Teenage pregnancy

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Summary

Teenage pregnancy, which is detrimental to the health of mother and child, is a common worldwide public health problem, one that affects nearly every society and is one of the key issues concerning the reproductive health of women. This applies not only to developing but also to developed countries. The estimated number of teenage pregnancies in Germany is about 13 500 per year, with a birth rate of 6 600. Although prevention of unwanted teenage pregnancy is the primary goal, many adolescents still become pregnant. Due to the medical and socioeconomic backgrounds of these young people during adolescence, intensive, sensitive counseling and care are required. There is growing awareness that early child-bearing has multiple consequences in terms of maternal health, child health and the overall well-being of society.

Introduction

Teenage pregnancy presents a health problem worldwide, whereby developed and developing countries are equally affected. There is general awareness that teenage pregnancy is a core problem in any society, considering the multiple effects on both maternal and child health. The teenage pregnancy rate is a marker of the overall health of a society.

The high rate of teenage pregnancy, particularly in developing countries, is viewed as the main cause of the increase in the world population (Senderowitz et al. 1985).

The main aim is therefore primary prevention of (undesired) pregnancies. However, a society must provide adequate medical and psychosocial care, should primary prevention measures fail.

Definition

In the reference literature, so-called "teenage pregnancies" are not allocated to a clearly defined life span, so that data, in particular data on the frequency of such pregnancies, vary. Time frames of 14 to 18 and 10 to 20 years of age are found. The increasingly early onset of the menarche plays a role in earlier fertility in women and the accompanying possibility of early pregnancy.

As a transitional phase between childhood and adulthood, adolescence is a period of changes in biological and social behavior. Dealing with teenage pregnancies therefore remains a challenge, not only to families, social workers, and teachers, but also to the state, and naturally to the youths themselves (Carter et al. 1994; Jaskiewicz et al. 1994).

Statistics

World statistics

Although a decrease has been noted in the birth rate in teenage mothers in past years in Western countries, teenage pregnancy remains a problem worldwide (Fig. 1).

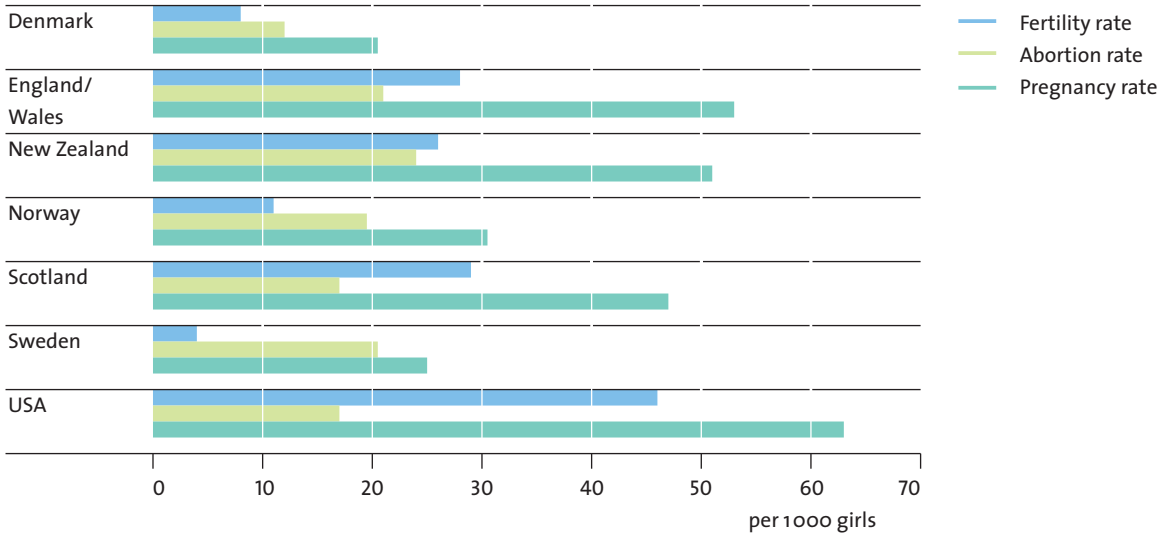

Figure 1: International Comparison of Fertility and Abortion Rates in Teenagers (per 1 000 girls); Source: Federal Centre for Health Education (FCHE)

In the USA, more than 40 % of all women become pregnant before their 20th birthday (Planned Parenthood Federation of America Inc. 1993). The USA therefore has the highest rate of teenage pregnancy in industrialized countries, although sexual activity of young people is just as high, or even higher, in Europe (Forrest et al. 1994). The causes are unclear; European teenagers possibly have better access to contraceptives or their use is more broadly accepted.

Half of all teenage pregnancies occur within the first six months of the first sexual contact (Alan Guttmacher Institute 1995), and 20 % of these young people do not use contraceptive methods (Planned Parenthood Federation of America Inc. 1993) – there is a one-year probability of conception of 90 % in this category (Alan Guttmacher Institute 1996)!

German data

In Germany, there is no systematic and methodically standardized compilation of official statistics on teenage pregnancy, so that only general conclusions can be drawn from the figures of the birth and abortion statistics provided by the Federal Statistical Office. An overview of the abortion statistics follows below.

Abortion statistics

In 2006, 6 290 abortions were performed on minors, 657 less (–9.1 %) than in the previous year (Federal Statistical Office 2007). This means that the absolute number of abortions performed on minors has decreased for the second year in succession. Of all women who underwent an abortion in the year 2006, 5.6 % were underage. 2.8 % of the women in question reported that they had already previously had a child. 99 % of the abortions performed were subject to counseling regulations, and only 1 % was due to medical or criminal circumstances.

Overall, the number of abortions performed on women over 18 years of age has decreased continually since 2000. In contrast, in the under-18 age group it is the first time that there has been a significant decrease since 2004. Until 2004, the number of abortions increased almost annually (Fig. 2).

