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Breast Shape (Ptosis) in Young Female Students in the Democratic Republic of the Congo: Influence of Age, Height, Weight and Wearing of the Bra

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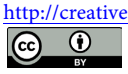

Abstract

The general objective of this preliminary study in the Democratic Republic of the Congo was to make an assessment of breast ptosis in young female students by determining the types of mammary ptosis observed and by looking for the morpho-anthropological and behavioral aspects likely to occur, influencing the appearance of breast ptosis. We surveyed 300 students aged 18 to 25, single, without parity or gesture. We searched for types of breast ptosis, age, year of study, weight, height, waist and breast, and personal habit of wearing the bra. The rate of female students with ptosis breasts increased with age, year of study, weight, body mass index, and waist circumference. Of the 300 students surveyed, 195 students (65%) wore bras and 105 (35%) did not wear bras. The presence of the non-normal breast was more observed in those who did not wear a bra, 58% (61/105) compared to those who wore it, *i.e.*, 28.7% (56/195).

Subject Areas

Women's Health

Keywords

Breast Shape (Ptosis), Young Female Students, Democratic Republic of the Congo, Influence of Age, Cut, Weight and Wearing the Bra

1. Introduction

The breasts remain a mythical symbol of feminine identity, of motherhood and

are part of the major criteria of feminine beauty. Breasts attract attention, dazzle and fascinate our society. And yet, the breasts are subject to significant changes during a woman's life. They can be atrophied (breast hypotrophy), huge (breast hypertrophy or gigantomastia), or sagging (breast ptosis) [1].

In Poland and Papua, breast ptosis remains a physical trait that affects the perception and preferences of a potential sexual partner [2]. Male's preferences for female breast morphology remain evident in New Zealand, Samoa and Papua New Guinea [3]. Other studies [4] [5] [6] also show that breast morphology remains a point of attraction and sexual attraction. In the Democratic Republic of the Congo (DRC), the status of breast ptosis in young women has not yet been studied. Furthermore, there are very few published works on breast ptosis in general and on that of young women in particular.

Indeed, the alteration of the breasts from an aesthetic point of view represents a very worrying situation for the young Congolese woman. The general objective of this preliminary study conducted in the Democratic Republic of the Congo was to make an inventory of breast ptosis in young female students by determining the types of breast ptosis observed and by researching the morpho-anthropological and behavioral aspects.

The importance of this study is that it allows us to explore some non-congenital and non-hormonal causes of breast ptosis in young female students, and therefore to predict the means of preventing it. Indeed, certain environmental factors can influence the occurrence of breast ptosis in young ladies.

2. Material and Method

The University of Kinshasa is a French-speaking institution of university education located in the city of Kinshasa (capital of the DRC). Founded in 1954, it took over from Lovanium University. During the 2016-2017 academic year, 29,848 students were enrolled at the University of Kinshasa, including 23,503 male students (78.7%) and 6,345 female students (21.5%). The total number of female students aged 18 to 25 was not known. Among the 6345 registered students, we randomly drew a sample of 300 students fulfilling the following eligibility criteria: to be aged 18 to 25, single, without parity or birth, to have given their informed and signed consent to participate in the study and agreeing to be photographed. This study took place during the period from April 1 to August 31, 2017.

Study variables were: type of breast ptosis, age, year of study, weight, height, waist circumference, chest circumference, and personal bra-wearing habit. To classify the types of breast ptosis, we used the Regnault classification [7]. It is based on the position of the nipple in relation to the submammary fold and the tangent plane passing through the most sloping point of the breast in a standing woman. This classification describes three grades: grade 1 (minor ptosis): the nipple is at the level of the submammary fold; grade 2 (moderate ptosis): the nipple is below the submammary fold and above the plane passing through the

most sloping point of the breast; grade 3 (major ptosis): the nipple is below the submammary fold and below the plane passing through the most sloping point of the breast.

This is a reasoned non-random sampling also called non-statistical sampling. Our sample was dependent on our inclusion criteria in the study. The size of the sample for this study (300 students) was defined as necessary in relation to the degree of precision that we required to study the phenomenon of mammary ptosis in young students. The sample size was a compromise between the degree of precision to be achieved, the budget of the survey and all other operational constraints.

3. Results

We present the results obtained according to the age of the students (Table 1), the year of university studies (Table 2), the types of breast ptosis according to age (Table 3), the types of ptosis according to weight (Table 4), types of breast ptosis according to height (Table 5), types of breast ptosis according to waist circumference (Table 6), types of breast ptosis according to bra wearing throat (Table 7) and not wearing a bra (Table 8). Figures 1-6 illustrate these observations.

