

TEENAGE PREGNANCY IN BELGIUM: PROTECTIVE FACTORS IN A MIGRANT POPULATION

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SUMMARY

Background: Teenage pregnancies occur frequently in developing countries and are associated with social issues, including poverty, lower levels of health and educational attainment. Although frequent in European countries in the 20th century today, teenage pregnancies account for only 4% of first children. These pregnancies are usually unplanned and they are considered a vulnerability factor during the pregnancy and the postnatal period, both for the mother and the child. The purpose of our study was to evaluate the evolution of mothers and children of teenage pregnancies, several years after childbirth and to identify factors which may protect or increase the patient's vulnerability.

Subjects and methods: We conducted a retrospective search in our patient database in order to identify all teenage pregnancies between 2010-2014 at CHU Brugmann Hospital. Outcome data were obtained from the medical files. Mothers were contacted by phone and asked to complete our questionnaire which focused on maternal and paediatric care; and infant and child development after hospitalization.

Results: Out of the 342 patients identified, 84 patients were contactable and only 72 patients completed the full questionnaire. With only 4 patients originating from Belgium, our population was largely immigrant. Despite this, obstetrical, maternal and paediatric outcomes were remarkably favorable when compared to other published studies.

Conclusion: Our study suggests that some migrant teenage mothers may have a dual advantage in terms of the wealth of a developed country in which have settled and the low social stigma related to their country of origin. More research needs to be done to further investigate this hypothesis.

Key words: teenage pregnancy - adolescent pregnancy - vulnerability

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INTRODUCTION

Pregnancy can occur any time after puberty, usually at around the ages of 12 or 13. Teenage pregnancy, also known as adolescent pregnancy, is defined as any pregnancy under the age of 20.

Teenage pregnancies in developing countries are associated with social issues, including poverty, lower levels of health and educational attainment. 13 million births (10% of all births worldwide) each year are to women under the age of 20, and more than 90% of these births occur in developing countries. Overall, a third of women from developing countries gave birth before the age of 20 - ranging from 8% in East Asia to 55% in West Africa (Major 2004).

On average, women in the European Union (EU) are 29 years old when they became mothers for the first time. Teenage pregnancy was not uncommon in European countries in the 20th century. Among Norwegian women born in the early 1950s, nearly a quarter became teenage mothers by the early 1970s (Lappegård 2000). Today, teenage pregnancies in the EU are usually unintended and account for 4% or 93 000 births of first children. The highest proportion of births of first children to teenage mothers are recorded in Romania (with 12.3% of total births of first children in 2015) and Bulgaria (11.9%). 47% of women in the European Union (EU)

who gave birth to their first child in 2015 were in their 20s, while 45% of first-time mothers were in their 30s. Around 87 000 (4% of first-time births) were to women over the age of 40 (Eurostat 2017).

Adolescence is a vulnerability factor during pregnancy and the postnatal period, both for the mother and the child (Fernandes de Azevedo et al. 2015, Maravilla et al. 2017). For girls aged 15–19, risks are more associated with socioeconomic factors (McCarthy et al. 2014). There are additional concerns for those under the age of 15, as they are less likely to be physically mature enough to support a healthy pregnancy or to give birth (Makinson 1985).

The purpose of our study was to evaluate mother and child's evolution following teenage pregnancy, several years after childbirth. Our primary goal was to improve the screening for vulnerability factors patients during teenage pregnancy. While recognizing that a patient's young age is a factor of vulnerability itself, other factors may either be protective or in some cases, increase the patient's vulnerability.

SUBJECTS AND METHODS

A retrospective search in our database was conducted for patients who delivered between 2010-2014 at CHU Brugmann, a level 3 maternity hospital in Brussels. All patients during the period who gave birth under the

age of 20 were included and their contact details and pregnancy outcome data was collected. Stillbirths, termination of pregnancy and early neonatal mortality were all excluded as the objective was to evaluate the child's development in relation to maternal follow-up.