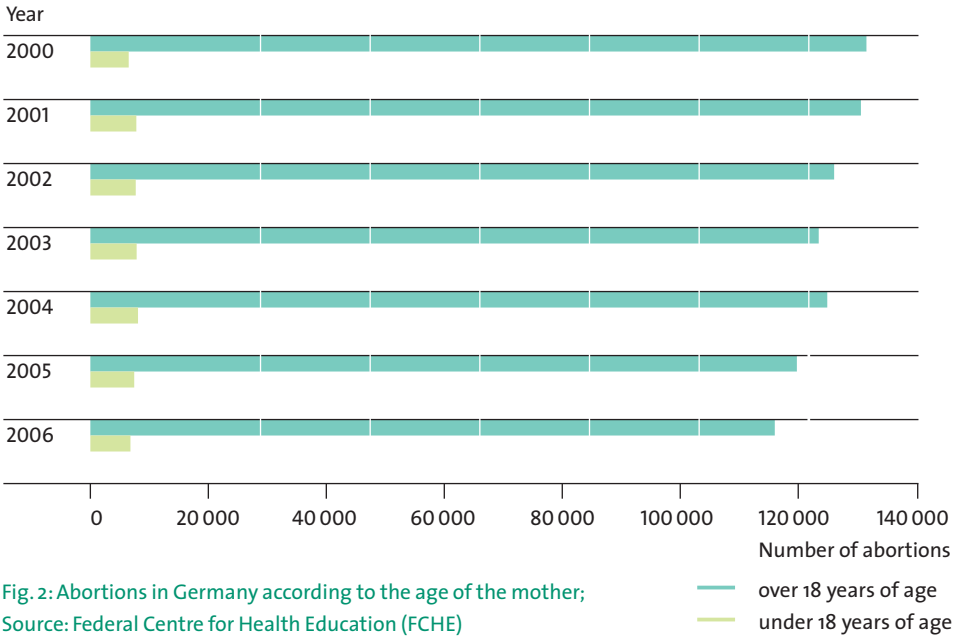

Fig. 2: Abortions in Germany according to the age of the mother; Source: Federal Centre for Health Education (FCHE)

In summary, it can be said that (see Fig. 3):

- from 2000 until 2006, the total number of abortions decreased by 11.2 %,
- in this period, the number of abortions performed on minors increased by 4 %,
- the proportion of the total number of abortions accounted for by the under 18 age group has risen from 4.7 % to 5.5 % during the same period.

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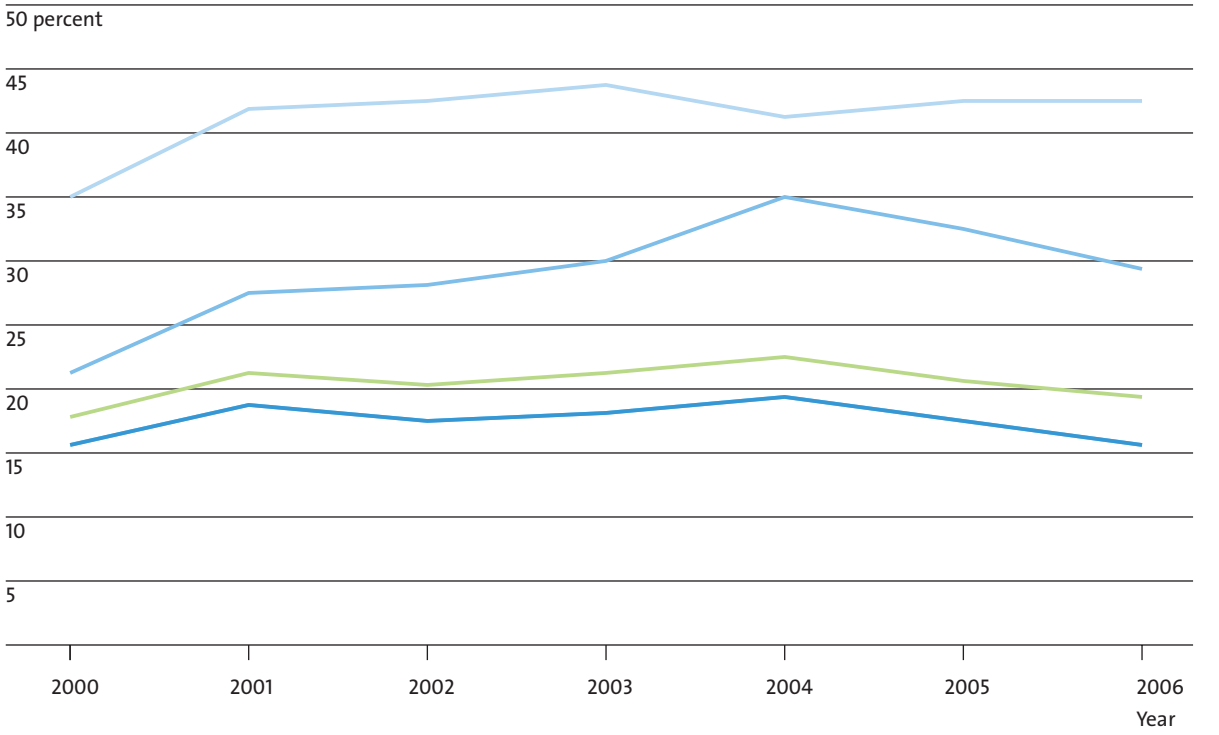

Figure 3: Abortions performed on minors per 10 000 women from the age of 10 to 18 years of age; Source: FCHE

Birth rate statistics

While the number of live births to mothers over the age of 18 shows a clear downward trend, from 2000 to 2002 there was an initial increase in the live births to mothers under 18, but in the following years, until 2005, the number dropped below the number of births in 2002 (Fig. 4) (Federal Statistical Office 2007).

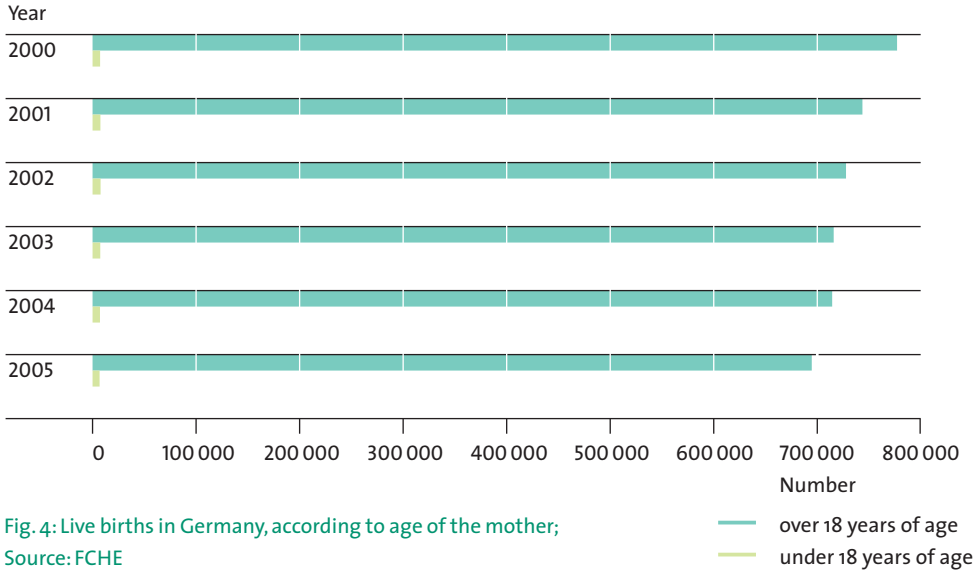

Fig. 4: Live births in Germany, according to age of the mother; Source: FCHE

Overall, this means that:

- The total number of births decreased between 2000 and 2005 by 10.6 %.
- The number of births to underage mothers decreased by 7.5 % during this period (Fig. 5).
- The proportion of the total number of births accounted for by the under-18 age group increased slightly during the same period by 0.9 % to 1 %.

