

Predictive Factors Related to Teenage Pregnancy

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ABSTRACT

Introduction: The purpose of our study was to investigate the factors that favour teenage pregnancy. This was a case-control study of adolescent girls aged 13 to 19 who were sexually active. It was conducted over a period of 5 months in the Gynecology and Obstetrics Department of the Yaounde Gynaeco-Obstetrics and Pediatric Hospital (YGOPH) and Yaoundé Central Hospital (YCH). We compared teenage girls seen at prenatal consultations (cases) to those coming for gynecological consultations (controls). The variables analyzed were sociodemographic data, risk behaviours, family data, data related to education and sexuality, and contraception. Data analysis was done using the Epi Info software version 3.5.4 and SPSS version 20.

Results: We recruited 170 teenage girls, 85 cases and 85 controls. Predictors of pregnancy occurrence among adolescents found in univariate analysis were: co-habitation (OR = 4), in a semi-urban setting (OR = 2.2), with her husband / fiancé (OR = 3.02), having only one sexual partner (OR = 15.16), having sisters (OR = 3.3), having a mother who conceived in adolescence (OR = 2.05), having her first sexual intercourse before age 16 (OR = 2.2), knowing family planning (OR = 2.98) and considering FP counseling as useless (OR = 3.3), not discussing sexuality with peers (OR = 2.27), does not search for information about sexuality in magazines / newspapers (OR = 4.7) or on the internet (OR = 5.4), does not know about abstinence (OR = 2.2), coitus interruptus (OR = 8.2) or the morning-after pill (OR = 5.18).

Conclusion: The independent predictors of teenage pregnancy in our setting were premarital sex before age 16 and non-use of contraceptive methods.

Keywords

Teenage girls, Pregnancy, Risk factors, Yaoundé.

Introduction

WHO considers adolescence to be the period of growth and human development between childhood and adulthood, between the

ages of 10 and 19 years. [1]. During this period puberty occurs. It is marked in each individual by psycho-emotional, social and sexual changes that will definitely affect the person. During adolescence, the girl is faced with biological and social dilemma: on the one hand, adapting to the development of secondary sexual characteristics and the ability to reproduce; on the other hand, to

adapt to these changes before adulthood. Any failure exposes her to consequences which could be deleterious for her future [2].

Teenage pregnancy is becoming more common. Nearly 16 million girls aged 15 to 19 and some 1 million girls under the age of 15 give birth each year, most of which occurs in low- and middle-income countries [3].

Adolescent girls will face health risks during pregnancy and childbirth. These risks represent 15% of the global burden of maternal morbidity [4]. Complications of pregnancy and childbirth are the second leading cause of death for girls aged 15-19 in the world [3].

The majority of teenage pregnancies are unplanned and unwanted. This leads them to resort to abortion. The fact that abortion is most often illegal, it will be done in the hiding and often by unqualified people. Every year, nearly 3 million girls between the ages of 15 and 19 suffer from unsafe abortions [3].

On the social aspect, these pregnant teenagers are victims of social exclusion because a pregnancy is often experienced as a family failure. The girl is vulnerable, scared and stigmatized. This will have an impact on the monitoring of her pregnancy.

Adolescent girls are likely to have many complications related to stigma. Essiben et al. in Cameroon found that 27.2% of teenage pregnancies had complications [5]. Children of teenage mothers have a significantly higher mortality risk than those of women aged 20 to 24 [3].

A lot of research on teenage sexuality and pregnancy has been done in our community. This has resulted in considerable knowledge about the sexual practices of adolescent girls in general and the consequences of their pregnancies [5], but there is a limited understanding of the factors that put some adolescent girls at increased risk of pregnancy.

In this study, we looked for factors that can predict the risk of teen pregnancy. These results may help to prevent the occurrence of early pregnancies.

Methodology

This was a case-control study conducted in the Gynecology-Obstetrics Department of the Yaoundé Gyneco-Obstetrics and Pediatric Hospital (YGOPH) and the Yaoundé Central Hospital (YCH). The study took place over a period of 05 months, from 01st March to 30th July 2015.

