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## Sexual health

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# Sexual health needs data – and ideas for shaping a positive sexual culture!

Sexual health and well-being are rarely a public health issue. It is therefore all the more important to persistently draw attention to this issue. The topic is multifaceted and cannot be reduced to sexually transmitted diseases. The WHO definition of sexual health from 2015 establishes a close connection to general well-being: "Sexual health is an integral part of overall health, well-being and quality of life. It is a state of physical, emotional, mental and social well-being in relation to sexuality and not merely the absence of disease, dysfunction or infirmity." [1]. Sexual health is closely linked to human rights and implies the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence [1]. Studies on so-called integrated biological and behavioural surveillance, which are an important basis for interventions, have been conducted at the Robert Koch Institute for many years. These studies combine data on the frequency of certain infectious diseases with data on sexual behaviour. Vulnerable groups are also addressed: Men who have sex with men, drug users (intravenous), sex workers and migrants. Some of the articles in this issue of the Journal of Health Monitoring address other important topics, such as the sexual and contraceptive behaviour of adolescents, the use of different sources of information on sexuality education and abortions.

Hintzpeter's et al. article is based on data from KiGGS Wave 2 and shows that adolescents are becoming sexually active later and later, that in young adulthood sexuality is predominantly lived in stable couple relationships and that condom and pill are still the most important contraceptives. It will be exciting to observe how sexual and contraceptive behaviour has changed here as a result of the Corona pandemic. Even if contraceptive behaviour must be assessed positively, unwanted pregnancies can still occur. The ninth survey of the Federal Centre for Health Education (Bundeszentrale für gesundheitliche Aufklärung, BZgA) on sexuality in the age group 14 to 25 years also provides information on which sources of information adolescents and young adolescents use.

The fact sheet by Prütz et al. shows, on the base of the data of the Federal Statistical Office, that although abortions continue to decline, the structure of care, which varies from region to region, is suboptimal. For example, the proportion of medical abortions is comparatively low, and the number of facilities performing abortions is still declining, so that women sometimes have to travel long distances – this is also an issue that requires attention from a public health perspective.

The studies of the RKI and the BZgA provide important indications for target group-oriented prevention and health communication. Even though this individual-based approach to increasing knowledge may be important, it is surprising from a public health perspective that structural conditions are largely ignored in the discussion about promoting sexual health and sexual well-being. Vulnerable groups in adolescence and young adulthood are the focus of an important model project of the Interdisciplinary Centre for Sexual

Health and Medicine "WIR" (Walk in Ruhr), which is supported by the German Association of Private Health Insurers. The project aims to promote the sexual health of young people in challenging life situations – such as adolescents and young adults without a home or with addiction problems, imprisonment or pay-sex experiences. The aim of the programme "Young Worlds of Life (Junge Welten Leben, JuWeL)" is to establish a positive health-promoting sexual culture in the living environments of the target groups, for example in open prisons, in residential groups or counselling centres. In the field of sexual health, too, behavioural and institutional approaches need to go hand in hand – this is an exciting field of learning that we are facing.

The main topic in this issue of the Journal of Health Monitoring is also used to propose a way of assessing sex/gender in standardised surveys. Even before the amendment of the Civil Status Act in 2018, which now also allows an entry beyond the binary assignment into male/female, the recording of sex/gender was a challenge. The theoretical work of women's (health) research on the differentiation between biological sex and social gender has demonstrated since the 1980s that the two categories do not have to coincide in the individual attribution. However, the question of how social gender can be recorded has remained unanswered until now, especially when only a few questions can be asked in representative studies with standardised survey instruments. The team of the RKI now presents a pragmatic proposal, which has already been tested in the GEDA 2019/2020-EHIS study and builds on international experiences: The sex/gender is asked in a two-step procedure. The question about which sex is registered on the birth certificate (for those currently included in the surveys in a binary format) is followed by a question about which gender the respondents feel they belong to (male/female/another, and that is). This offers the possibility to capture persons beyond the biological binary categorisation. At the same time, continuity with previous surveys is maintained because a binary evaluation option remains. The experiences of the interviewers reported in the article show that the respondents are irritated in some cases, but that this two-stage questioning basically works. Although this form of questionnaire may be too crude for well-founded analyses that take gender diversity into account, it is certainly a first step in the right direction when it is used for representative surveys.

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## Conflicts of interest

The author is leading the scientific study on the evaluation of the "Young Worlds of Life (Junge Welten Leben, JUWeL)" programme.

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# Sexual and contraceptive behaviour of young adults in Germany – Results from KiGGS Wave 2

**Abstract**

Sexual behaviour is an important aspect of sexual health. 18-year-old and older participants of the KiGGS cohort in KiGGS Wave 2 were asked about their sexual and contraceptive behaviour. Data from 2,966 women and 2,206 men were included in the analysis, which was adjusted to the age and sex distribution of the German population by means of weighting. More than half of the respondents report their first sexual intercourse before reaching the age of majority (women 61%, men 53%). Women report a lower age than men. With regard to the number of opposite-sex sexual partners in the last twelve months, almost 69% of women and 58% of men state that they have had contact. Three or more sexual partners were reported by 11% of women and 20% of men. 7.4% of women have same-sex and 1.4% have both same-sex and opposite-sex sexual contacts, among men the figures are 2.8% and 0.4%, respectively. When asked about the type of contraception used during the last sexual intercourse, about two thirds of the women and more than half of the men indicated the pill; a condom is used by about 44% of the women and about two thirds of the men. Almost one third of the women have already taken the morning-after pill. Overall, the results can help to support prevention and education campaigns on sexual and reproductive health.

SEXUAL BEHAVIOUR · FIRST SEXUAL INTERCOURSE · CONTRACEPTION · MORNING-AFTER PILL · KIGGS WAVE 2

## 1. Introduction

Sexual health is defined according to the World Health Organisation (WHO) in close connection and in line with the general concept of health [1]: 'Sexual health is an integral part of overall health, well-being and quality of life. It is a state of physical, emotional, mental and social well-being in relation to sexuality, and not merely the absence of disease, dysfunction or infirmity [2]'. The different aspects of sexual health include sexual behaviour, sexual orientation and gender identity, as well as other aspects such as sexually transmitted infections (STI) [3].

Prerequisites for sexual health are a positive and respectful attitude towards sexuality and sexual relationships, and the opportunity to have pleasurable and safe sexual experiences, including freedom from violence and discrimination [2]. In addition to sexual self-determination, sexual education, sexual satisfaction and well-being, sexual health also includes the possibility to develop and live a sexual identity [4].

Sexuality is experienced differently in the different phases of life [5]. During adolescence, sexuality and sexual experiences are among the developmental tasks, along with coming to terms with one's own body, detachment from

## Info box
## Sexual orientation

A person's sexual orientation describes whether they are romantically and sexually attracted to their own sex (homosexuality), the opposite sex (heterosexuality), both sexes (bisexuality) or neither sex (asexuality) [15].
The three dimensions of sexual orientation include sexual attraction or appeal (which genders a person is attracted to), sexual behaviour (with which gender they have sexual contact) and sexual identity [15]. Sexual identity is people's fundamental self-understanding of who they are as sexual beings, how they perceive themselves and how they want to be perceived by others [18]. The three dimensions do not have to coincide; moreover, they can change over a lifetime [17].
The abbreviation LGBTIQ covers different sexual orientations and ways of living as well as gender identities: lesbian, gay, bisexual, transgender, intersex and queer people. Queer is a collective term that encompasses gender identities and sexual orientations that are not oriented towards the heterosexual gender binary. Younger LGBTI people in particular are more likely to describe themselves as queer [17].

one's parents and forming social relationships [6]. Adolescence is associated with physical, psychological and emotional changes. The biological processes interact with the social context to affect the emotional and social development of the individual [7]. During adolescence, girls and boys have to deal with age-typical behavioural expectations and find appropriate strategies for dealing with them, this also applies to sexuality [8].

Sexuality education is increasingly understood as a cross-sectional task in society. In addition to school and family, health and social services, the media and adult education are also involved [9]. The Federal Centre for Health Education (BZgA) has the legal mandate to develop concepts and media for sexuality education and to provide information on contraception. This is done with the participation of the federal states and in cooperation with representatives of the family counselling institutions of all providers [10]. The article Sexuality education for young people in Germany in this issue of the Journal of Health Monitoring uses data from the BZgA's 2019 Youth Sexuality Study to show that young people use a variety of different sources and instances to obtain health information in this area. These include the teaching of knowledge and action at school, personal conversations, the internet or professional counselling in gynaecological practices and recognised counselling centres [11].

Sexuality is predominantly experienced in committed relationships in all age groups. Studies have shown that even in adolescence, relationships are often close, romantic and characterised by the ideals of love and fidelity [12]. Almost one fifth of girls and boys in Germany surveyed in the Health Behaviour in School-aged Children study (HBSC) 2017/18 had sexual intercourse at least once at the age of 15 years [13]. On average, girls are sexually active at an earlier age than boys [14]. Results of the German Health and Sexuality Survey (GeSiD), which was conducted by the University Medical Centre Hamburg-Eppendorf from 2018 to 2019, showed that gender differences also exist with regard to the number of opposite-sex sexual contacts. Heterosexual men report higher numbers of partners than heterosexual women. This is already evident for adolescents and young adults [15, 16].