Total statistics

The number of abortions performed on minors and the number of live births to underage mothers reflect the overall dimensions of "pregnancy in minors". Without taking the number of miscarriages and fetal deaths into consideration, there were at least 13 449 underage pregnancies in Germany in 2002. From the year 2000 until 2005, the figures increased by 2.8 % to 13 822 (Fig. 6) (Federal Statistical Office 2007).

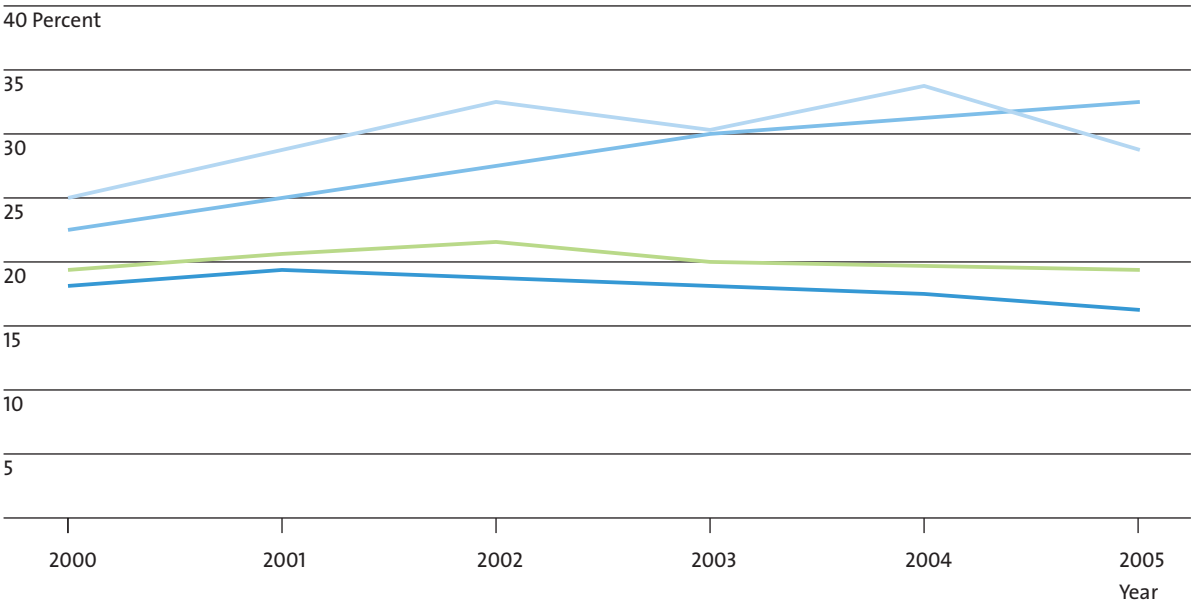

Figure 5: Live births to underage mothers per 10 000 women from 10 to under 18 years of age; Source: FCHE

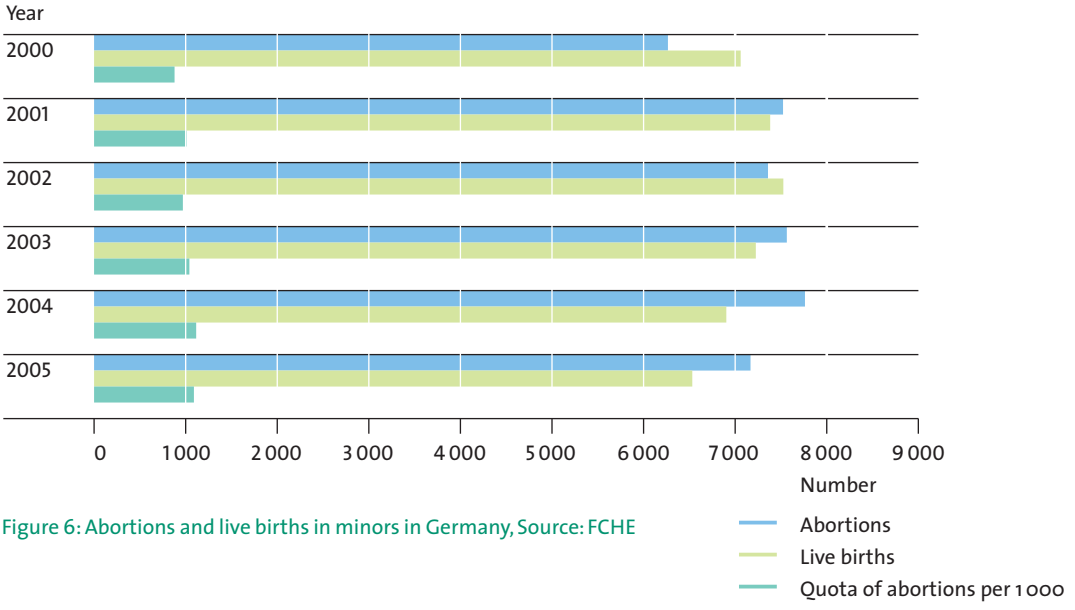

Figure 6: Abortions and live births in minors in Germany, Source: FCHE

Comparison of Individual Federal States

The results of the abortions statistics are published regularly and these include details of the individual Federal States (e. g. on the web site of the Federal Statistical Office: www.destatis.de).

A comparison of the individual states shows significant statistical alterations between 2000 and 2006, which is also, however, due to the low number of number of cases. Declining numbers are found in Mecklenburg-Western Pomerania (–26.4 %, from 296 to 218 cases) and in Saarland (–22.5 %, from 80 to 62 cases). In contrast, the greatest increases are in Rheinland-Palatinate (36.0 %, from 200 to 272 cases) and in Schleswig-Holstein (34.2 %, from 199 to 267 cases) (Federal Statistical Office 2007).