We compared pregnant women aged 13 to 19 who were attending prenatal consultation or had delivered (cases) to non-pregnant but sexually active adolescents who had come for a gynecological consultation (controls).

Data collected included: socio-demographic data (age, level of education, occupation, ethnicity, religion, place of residence,

marital status, ethnic group, risk behaviour (such as drinking alcohol, cigarette smoking, consuming illicit substances), family data (type of family from which the adolescent comes, no one with whom she lives, notion of mother or sister having conceived in their adolescence, position in the siblings), the data on sexuality (age at first sexual intercourse, number of sexual partners, knowledge of contraceptive methods, use of contraceptive methods, knowledge and consultation at Family Planning services).

The ethnic group of origin was divided into 3 categories: the Bantu (Fangs, Maka, Bassa, Douala, Bakweri, Yambassa, Bafia and other tribes of the Centre, South and East regions), semi-Bantu (Bamileke, Bamoun, Tikars) and the Sudanese (Tupouris, Haoussas, Kirdis, Foulbes, Mandara, and the other peoples of the Far North).

These data were collected using a pre-established questionnaire administered face-to-face after obtaining the informed consent of the adolescent and her caregiver.

Data analysis was done using Microsoft Excel 2007 software, Epi Info version 3.5.4 and SPSS version 20. The exact Fischer test and the Chi-2 test were used to compare the proportions. The odds ratio with its 95% confidence interval was used as a measure of association. Logistic regression was performed to eliminate confounders. A value of $P < 0.05$ was interpreted as significant.

Results

We enrolled 170 teenage girls, 85 cases and 85 controls. Sociodemographic parameters predictive of teenage pregnancy were: co-habiting (OR = 4.0, CI: 1.40-11.41) and living in semi-urban areas (OR = 2.18, CI = 1.09 - 4.36).

Predictive factors of family and social life for teenage pregnancy were: living with a husband / fiancé (OR = 3.02, CI = 1.44 - 6.32), being a unique child in a family (OR = 3.32; = 1.02 - 10.77), a history of early pregnancy in the mother (OR = 2.05, CI = 1.11 - 3.79).

The sexuality-related predictors of teenage pregnancy that we found were: Having first sexual intercourse between 14 and 16 years (OR = 2.19, CI = 1.17 - 4.10), having only one sexual partner (OR = 15.16, CI = 1.96 - 118.78), not consulting an FP service (OR = 3.01, CI = 1.5 - 6.04), finding unnecessary to consult an FP service (OR = 3.31, CI = 1.55 - 7.06), does not know abstinence (OR = 2.17, IC = 1.02 - 4.64), does not know coitus interruptus (OR = 8.18, IC = 1.79 - 37.23), does not know the morning after pill (OR = 5.18, IC = 2.11 - 12.73), does not use a contraceptive method (OR = 5.52, CI = 2.35 - 12.94), does not use the male condom (OR = 3.01, CI = 1.5 - 6.04), does not use the morning after pill (OR = 15.16, IC = 1.93 - 118.78).

Data related to sources of information on sexuality that predicts the occurrence of teenage pregnancy are: does not inquire from magazines / newspapers (OR = 4.69, CI = 1.49 - 14.7) and does not use the internet (OR = 5.38, IC = 1.48 - 19.51).

Table 1: Sociodemographic characteristics.