According to the current state of research, three dimensions of sexual orientation (Info box) are distinguished, which do not have to coincide: sexual identity, sexual attraction or appeal, and sexual behaviour [15]. For example, a woman who has sex with women does not necessarily identify as lesbian or bisexual [17]. The different dimensions of sexual orientation are not rigid categories, but changeable phenomena that may change over a lifetime [19].

Contraceptive behaviour is also part of sexuality. Access to contraception is an important factor in enabling people to decide freely if, when and how many children they want to have [20]. Contraceptives include, for an example, hormonal contraceptives such as the pill, barrier methods such as the condom or diaphragm, the intrauterine device (IUD) and so-called natural methods of contraception. In addition to the contraceptive aspect, the condom also offers protection against STI [21].

More than 70% of the sexually active adult population uses contraception during sexual contact [22]. Reasons for not using contraception include a desire to have children or pregnancy [23]. In addition, there are couples who do not use contraceptives despite having no intention of

### KiGGS Wave 2

Second follow-up to the German Health Interview and Examination Survey for Children and Adolescents

**Data owner:** Robert Koch Institute

**Aim:** Providing reliable information on health status, health-related behaviour, living conditions, protective and risk factors, and health care among children, adolescents and young adults living in Germany, with the possibility of trend and longitudinal analyses

**Study design**: Combined cross-sectional and cohort study

**Cross-sectional study in KiGGS Wave 2**
**Age range:** 0–17 years
**Population:** Children and adolescents with permanent residence in Germany
**Sampling:** Samples from official residency registries – randomly selected children and adolescents from the 167 cities and municipalities covered by the KiGGS baseline study
**Sample size:** 15,023 participants

**KiGGS cohort study in KiGGS Wave 2**
**Age range:** 10–31 years
**Sampling:** Re-invitation of everyone who took part in the KiGGS baseline study and who was willing to participate in a follow-up
**Sample size:** 10,853 participants

**KiGGS survey waves**
- KiGGS baseline study (2003–2006), examination and interview survey
- KiGGS Wave 1 (2009–2012), interview survey
- KiGGS Wave 2 (2014–2017), examination and interview survey

More information is available at www.kiggs-studie.de/english

becoming pregnant [24]. The morning-after pill is an emergency contraceptive that is mainly used after contraceptive mishaps or when contraceptives were forgotten. It is available without prescription in pharmacies since March 2015. Counselling is also offered here [25].

This article presents results on the sexual and contraceptive behaviour of young adults, which were gathered as part of the second follow-up survey of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS Wave 2). It thus ties in with the Robert Koch Institute's (RKI) report Health situation of women in Germany, published at the end of 2020, which includes a focus chapter on sexual and reproductive health as well as one on girls' health [17]. In KiGGS Wave 2, the participants of the KiGGS cohort who were already of age in the second follow-up survey (between 18 and 31 years) were also asked about their sexual behaviour. In addition to questions about age at first sexual intercourse, the number of sexual partners was asked, as well as questions about contraceptives and emergency contraception.

The results can help to support prevention and education campaigns on sexual and reproductive health, for example to adapt information materials on sexuality education and contraception to specific target groups. In addition, they can contribute to the evaluation of measures, complement the results of existing studies in this area and thus contribute to the scientific discourse.

## 2. Methodology

### 2.1 Sample design and study conduct

The basis for the analyses in this article are the data from the KiGGS cohort. The KiGGS baseline survey, which was conducted by the RKI from 2003 to 2006, for the first time provided population-based, nationally representative results on the health situation of 0- to 17-year-old children and adolescents in Germany. Within the framework of the KiGGS cohort, these children and adolescents will be further observed. The KiGGS baseline survey was followed by two further waves. After KiGGS Wave 1 (2009 to 2012), KiGGS Wave 2 (2014–2017) provides the most recent data until now [26]. Participants in the KiGGS baseline survey who were still available and willing to participate again were invited back to the study. At the time of KiGGS Wave 2, a total of 10,853 cohort participants aged 10 to 31 years could be interviewed again; the re-participation rate was 62%. A detailed description of the KiGGS cohort can be found elsewhere [27, 28].

The present analyses are based on data from 5,172 young adults (2,966 women and 2,206 men) who were between 18 and 31 years old in KiGGS Wave 2 and had valid information on sexual and contraceptive behaviour.

### 2.2 Operationalisation of variables

#### Sexual and contraceptive behaviour

In KiGGS Wave 2, the adult participants in the KiGGS cohort were asked questions about sexual and contraceptive behaviour for the first time. The following questions about sexual behaviour are part of the analyses: 'How old were

you when you had sex for the first time?' (open answer field to indicate age) and 'How many sexual partners did you have in the last 12 months?'. As an answer to the last question, both the number of women and men should be given. In addition to determining the number of sexual partners in the last twelve months ('none', 'one', 'two', 'three' and 'more than three'), the proportion of respondents with at least one sexual partner of the same and/or opposite sex in the last twelve months could be generated from this. The following questions were asked about contraceptive behaviour: 'Are you currently using contraceptives?' (response categories: 'yes', 'no'), 'Which contraceptives did you or your partner use during the last sexual intercourse?' ('birth control pill', 'condoms', 'diaphragm', 'chemical contraceptives', 'IUD', 'natural methods', 'other', 'none'), 'Do you use condoms during sexual intercourse?' (response categories: 'yes', 'no'), 'Have you ever taken the birth control pill?' (response categories: 'yes', 'no') and 'Have you ever taken the morning-after pill?' (response categories: 'yes', 'no').

#### Education, migration-related characteristics and family type

In KiGGS Wave 2, respondents indicated their highest level of education. The International Standard Classification of Education (ISCED-11) was used to classify the data. The education categories were divided into a low, a medium and a high education group [29].

The migration status is determined on the basis of the information on the country of birth of the participants as well as the country of birth and the nationality of the parents. Participants who migrated to Germany themselves or whose two parents were not born in Germany or are not German citizens are considered migrants. Another migration-related characteristic is the language spoken at home (exclusively German, other language/s) [30]. With regard to a partnership, the question was asked in KiGGS Wave 2 whether the respondents lived with a partner in a joint household (response categories: 'yes', 'no').

### 2.3 Statistical methods

For the descriptive analyses, prevalences with 95% confidence intervals were calculated in each case. The question on age at first sexual intercourse was already asked of all cohort participants aged 14 and older.

For this reason, the data basis for the analyses refers to all persons between 14 and 31 years (n=4,639 girls and women, n=3,870 boys and men). In order to take into account the right censoring of the data for the age at first sexual intercourse, i.e. the different ages of the participants at the time of KiGGS Wave 2, survival analyses were used. Survival analyses take into account that a person who is only 17 years old, for example, cannot give any information about a possible future event at the age of 19 or 20.

The data on age at first sexual intercourse are extrapolated by this procedure to the case where the complete KiGGS cohort would have been followed up to the age of 31. Gender differences between the curves were tested using a log-rank test in SAS.

The analyses were carried out with a weighting factor that both removes the drop-out from the baseline survey and adjusts the population figures by age, sex and education to the current survey date (31.12.2015). A statistically

significant difference is assumed if the p-value is smaller than 0.05.