Comparison of European countries

In an international comparison of the numbers of underage pregnancies in Western industrialized countries, Germany is found at the lower end of the scale, together with Scandinavia and the Benelux countries.

Overall, two-thirds of all European countries experienced a decrease in the number of live births to underage mothers between 1990 and 2003 (Kontula 2007).

Age distribution

As expected, it is mainly older teenagers who become pregnant; three-quarters are 16 or 17 years-old, only 1 % is 13 years old or younger (FCHE 2007). In other words, nowadays five out of every 100000 12-year-olds, or 12 out of every 1 000 17-year-olds, become pregnant (Tab. 1).

When considering the cumulative rate up to the age of 18, it is found that almost 3 % of all young women were already pregnant at least once before the age of 18 (FCHE 2007).

Social background

Social criteria play no role in the data collection of the Federal Statistical Office statistics on abortion and birth rates, therefore no concrete conclusions on these aspects can be drawn as a result. Statements made within the social environment of the mother must be relied on for this information: advisory centers in particular provide important information. The former opinion was that teenage pregnancy is a common problem that affects all levels of society. However, a clear correlation is found between teenage pregnancy and less favorable professional and life perspectives of the persons concerned.

Education in particular has an immense influence on the likelihood of underage pregnancy: the risk is five times greater for pupil from lower secondary schools than for pupil from higher secondary schools (FCHE 2007). Underage pregnant women are also very often unemployed, or have no apprenticeship or work training. When the social environment of the teenager is examined, a clear relationship is found with lower standards of education or work qualifications, or with parents who are unemployed. The partners of underage pregnant women also often come from disadvantaged social backgrounds. It may therefore not be overlooked that a low level of education and related lack of social perspective increase the risk of (unwanted) pregnancy in minors (Tab. 2).

Table 1: Age distribution of pregnant women under 18 years of age; Source: FCHE

Age (years)	Pregnant women (%)	Pregnancy rate (per 1000 women)
12	0,2	0.05
13	0,8	0.2
14	7	2
15	17	5
16	33	10
17	42	12
Total	**100**	**29**
Age range (years)	12.0-17.9	
Mean (years)	16.6	

Table 2: Social disadvantages in teenage pregnancy; Source: FCHE

Persons affected	Education/ Social status	Percentage of persons interviewed (%)
Pregnant woman	Lower secondary school	54
	Pupil without apprenticeship/unemployed	51
Partner	Lower secondary school	59
	Pupil without apprenticeship/unemployed	31
Parents	Father unemployed	19
	Mother unemployed	22

In the above-mentioned survey (FCHE 2007), 9 % of those questioned were foreigners, and 10 % of the pregnant women had German citizenship but came from an immigrant background. Overall, these figures reflect the proportion of the total population; therefore, no particular conclusions can be drawn from this.

Outcome of pregnancy and social disadvantage

According to data from the Federal Statistical Office, 60 % of all underage pregnancies end in abortion. A survey performed by Pro Familia (FCHE 2007) differentiates between three groups:

1. 54 % of the persons interviewed went for counseling according to § 219 before the 13th week of pregnancy. An abortion is likely in these cases.
2. 33 % sought general counseling; it is likely that these mothers will give birth.
3. 22 % (a subgroup of 2.) sought general counseling after the 12th week of pregnancy. These mothers have decided to give birth.

About 10 % of the women concerned only discovered the pregnancy after the 22nd week of pregnancy and could therefore no longer decide to have an abortion.

The following criteria were noted in the decision-making process in whether to give birth to the child:

- The older the mother (and even more significantly, the older the partner) the greater the likelihood of the mother deciding to give birth to the child, even if the figures are only slightly significant (26 % of the 17-year-olds vs. 15 % of the 12-14-year-olds).
- Underage pregnant women from more sexually moral conservative environments (Catholics, Muslims) are more likely to tend towards an abortion.
- The greater the social deprivation, the more likely the mother decides to give birth. Here again, it becomes clear that young women regard the child as a way of giving their life meaning, gaining recognition and self-confidence and providing a way out of their lack of perspective and possibly of establishing a financial basis.

Summary of risk factors

As already mentioned, the personal (social) circumstances head the list of the main risk factors that determine the likelihood of underage pregnancy. Poverty correlates significantly with teenage pregnancy, as does growing up in a household with only a single parent, with a mother who also had children as a teenager, or with a sister who became pregnant as a teenager.

In developing countries, the main cause is the early age of marriage. Poverty, disregard for women in general, lack of self-confidence, a low level of education, lack of contraceptives or not using them, and sexual assaults on young women are further aspects (Dangal 2005).

Sexual activity, contraceptives and education

39 % of the girls and 33 % of the boys between 14 and 17 years of age have already had sexual intercourse. The proportion of 14-year-old girls is 12 % and of the boys 10 %, and in the 17-year-old age group, 73 % of the girls and 66 % of the boys (FCHE 2006).

In international comparison, the use of contraceptives is high among German youth. 71 % of the girls and 66 % of the boys use a condom during their first sexual intercourse and/or 35 % of the girls and 37 % of the boys use the contraceptive pill (Fig. 7)

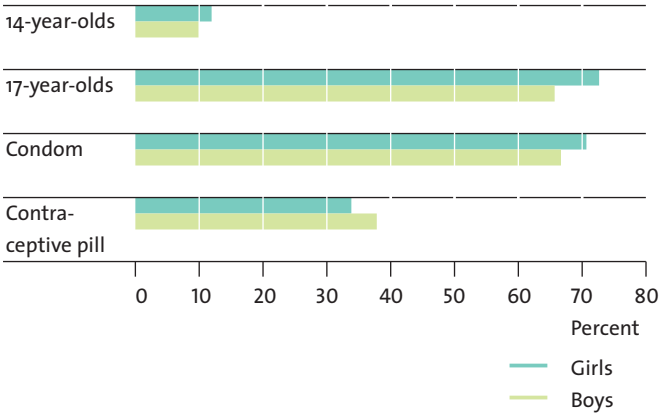

Figure 7: Sexual activity and contraception in teenagers; Source FCHE

With increasing sexual experience, young people become increasingly responsible in their behavior: 77 % of the girls and 62 % of the boys make sure they use contraception (FCHE 2006). In this study, the proportion of young persons who did not use contraception during their first sexual intercourse was over 10 % (girls 9 %, boys 15 %). The proportion is twice as high in young persons from an immigrant background. The main reason given is that the situation resulting in sexual intercourse came "as a complete surprise".

92 % of the young women who become pregnant under the age of 18 say they did not plan their pregnancy; this also even applies to 88 % of the women who actually gave birth (FCHE 2007). Only 4 % of the teenage pregnancies were planned and another 4 % "took a chance".

