls (573) i.e., 59.56%, claimed not to know the prevention means of breast cancer; in 47.56% of cases, self-examination was regarded as breast cancer prevention means (Table 1).

Knowledge on breast self-examination

More than half of girls (54.89%) did not know about self-examination of ganglionic areas; Armpit ganglionic areas were most known by girls in 47.24% of cases. The majority of girls (61.64%) reported having not been aware of the breast self-examination practise; the majority of girls (61.85%) were not used to actually practise breast self-examination. In 53.15%, breast palpation was carried out after menstruations and the position adopted in the majority of cases was the upstation (48.51%). One hundred and fourteen girls (31.15%) confessed having performed breast self-palpation or examination once in a month; the breast flat

Table 1: Knowledge on breast cancer for schoolgirls in Mbuji mayi.

Characteristics	Category	Number	Percent(%)
Knowledge on the existence of breast Cancer	No	594	61.75
	Yes	368	38.25
Source of knowledge acquisition on the existence of breast cancer	Medical officers	159	26.72
	Parents	138	23.19
	Radio Station	93	15.63
	Nurse	73	12.27
	Television	58	9.75
	School	43	7.23
	Internet	28	4.71
	Church	3	0.5
Knowledge about risk factors	No	573	59.56
	Yes	389	40.44
Declared factor as being breast cancer risk factors	Money on the breast in a bra	104	26.74
	Cigarette	68	17.48
	Family history	58	14.91
	Breast density augmented	45	11.57
	Alcohol	44	11.31
	Others	70	17.99
Knowledge about prevention means	No	573	59.56
	Yes	389	40.44
Knowledge about breast cancer prevention means	Self-examination	185	47.56
	Screening	157	40.36
	Genetic material examination	47	12.08

hand position was the most used (54.22%) during the breast palpation process and six girls (56.44%) confessed having not had any pain during the breast palpation or examination process (Table 2).

Knowledge on breast cancer by age

The schoolgirls of 19-22 years old, i.e., 82.57%, knew more about the existence of breast cancer than the youngest. The difference observed was statistically more significant: $p < 0.001$; the schoolgirls of 19 to 22 years old (66.97%) were not so much aware of breast cancer risk factors as those ones whose age was ≤ 14 years (50%). The difference is statistically significant: $p = 0.0286$; Seventy-six schoolgirls (69.72%) did not know how to practise the self-examination of the breast and their age ranged from 19-22 years against 75 schoolgirls, i.e., (62.50%), whose age was ≤ 14 years knew about breast self-examination practise. The difference observed was statistically significant: $p = 0.01$ (Table 3).

Discussion

The breast cancer is one of the common malignant tumour in women in Democratic Republic of the Congo [8]. It arises mostly in young

Congolese women and the diagnosis is often made at advanced stages [9]. The sensitization on breast cancer awareness and the practice of screening methods enable early detection of breast cancer, improving so the survival prognosis and providing best health results [10]. This study, «assessment of knowledge on breast cancer and practice of breast own-examination among schoolgirls», had been conducted for the first time in Mbuji-Mayi. Our study provides useful information to satisfy the lack of documentation on the topic in Democratic Republic of the Congo.

In our series 61.75% of schoolgirls are aware of the existence of breast cancer. On the other hand in the study of Darre T, et al., in Togo, female medical students in general were aware of the existence of breast cancer [11]. This low knowledge rate on breast cancer could be justified by lack of sensitization on the condition in different areas throughout the country. This study has demonstrated that the source of knowledge acquisition on the existence of breast cancer among teenagers was from Medical Officer (26.72%) in most of cases; unlike the results reported by Alwan NAS, et al., in Iraq, the media dominated television and radio precisely [12]. The studies conducted in developed countries demonstrated that the attitude and orientation of healthcare provider are importantly decisive for utilization of screening programmes of breast cancer [10]. That could be justified by the fact that the Medical Officer seems trustworthy for everyone as concerns health issues, in relation to the Physician-Patient relationship. Nevertheless, the information disseminated on the subject by the media must be encouraged and above all presented by health workers. Fifty eight point ninety four percent of schoolgirls were aware of breast cancer. In the study of Darre T, et al., in Togo, female medical students in general had knowledge about breast cancer [11]. This is a problem linked to our environment, since other sources of information are not exploited.