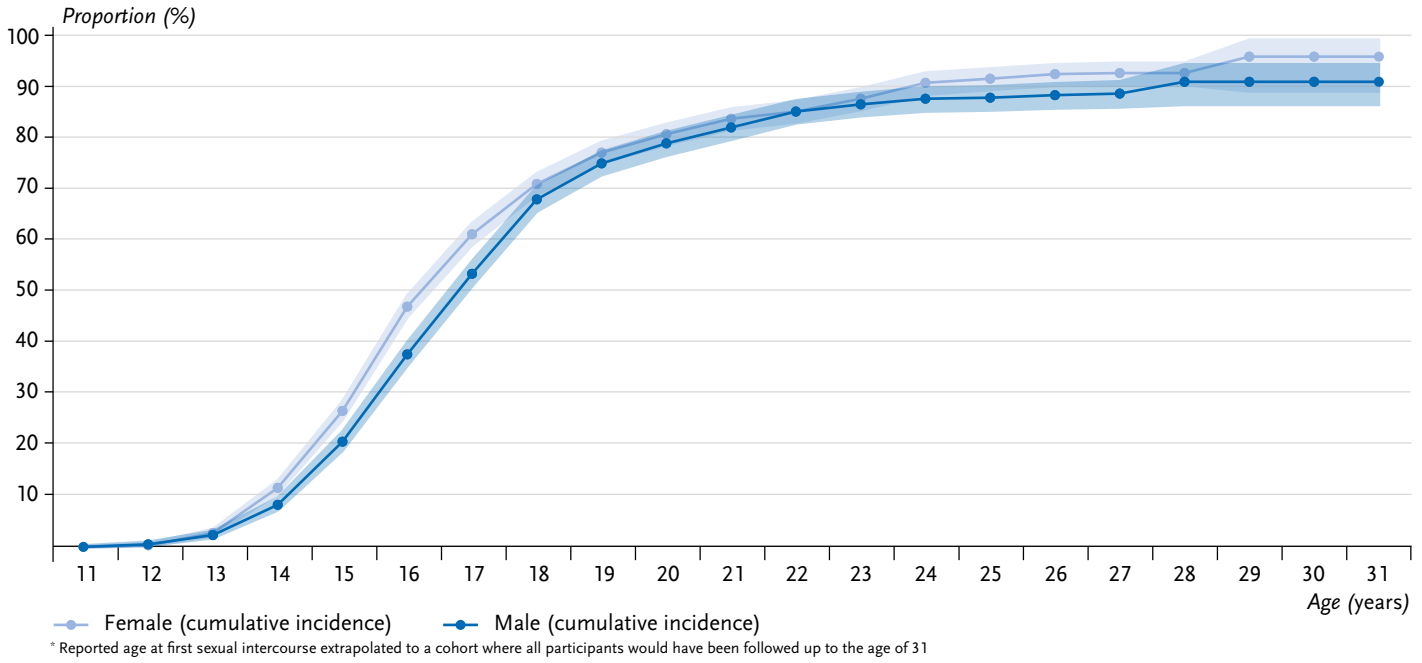
The analyses were conducted using the survey procedures of Stata 17.0 (Stata Corp., College Station, TX, USA, 2015) in order to take the cluster design of KiGGS and the weighting appropriately into account when calculating confidence intervals and p-values. Analyses on first sexual intercourse were conducted using SAS 9.4 (SAS Institute, Cary, NC, USA).

## 3. Results

First, the anaylses on the age of first sexual intercourse are regarded. For this purpose, persons between 14 and 31 years of age were considered. Of the adolescents and young adults participating, about one in four girls or women (26.6%) and one in five boys or men (20.6%) reported having had their first sexual intercourse by the age of 15. More than half of the respondents report their first sexual intercourse before reaching the age of majority (61.0% of girls and women and 53.3% of boys and men). About one in five people had not yet had sexual intercourse by the age of 20. Until the age of 30, it is about 4% of women and 9% of men (Figure 1). Girls and women report a lower age at first sexual intercourse than boys and men (the gender difference is statistically significant, p<0,001).

When asked about sexual contacts in the last twelve months, about 10% each of women and men report having had no contacts (Table 1). More than two thirds of women (68.8%) and more than half of men (57.8%) report

**More than half of the respondents had their first sexual intercourse before reaching the age of majority, 61% of women and about 53% of men.**




* Reported age at first sexual intercourse extrapolated to a cohort where all participants would have been followed up to the age of 31

**Figure 1**
**Reported age at first sexual intercourse* among 14- to 31-year-olds by sex, cumulative incidence (n=4,639 girls and women, n=3,870 boys and men)**
Source: KiGGS Wave 2 (2014–2017)

**Table 1**
**Number of opposite-sex sexual partners in the last twelve months among 18- to 31-year-olds with sexual intercourse experience by sex (n=2,950 women, n=2,206 men)**
Source: KiGGS Wave 2 (2014–2017)

| Number of sexual partners | Women % | Women (95% CI) | Men % | Men (95% CI) |
|---|---|---|---|---|
| None | 10.4 | (8.9–12.0) | 10.2 | (8.5–12.2) |
| 1 | 68.8 | (66.4–71.2) | 57.8 | (54.7–60.8) |
| 2 | 10.2 | (8.6–12.0) | 11.7 | (10.0–13.6) |
| 3 | 4.8 | (4.0–5.8) | 7.9 | (6.4–9.7) |
| >3 | 5.8 | (4.6–7.3) | 12.4 | (10.4–14.7) |

CI=confidence interval

**Almost 69% of women and 58% of men had exactly one opposite-sex sexual partner in the last twelve months, three or more were reported by 11% of women and 20% of men.**

exactly one sexual contact, while about 10% of women and 12% of men report two contacts. About 11% of women and about 20% of men report having had three or more sexual contacts.

Table 2 differentiates between same-sex and opposite-sex sexual partners. Over 90% of the interviewed women and men report opposite-sex sexual contacts in the last year before the survey. Among women, 7.4% have same-sex and 1.4% have both same-sex and opposite-sex sexual contacts. The corresponding proportions for men are 2.8% and 0.4 % respectively. It should be noted that the analyses on same-sex and opposite-sex partners are based on very small case numbers (Table 2).

In terms of contraceptive behaviour, 76.5% of women and 59.1% of men reported currently using contraceptives at the time of the survey. Further analyses show that women and men living in a stable partnership use contraception significantly more often than women and men without a stable partnership (women 79.2% v. 68.2%, p≤0.001 and men 63.1% v. 52.9%, p≤0.001). Around two-thirds of women (67.5%) and about half of men (51.0%) report that they are currently living in a committed partnership (data not shown).

When asked about the type of contraception used during the last sexual intercourse, it becomes apparent that the pill and the condom were used most frequently. More than half of the women (62.1%) and men (57.0%) report using the pill. A condom is used for contraception by 44.1% of women and 64.2% of men. The combined use of pill and condom is reported by 23.1% of women and 31.6% of men. The IUD, on the other hand, is used much less frequently: 3.8% of women and 3.0% of men report it as the contraceptive method used. Other contraceptives such as the diaphragm, chemical contraceptives or natural methods also play a minor role. 8.9% of women and 6.8% of men say they did not use contraception during their last sexual intercourse (Figure 2).

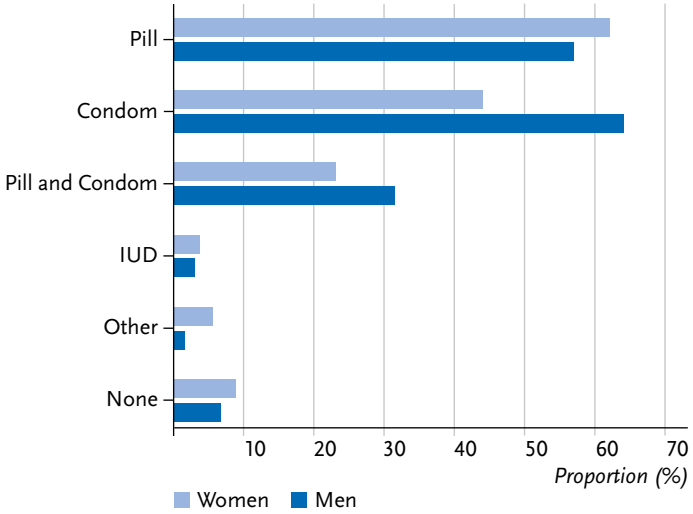
Furthermore, the participants of the KiGGS cohort were asked whether they generally use condoms during sexual intercourse. Condoms are generally used by 27.3% of the women during sexual intercourse, about one third of the women (32.2%) uses condoms occasionally, 40.5% of the women do not use condoms. For men, the proportions of basic (41.8%) and occasional use (34.6%) are higher. Slightly less than a quarter of men (23.6%) does not use condoms.

**Table 2**
**At least one sexual partner of the same and/or opposite sex in the last twelve months among 18- to 31-year-olds with sexual contacts by sex (n=2,800 women, n=2,027 men)**
Source: KiGGS Wave 2 (2014–2017)

| At least one... | Women % | Women (95% CI) | Women n | Men % | Men (95% CI) | Men n |
|---|---|---|---|---|---|---|
| opposite-sex sexual partner | 94.0 | (92.5–95.1) | 2,654 | 97.7 | (96.6–98.4) | 1,979 |
| same-sex sexual partner | 7.4 | (6.0–9.0) | 182 | 2.8 | (1.9–3.9) | 55 |
| same and opposite-sex sexual partner | 1.4 | (0.8–2.5) | 36 | 0.4 | (0.2–1.1) | 7 |

CI=confidence interval

**Figure 2**
**Type of contraceptive* used during last sexual intercourse (data in percent, multiple answers possible) among 18- to 31-year-olds with sexual intercourse experience by sex (n=2,880 women, n=2,160 men)**
Source: KiGGS Wave 2 (2014–2017)




* Pill and condom: composite variable, other: diaphragm, chemical contraceptives, natural methods and further methods

**Same-sex sexual contacts were reported by 7.4% of women and 2.8% of men, both same-sex and opposite-sex sexual contacts were reported by 1.4% of women and 0.4% of men.**

**Table 3**
**Use of emergency contraception (ever taken the morning-after pill) (data in percent) among 18- to 31-year-old women with sexual intercourse experience (n=2,961)**
Source: KiGGS Wave 2 (2014–2017)

| | % | (95% CI) | n |
|---|---|---|---|
| **Total** | **30.8** | **(28.4–33.4)** | **838** |
| **Age group** | | | |
| 18–24 years | 29.0 | (26.1–32.1) | 501 |
| 25–31 years | 32.6 | (28.8–36.6) | 337 |
| **Education** | | | |
| Low education group | 24.5 | (17.8–32.8) | 73 |
| Medium education group | 31.1 | (28.1–34.1) | 517 |
| High education group | 33.6 | (28.9–38.6) | 231 |
| **Migration status** | | | |
| No | 30.0 | (27.5–32.5) | 742 |
| Yes | 34.4 | (27.0–42.7) | 91 |
| **Language spoken at home** | | | |
| German only | 30.5 | (28.0–33.1) | 728 |
| Other language/s | 32.8 | (25.8–40.6) | 110 |

CI=confidence interval

If only men who do not live in a committed partnership are considered, 59.9% of them report that they use condoms in principle, 33.3% use condoms occasionally and 6.7% of them do not use condoms. In addition, the interviewed women were asked whether they had ever taken the pill. A majority of them (92.6%) answered this question in the affirmative (data not shown).