Variables		Case n (%)	Controls n (%)	Total n (%)	OR (IC)	P-value
Age (years)	< 14	4 (4.7)	5 (5.9)	9 (5.3)	0.79 (0.20-3.04)	0.5
	[14 – 16]	13 (15.3)	20 (23.5)	33 (19.4)	0.58 (0.27-1.27)	0.122
	≥ 16	68 (80)	60 (70.6)	128 (75.3)	1.66 (0.82-3.38)	0.106
Level of Education	None	1 (1.2)	0	1 (0.6)	3.03 (0.12-75.57)	0.5
	Primary	6 (7.1)	4 (4.7)	10 (5.9)	1.53 (0.41-5.65)	0.373
	Secondary and High school	61 (71.8)	57 (67.1)	118 (69.4)	1.24 (0.64-2.40)	0.308
	University	17 (20.0)	24 (28.2)	41 (24.1)	0.63 (0.31-1.29)	0.141
Profession	Pupil	52 (61.2)	48 (56.5)	100 (58.8)	1.21 (0.65-2.23)	0.320
	Student	17 (20.0)	25 (29.4)	42 (24.7)	0.6 (0.29-1.21)	0.106
	Housewife	10 (11.8)	3 (3.5)	3 (3.5)	3.64 (0.97-13.74)	0.03
	Others	6 (7.0)	9 (10.5)	15 (8.8)	0.64 (0.21-1.88)	0.420
Marital Status	Single	54 (63.5)	74 (87.1)	128 (75.3)	0.25 (0.11-0.56)	< 0.001
	Married	14 (16.5)	6 (7.1)	20 (11.8)	2.59 (0.94-7.11)	0.046
	Co-habitation	17 (20)	5 (5.9)	22 (12.9)	4 (1.40-11.41)	0.005
Religion	Catholic	49 (57.6)	54 (63.5)	103 (60.6)	0.78 (0.42-1.44)	0.265
	Protestant	16 (18.8)	15 (17.6)	31 (18.2)	1.08 (0.49-2.35)	0.5
	Muslim	11 (12.9)	8 (9.4)	19 (11.2)	1.43 (0.54-3.75)	0.313
	Others	9 (10.6)	8 (9.4)	17 (10)	1.13 (0.41-3.10)	0.5
Ethnic Group	Bantus	40 (47.1)	40 (47.1)	80 (47.1)	1 (0.54-1.82)	0.561
	Semi-bantus	36 (42.4)	34 (40)	70 (41.2)	1.10 (0.59-2.03)	0.438
	Soudanese	9 (10.6)	11 (12.9)	20 (11.8)	0.79 (0.31-2.03)	0.406
Place of Residence	Semi-urban	30 (35.3)	17 (20)	47 (27.6)	2.18 (1.09-4.36)	0.019
	Urban	55 (64.7)	68 (80)	123 (72.4)	0.45 (0.22-0.91)	
Risky Behaviour	Alcohol intake	46 (54.1)	43 (50.6)	89 (52.4)	1.15 (0.63-2.10)	0.379
	Cigarette Smoking	5 (5.9)	7 (8.2)	12 (7.1)	0.69 (0.21-2.28)	0.383
	Drug abuse	1 (1.2)	3 (3.5)	4 (2.4)	0.32 (0.03-3.12)	0.310

Table 2: Family Factors.