Data was obtained from the medical files and a questionnaire was created based on literature search. Patients were contacted by phone to conduct our questionnaire concerning the maternal and paediatric care received and also development following discharge home. The questionnaire was conducted over the telephone by two of the authors, in French, Dutch or English according to language preferences of the patient. The purpose of the questionnaire was explained and all patients had the option to refuse. Informed consent was obtained orally from each patient prior to conducting the questionnaire. For statistical reasons and in accordance with the available prospective research, only the first pregnancy for each patient was taken into account in the statistical analyses.

Statistical analyses were performed using SPSS. Linear regression analyses were carried out to determine relationships between the risk factors in a teenage pregnancy. Multivariate analyses were used to study confounders. The chi-squared test was used to determine whether significant differences could be found between expected and observed frequencies in one or more categories.

RESULTS

368 teenage pregnancies were registered from 2010-2014, comprising 351 patients. 9 patients (2.56%, N=351) were excluded because of perinatal mortality. Out of 342 patients, 84 patients (24.56%, N=342) were contactable. 12 patients (14.29%, N=84) refused to participate in the study. The main reason for refusal (8 patients, 75.00%) was a language barrier. 72 patients (21.05%, N=342) completed the full questionnaire.

Maternal demographics and outcomes

Teenage mothers were between 14 and 19 years old at time of delivery. With only 4 out of 72 Belgian patients, our population comprised mostly immigrants. 45.8% of them were Caucasian, 29.2% from North-Africa or West-Asia and 25.0% from Sub-Saharan Africa. 50% of the 72 patient who replied to the questionnaires were the highest proportions in those 3 categories, respectively from Romania (n=15), Morocco (n=12) and Guinea (n=8) (Table 1).

62 patients (86.1%) were primiparous. 52 pregnancies (72.2%) were planned, for 20 patients (27.8%), the pregnancy was unexpected. Unexpected/unplanned pregnancy was significantly associated to the absence of a father during and after pregnancy and suboptimal or no prenatal care. The father was present during the pregnancy in 83.3% of the cases. At the time of our study, 19 mothers were no longer in a couple with the father (26.4%). In 31.6% of the cases the pregnancy was one of the reasons for the break-up. We report 8 single mothers (15.3%).

Table 1. Country of origin

Albania	3
Belgium	4
Bulgaria	5
Cameroun	1
Congo	5
Croatia	1
France	1
Guinea	8
Ivory cost	1
Jordan	1
Lebanon	1
Macedonia	1
Morocco	13
Nigeria	1
Pakistan	1
Portugal	1
Rumania	15
Rwanda	1
Togo	1
Turkey	5
Ukraine	1
TOTAL	72

22.2% of the mothers had a postnatal follow-up at ONE (Office de la naissance et de l'enfance) and 13.9% consulted a social worker. Only 6.9% of the mothers consulted a psychotherapist in the post-natal period. 52 mothers (72.2%) reported any mother-oriented support in the post-natal period. An unexpected pregnancy was a risk factor for suboptimal antenatal care ($p=0.019$) but did not seem to influence post-delivery maternal or paediatric follow-up ($p=0.364$; $p=0.065$). Presence of the father had no influence on the quality of the antenatal care ($p=0.473$).

19 patients (26.4%) refused postpartum contraception. Reasons for refusal are summarized in table 2: pregnancy planning, non-compliance, intolerance or other non-specified reasons. Another 33 patients stopped contraception since; two thirds (66.7%) of them as part of pregnancy planning and another 8 patients (24.2%) for non-compliance (Table 2). The patient's decision to start contraception was only influenced by the nationality of the patient ($p=0.024$). 59 of the patients (81.9%) had at least one other pregnancy.

Since completion of their pregnancy, 18 mothers (25%) obtained a degree in secondary or higher education. However, another 11 (15.3%) could not successfully complete their educational program. At the time of our study, 26 mothers (36.1%) were employed and 6 (8.3%) were in higher education. Another 33 patients (45.8%) were neither actively employed nor in an educational program.

Obstetrical outcomes

Preterm delivery was reported for 7 pregnancies (9.7%). 5 neonates (6.9%) had a low birth weight (LBW) of whom 1 had an extremely low birth weight (ELBW). Four out of five patients (80.6%) delivered vaginally, 13 patients (18.1%) had a caesarean section.