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Sex education is therefore a fundamental component of social health education, in which various people are involved (family, school, internet, literature and magazines for young people etc.). However, this becomes problematic when a flood of information rains down on young people who are unable to relate this specialist, and therefore abstract knowledge to their own situation. This presents a challenge to those involved in sex education, who must help young people take on the responsibility for their sexual behavior while developing their own identity.

Possible causes for the "failure" of sex education:
- Young people reach sexual maturity at an increasingly early age, usually 4-5 years ahead of emotional maturity.
- Nowadays, youths grow up in an environment in which peer groups, TV/cinema, music and magazines allow very permissive exposure to sexuality but without offering adequate evaluation.
- Despite all educational campaigns, information and pedagogic sexual education is not available to all young persons.

Pediatric and adolescent gynecology

Since 1990, all physicians interested in pediatric and adolescent gynecology – two-thirds gynecologists and one-third pediatricians – have worked together in the Arbeitsgemeinschaft für Kinder- und Jugendgynäkologie e.V. (Workgroup for Pediatric and Adolescent Gynecology). The workgroup is an affiliated section of the German Society for Gynecology and Obstetrics (DGGG) providing information and recommendations via the web site www.kindergynaekologie.de. Special courses are provided for physicians wishing to gain qualifications in this field, who may then subsequently provide specialist consultation. Pediatric and adolescent gynecology also encompasses treatment of disorders in endocrinal development, which are not further dealt with in this article.

The following recommendations apply to advice on and prescription of contraceptives (Heinz 2006):
Any contraceptives recommended for use by young persons must:
- be very safe,
- be simple to use,
- be acceptable to young persons and have as few side effects as possible,
- be easily available and free of charge.

The following contraceptives fulfill these requirements (Tab. 3):
- Condoms; very good when combined with oral contraceptives
- Hormonal oral preparations: combined preparations (micro pill)

The suitability of the following contraceptives is only limited:
- Local methods: coil (copper, hormonal coil),
- Gestagens: mini pill; the narrow time-frame and the need for consistency in taking the pill must be taken into consideration,
- Subdermal gestagen implantation (this method has caused controversy recently as it is not easy to remove the gestagen).

The following contraceptives are unsuitable:
- A three-monthly gestagen injection,
- Barrier methods: methods for vaginal use (low acceptance rate): vaginal ring, vaginal diaphragm,
- Natural methods: temperature measurement etc.

In addition, the use of condoms should be generally recommended for prevention of sexually transmitted disease.

Table 3: Overview of contraceptives for youths

Requirements to be met by contraceptive	• High degree of safety • Simple usage • Good acceptance • Few side effects • Easily available • Free of charge/low cost
Suitable contraceptives	• Hormonal oral combination preparation • Condoms, in combination with oral contraceptives
Contraceptives of limited suitability	• Coils (copper, hormonal coil) • Gestagen mini pill • Subdermal gestagen implantation
Unsuitable contraceptives	• Three-monthly gestagen injection • Barrier methods • Natural methods

Legal issues

It is permitted to prescribe hormonal contraceptives for girls from the age of 14 onwards without parental consent and without any legal consequences. The only condition is that during consultation with the girl the gynecologist has gained the impression that there is a risk of pregnancy if no

safe contraceptive methods are used. In addition, the personality of the girl with regard to her "legal competence and capacity to consent" and also her "ability to reason and critical faculties" must be assessed and documented. Girls under 14 years of age rarely have the capacity to consent, but there are exceptions. Thorough documentation is indispensable in such cases (Halstrick 2007). A mature personality can generally be expected of young people over the age of 16, making special documentation unnecessary (excluding single-case decisions).

In principle, the criteria pertaining to the legal situation on abortion are similar. According to § 219 Penal Code, minors have the same right to anonymous counseling as adults.

Whether parental consent is required for an abortion depends on the age of the girl. Parental consent is usually required for girls under the age of 16, as only in certain cases do girls of this age have the capacity to consent. It is assumed that 16 to 18-year-olds are capable of consent (Halstrick 2007).

Specific problems

As already mentioned, young pregnant women experience characteristic problems, some of a medical and others of a social nature (Tab. 4).

Table 4: Characteristic features of teenage pregnancies

Medical problems	• Higher morbidity and mortality rate • "High-risk pregnancy" • Late first diagnostics • Delayed treatment, e.g. of infections • Ambiguous expected date of delivery • Increased rate of sexually transmitted diseases • Lack of compliance • Noxa (smoking, alcohol, drugs) • Bad diet • Iron deficiency anemia • Insufficient weight gain • Preeclampsia (?)
Perinatal outcome	• Premature birth • Premature membrane rupture • SGA fetuses • Neonatal mortality is three times higher
Specific obstetrical features	• Faster birth • Less analgesics • More injuries at birth • More secondary bleeding • Lower rate of Cesarean section • More postpartal depression
Psychosocial factors	• Unemployment • Lower educational level • Ddomestic environment • Financial possibilities • Relationship to the father of the child • Lack of perspective • Role conflicts • Panic reactions

In general, teenage pregnancy is associated with higher morbidity and mortality rates (Dangal 2005).

Pregnancy in women under the age of 18 is primarily regarded as a high-risk pregnancy. This is in part due to late diagnosis of the pregnancies of young girls as they do not immediately visit a physician. This means that apart from the resulting ambiguity with regard to the expected delivery date and the resulting difficulties regarding the monitoring of fetal development, information on the course of the pregnancy up to this point is rarely available. Necessary diagnostic steps, such as treatment of chlamydia infections, are often initiated too late, or other sexually transmitted diseases are often discovered at a late stage. In general, there is inadequate compliance with the recommended intervals between medical check-ups. A further important aspect is the consumption of noxa in the early stages, but also throughout the whole course of the pregnancy. The main problem is smoking, which is regarded to be a risk factor for premature birth and birth deficiencies. This risk may be even greater in young pregnant women. Alcohol or drug consumption should also be mentioned at this point.

The diet of young pregnant women also plays a very important role. A tendency to consume fast food products is found in this age group, resulting in an insufficient intake of vitamins and nutrients that may lead to iron deficiency anemia. It has been established that a low preconceptional maternal weight and a small body size are factors that promote an unfavorable outcome of pregnancy, as well as parity and inadequate weight gain during pregnancy (Goldenberg et al. 2005).