In addition to taking the pill, participants were also asked about emergency contraception (using the morning-after pill). Almost one third of the women (30.8%) had experience with taking the morning-after pill. Stratified analyses according to age, education and migration status show no statistically significant differences. This also applies if the language spoken at home is considered as another migration-related characteristic (Table 3).

## 4. Discussion

Data on the sexual and contraceptive behaviour of young adults from KiGGS Wave 2 show that about half of the participants experienced their first sexual intercourse before reaching the age of majority; among women it is 61%, among men 53%. This finding is consistent with the data from the eighth wave of the Youth Sexuality Study by the BZgA, which is based on a survey of 14- to 25-year-olds from 2014. According to this, 39% of adolescents are sexually active for the first time at the age of 16, and among 17-year-olds the proportion is 58% [16]. According to the KiGGS Wave 2 data, about every fourth girl and every fifth boy have their first sexual intercourse by the age of 15. The proportions are therefore roughly comparable to those of the HBSC study, in which 15-year-olds provide information

on whether they have already slept with someone. In the 2013/14 HBSC study, this applied to 19.6% of girls and 22.3% of boys [31], in 2017/18 the proportions were 16.7% (girls) and 19.7% (boys) [13].

When making the comparison, however, it should be noted that the questions on the age of first sexual intercourse in KiGGS Wave 2 were collected retrospectively, so that a recall bias cannot be excluded. Since data on sexuality have only been collected once in the KiGGS study so far, no information on trends can be made. Results of the ninth wave of the Youth Sexuality Study from 2019 show that the proportion of adolescents who are younger than 17 years of age at first sexual intercourse has been declining for several years. This continues the trend that young people are becoming sexually active later and later [32]. About 20% of the respondents had not had sexual intercourse by the age of 20 – this proportion is higher than the 16% found in the Youth Sexuality Study [16], at the age of 30 it is about 4% of women and almost 9% of men. The lack of the right partner or cultural reasons could play a role in sexual restraint [16].

**During the last sexual intercourse, the most common form of contraception was the pill or a condom. Around one third of the women stated that they had already taken the morning-after pill.**

The majority of 18- to 31-year-old participants from KiGGS Wave 2 (almost 69% of women and 58% of men) had opposite-sex sexual contacts with exactly one person in the last twelve months. This indicates that a high proportion of young adults are in a committed relationship. In the study, about two-thirds of young women and about half of young men stated they were currently in a committed relationship. This is consistent with studies that have shown that, already in adolescence, sexuality is predominantly lived in committed relationships. Relationships are often close, romantic and characterised by the ideals of love and fidelity [33]. Being single is usually seen as a temporary phase between two relationships, which is often spent sexually in a rather restrained way. In a serial monogamous relationship pattern, new firm and faithful relationships are constantly entered into [14].

About 10% of the young women and men had no sexual contacts in the last twelve months before the survey, about 10% of the women and almost 12% of the men had sexual contacts with two persons. About 20% of the men – and thus almost twice as many as women (about 11%) – stated that they had sexual contacts with three or more persons. A similar picture emerges from a cross-sectional study of 654 students at the Technical University of Dresden in 2012, in which, among other things, sexual risk behaviour was examined: Of the sexually active students, 4% reported none, 53% one, 14% two, 10% three to nine and 1% ten to 15 sexual contacts in the last twelve months [34]. Our analyses are only comparable with the Youth Sexuality Study to a limited extent, since these refer to the total number of previous sexual partners [16].

Various European sex surveys also found that men report a higher number of sexual contacts than women [35, 36]. Heterosexual men report higher numbers of partners than heterosexual women [15]. The reason given is, among other things, a different response behaviour. Men tend to present themselves as sexually experienced and active due to social expectations. They may therefore indicate a higher number of female partners. Estimation errors among men with many sexual partners could also play a role. Another reason given is that men may have sex more often with women who systematically do not participate in surveys, such as sex workers [15].

According to the data from KiGGS Wave 2, 7.4% of young women and 2.8% of young men had same-sex sexual contacts in the last twelve months. Both same-sex and opposite-sex sexual contacts were reported by 1.4% of female and 0.4% of male participants. Results from the 2018 to 2019 GeSiD survey show that 15% of 18- to 35-year-old women had at least one sexual experience with another woman. For men of the same age, the figure is 7.4% [15]. Again, it should be noted that these results refer to experiences ever made. In contrast, the KiGGS study refers to the last twelve months.

When interpreting the data, it must be taken into account that same-sex sexual contacts do not necessarily have to be associated with a homosexual identity (Info box Sexual Orientation). Overall, according to data from the GeSiD study, 0.9% of women and 1.8% of men define themselves as homosexual and 1.8% of women and 0.9% of men as bisexual [15]. Slightly higher figures are found in the Youth Sexuality Study from 2019. An orientation other than purely heterosexual is more likely to be reported by female than by male respondents: 2% of 14- to 25-year-old women report being homosexual, 8% identify as bisexual, among men it is 3% [32]. The fact that (young) women report at least one same-sex sexual experience comparatively frequently could be due to a generally greater social openness towards same-sex intimacy and sexuality of women, which contributes to a greater scope for experience and thus also for answers in surveys [37].

For contraception during the last sexual intercourse, those participating in KiGGS Wave 2 most frequently used the pill and the condom (pill: women 62%, men 57%; condom: women 44%, men 64%). The fact that the pill and the condom are the most important contraceptives in Germany was also shown in the 2018 BZgA study on contraceptive behaviour of adults: 47% of women and 48% of men name the pill as their current contraceptive method. In the case of condoms, it is 37% of women and 56% of men. Compared to previous waves of the study, the condom is used significantly more often as a contraceptive. From 2011 to 2018, there was an overall increase from 37% to 46%. During this time, the proportion of women taking the pill decreased from 53% to 47%. There has been a sharp decline in use of the pill particularly among 18 to 29 year olds, from 72% to 56% [22]. A decline in pill use was also reported in the waves of the 2015 [16] and 2021 Youth Sexuality Study [32]. This can be observed especially among sexually active girls between 14 and 17 years of age. The reason given is a rather critical attitude towards hormonal contraceptive methods. This could be related to a general change in the perception of norms, such as an increase in health awareness [32]. Especially in social media, the concern to live healthier and more naturally, also with regard to contraceptive behaviour, is a topic of discussion [38]. In KiGGS Wave 2, about 93% of women stated that they had ever taken the pill. In contrast, the proportion of women who used the pill during their last sexual intercourse is 62%. This result could also indicate a decline in pill use. With regard to contraception during the last sexual intercourse, the IUD plays a subordinate role in the present analyses. This finding was also shown in the BZgA study 'frauen leben 3'. According to this study, the use of the IUD increases over the course of life. Women over the age of 40 are the main users of IUDs as a contraceptive [39].

About 42% of the men always use condoms during sexual intercourse, about one third uses condoms occasionally.

Slightly less than a quarter of the men says they do not use condoms. Almost 7% of men without a stable relationship report that they generally do not use condoms. This result is lower than that reported in the GeSiD study, according to which 22% of 18- to 79-year-old men who are currently single have never used a condom during sexual intercourse in the past year [40]. In this comparison, however, the different survey times, questions and age groups should be considered.

The use of emergency contraception could also be examined with the data from KiGGS Wave 2. Accordingly, 30.8% of the 18- to 31-year-old women have ever taken the morning-after pill. This result is comparable to the data from the Youth Sexuality Study 2019, in which 27% of 14- to 25-year-olds stated that they have used the morning-after pill before, including 9% more than once. Among 18- to 25-year olds, it is 29% (20% reporting single use, 9% multiple use) [32]. Our results show no significant differences according to age, education or migration status. As a further migration-related characteristic, the language spoken at home was included in the analyses in order to map possible language barriers to information materials. There were no significant differences for this variable either. However, the proportions of participants with migration-related characteristics are relatively small in relation to the comparison groups.