Table 2. Reasons for contraception refusal or stop considering time after delivery

	Early postpartum refusal (N=19)		Stop in follow-up period (N=33)	
	N	%	N	%
Pregnancy wish	8	42.1	22	66.7
Non-compliance	2	10.5	8	24.2
Intolerance			2	6.1
Refusal	5	26.3	1	3.0
Unknown	4	21.1		

Table 3. Comparison of unplanned and planned pregnancies

	Planned pregnancies(N=52)		Unplanned pregnancies (N=20)		p-value
	N	%	N	%	
Age					0.471
Ethnicity*					0.065
Albania	1	1.9	1	5.0	
Belgium	3	5.8	1	5.0	
Bulgaria	4	7.7	1	5.0	
Congo	1	1.9	4	20.0	
Guinea	3	5.8	4	20.0	
Morocco	10	19.2	2	10.0	
Romania	11	21.2	1	5.0	
Turkey	1	1.9	1	5.0	
Optimal prenatal care	35	67.3	14	70.0	0.021
Paternal presence					
during pregnancy	35	67.3	12	60.0	< 0.001
after pregnancy	29	55.8	9	45.0	0.003
Maternal follow-up					
ONE	5	9.6	6	30.0	0.191
social assistant	3	5.8	5	25.0	0.330
psychotherapist	2	3.8	2	10.0	0.647
Maternal occupancy					
in education	3	5.8	3	15.0	0.459
education achieved	6	11.5	10	50.0	0.011
education drop-out	6	11.5	3	15.0	0.955
employed	18	34.6	9	45.0	0.931
employment stopped	1	1.9	3	15.0	0.081
Child's residence					
with mother	51	98.1	19	95.0	0.378
with family	1	1.9	1	5.0	0.478
Pediatric follow-up					
ONE	34	65.4	19	95.0	0.964
medical	23	44.2	13	65.0	0.594
SAJ/SPJ	1	1.9	3	15.0	0.060
Contraception	25	48.1	15	75.0	0.959
New pregnancy	33	63.5	15	75.0	0.071

* When the overall prevalence for a country is 1, the country of origin was excluded from the table

Paediatric outcomes

68 of the children (94.4%) lived with their mother and the remaining four others (5.6%) lived with other family members. However, all children were contact with their mothers on a regular basis. 66 children (91.7%) benefited from an ONE follow-up. 65.3% of the children visited a paediatrician or a family doctor on a regular basis. The correlation between the presence of the father after delivery and the medical follow-up of the child nearly reached significance ($p=0.065$) whereas the antenatal presence of the father was not significant

($p=0.786$). Furthermore, there was no relation between the presence of the father and the child's follow-up by ONE. All children were in school at the time of the study. Two children were not in regular education due to autistic spectrum disorders.

Unplanned pregnancies

We compared unplanned pregnancies with planned pregnancies (Table 3). As previously mentioned, planned pregnancies benefit more often from optimal prenatal care ($p=0.021$) and presence of the father during and

after the pregnancy ($p \leq 0.001$; $p = 0.003$). Significantly more mothers completed their education successfully ($p = 0.011$). However, we did not observe any difference in unsuccessfully terminated studies and employment ($p = 0.955$; $p = 0.931$).

When evaluating postpartum paediatric and maternal care, no difference were found between both groups for medical or psychosocial care. After an unintended pregnancy, more children have been in contact with SAJ (services for help for youngsters) and with SPJ (service for legal protection) but the difference was not significant ($p = 0.060$).

There were no differences in terms of contraception use ($p = 0.959$) after an unintended pregnancy. We found that ethnicity nearly reached significance ($p = 0.065$).

DISCUSSION

Teenage pregnancy is often mentioned in literature as a risk factor for obstetrical complications, namely prematurity, low birth weight (LBW) and extremely low birth weight (ELBW) (Fernandes de Azevedo et al. 2015). In our teenage sample these obstetric risks are similar to those reported for an average population (OECD 2018, World Health Organization 2018, Purisch & Gyamfi-Bannerman 2017). In line with the published literature, our study shows lower rates of caesarean section amongst teenage pregnancies (Maravilla et al. 2017) although the reasons for this could not be elucidated.

Our study shows remarkable differences in terms of maternal and paediatric outcomes in comparison with other published series. Approximately 80% of teenage pregnancies are unintended, whereas in our population this figure was only 27.8% (Leftwich & Ortega Alves 2017).