Female students between the ages of 20 and 21 were the most numerous. They represented 36%. The average age of the students was 21.7 years with a standard deviation of 2.0 years. The minimum age was 18 and the maximum age was 25.

Table 1. Distribution by age of female students surveyed at the University of Kinshasa during the 2016-2017 academic year.

Age (year)	n	%
18 - 19	42	14.0
20 - 21	108	36.0
22 - 23	84	28.0
24 - 25	66	22.0
Total	300	100.0

Table 2. Year of university studies according to the age of female students enrolled at the University of Kinshasa during the 2016-2017 academic year.

Academic year	Age (year)				Total
	18 - 19	20 - 21	22 - 23	24 - 25	
1st year	36	63	9	3	111
2 year	6	21	18	9	54
3 year	0	18	24	6	48
4 year	0	6	15	9	30
5 year	0	0	15	9	24
6 year	0	0	0	12	12
7 year	0	0	3	18	21
Total	42	108	84	66	300

Table 3. Distribution of types of breast ptosis according to the age of female students enrolled at the University of Kinshasa during the 2016-2017 academic year.

Type of breast ptosis	Age (year)				Total
	18 - 19	20 - 21	22 - 23	24 - 25	
Normal	21	48	27	9	105
Grade 1	6	39	30	15	90
Grade 2	9	15	18	30	72
Grade 3	6	6	9	12	33
Total	42	108	84	66	300

Table 4. Distribution of types of ptosis according to the weight of female students enrolled at the University of Kinshasa during the 2016-2017 academic year.

Weight (Kg)	Type of breast ptosis				Total
	Normal	Grade 1	Grade 2	Grade 3	
<50	33	3	2	0	38
50 - 55	35	29	14	0	78
56 - 61	29	32	9	0	70
62 - 67	8	10	29	12	59
68 - 73	0	17	17	15	49
74 - 79	0	0	0	6	6
Total	105	90	72	33	300

Table 5. Distribution of types of breast ptosis according to height of female students enrolled at the University of Kinshasa during the 2016-2017 academic year.

Height (cm)	Type of breast ptosis				Total
	Normal	Grade 1	Grade 2	Grade 3	
150 - 155	17	5	6	0	28
156 - 161	18	12	9	7	46
162 - 167	29	38	21	15	103
168 - 173	18	26	33	7	84
174 - 179	8	9	3	4	24
180 - 185	15	0	0	0	15
Total	105	90	72	33	300

The majority of students surveyed were aged 21 or less and were enrolled at most in the 1st year of university studies.

Seven percent of female college students (21/300) who had not yet turned 20 had normal breasts (see also **Figure 1**). Grade 3 breast ptosis, for a total of 33 breast ptosis observed, was more observed in female students whose age ranged between 24 and 25 years, *i.e.* 36.3 1% (12/33) (see also **Figure 2**).

Table 6. Distribution of breast ptosis according to waist circumference of female students enrolled at the University of Kinshasa during the 2016-2017 academic year.

Waist circumference (cm)	Type of ptosis				Total
	Normal	Grade 1	Grade 2	Grade 3	
60 - 65	44	0	0	0	44
66 - 71	25	16	6	0	47
72 - 77	27	33	20	3	84
78 - 83	8	20	17	7	52
84 - 89	0	17	23	7	47
90 - 95	0	4	3	7	13
96 - 101	0	0	3	7	9
102 - 107	0	0	0	3	3
Total	105	90	72	33	300

Table 7. Breast ptosis according to bra wearing among students at the University of Kinshasa, during the 2016-2017 academic year.

Type of breast ptosis	n	%
Normal breast	56	28.7
Grade 1	49	25.1
Grade 2	43	22.1
Grade 3	47	24.1
Total	195	100.0

Table 8. Breast ptosis according to the absence of the wearing of a bra among students of the University of Kinshasa, during the academic year 2016-2017.

Type of breast ptosis	n	%
Normal breast	61	58
Grade 1	26	24.7
Grade 2	11	10.4
Grade 3	7	6.6
Total	105	100.0

Grade 3 breast ptosis was only observed above 61 kg of weight (see also **Figure 3**).

Twenty-seven percent (29/105) of normal breasts and forty-two percent (38/90) of grade 1 breasts were observed more among students whose height was between 162 and 167 cm.

Students 60 to 65 cm in waist circumference had normal breasts. Students taller than 83 cm no longer had normal breasts. Students with the largest waist circumference of 102 to 107 cm only had grade 3 breasts.