Variables		Cas n (%)	Controls n (%)	Total n (%)	OR (IC at 95%)	P-value
Person with whom the teenager lives	The two parents	24 (28.2)	29 (34.1)	53 (31.2)	0.75 (0.39-1.45)	0.253
	Father	1 (1.2)	3 (3.5)	4 (2.4)	0.32 (0.03-3.19)	0.1102
	Mother	11 (12.9)	18 (21.2)	29 (17.1)	0.55 (0.24-1.25)	0.110
	Grandparents	4 (4.7)	2 (2.4)	6 (3.5)	2.04 (0.36-11.49)	0.340
	Brother / sister	6 (7.1)	11 (12.9)	17 (10)	0.510 (0.17-1.45)	0.153
	Husband / fiancé	30 (35.3)	13 (15.3)	43 (25.3)	3.02 (1.44-6.32)	0.002
Position in the siblings	Alone	2 (2.4)	4 (4.7)	6 (3.5)	0.488 (0.08-2.73)	0.340
	Nuclear	55 (64.7)	60 (70.6)	115 (67.6)	0.76 (0.40-1.45)	0.256
	single-parent	22 (25.9)	13 (15.3)	35 (20.6)	1.93 (0.90-4.15)	0.064
	Polygamous	1 (1.2)	3 (3.5)	4 (2.4)	0.32 (0.03-3.19)	0.310
	Recomposed	1 (1.2)	4 (4.7)	5 (2.9)	0.24 (0.02-2.20)	0.183
Position in the siblings	Divorced	6 (7.1)	5 (5.9)	11 (6.5)	1.21 (0.35-4.14)	0.5
	Elder	22 (25.9)	21 (24.7)	43 (25.3)	1.06 (0.53-2.12)	0.5
	Benjamine	20 (23.5)	18 (21.2)	38 (22.4)	1.14 (0.55-2.35)	0.427
	Only child	4 (4.7)	2 (2.4)	6 (3.5)	2.04 (0.36-11.49)	0.340
Position in the siblings	Only daughter in siblings	4 (4.7)	12 (14.1)	16 (9.4)	0.30 (0.09-0.97)	0.031
	Elder	22 (25.9)	21 (24.7)	43 (25.3)	1.06 (0.53-2.12)	0.5
	Benjamine	20 (23.5)	18 (21.2)	38 (22.4)	1.14 (0.55-2.35)	0.427
	Only child	4 (4.7)	2 (2.4)	6 (3.5)	2.04 (0.36-11.49)	0.340
Family history of early pregnancy	Only daughter in siblings	4 (4.7)	12 (14.1)	16 (9.4)	0.30 (0.09-0.97)	0.031
	Sister	25 (29.4)	29 (34.1)	54 (31.8)	0.80 (0.42-1.53)	0.310
	Mother	54 (63.5)	39 (45.9)	93 (54.7)	2.05 (1.11-3.79)	0.015

Table 3: Data on adolescent sexuality.

	Variables	Cases n (%)	Controls n (%)	Total n (%)	OR (IC at 95%)	P value
Age at first intercourse (years)	<14	7 (8.2)	9 (10.6)	16 (9.4)	0.75 (0.26-2.13)	0.396
	[14-16]	58 (68.2)	42 (49.4)	100 (58.8)	2.19 (1.17-4.10)	0.009
	≥16	20 (23.5)	34 (40)	54 (31.8)	0.46 (0.23-0.89)	0.015
Number of current sex partners	One partner	84 (98.8)	72 (84.7)	156 (91.8)	15.16 (1.96-118.78)	0.009
	Several partners	1 (1.2)	13 (15.3)	14 (8.2)	0.17 (0.08-0.51)	0.009
Family planning service	Do not know family FP service	49 (57.6)	68 (80)	117 (68.8)	0.34 (0.17-0.67)	0.001
	Do not consult a FP service	35 (41.2)	16 (18.8)	51 (30)	3.01 (1.50-6.04)	0.001
	No need to consult a FP service	30 (35.3)	12 (14.1)	42 (24.7)	3.31 (1.55-7.06)	0.001
Lack of knowledge about contraceptive methods	Do not know any method	4 (4.7)	3 (3.5)	7 (4.1)	1.34 (0.29-6.22)	0.5
	Abstinence	72 (84.7)	61 (71.8)	133 (78.2)	2.17 (1.02-4.64)	0.031
	Coitus interrupted	83 (97.6)	71 (83.5)	154 (90.6)	8.18 (1.79-37.23)	0.001
	Male condom	4 (4.7)	4 (4.7)	8 (4.7)	1 (0.24-4.13)	0.640
	Female condom	62 (72.9)	5 (64.7)	117 (68.8)	1.47 (0.76-2.82)	0.160
	Pill	46 (54.1)	48 (56.5)	94 (55.3)	0.90 (0.49-1.66)	0.438
	Morning after pill	78 (91.8)	58 (68.2)	136 (80)	5.18 (2.11-12.73)	< 0.001
	Implant	74 (87.1)	79 (92.9)	153 (90)	0.5109 (0.17-1.45)	0.153
Non-use of contraceptive method	None	31 (36.5)	8 (9.4)	39 (22.9)	5.52 (2.35-12.94)	< 0.001
	Abstinence	84 (98.8)	79 (92.9)	163 (95.9)	6.37 (0.75-54.18)	0.058
	Coitus interrupted	85 (100)	79 (92.9)	164 (96.5)	13.98 (0.77-252.23)	0.073
	Male condom	35 (41.2)	161 (8.8)	51 (30)	3.01 (1.50-6.04)	0.001
	Female condom	84 (98.8)	81 (95.3)	165 (97.1)	4.14 (0.45-37.90)	0.183
	Pill	84 (98.8)	78 (91.8)	162 (95.3)	7.53 (0.90-62.67)	0.031
	Morning after pill	84 (98.8)	72 (84.7)	156 (91.8)	15.16 (1.93-118.78)	< 0.001
	Implant	85 (100)	85 (100)	170 (100)	1 (0.27-3.57)	1