The results indicate that the use of emergency contraception is independent of sociodemographic factors. The Youth Sexuality Study 2015 points in the same direction by showing that respondents who had their first sexual intercourse with a trusted partner or for whom contraception was discussed in detail at home also used the morning-after pill (single use 15%, multiple use 6%) [16]. This is followed by the results of the Youth Sexuality Study 2019, which show that knowledge about the morning-after pill is almost universal among the girls and young women surveyed [32]. The prescription requirement for the morning-after pill was lifted in March 2015 to facilitate access to this emergency measure. Since then, there has been a significant increase in usage. According to data from the Federal Union of German Associations of Pharmacists, sales figures in self-medication have risen sharply since 2015, but there has been a significant decline in medical prescriptions of the morning-after pill. Since 2015, when 662,000 packs were dispensed, the number has risen steadily to a total of 877,000 packs in 2019. In 2020, there was a decrease to 848,000 packs [41]. The available data indicate use in all social groups and emphasise the need to ensure low-threshold access options.

As a limitation to the present analyses, it must be taken into account in the interpretation that the self-reports were collected retrospectively. It cannot be ruled out that the results may be distorted by socially desirable response behaviour or that there is a memory bias, i.e. participants no longer remember events correctly or subsequently attach more or less importance to events than they originally did.

Overall, the data on sexual and contraceptive behaviour from KiGGS Wave 2 provide a further data basis focusing on young adulthood in addition to the established monitoring data from the BZgA, the data on sexual and contraceptive behaviour from the HBSC study and the data from the GeSiD study. The present analyses confirm and complement the results of the studies mentioned, such as the calculations of cumulative incidences of first sexual intercourse or the analysis of sociodemographic factors influencing the use of the morning-after pill. Here it could be

shown that the utilisation takes place in all social groups; belonging to a certain educational or population group does not seem to have any influence. This suggests that sexuality education information is reaching young adults.

The data on sexual and contraceptive behaviour from KiGGS Wave 2 also show potential for further analyses, as extensive co-variables are available in the cohort approach. Thus, correlation analyses with various demographic characteristics are possible, as exemplified in an article on the utilisation of outpatient gynaecological services [42]. With regard to longitudinal analyses, the indicators of sexual and reproductive health in young adulthood can also be used as outcome variables, for example in connection with mental health problems in childhood or adolescence [43]. For future surveys and analyses, the impact of the COVID-19 pandemic – including the containment measures – on sexual health will also play a role, for example with regard to consequences for partnership relationships and sexual contacts. Media narratives on sexuality-related changes due to the COVID-19 pandemic could be identified, but empirical data are still lacking [44].

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## Data protection and ethics

KiGGS Wave 2 is subject to strict compliance with the data protection regulations of the EU Data Protection Regulation (DSGVO) and the Federal Data Protection Act (BDSG).

Hannover Medical School's ethics committee assessed KiGGS Wave 2 (No. 2275-2014) and provided their approval. Participation in the studies was voluntary. The participants and/or their parents/legal guardians were also informed about the aims and contents of the study and about data protection. Informed consent was obtained in writing.

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## Conflicts of interest

The authors declared no conflicts of interest.

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# Sexuality education for young people in Germany. Results of the 'Youth Sexuality' representative repeat survey

## Abstract

The Federal Centre for Health Education (BZgA) has been conducting the 'Youth Sexuality' representative survey on a regular basis since 1980. This continuous monitoring generates insights into the sexual and reproductive health of young people in Germany and constitutes an important basis for evidence-based health communication.

A total of N=6,032 young people between the ages of 14 and 25 participated in a combination of oral and written interviews (Computer Assisted Personal Interviews (CAPI)).

As primary sources of knowledge for, adolescents state that they obtain information through school lessons (69%), personal discussions (68%), and the Internet (59%). In addition to these sources, professional gynaecological counselling and sexuality education at home are also important sources of information. To what extent trusted contact persons are available in the family depends heavily on the adolescents' sociocultural backgrounds.

Providing information and disseminating knowledge to young people in the field of sexual and reproductive health is organised intersectorally in Germany. In this way, it is possible to also reach those who do not have any contact persons at their disposal in their direct family. Maintaining and strengthening the current commitment in promoting sexual health is of key importance, as only this will ensure the next generation's sexual and reproductive health, and provide an evidence-based counterbalance to anecdotal information, especially in the digital domain.

ADOLESCENTS · PREVENTION · CONTRACEPTION · REPRODUCTIVE HEALTH · SEXUAL EDUCATION

## 1. Introduction

Promoting and ensuring sexual and reproductive health is one of the key goals of the Sustainable Development Goals of the World Health Organization (WHO) [1]. The Declaration of 2015 explicitly includes the access to contraception counselling as well as to family planning and sexuality education information. Since 1992, the Federal Centre for Health Education (BZgA) has been commissioned under the Pregnancy Conflicts Act (SchKG) to develop concepts for sexuality education and provide free information relating to contraception nationwide [2]. These materials for sexuality education reach the target groups either directly or are deployed by disseminators within the framework of sexuality education offerings.

Within the BZgA, conducting and promoting large representative studies to evaluate and align the measures for sexuality education have a long tradition [3–6]. In this context,

the representative cross-section survey relating to youth sexuality, which has been conducted on a regular basis since 1980, is an important monitoring tool [7]. Based on this survey data, information can be obtained about current sexual and contraception behaviours, as well as aspects of sexuality education. After all, only when evidence-based findings are available, can target group-specific needs be identified, discussions be directed in a target group-specific manner, the effectiveness be verified, and the necessary strategic and operational realignment be made.

Especially 'first-time sex' is a heavily discussed topic in society. The data from the 9th iteration of the Youth Sexuality Study from 2019 clearly shows that the percentage of adolescents with (heterosexual) sexual intercourse experiences has not changed in the last decades. In fact, in the age groups of 15- and 16-year-olds, it has declined significantly [8]. This once again confirms the trend that young people are more sexually restrained than ten years ago [7, 9] and almost all adolescents in Germany use contraception: In 2019, only 9% indicated not having used contraception during their very first sexual intercourse, and 5% during their most recent sexual intercourse [8]. Compared to the average of 30 European and non-European industrialized nations, this percentage is very low indeed [10].

The choice of the contraceptive is related to the age and the associated level of sexual experience or the existence of a partnership, respectively. At a young age and with little sexual experience, adolescents especially use condoms as a contraceptive, more rarely the contraceptive pill. With increasing age and the existence of a longer-lasting partner relationship, the frequency of pill use increases significantly [8, 11]. However, even though many young people often use the pill as a contraceptive, especially in partnerships, current data points to a possible change in mindset about hormonal contraception: The percentage of respondents using the pill for contraception is declining [8]. This development is consistent with the decline of prescriptions for the pill among girls and young women insured under the statutory health insurance [12]. However, it is not only the frequency of pill use that is declining, its health and safety is rated more negatively [8], and health-related aspects play a relevant role with regard to a conscious lifestyle [13] as well as in the selection of the contraceptive method [14].

But where do young people in Germany currently obtain their knowledge about sexuality and contraception? Which persons, institutions and media contribute to knowledge building, and which role does the Internet play in this context? These and other questions will be answered in this article based on the data from the 9th iteration of the Youth Sexuality Study by the BZgA.

## 2. Methodology

### 2.1 Sample design and study conduct

The present cross-section survey relating to youth sexuality has been repeated regularly for nearly 40 years, whereby the basic methodological framework remained largely unchanged. The data collection of the present 9th iteration was conducted between May and October 2019 by Kantar GmbH using the CAPI (Computer Assisted Personal Interviewing) methodology for combined oral-written interviews. The standard questionnaire was completed in a personal face-to-face interview, while the adolescents and young adults completed more intimate questions using a laptop (self-completed part).

The survey took place in the home environment of the adolescents or young adults, respectively, and mostly without the presence of a third person. In the case of minors, the parents were present at home during the interview. This ensured that when the adolescents wanted more in-depth information about sexuality and contraception following the interview, contact persons were theoretically available to them.

The guardians as well as the adolescents or young adults were informed comprehensively verbally and in writing in advance about the object and purpose of the study. The interview was voluntary and only took place after consent by the parents and the adolescents or young adults. The data acquisition and processing took place in accordance with the currently valid provisions of the General Data Protection Regulation (DSGVO). Personal data, which was deleted permanently from all data carriers immediately after conclusion of the field phase, was acquired and processed only to control field access.

Intensive training prior to conducting the interviews, as well as the many years of experience of the field institute's staff members in this area of research ensured that the interviewers were able to conduct the interview in an age-appropriate, culturally-sensitive, and empathetic manner.

According to the sample design, eight disproportional partial samples, each resulting from the combination of the three main criteria, being sex (female vs. male), age group (14- to 17-year-olds vs. 18- to 25-year-olds) and cultural origin (with vs. without migration background), were realised in the present 9th iteration of the Youth Sexuality Study. N=2,024 girls and N=1,532 boys between the ages of 14 and 17 as well as N=1,580 young women and N=896 young men between the ages of 18 and 25 participated in the survey. Due to the method of the Youth Sexuality Study, a further non-binary gender differentiation had to be refrained from. The authors would like to stress here that this approach is solely the result of methodological necessities and not of a lack of a diversity-sensitive perspective.

The respondents' level of education was operationalised through the attended school and/or the highest aspired or obtained level of education, respectively. A migration background was assumed when adolescents or young adults themselves or at least one parent were born without having German citizenship [15].