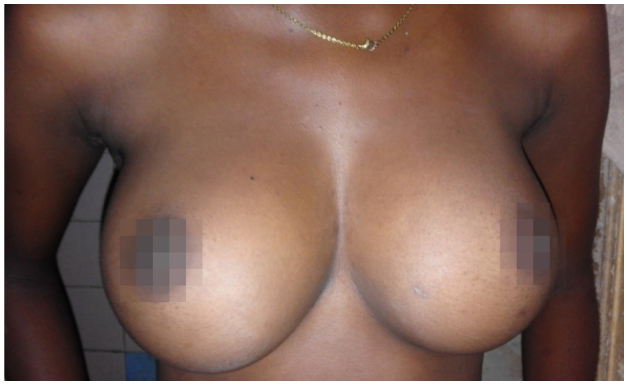

Figure 1. 18-year-old student with normal breasts.

Figure 2. 25-year-old female student with grade 3 breast ptosis.

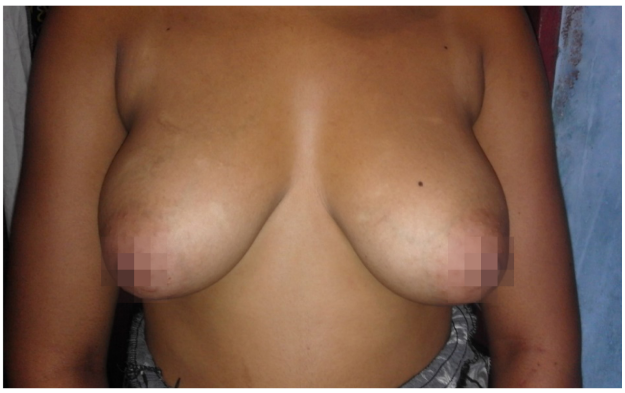

Figure 3. Student with a weight over 60 kg and grade 3 breast ptosis.

Of the 300 students surveyed, 195 students (65%) wore a bra and 105 (35%) did not. We present in **Table 7** and **Table 8** respectively the types of breast ptosis according to the wearing or not of a bra.

The absence of breast ptosis was more observed in students who did not wear a bra, *i.e.* 58% (61/105) (see also **Figure 4**) if compared to those who wore it, *i.e.* 28.7% (56/195). This difference was statistically significant ($p < 0.05$).

Regarding the Body Mass Index of 300 students surveyed:

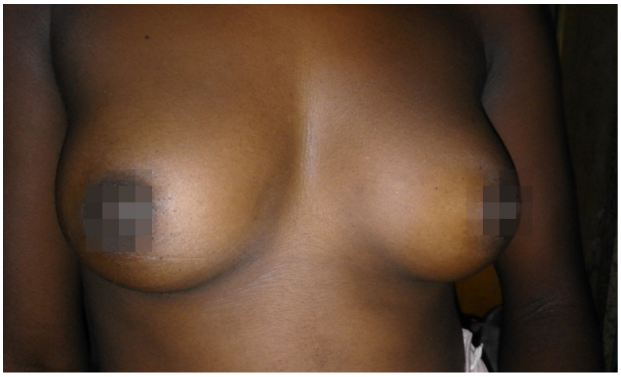

Figure 4. Student with a height between 1 m 76 cm and 1 m 80 cm wearing normal breasts.

- 9.8% of them were thin and all had normal breasts;
- 73% had a normal corpulence, including 31.8% with normal breasts, 20.6% grade 1 ptosis, 10.3% grade 2 ptosis and 10.3% grade 3 ptosis;
- 17% were overweight and all with breast ptosis (3.4% grade 1, 6.8% grade 2 and 6.8% grade 3).

The overweight students all had breast ptosis (see also **Figure 5**). Lean students did not have breast ptosis, on the other hand (see also **Figure 6**).

4. Discussion

Breast ptosis depends on certain factors such as the age of the woman, her weight, her height as well as the wearing of a bra.

4.1. The Age of the Student

Female students aged between 20 and 21 were the most numerous. The average age of the female students was 21.7 years with a standard deviation of 2.0 years. The extremes were 18 years and 25 years. The range of age variation was 7 years. It was relatively narrow. The narrowness of the range meant that the extreme ages were not too far from neighboring values but especially from the central value, the average of the distribution which was 21.7 years. The low value of the standard deviation of 2.0 years had proven that the dispersion of the distribution of the age variable in the sample was not spread out but narrowed around the mean. The distribution of the values of the age variable clustered around the mean value but with two modes, 20 and 21 years. Students whose age did not exceed 21 years or 65.7% had normal breasts (**Figure 1**). Grade 3 breast ptosis was more observed in the oldest students, those whose age varies between 24 and 25 years, in a proportion of 36.4% (**Figure 2**).

Our results confirm the etiological link between age and breast ptosis. The loss of elasticity and firmness of the skin with age promotes sagging breasts [8].