Table 4: Information Sources/Discussion on Sexuality.

	Variables	Case n (%)	Controls n (%)	Total n (%)	OR (IC)	P value
Do not inquire from	Parents	66 (77.6)	74 (87.1)	140 (82.4)	0.51 (0.22- 1.17)	0.079
	Brother / sister	58 (68.2)	68 (80)	126 (74.1)	0.57 (0.26-1.08)	0.057
	Peers	65 (76.5)	50 (58.8)	115 (67.6)	2.27 (1.17-4.40)	0.01
	Sexual partner	25 (29.4)	22 (25.9)	47 (27.6)	1.20 (0.60-2.38)	0.365
	Télévision/radio	73 (85.9)	68 (80)	141 (82.9)	1.53 (0.68-3.44)	0.207
	Magazines / newspapers	81 (95.3)	69 (81.2)	150 (88.2)	4.69 (1.49-14.70)	0.003
	Internet	82 (96.5)	71 (83.5)	153 (90)	5.38 (1.48-19.51)	0.010
	School	54 (63.5)	56 (65.9)	110 (64.7)	0.90 (0.48-1.69)	0.436

Table 5: Multivariate Analysis.

Variables	aOR	IC	P value
Abstinence unknown	1.267	0.383 – 4.192	0.698
Coitus interruptus unknown	3.725	0.550 – 25.250	0.178
Morning after pill unknown	2.143	0.490 – 9.383	0.312
Male condom not used	2.863	0.564 – 14.539	0.204
Morning after pill not used	1.805	0.139 – 23.363	0.651
No contraceptive method used	12.966	2.055 – 81.802	0.006
Mother having conceived in adolescence	1.072	0.460 – 2.498	0.873
First intercourse before 16 years	3.713	1.575 – 8.754	0.003
Living with her husband / fiancé	1.427	0.527 – 3.862	0.484
Consult an FP service	8.486	0.167 – 431.241	0.286
Finding no need to consult an FP service	1.480	0.185 – 11.832	0.712
Know an FP service	1.454	0.045 – 47.426	0.833

Is not the only girl in the siblings	4.109	0.906 – 18.640	0.067
Has only one sex partner	8.484	0.942 – 76.383	0.057
Do not discuss sex with peers	1.654	0.677 – 4.037	0.269
Do not inquire from the internet	2.139	0.297 – 15.383	0.450
Do not inquire in magazines / newspapers	1.276	0.205 – 7.941	0.794

After multivariate analysis, the independent predictors of the occurrence of teenage pregnancy were non-use of a contraceptive method (OR = 12.97, CI = 2.06 - 81.8) and first sexual intercourse between 14 and 16 years (OR = 3.71, IC = 1.58 - 8.75).

Discussion

Age was not a predictor of early pregnancy in our study. We did not find any data in the literature concerning the association between age and the occurrence of early pregnancy [6,7].

The level of education had no impact on the occurrence of pregnancy. Vundule et al. in Cape Town, suggested that a low level of education was not a risk factor for early pregnancy [8]. On the other hand, other authors [9,10] associated a low level of education with the risk of pregnancy.

With regards to marital status, unmarried adolescents were the most represented among pregnant teenagers. Iloki et al. in Congo and Rwenge in Cameroon found similar results [6,11]. We found that pregnancy was 4 times more likely to occur in a co-habitation relationship.