Most of schoolgirls (59.56%) did not know about the existence of breast cancer risk factors of. Twenty six seventy four percent of schoolgirls reported that bearing money on breasts was a common risk factor of breast cancer according to our findings. These results do not corroborate with those found by Darre T, et al., in Togo which demonstrated that the answer of students to risk factors of breast cancer has been globally satisfying and the risk factors settled for the breast cancer comprised reproductive factors and hormonal (menarche, delayed menopause, nulliparous, oestrogens exogenous), the genetic, age, adiposity, alcohol consumption and meanness [11]. On the other hand, a feeble knowledge of risk factors ends often up by bad attitudes and bad behaviors concerning the maintenance of safe lifestyle and screening methods of breast cancer [13].

Therefore, it is important to reinforce the knowledge of schoolgirls so that they can better educate people about the risk factors associated with breast cancer to enable them to integrate sustainable attitudes and envisage lifestyle change. Their mastery on risk factors will depend upon the quality of information spread among people. A feeble level of knowledge and sensitization on risk factors of breast cancer seems to drag along stiffness to recognize symptoms of breast cancer, severity of disease and advanced stages of the condition owing to delay in looking out for support. The breast cancer kills silently the women, principally those one who are not aware of breast cancer and the screening methods for early detection [11,14].

Our results demonstrated that more than a half of schoolgirls (59.56%) claimed to know the prevention mean of breast cancer and in 47.56% of cases self-examination of breasts was the prevention way of breast cancer. Natural history of breast cancer is a long process, a structured program for early detection could reduce significantly the

Table 2: Knowledge on breast self-examination for schoolgirls in Mbuji-Mayi.

Characteristics	Category	Number	Percent(%)
Knowledge about Ganglionic areas self-examination	Non	528	54.89
	Yes	434	45.11
	Armpit	205	47.24
Knowledge about ganglionic areas	Sub-clavicular	106	24.42
	Internal mammary chain	67	15.44
	Inguinal	27	6.22
	Cervical	15	3.45
	Mandibular	14	3.23
Knowledge about breast self-examination practise	No	593	61.64
	Yes	369	38.36
Real practise of breast self-examination	No	595	61.85
	Yes	367	38.15
Menstruations cycle duration of breast self-examination	After the periods	194	53.15
	In midperiods	98	26.85
	During the periods	73	20
Position adopted of breast self-examination	Up station	179	48.51
	Seated station	104	28.18
	Lay down station	86	23.31
Self-examination frequency	Month	114	31.15
	Day	80	21.86
	Sporadic	79	21.59
	Week	59	16.12
	Years	34	9.29
Technique adopted	Flat hand approach	199	54.22
	With fingers	168	45.78
Experienced feeling	Painless	206	56.44
	Painful	159	43.56

Table 3: Knowledge on breast cancer for schoolgirls in Mbujimayi by age.

Age(Years)	Knowledge about the existence of breast cancer		Knowledge of risk factors of breast cancer		Knowledge and skills on breast self-examination	
	Yes	No	Yes	No	Yes	No
≤ 14	72(60)	48(40)	60(50.00)	60(50.00)	75(62.50)	45(37.50)
15-18	432(58.94)	301(41.06)	293(39.97)	440(60.03)	261(35.61)	472(64.39)
19-22	90(82.57)	19(17.43)	36(33.03)	73(66.97)	33(30.28)	76(69.72)
χ^2	22.6		7.1065		34.9376	
P	0.001		0.0286		0.01	

incidence and the mortality of this condition. It is in this context that the Democratic Republic of the Congo has organized a National Plan to reinforce the prevention and monitoring of breast cancer. The objective is to reduce at 30% the mortality of this issue in the forthcoming 10 years. In this National Plan, they focus on the importance of self-examination of the breasts [3]. Indeed, Marzouni HZ, et al., in a study on skills on self-examination of the breast in Iran reported the positive effects of sensitization in the context of prevention [15].

It is outlined from our study that more than a half of schoolgirls (54.89%) did not know to own-examine the lymph nodes areas. Axillary lymph nodes area was the most known of all the lymph nodes areas by the schoolgirls in 47.24% of cases according to our results. In other developed countries, many studies showed that 85% of women were aware of the existence of breast conditions; most of women perform regularly self-examination of breasts and lymph nodes areas, more better, the screening program is not organized in these countries [16,17].