There is also a more unfavorable outcome with regard to perinatal risk: during the course of the pregnancy, due to the bodily constitution, frequent premature births, premature membrane rupture, and birth deficiencies occur, thus resulting in an increased rate of child mortality. The incidence of SGA fetuses ("small for gestational age", birth weight < 2500 g) is more than twice as high as that in adult pregnancies. Neonatal mortality is almost three times higher (Centers for Disease Control and Prevention 1994; Davidson et al. 1992; Gupta et al. 2008; Tempfer et al. 2007; Usta et al. 2008).

The mortality rate of pregnant minors (luckily, low overall) is twice as high as that of pregnant adults (Dangal 2005).

In general, teenagers give birth somewhat faster and with fewer analgesics, but there is a higher incidence of injury to the genital tract and postpartal bleeding accompanied by anemia (Dangal 2005; Gupta et al. 2008; Tempfer et al. 2007; Usta et al. 2008). The rate of Cesarean section is low, although it may be necessary in the under-15 age group due to immature pelvic configuration and an associated cephalopelvic disproportion, which may increase the risk of scar dehiscence or rupture during subsequent pregnancies (ca. 0.7-1 %) (Dangal 2005). Signs of postpartal depression are frequently found in teenage mothers (up to 57 %) (Schmidt et al. 2006).

There is controversy surrounding the data on the incidence of preeclampsia during teenage pregnancies: while several studies have shown lower figures (Gupta 2008), others have shown a positive correlation between preeclampsia and teenage pregnancies (Usta 2008).

The social problems of teenage mothers are much more serious and unfortunately much more complex. As already mentioned, this group of patients consists of young pregnant women with a low level of education or without work training or employment. The domestic situation is usually very similar, so that besides a lack of perspective, the main problems are of a financial and/or material nature. Many of the young pregnant women have no partner and must therefore take care of themselves, and often the woman has just separated from the father of the child or the new relationship is unsteady. These social factors are also related to an unfavorable outcome of pregnancy and represent a substantial cost factor to society (Dangal 2005).

The psychological problems of young pregnant women should be given particular attention as they gradually prepare for the change in their role from "teenager" to mother. After a phase of resistance and not wanting to believe that they are pregnant, the phase of acceptance begins, and there is an element of pleasant anticipation of becoming a mother. On the other hand, there is also great fear of the changes in their lives, of the alterations to their everyday lives and their broken dreams. In this difficult pubertal phase, in which the young girl must prepare for her new role as a woman, she is now additionally confronted with the conflict of her role as a mother. When caring for pregnant minors it is therefore even more important that they are provided not only with competent medical care, but also with sensitive psychological support.

Teenage pregnant mothers must make decisions, the consequences of which they are sometimes not able to judge. Due to social and familial pressure, panic reactions are common, such as attempted abortion without medical care or keeping the pregnancy a secret. In the worst case, the child is is abandoned or killed after birth.

General implications for counseling

Usually, young mothers can consult advisory centers for family planning, and church institutions and other advisory institutions for counseling on conflicts during pregnancy. These institutions can give advice on the legal situation and can provide further contact addresses.

Usually, the young mother consults a gynecologist (maybe for the first time) in connection with counseling, whereby it is beneficial if the physician is interested or qualified in pediatric and adolescent gynecology.

After the fundamental question of whether the woman wishes to give birth or whether she wishes an abortion has been clarified, a decision is made on how to proceed. It is advisable to involve the social services early on in order to gain insight into the complex problems and the environment of the young girl and to discuss the financial or organizational possibilities. Mother and child institutions offer facilities for young mothers. Adoption may also be considered. In large cities, in particular, there is often the possibility of an anonymous birth. Leaving the newborn at a baby flap is also another option in exceptional cases. The best solution is when the girl's parents agree to help look after the child, so that the pregnant teenager can complete her education and learn a profession

If the pregnant minor shows signs of psychological decompensation, psychological support should be provided at an early stage, if necessary in hospital.

If the pregnant minor decides to give birth to the child, closely meshed care should be provided according to the German Regulations on Motherhood. It is also advisable to involve a midwife, if possible from the Family Midwives project. The midwives help look after the child in the mother's domestic surroundings for a year after the child has been born.

The care of pregnant minors who are not cared for within an adequate care concept is always a challenge to clinic physicians. It is not rare for pregnant teenagers to visit the clinic, having so far repressed any thoughts of pregnancy, and suddenly all questions related to the pregnancy must be discussed, and care must be organized outside the clinic as quickly as possible. At this point we would like to mention the care concept introduced last year in Hamburg, the "V.I.P consultation". V.I.P. stands for "very important pregnancy" and provides specific consultation for pregnant teenagers under the age of 20 who are referred to us or who spontaneously visit us during consulting hours. A multimodal care concept has been developed, in which gynecologists, clinic physicians, midwives, psychologists, and the social services cooperate. Our experience shows that there is a great demand for such projects, possibly reflecting the brisance of this subject, to which, so far, insufficient attention has been paid.

Specific care of pregnant teenagers

It must first be established whether the teenager is pregnant. In a preparatory discussion, the young girl is informed on the examinations she will have to undergo, which will include a pregnancy test and subsequent blood test, if necessary, and vaginal and ultrasound examinations.

The young pregnant girl may already have realized that a pregnancy could be the reason for visiting the doctor. However, the thought of pregnancy as a possible cause of menstrual disorders and/or other physical or psychological symptoms is repudiated or appears completely absurd to the girl.

Teenagers' emotional reactions to a newly diagnosed pregnancy vary greatly. It is advisable to ask the girl how she would react to a positive pregnancy test before she is informed of the pregnancy. Fears and conflicts may develop that lead to panic reactions. She may attempt an abortion without medical support or keep the pregnancy a secret and subsequently kill the newborn. Various studies have shown a slightly increased risk of suicide during early pregnancy (Lindahl et al. 2005; Marzuk et al. 1997). If the anamnesis shows a medical history of suicide, there is an increased risk of further attempts. If necessary, psychologists and/or social workers should be involved in the care of the young girl at an early stage, in some circumstances even before pregnancy occurs.

It should also be discovered why contraceptive methods failed or were not used at all. In studies, various reasons are named for the lack of contraception. In a study, in which 200 13-18-year-old pregnant teenagers were questioned, about 20 % said they wanted to become pregnant and another 20 % said they did not care if they became pregnant. 10 % used contraceptive methods that failed and

another 10 % said they thought they could not become pregnant due to anatomical reasons (Stevens-Simon et al. 1996). These results alone reflect the differing reactions of teenagers to pregnancy.

The pregnant teenager should be informed of the pregnancy as soon as it has been verified. It is likely and may be expected that this revelation will lead to very varied emotional reactions such as fear, ambivalence, apathy, and even shock.