4.2. The Weight and Height of the Student

Students who weighed less than 56 kg were in the majority with normal breasts

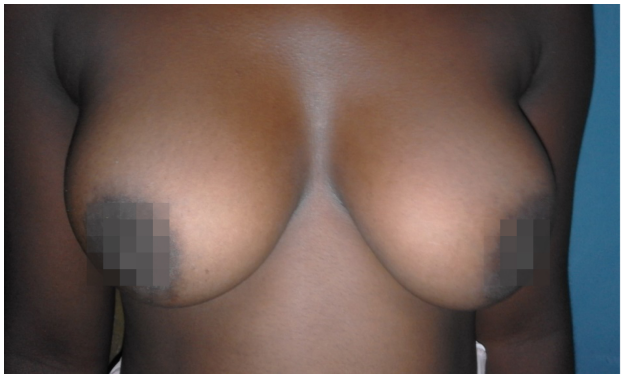

Figure 5. Student with overweight (BMI) and grade 3 breast ptosis.

Figure 6. Student with thinness (BMI) and wearing normal breasts.

(64.8%). The more the student gained weight, the more the ptosis also increased in the grades (grade 2 and grade 3). There is a positive linear relationship. These results establish a relationship between the progression of breast sagging and weight gain. This is mammary ptosis of weight origin. Weight gain leads to strong ligament tension and weakening of the skin [8].

Normal breasts and grade 1 breasts were more common at 27.6% and 42.2% respectively among female students whose height ranged from 162 cm to 167 cm. The taller students, that is to say between 180 cm and 185 cm, all had normal breasts while the short students, that is to say, less than 162 cm tall, were additionally affected by breast ptosis. This result allows us to hypothesize that young female students of tall stature, for example, taller than 175 cm, do not have ptosed breasts. The large size would be a significant preventive factor. A breast adapted to the chest of a tall young student would, indeed, be hypertrophic on the chest of another girl of much smaller size.

Thus, the body mass index would be related to breast ptosis. Indeed, overweight students as well as those of normal build all had breast ptosis. On the other hand, the skinny students did not have breast ptosis. The absence of breast ptosis in lean students is explained by the low local quantity of adipose tissue which prevents the weight of the breast and the loss of elasticity of its skin [8].

4.3. Wearing a Bra

Sixty-five percent of the students surveyed had regular and habitual use of the bra. Currently, the authors claim that wearing a bra on a daily basis promotes breast ptosis by weakening its natural means of suspension, mainly the Cooper ligaments [9]. It was demonstrated in a study of thirty young women that their breasts without a bra had obtained a benefit from an aesthetic point of view [9]. However, his young wives were sportswomen. The aesthetic benefit of their breasts could be due not to the absence of a bra but to the practice of sport through the reduction of adipose tissue largely responsible for the hypertrophy of the breasts and therefore their logical sagging.

Regarding breast ptosis concerning the absence of wearing a bra, in the present study, the majority of students who did not wear a bra, *i.e.*, 58%, had normal breasts. The result to which the present study leads is in line with the results of the ROUILLON survey [9], which demonstrated the aesthetic benefits of increased breasts on breasts without a bra. This is all the more true as of the 300 students surveyed during this study, and there were 100 young female students for whom the notion of practicing a sport had not been retained. On the other hand, the sample of the ROUILLON study [9] was made up of about thirty sportswomen.

Breast ptosis is a condition that is not considered to be welcome in the course of a woman's life today and even more so in a young girl's life. Plastic surgery finds all its interest in supporting these deformities. The American Society of Plastic Surgeons (ASPS) shows that since the 2000s, the correction of breast ptosis has increased by 70%, twice as much as the fitting of breast prostheses. Although it is now recognized that the size and shape of the ideal breast depend on several individual, cultural and social factors [10], corrective surgery for breast ptosis is performed in the DRC [1].

This study, although the first of its kind, has its limits: the size of the sample; the authors' wish would have been to achieve a larger sample size than that achieved in order to increase the accuracy of the tests; selection bias (when choosing female students to enter the study); finally, the statistical analyzes were performed manually.

5. Conclusion

The rate of young Congolese students with ptosed breasts would increase with age, year of study, weight, BMI and waist circumference. Although most college girls usually wear a bra, those who don't usually have normal breasts. In-depth studies on a larger sample and extended to other groups of young women would therefore be necessary to better elucidate the real influence of age, weight, height and the wearing of a bra in the onset of breast ptosis in young women.

Ethics Statement

Three fundamental principles of research ethics were respected in the present

study: respect for the person, beneficence and justice. We certify that the provisions relating to image rights have been fulfilled. The participants in this study have authorized us to present, reproduce or communicate to the public the photographs taken as a part of this study, without their figures or their identities (names).

Conflicts of Interest

The authors declare that there is no conflict of interest.

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