Binet et al. had found in Madagascar an increase in the early fertility rate in urban areas and a fall in this rate in rural areas [10]. In our study, living in a semi-urban setting multiplied by 2 times the likelihood to become pregnant than in urban areas.

Our results did not reveal a significant association between the consumption of alcohol, tobacco, and illicit substances with the occurrence of early pregnancies. This is consistent with the findings of Vundule et al. In Cape Town [8] and those of the systematic review of Imamura et al. In 2007 in various European countries [12]. Whereas Kebede et al., In Ethiopia in 2005, found a strong correlation between the use of alcohol, illicit substances and unprotected sex [13].

Adolescent girls in our study often had multiple partners. This differs from the results of Rwenge who found 27% of adolescents with multiple sexual partners [6]. Having a single sexual partner significantly increased the risk of the occurrence of early pregnancy. This increase could be explained by a lack of contraceptive use among adolescent girls.

Rwenge in Cameroon found that adolescent girls living with their grandparents were significantly less likely to be sexually active while those living alone, with only one parent, brother or sister were more likely to be sexually active [6]. However, we did not find that living with a single parent or sibling increased the risk of early pregnancy. On the other hand, living with her husband or fiancé was significantly associated with the occurrence of early

pregnancy.

According to our results, the type of family from which the teenager comes does not affect the occurrence of early pregnancy. This is consistent with the findings of Santos and Rosario, in 2011 in Portugal [14] and with those of Imamura et al., In 2007 in various European countries [9]. On the other hand, in Bamenda, Rwenge found a more common sexual practice among teenagers from single-parent or divorced families and polygamous families [6].

Having a mother who had conceived in adolescence exposed to early pregnancies. Imamura et al. found a similar result [12] while Santos and Rosario did not find a significant association [14]. According to East et al., having a sister and mother who conceived in adolescence was associated with an increased risk of early pregnancy yet having just one mother conceiving in adolescence was not [15]. In addition, we found that having sisters multiplied by 3.3 the risk of early pregnancy. This could be explained by the influence that the sisters exert on each other.

Lack of consultation with FP services as well as finding it unnecessary to visit an FP service exposed to early pregnancy. Touko et al. [16] found that few adolescent girls consulted FP services. The reasons given for non-attendance of these services were ignorance of the existence and the activities of FP, fear and shame, lack of external motivation, hostility of the entourage, distance from services, quality and cost of services. In our study, the majority of adolescent girls who said they knew about FP services found it unnecessary to consult them.

Magazines/newspapers or the internet as a source of information on sexuality increased the risk of early pregnancy significantly. This makes it possible to express reservations about the nature of the information contained in these media, especially about the adequacy of this information in relation to the real needs of these teenage girls.

Djangone R et al. [17] found that adolescents in Cameroon and Burkina Faso (67%) were less aware of contraceptive methods than those in Togo and Côte d'Ivoire (93%). According to this study in Cameroon, knowledge of at least one modern contraceptive method was 33% among girls with no education and 99% among those with at least secondary school education. However, it should be noted that the lack of education did not constitute an absolute impediment to knowledge of a modern contraceptive method. In our study, the best-known method was the male condom. We found that not knowing abstinence, coitus interruptus, or the morning-after pill had a significant impact on the occurrence of pregnancy. These methods are accessible to all and knowing them could help

to reduce early pregnancies.

Djangone R et al. found that the routine use of the male condom was less than 10% [17]. Not using the male condom, the morning-after pill, or any type of contraception was significantly at risk for teen pregnancy.

Limitations

Our study of a sensitive subject related to sexuality among teenagers might have led to erroneous responses on the part of the latter, whether voluntarily or not. Recruitment in a hospital environment may have led to a selection bias.

Having sex before the age of 16 and not using any contraceptive method are the two independent predictors of early pregnancy in our study. Teen pregnancies are often unwanted. Their proportion varies between 24% and 97.4% [8,11,18]. This could be justified by lack of knowledge and the non-use of contraceptive methods.

Conclusion

The independent predictors of teenage pregnancy in our context are early sexuality and non-use of contraceptive methods.

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