Adequate care and help must be provided in dealing with the new situation and also short-term follow-up appointments should be arranged.

In the USA, in the year 2000, about 30 % of all pregnancies among teenagers between the age of 15 and 19 were terminated electively. About 15 % led to an abort and about 55 % of the pregnancies ended with the birth of a newborn child (Henshaw 2004).

The rest of this article deals with the care of teenage mothers who decide to give birth to the child.

As already mentioned, pregnant teenagers appear to develop high-risk pregnancies. Placenta deficiencies with intrauterine growth retardation and even intrauterine fetal death occur far more frequently in teenagers than in a study group of pregnant women over the age of 20 (Buvinic et al. 1998; Fraser et al. 1995; Rees et al. 1996). Close monitoring is therefore indispensable. This does not only include the above-mentioned psychosocial care. In view of the risks, monitoring intervals should be shorter than those foreseen by the German maternity guidelines ("Mutterschaftsrichtlinien" 2003). More frequent and specialized ultrasound examinations should be provided, including biometry and Doppler monitoring of the fetus, particularly in the 2nd and 3rd trimesters.

Due to the increased risk pregnancy-related illnesses such as preeclampsia, the young mother should undergo blood pressure and urine tests.

! All these regular parameters and check-ups can prove difficult when dealing with teenagers, due to compliance problems. For this reason, pregnant teenagers should be informed early of the absolute necessity of such examinations. !

The increased risk of premature birth in young pregnant women must also be mentioned at this point (Usta et al. 2007), as this possibility should be considered during care and examinations. The young woman should also be advised of the greater risk, and preventive measures should be taken. This also applies to counseling on diet and lifestyle during pregnancy. The risk of possible damage to the fetus and the expectant mother due to smoking should also be pointed out. In 2005, 26 % of the teenagers between the ages of 12 and 19 smoked (FCHE 2006).

Teenagers should also be advised on diet, as nowadays teenage diets predominantly consist of fast food. This type of diet represents a risk to the healthy development of the fetus.

Involving parents, friends, and teachers in counseling has proved to have a positive effect, as the pregnant girl receives support and positive attention. If the young mother still attends school or is doing some kind of professional training, care must be taken that that she has enough recreation and rest periods, as foreseen in the German maternity guidelines ("Mutterschaftsrichtlinien"). The young girl should be allowed not to attend sports lessons and should be able to move around in the classroom.

Apart from the above-mentioned special care and counseling measures, the pregnant teenager should be cared for according to the general guidelines on motherhood.

Intensive monitoring of these special pregnancies does not end at birth. Intensive child-bed care provided by physicians, mid-wives, and psychosocial workers is indispensable. A reduction in social-economic status is associated with teenage pregnancy, both for the mother/parents and for the child. Often early pregnancy, with all its consequences and greater responsibility, results in a lower level of education and therefore less income and often financial dependency on the state (Maynard et al. 1997; Nord et al. 1992).Teenage mothers must therefore be provided postpartal support by a network of physicians, social workers, and psychologists.

Prevention of teenage pregnancy

Education

Sexual education takes place in the family, at kindergarten, at school, on television, in youth magazines, and on the internet. Young people are exposed to a flood of information on the subject of sexuality. However, considering the number of teenage pregnancies, it would appear that teenagers to not apply this detailed information to their individual situation. Therefore, concerted measures to educate teenagers on conception and contraception are needed if the number of teenage pregnancies is to be significantly reduced (Alan Guttmacher Institute 2000). Gynecologists,

pediatricians, and midwives should be involved in such education and counseling – in practices, youth groups, and in schools (see Gille and Klapp 2006; Gille 2005).

Contraception

Young people should be provided with information on contraception at school and at home at an early age. They must be able to acquire contraceptives. Oral contraceptives, for example, should be available free of charge. Fear of visiting the gynecologist, shame, lack of knowledge, or cultural and religious reasons often lead to unprotected sexual intercourse.

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References

Alan Guttmacher Institute. Facts in brief: ten sex and pregnancy. New York: Alan Guttmacher Institute 1996.
Alan Guttmacher Institute. Sex and America's teenagers. New York: Sexuality Information and Education Council of the Unites States 1995.
Buvinic M, Kurz K. Prospect of young mothers and their children. Washington, DC: National Research Council 1998.
BZgA (Hrsg). Jugendsexualität 2006. Repräsentative Wiederholungsbefragung von 14–17-Jährigen und ihren Eltern. Köln: BZgA 2006.
BZgA (Hrsg). Teenagerschwangerschaften international. Forum Sexualaufklärung, Heft 2-2007. Köln: BZgA 2007.
Carter DM, Felice ME, Rosoff J, Zabin LS, Beilenson PL, Dannenberg AL. When children have children: the teen pregnancy predicament. Am J Prev Med 1994; 10: 108–13.
Centers for Disease Control and Prevention. Pregnancy, sexually transmitted diseases and related risk behaviours among US adolescents. Atlanta, GA: Centers of Disease Control and Prevention 1994.
Davidson NW, Felice ME. Adolescent Pregnancy. In Friedman SB, Fisher M, Schonberg SK (Eds). Comprehensive Adolescent Health Care. St. Louis, MO: Quality Medical Publishing Inc. 1992; 1026–40.
Forrest JD. Epidemiology of unintended pregnancy and contraceptive use. Am J Obstet Gynecol 1994; 170: 1485–89.
Fraser AM, Brockert JE, Ward RH. Association of young maternal age with adverse reproductive outcomes. N Engl J Med 1995; 332: 1113.
Ganesh Dangal. An Update on Teenage Pregnancy. Internet J Gynecol Obstet 2006; 5(1).
Gille G. Frühe Schwangerschaften – Ursachen und Möglichkeiten der Prävention. Gynäkol Geburtshilfliche Rundsch 2005; 45: 225–34.
Gille G, Klapp C. Frauenarzt und Schule. Frauenarzt 2006; 47(8): 733–37.
Goldenberg RL, Klerman LV. Adolescent Pregnancy: another look. N Engl J Med 1995; 332: 1161–62.
Gupta N, Kiran U, Bhal K. Teenage Pregnancies: Obstetric characteristics and outcome.EJOG 2008; 165–71.
Halstrick C. Juristische Aspekte bei Minderjährigen in der gynäkologischen Praxis. Gynäkologe 2007; 10: 835–40.
Heinz M. Abstract zur 102. Jahrestagung der Gesellschaft für Kinder- und Jugendmedizin 2006.
Henshaw SK. US teenage pregnancy statistics. New York: Alan Guttmacher Institute 2004.
Jaskiewicz JA, McAnarney ER. Pregnancy during adolescence. Pediatr Rev 1994; 15: 32–8.
Kontula O. Geburtenraten minderjähriger Mädchen in Europa. Trends und Determinanten. Köln: BZgA 2007.
Lindahl V, Pearson JL, Colpe L. Prevalence of suicidality during pregnancy and the postpartum. Arch Women Ment Health 2005; 8: 77.
Marzuk PM, Tardiff K, Leon AC. Lower risk of suicide during pregnancy. Am J Psychiatry 2007; 154: 122–23.
Maynard RA. Kids having kids: economic costs and social consequences of teen pregnancy. Washington DC: Urban Institute Press 1997.