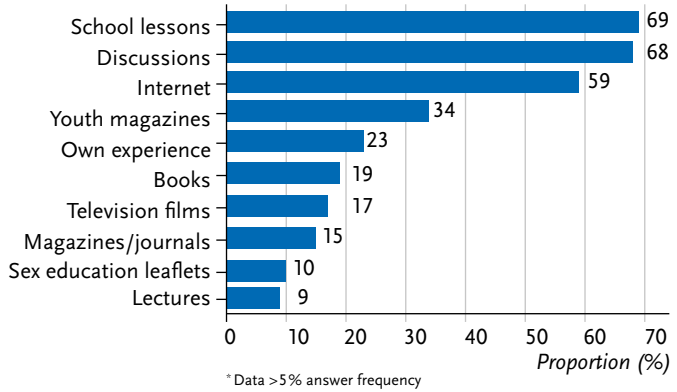
The selection of the target subjects took place in a non-randomised manner according to the quota method [16], whereby the quota were taken from different Census Bureau publications (cut-off date: December 31, 2017) [17–19]. The parameters of the quota method are sex, age, area of residence, cultural origin, and level of education or type of attended school/obtained highest level of education.

The geographic location of the interviewers was used to ensure an adequate regional distribution, whereby the criteria of federal state, administrative district and city size were correlated relative to the master sample of the 'Arbeitskreis Deutscher Markt- und Sozialforschungsinstitute e.V.'

### 2.2 Statistical methodologies

To prepare the data sets for the statistical analyses, it was necessary to transfer the disproportional sample design into a proportional one with the help of design weighting factors. Census Bureau publications were used as the basis for the determination of the weighting factor here as well

**Figure 1**
**Sources of sexuality education (N=3,556 14- to 17-year-olds, unweighted)***
Source: Youth Sexuality Study, 9th iteration (BZgA)




**Sexuality education for adolescents in Germany is intersectorally organised.**

[17–19]. Combined regional, sex, and education weighting factors were applied to the data set. In addition, weighting factors according to nationality group were applied to the group of respondents with a migration background. The design weighting factors range from 0.39 to 2.72. All results published in this article are reported with this design weighting.

Descriptive analyses provide information about features of sexuality education and contraception counselling of adolescents and young adults in Germany. The questions of the used items can be found in the Annex Table 1. In addition, two-sided $\chi^2$ tests were used to analyse the significance of different distributions in subgroups or between individual trends, respectively. In some cases, differentiation was applied according to sociodemographic features (especially religious denomination, religious bond and highest obtained or aspired education level), if statistically relevant differences were at hand. Statistical significance was assumed starting at an $\alpha$ error level of less than 5% ($p<0.05$). Statistical analyses were conducted using IBM SPSS, version 25.

In case long-term trends were represented, the subsample of the adolescents between the ages of 14 and 17 without a migration background was used, because trend data from almost 40 years was available for this subsample.

## 3. Results

### Sources of sexuality education

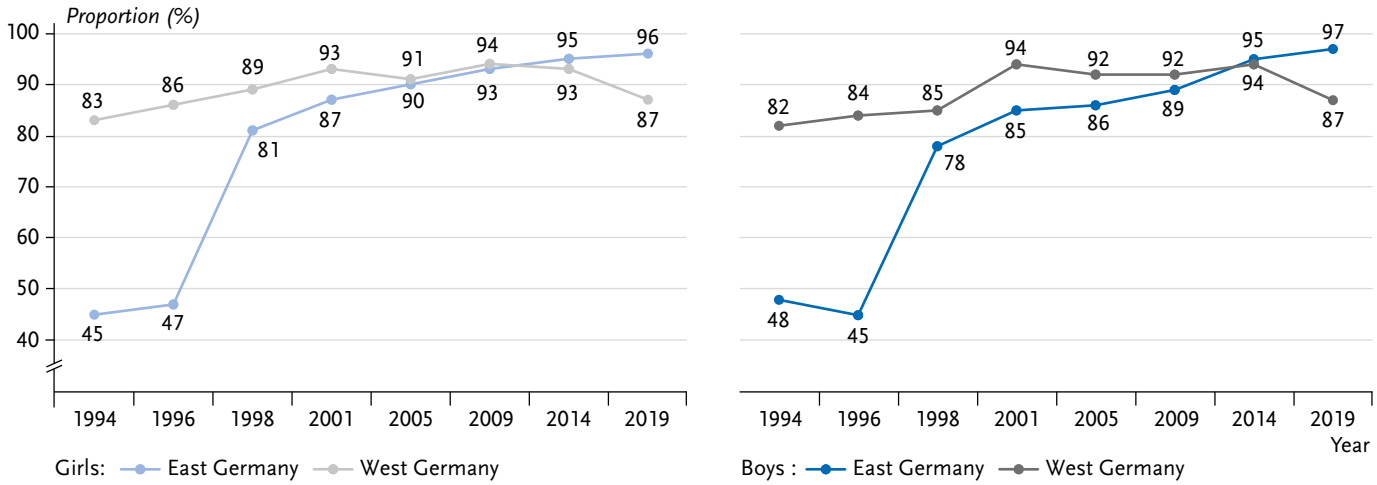
Current data from the Youth Sexuality Study show that the most important sources for sexuality education for adolescents between the ages of 14 and 17 are school lessons, personal discussions and the Internet (Figure 1). The data does not differ significantly between the sexes.

Sexuality education at school and through the Internet will be examined in more detail in the following paragraphs. Furthermore, communication about sexuality is brought into focus. Discussions and counselling at home, at certified counselling centres and in gynaecological counselling will be examined.

### Sexuality education at school

According to information they provided, the adolescent respondents have predominantly obtained their knowledge about sexuality, reproduction and contraception during school classes (Figure 1). A total of 87% of girls and boys between the ages of 14 and 17 currently indicate having discussed sexuality education topics in class. Therefore, school is capable of reaching the vast majority of adolescents with sexuality education content. Compared to the last survey five years ago, however, this constitutes a decline. With 93% each, significantly more girls and boys still reported suitable classroom content in 2014.

**Figure 2**
**Sexuality education lessons by trend and differentiated by region (14- to 17-year-olds with German citizenship, as of 2014 without a migration background)**
Source: Youth Sexuality Study, 9th iteration (BZgA)




**Institutionalised transfer of knowledge and practical skills in schools, and at certified counselling centres and in gynaecological counselling will guarantee the conveyance of evidence-based facts.**

This trend does not apply to all regions of Germany equally. While in the eastern states 96% of all girls and boys currently state that they have had sexuality education lessons, this is only 86% in the other states (Figure 2). In 2019, the percentages of adolescents indicating that they had had sexuality education lessons at school, therefore differed significantly between the western and the eastern states.

In addition to the educational content at school, sexuality education still takes place via communication in the form of personal discussions (Figure 1). For the adolescents between the ages of 14 and 17, their peers (65%) as well as their own parents (56%) are the most important persons in terms of sexuality education (Figure 3), but teachers are also highly relevant in this context. Among girls (34%) as well as boys (37%), they are the third most often mentioned. The significance of teachers in the context of sexuality education has been relatively stable for years. The proportional values for girls have been fluctuating by up to six, and for boys by up to eight percentage points.

On average, however, teachers are considered to be less important for sexuality education by adolescents who have or aspire a low level of education (25% compared to 39% or 35% in the case of a medium or high level of education, respectively). For those girls and boys however, sexuality education at school is particularly important as the parents of adolescents with a lower obtained or aspired level of education are available as a source of sexuality education significantly less frequently: 42% of them mention their own mother or father in this context. By comparison, adolescents with a medium or higher (aspired) level of education name their parents as important persons for sexuality education, 54% and 61%, respectively.

For adolescents with a migration background, teachers are also important contact persons for questions about sexuality and contraception, because for girls and boys with an immigration history, the parents (38%) count as important persons for sexuality education significantly less frequently than for their age peers without a migration back-

**Knowledge transfer and education through institutionalised settings is especially essential for those young people, who do not have a trusted contact person for sexual questions in their families.**

ground (64%). However, teachers are equally regarded as contact persons, irrespective of migration status. Adolescents with a migration background name them just as frequently (36%) as their age peers without an immigration history (35%).

Both sexuality education at school and teachers serving as contact persons for questions about sexuality and contraception thus play an important role, especially for adolescents who lack contact persons at home more often. Sexuality education at home will be examined in more detail below.

## Sexuality education at home

As Figure 3 shows, parents still play the most important role in sexuality education: 56% of adolescents indicate that their parents are among the most important persons for education about sexual matters.

For girls between the ages of 14 and 17, the mother (61%) is still the most important person to go to for sexuality education. The best friend is most likely also consulted (51%). Beyond that, all other persons play a minor role (Figure 3).