For knowledge and skills on self-examination of breasts, 61.64% of schoolgirls claimed to be unaware of self-examination and many schoolgirls (61.85%) did not perform self-examination in our series. contrary to Darre T, et al., [11] in Togo wherein 83.6% of schoolgirls performed a self-examination of breast and clinic check-up of breast. Although self-examination is the common used technique of early detection, evidence of its effectiveness is discussed. This technique could lead to an excessive detection of nodules by avoiding useless medical visits and expenditures related to diagnosis, that is needed in context of low-and-middle-income countries with settings and health resources limited [18].

However, even though the current data do not support the self-examination as an approach of breast cancer screening, teaching of self-examination of the breast in the countries wherein most of women suffering from breast cancer at advanced stage can improve their knowledge on breast cancer and lead to early diagnosis [11]. The self-examination of the breasts has the advantage of being the relatively simple and cheaper technique for early detection of breast cancer [9]. The role of self-examination of the breast is important in the regions wherein mammography could not be available for financial purpose or accessibility.

The results from bi-variable analysis between different variables: knowledge on breast cancer, awareness of risk factors and practice of self-examination of breasts were associated statistically to age with respectively (P-value=0.001; 0.0286 and 0.01). Contrary wise Ousmane in a study on attitude and practice of self-palpation of breast among women in Morocco demonstrated that seven variables were associated statistically to the practice of self-examination of breasts: the residence, the education, the financial status, familial and

personal history of breast cancer, knowledge about breast cancer and body movement. The pertaining to different age categories had not impacted on the practice of self-examination of breasts (p=0.182). The literature confirms that familial and personal history of breast cancer could impact on knowledge, risk factors of breast cancer and practice of self-examination of breasts [19].

Moreover, the statistics indicate that 90% of mammary nodules are found out by women themselves [20]. In 53.15%, the breast palpation was made after menstruations and in the majority of cases the schoolgirls performed the chest palpation in a standing-up position (48.51%) as show our results. The chest palpation was performed after the periods and this could be justified by the fact that the breasts are supple after menstruations and in the standing-up position because this position is favourable for most of them, since the self-examination of the breast is often performed during showers or in the standing-up position and in front of a mirror. Concerning the frequency of self-examination of breasts and the technique adopted, 31.15% of schoolgirls claimed having done self-examination of breasts once monthly, flat hand was the technique the most used in 54.22% during palpation of the breast and 56.44% of schoolgirls claimed not experiencing pain when performing the technique according to our results. Self-examination of the breasts well done regularly could enable woman to keep close to her body. The purpose of self-examination of the breast is to check up the change of size, shape, borders, coloration, pain or any change of skin aspect and consider as an opportunity to see a Medical Officer.

Conclusion

The breast cancer is a major problem of public health in Democratic Republic of the Congo. Most of schoolgirls know about the existence of breast cancer but the level of knowledge on risk factors, practice of self-examination of the breasts and prevention means are not sufficient. The programme of sensitization should focus on risk factors, prevention means and organization of screening campaigns. The data outlined in this paper could be used in Education programs to improve knowledge on breast cancer at early age and teach the appropriate techniques for breast self-examination. However, further complementary studies are of paramount importance to reinforce these results.

Ethical Approbation and Participation Consent

This study has been approved and authorization has been obtained from the Dean of the Faculty of Public Health at Official University of Mbujimayi, to whom we wrote to ask for permission by explaining the objectives and methods of the study. The schoolgirls were ensured that their participation to the study was optional and anonymous. They were equally assured of confidentiality of the provided information and that all data should be analysed anonymously. A written consent form has been filled out before the participation to the interview.

Study Limitation

This study does not deal with the chest self-examination technique; neither does it tackle the knowledge about the cancer symptoms or the cause and effect relationship. This study does not break down schoolgirls according to their school.

Contribution of Authors

Mpulumba B is responsible of conception of the study, undertook the interview, collected data, analysed and interpreted the data and wrote the draft. Mukendi K, Musasa K, Mbaya K, Bambi N and Manongo B participated in the conception of the study, supervised data collection and data analysis. Mukoka K participated in the correction of the grammatical mistakes herein contained in the present work after its first translation. Muamba M is the scientific manager of the study, data analysis and interpretation, and the preparation of the final draft.

Conflict of Interest

The authors do not claim any interest conflict.

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