Pregnancy and giving birth significantly increases the chances that teenage mothers will become high school dropouts and as many as half have to go on welfare. Our sample shows a high rate of completed secondary-level education, employment and higher education.

In the UK it has been reported that about half of all teenagers with children are single parents, with another 40% cohabitating as a couple and only 10% married (UK Census 2001). According to US reports, Teenage fathers are frequently in a romantic relationship at the time of birth, but many do not stay with the mother and this often disrupts their relationship with the child. Being a single mother is a risk factor for poverty, mental health issues and may also reduce educational opportunities (Goossens et al. 2015). In Belgium, about one out of four mothers are solely responsible for the education of her children (Struffolino & Mortelmans 2017). Our sample shows only 15.3% of single mothers and only 26.4% of the mothers are not with the father. Paternal involvement has certain benefits for the child such as cognitive development, health, education and the development of

peer relationships. In our sample, children growing up in the absence of their father have less medical follow-up but this finding was not significant ($p = 0.065$). In our population, an unintended pregnancy was a risk factor for suboptimal prenatal care as well as the absence of the father during and after pregnancy. However, when corrected for paternal absence during pregnancy, paternal absence after pregnancy is no longer significant. Remarkably, 31.6% of relationship break-ups (before or after giving birth) were due to the pregnancy.

Nearly 1 in 4 teenage mothers will experience another pregnancy within two years of having their first. The likelihood decreases with the level of education of the young woman – or her parents – and increases if she is married (Kalmuss & Namerow 1994). In our sample, 59 of the patients (81.9%) had at least one other pregnancy.

When compared with the first pregnancy, a second one leads to higher risk of complications such as preterm births, mental health problems, and developmental problems among children (Maravilla et al. 2017). It is for these reasons that our hospital promotes the introduction and use of contraception within teenage mothers. 26% refused contraception in the immediate post-partum period, 31.6% of them due to pregnancy planning. In the long-term follow-up period, another 31% stopped contraception in order to plan for another pregnancy. An additional effort should be made to explain the importance of contraception and the risks of short delays between two pregnancies (McCarthy et al. 2014, Norton et al. 2017).

Poor academic performance in the children of teenage mothers has also been noted, (Goossens et al. 2015) with many of the children being held back a grade, scoring lower on standardized tests, and/or failing to graduate from secondary school. Our study was too small and covered too small a time period to determine the school pathways in more detail, nevertheless, all children in our study were in school (kinder garden or primary school). Two children with autistic spectrum disorders were in special needs educational systems.

When compared with published data, our population has remarkably low rates of obstetrical complications, unplanned pregnancies, lone parenting, school dropouts and birth spacing. We therefore presume that our sample is different from those populations found in the literature. One could suspect that a bias was introduced by the selection of individuals, thereby ensuring that the sample obtained was not representative of the population intended to be analyzed. Out of 342 patients, only 72 patients (21.05%) satisfactorily completed the questionnaire. Interestingly, another 12 patients were contacted but refused to participate. The main reason for refusal (8 patients) was a lack of knowledge of one of the three languages the used in our questionnaire (French, Dutch or English). Although, learning a second language is easier at a young age and immersion learning may be a more effective way, these young women didn't learn any of the Belgium official language.

ages over a period of at least 5 years. Language is an indispensable tool for social integration, education, employability and involvement in the education of their child (Bowen 2001, Jacobs et al. 2006, Dustmann & Fabbri 2003).

The language requirements of French, Dutch or English necessary to participate in our study may have created a sampling bias. Another possible example of sampling bias includes migration bias, by excluding those subjects who may have moved away from the study area. 75.44% of the population sample could not be reached due to incorrect or outdated contact details. We cannot therefore exclude the possibility that some members of the population were less likely to be included than others, resulting in a biased sample. Individuals of particular interest for our research questions (e.g. marginalized young mothers) may be under-represented in our study, and others, with certain protective factors, may have been over-represented.