Mutterschaftsrichtlinien 2002. Bundesanzeiger Nr. 242 vom 31.12.2002.
Nord CW, Moore KA, Morrison DR, Brown B, Myers DE. Consequences of teen-age parenting. J Sch Health 1992; 62: 310.
Planned Parenthood Federation of America Inc. Pregnancy and childbearing among US teens. New York: Planned Parenthood Federation of America Inc. 1993.
Planned Parenthood Federation of America Inc. Sexual and contraceptive behaviour among US teens. New York: Planned Parenthood Federation of America Inc. 1993.
Rees JM, Lederman SA, Kiely JL. Birth weight associated with lowest neonatal mortality: infants of adolescent and adult mothers. Pediatrics 1996; 98: 1161.
Schmidt RM, Wiemann CM, Rickert VI, Smith EO. Moderate to severe depressive symptoms among adolescent mothers followed four years postpartum. J Adolesc Health 2006; 38: 712.
Senderowitz J, Paxman JM. Adolescence fertility: Worldwide Concern. Population bulletin 1985; 40(2): 3–51.
Statistisches Bundesamt. Schwangerschaftsabbrüche. Fachserie 12 Reihe 3. Wiesbaden: Statistisches Bundesamt 2007.
Stevens-Simon C, Kelly L, Singer D, Cox A. Why pregnant adolescents day they did not use contraceptives prior to conception. J Adolesc Health 1996; 19: 48.
Tempfer CB, Schmid M, Bentz EK, Huber JC, Keck C, Hefler LA. Outcome of delivery in 381 teenagers: a matched pair study. Geburtsh Frauenheilk 2007; 67: 978–81.
Usta IM, Zoorob D, Abu-Musa A, Naassan G, Nassar AH. Obstetric outcome of teenage pregnancies compared with adult pregnancies. Acta Ob et Gyn 2008; 87: 178–83.

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CME-Continuing Medical Education

Teenage pregnancies

Question 1
Which of the following statements is correct? Teenage pregnancies
a. are a problem that can safely be ignored by society,
b. are more frequent in Europe than in the USA,
c. are planned or desired by 10 % of teenage mothers,
d. are thought to be responsible, among other factors, for population growth, particularly in developing countries,
e. normally have an uncomplicated course.

Question 2
Data on the frequency of teenage pregnancies in Germany. Which statement is correct?
a. The birth rate among teenagers has risen consistently in recent years.
b. Teenage abortions have increased consistently in recent years.
c. Figures on the frequency of teenage pregnancies can be deduced from birth and abortion statistics.
d. In Germany, it is estimated that the number of live births is about 13 500 per year.
e. When compared with other European countries, Germany tops the statistics.

Question 3
The following social risk factors play a role in teenage pregnancy: Which statement is correct?
a. An immigrant background.
b. A sister who became pregnant as a teenager
c. Both parents are in employment.
d. A stable relationship with the partner.
e. Education at a higher secondary school.

Question 4
Teenage contraceptive use. Which statement is correct?
a. About 70 % of youths use a condom during their first sexual contact.
b. Local methods should preferably be used to avoid exposing young girls to the use of hormonal contraceptives.
c. For legal reasons, prescription of contraceptives is only permitted for young persons of 16 years and over.
d. Contraception does not play a role in the under-14 age group, as only about 1 % is already sexually active,
e. Contraception is not important in sexual education, as nowadays the accessibility of information on the subject via the media is considered sufficient.

Question 5
Which of the following medical problems can occur during teenage pregnancies?
a. Adipositas, resulting from consumption of fast food.
b. SGA fetuses.
c. A higher rate of Caesarean sections.
d. There is an established association with pre-clampsia.
e. The rate of post-term pregnancies is higher.

Question 6
Which of the following statements is correct with regard to psychosocial problems in teenage pregnancies?
a. Postpartal depression is uncommon in teenage mothers.
b. There is usually a smooth transition from the role of child to mother, as the difficult pubertal phase is omitted.
c. Leaving a baby at a baby flap is a more common problem with older mothers with multiple births.
d. Counseling on conflict during pregnancy should at all events take place at the childbirth clinic.
e. A multimodal approach is desirable when caring for pregnant teenagers.

Question 7
How do teenagers typically react when told they are pregnant?
a. With ambivalence and apathy,
b. Teenagers usually wish to terminate the pregnancy,
c. Teenagers commonly respond by killing the newborn child,
d. Teenagers react differently to the news,
e. A slightly increased risk of suicide has been established during the later weeks of pregnancy.

Question 8
What is the reason for the failure of contraception?
a. 10 % of the 200 teenagers questioned did not believe they could become pregnant for anatomical reasons.
b. 10 % of the 200 teenagers questioned said they did not care if they became pregnant.
c. 35 % of the 200 teenagers questioned wanted to become pregnant.
d. 65 % of the 200 teenagers questioned believed they had used contraceptive methods.
e. 10 % of the 200 teenagers questioned had never heard of contraceptives.

Question 9
How should care of pregnant teenagers be structured?
a. Strictly according to the German Regulations on Motherhood.
b. Close and combined monitoring involving physicians and psychosocial caregivers.
c. Due to the young age of the patients, monitoring intervals may be longer.
d. Due to the lower risk of premature birth, counseling on this subject is usually unnecessary.
e. Families and teachers should not be involved, due to observation of medical confidentiality.

Questions 10
Noxa
a. such as nicotine can be disregarded as only 8 % of youths smoke,
b. do not have to be mentioned when questioning pregnant mothers on possible risk factors,
c. increase the potential risk of SGA fetuses and premature contractions,
d. such as alcohol do not cause cell damage to the fetus in teenagers as the young women are still growing; they only cause damage to the mother,
e. should not be discontinued abruptly as acute withdrawal symptoms in early pregnancy pose a greater danger to the fetus.