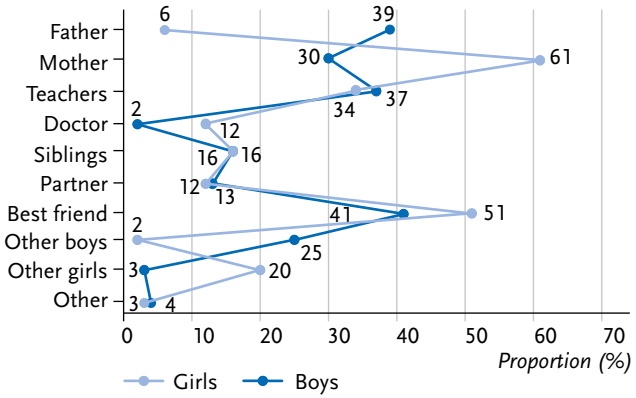



**Figure 3**
**Persons for sexuality education**
**(N=3,556 14- to 17-year-olds, unweighted)**
Source: Youth Sexuality Study, 9th iteration (BZgA)

Boys between the ages of 14 and 17 have different preferences: The father (39%) belongs to the inner circle of the most important persons for sexuality education almost as frequently as the best friend (41%). From the boys' perspective, teachers have a comparatively similar importance (37%) as their fathers.

There is a noticeable trend that today, mothers are less important for their sons as contact partners than 15 years ago, when they were the most important persons to discuss sexuality with (2005: 42%). In the current survey, the percentage of the male respondents mentioning their father as an important contact person, is higher for the first time (39% compared to 30%).

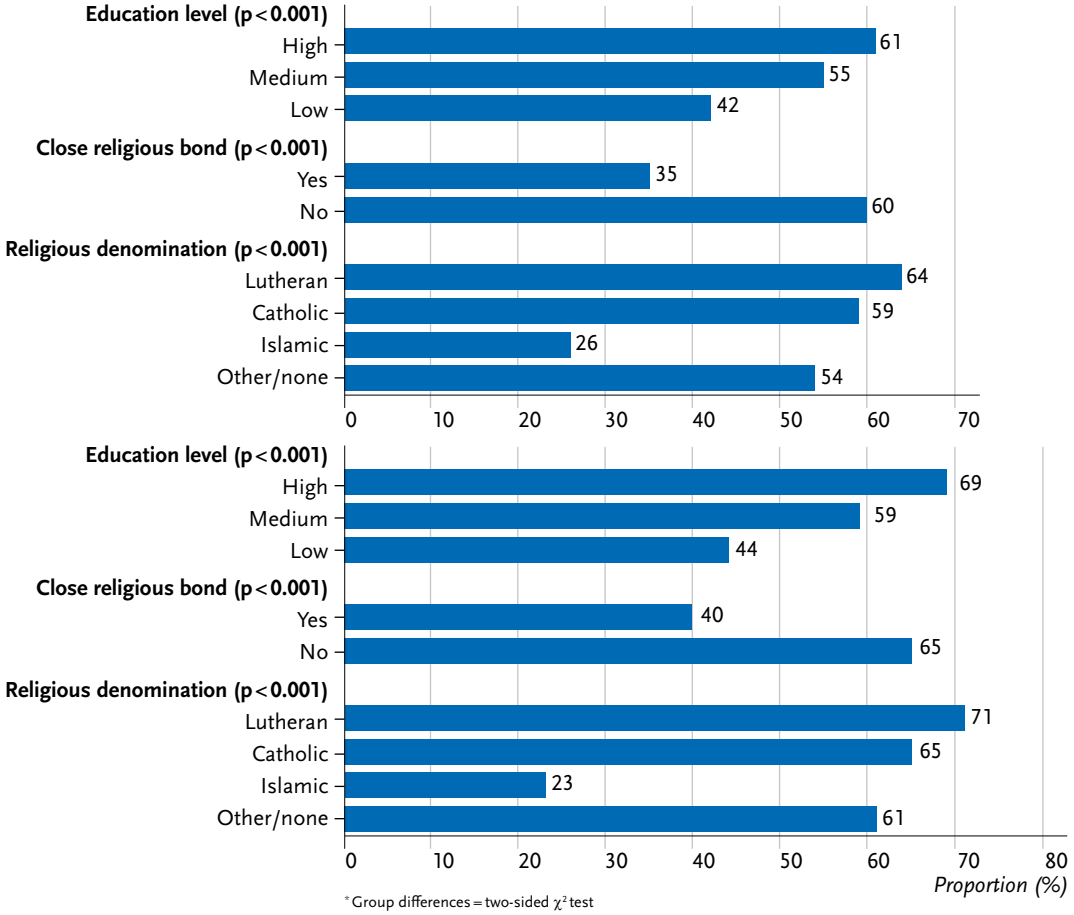
The current data from the Youth Sexuality Study also shows, however, that sexuality education at home is strongly associated with religious-cultural origins as well as the adolescents' obtained or aspired level of education (Figure 4). Adolescents with low obtained or aspired levels of education, close religious bonds and/or Islamic denomination name their parents significantly less frequently as important contact persons for sexuality education than respondents of other groups.

Significant differences with regard to the adolescents' religious bonds as well as the obtained or aspired levels of education can also be observed when asked to what extent they are able to discuss sexuality and partnership with family members (Figure 5). In total, more girls than boys say that they can talk about these matters with family members (64% vs. 58%).

In summary, the data from the Youth Sexuality Study show that education about sexuality also still happens at home and in the family environment for many young people, but

**Figure 4 (above)**
**Persons for sexuality education (parents, total share of mother and father) (N=3,556 14- to 17-year-olds, unweighted)***
Source: Youth Sexuality Study, 9th iteration (BZgA)

**Figure 5 (below)**
**Addressing sexuality with family (N=3,556 14- to 17-year-olds, unweighted)***
Source: Youth Sexuality Study, 9th iteration (BZgA)




* Group differences = two-sided $\chi^2$ test

the extent to which parents are contact persons and the ones providing sexuality education, is strongly associated with sociocultural origin.

In addition to the already mentioned sources for sexuality education, young people also indicate the Internet as a source of information about sexuality and contraception (Figure 1). The Internet as a source of information will be brought into focus below.

## The Internet as a source of sexuality education

The Internet is an important medium for young people to socialise on and obtain information from. The data from the Youth Sexuality Study also confirms this. The significance of the Internet as a source for sexuality education has been increasing gradually since 2001. In 2001, 3% of the girls and 10% of the boys indicated utilising the Internet as a source of sexuality education. By 2019, the percentage had increased

to 56% for girls and 60% for boys. In the current iteration Youth Sexuality Study trend, the Internet is thus the third most important source of information about sexuality and contraception for young people in Germany (Figure 1).

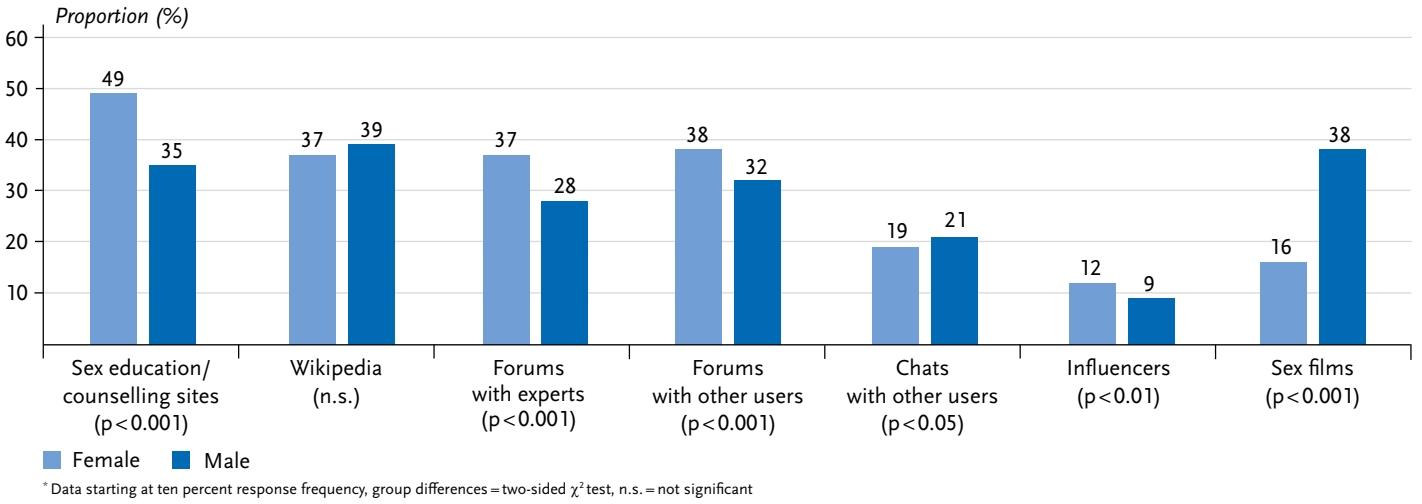
The Internet is also where young people want to look for additional information: 66% of the 14- to 17-year-olds and 70% of the young adults between the ages of 18 and 25 indicate this.

The Internet is not only a preferred source of knowledge, but the information that young people find there is in fact also important to them: Two out of three underage adolescents (65%) and almost three out of four young adults (73%) indicate that they have actually already found something on the Internet that was important to them about sexuality.