In many developed countries, young age at first intercourse and lack of use of contraceptive methods (or their inconsistent and/or incorrect use; the use of a method with a high failure rate is also a problem) may be factors in teenage pregnancy. On the other hand, the teenage birth rate is very high in Bulgaria and Romania. As of 2015, Bulgaria had a birth rate of 37/1.000 women aged 15–19, and Romania of 34 (Eurostat 2017). The teenage birth rate of these two countries is even higher than that of underdeveloped countries like Burundi and Rwanda (World Bank 2017). 20.8% of our population sample was Romanian and 6.93% Bulgarian, where teenage pregnancy is both frequent and planned; and social stigma is very low. It could be assumed that this cultural trait might be preserved when moving to Belgium.

Adolescent mothers are more likely to have postpartum mental health disorders compared to an older population. Developmental disabilities and behavioral issues are increased in children born to teenage mothers. Despite our interest in maternal and child psychosocial outcomes, our retrospective study design did not permit us to investigate these issues.

The literature links several of the possible adverse outcomes of teenage pregnancies as for unintended pregnancies, such as maternal mental health disorders, relationship instability, education and employment difficulties; and mental and physical health issues for the child (Baron et al. 2018, Barton et al. 2017, Bexhell et al. 2016, Goossens et al. 2015, Leftwich & Ortega Alves 2017, Maravilla et al. 2017). Furthermore, unplanned pregnancies are at a higher risk for a late uptake of prenatal care (Barton et al. 2017, Bexhell et al. 2016). Our data confirms a lack of prenatal care for unplanned pregnancies. The literature presumes that this is due to a later acknowledgement of the pregnancy (Baron et al. 2018). The paternal absence amongst unintended teen mothers could represent the relation instability but does not indicate the support of a father's presence (Barton et al. 2017). Surprisingly, more teenage mothers success-

fully finish their education. However, there is no difference in school drop-outs nor employment. School drop-outs are usually quite specific for young populations and of special interest to various human rights organizations. The postnatal maternal and paediatric care does not differ between unplanned and planned pregnancies. However, as stated before, this does not reveal the presence of maternal and paediatric (mental) health disorders. Despite the fact that the utility of SAJ/SPJ is non-significant overall, they were far more involved when the pregnancy was unplanned. We hypothesise that this could become significant when studied in a larger population and as such, this may indicate an important psychosocial vulnerability for the child (Baron et al. 2018, Bexhell et al. 2016).

Many studies focus on the prevention of unintended pregnancies, but research is lacking in describing several minority groups, such as teenage mothers (Barton et al. 2017). Within the literature, as well as within our own population, we found several similarities between teenage pregnancies and unplanned pregnancies but also some contrasts. Noting that 80% of teenage pregnancies is unplanned (Leftwich & Ortega Alves 2017), we would recommend investigating the cross-links between both and the related pregnancy, maternal and paediatric outcomes.

Inherent to a retrospective study is recall bias. Studies have shown that mothers remember rather well, the enrollment of their pregnancies and the early life of their children. Nonetheless, answers may show social acceptance rather than reality. Finally, contacting patients by phone is easier and less time-consuming for researchers and patients than interviews. However, the disadvantage is the lack of building of trust, as such personal and in-depth questions are more easily perceived as intrusive.

CONCLUSIONS

Pregnant teenagers face many of the same pregnancy related issues as other women, however there are some additional socioeconomic concerns. Most continental Western European countries have very low teenage birth rates. Teenage pregnancy in developed countries, such as Belgium, is usually unintended and carries a social stigma.

In contrast, teenage pregnancy in less developed countries is more frequent, often occurs within marriage and most are planned. However, in these poorer societies, early pregnancy may combine poverty with malnutrition and poor health care, increasing the risk of medical complications.

Our study suggests that migrant teenage mothers have the advantage of both: the wealth of a developed country and the low social stigma related to the country of origin.

However, more research needs to be done to further investigate this hypothesis.

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Contribution of individual authors:

All the authors contributed to the article, all participated to the literature search and medical writing. All are answerable for published reports of the research.

Caroline Kadji & Juan Tecco came up with the idea of the manuscript.

Caroline Kadji extracted from the hospital's database, the relevant sample for our study.

Lotta Coenen & Pauline Bellekens wrote the first draft.

Lotta Coenen worked on the statistics with the statisticians.

Andrew Carlin & Juan Tecco was written the final draft.

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