When young people look on the Internet for information about sexuality and contraception, they use search engines (they 'google'). 79% of male and 83% of female adolescents and young adults between the ages of 14 and 25 indicate this. Googling outscores all other options. Wikipedia is a site where 16% of girls and young women, 19% of boys and young men start their search for information. One out of seven girls and young women (14%), but at least one-fifth of the boys and young men (22%) use YouTube as their first place to go – even more so among young adult men (24%) than among male minors (19%). In comparison, 15% or 14%, respectively, of girls and young women indicate this. Facebook, Instagram and Twitter, however, are channels that young people use much more rarely as their first place to go in their search for information about sexual topics (in each case below 5%).

The current survey iteration of the Youth Sexuality Study furthermore shows that young men and young women use the Internet's range of information significantly differently (Figure 6). Female respondents use sexuality education or counselling sites, but also Wikipedia and Internet forums with experts or other users. This is different among boys and young men. They do not have one predominant source of information. For them, sex films and Wikipedia are means

**On the Internet, evidence-based messages and myths are also shared. Evidence-based and practice-oriented information are therefore an essential counterpart.**




* Data starting at ten percent response frequency, group differences = two-sided $\chi^2$ test, n.s. = not significant

**Figure 6**
**Internet sources used by adolescents and young adults (N=4,112 14- to 25-year-olds, who indicate having found out something important about sexuality on the Internet, unweighted)***
Source: Youth Sexuality Study, 9th iteration (BZgA)

to obtain valuable information. The percentages of those who have visited sexuality education or counselling sites or who have shared their ideas in forums with other users or with experts, respectively, are similarly high (Figure 6).

When looking exclusively at the information sourcing behaviour of adolescents under the age of 18, however, a somewhat different picture presents itself. Wikipedia simply as a reference guide for information is just as popular as specific sexuality education and counselling sites (in each case 41%). It turns out, however, that adolescents indicate significantly more frequently than young adults (17% compared to 8%) and girls between the ages of 14 and 17 more frequently than boys of the same age (20% compared to 15%) that they found out something about sexuality that was relevant to them from influencers. It is not the case, however, that especially those adolescents who do not have any contact persons at home or persons of trust otherwise, are guided by influencers. Such a significant connection cannot be recognised in the data (person of trust: 'available' 18%, 'not available' 14%; Parents as contact persons for sexual questions: 'yes' 15%, 'no' 19%).

By their own account, sex films are important places to go for knowledge about sexuality, especially for male adolescents. Among 14- to 17-year-olds, 37% of male adolescents indicate that they have found out something important about sexuality when watching sex films. 16% of girls of the same age report this significantly less, while at the ages between 14 and 17, it is especially boys with a low education who name sex films as important sources of information. Almost half of them indicate this (48% compared to 38% among a medium or 32% among a high obtained or aspired level of education).

### Contraception counselling in counselling centres and medical surgeries

Germany has a tight net of counselling centres. Each individual is entitled to obtain complementary information and counselling on matters concerning sexuality education, contraception, family planning and pregnancy in specialised counselling centres. Counselling centres also support other institutions offering sexuality education, such as schools.

The data from the current trend shows that adolescents between the ages of 14 and 17 accept the counselling centres' expertise. In the Youth Sexuality Study, 19% of girls and 18% of boys indicate that counselling centre experts are among their preferred authorities for sourcing knowledge about sexual matters. Contact persons at counselling centres are particularly important to slamic adolescents and/or adolescents with strict denominational bonds: 20% of Islamic respondents and 21% of adolescents with strict religious bonds name experts in counselling centres as their preferred contact persons to obtain information on sexuality from. This is remarkable to the extent that these adolescents are not able to discuss matters of sexuality and contraception in their family environments as much as their peers in the other groups (see chapter Sexuality education at home). Counselling centres can therefore fill a significant void, especially for adolescents and young adults who lack contact persons in their family environments. This applies to boys to an event higher extent than to girls. After all, in terms of professional contraception counselling, girls can also turn to gynaecologists.

In addition to certified counselling centres, medical specialists play an important role in sexuality education and contraception counselling. Health care professionals – in this

**Table 1**
**Percentage of girls and young women who have never visited a gynaecological surgery, according to religious denomination and strict religious bond (n=3,604, unweighted)***
Source: Youth Sexuality Study, 9th iteration (BZgA)

| | | Proportion (%) | $\chi^2$ (df) |
|---|---|---|---|
| Religious denomination | Lutheran | 12 | 51,529 (3)** |
| | Catholic | 13 | |
| | Islamic | 30 | |
| | Other/none | 13 | |
| Strict religious bond | Yes | 26 | 60,985 (1)** |
| | No | 12 | |

*Group differences = two-sided $\chi^2$ test with ** $p<0.001$

context mostly gynaecologists – are relevant contact persons for over 10% of 14- to 17-year-old girls. To boys of the same age this applies only in exceptional cases (2%) (Figure 3).

Parallel to the general trend of having one's first sexual experience at a later age, the first visit to the gynaecologist now also takes place later than five years ago. In 2014, girls and young women between the ages of 14 and 25 visited a gynaecologist for the first time on average at the age of 13.1. Today, the interviewed girls and young women indicate an average age of 15.0.

In the overall group of 14- to 25-year-old girls and young women, 84% indicate already having visited a gynaecologist. Here, however, there are also differences with regard to the sociocultural background of the respondents. Islamic girls and young women and/or girls and young women with strict religious bonds indicate significantly more frequently that they have visited a gynaecological surgery (Table 1).

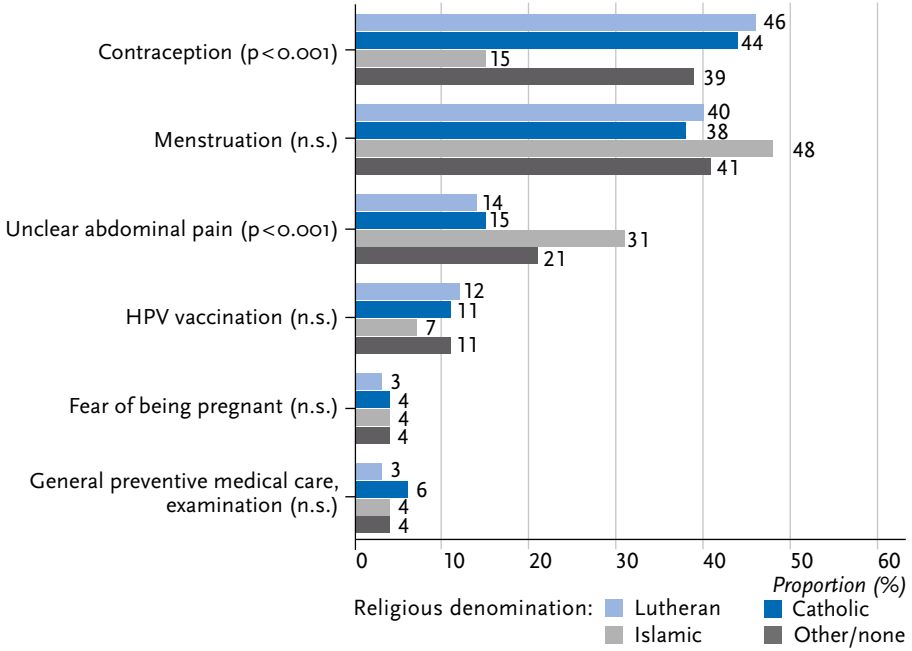



**Figure 7**
**Reason for visiting a gynaecologist for the first time (n=2,797 14- to 25-year-old young women, who visited a gynaecologist, unweighted)***
Source: Youth Sexuality Study, 9th iteration (BZgA)

*Information starting 4% answer frequency, group differences = two-sided $\chi^2$ test
n.s. = not significant, HPV = human papillomavirus

Asked about their motives for visiting a gynaecologist, almost half of the girls and young women between the ages of 14 and 25 name matters of contraception (41%), followed by menstrual problems (40%). Differentially speaking, there are also differences, depending on the cultural-religious socialisation of the respondents (Figure 7).

The data from the Youth Sexuality Study furthermore shows that those who have access to a trusted person, also include the doctor significantly more frequently in their contraception counselling than those who have nobody to talk to about sexual matters (62% compared to 34%). Also, those who can communicate openly about matters of contraception at home are more likely to consider visiting a doctor for contraception counselling (70% compared to 47%).

In summary, this demonstrates that many young people value the expertise of recognized counselling centres, and name it as a preferred source of knowledge when lacking information. This preference is expressed independently of sociocultural origin. However, visiting a gynaecological surgery as well as utilising contraception counselling correlates strongly with religious denomination and religious bond, as well as with having persons of trust and contact persons available for discussing sexual matters.

## 4. Discussion

The representative data from the current iteration of the Youth Sexuality Study shows that young people in Germany still have a variety of different sources and authorities at their disposal for obtaining information about sexual and reproductive health. In addition to the home, school still plays the most important role in terms of the institutionalised transfer of knowledge and skills. The significance of these authorities is confirmed in other, mostly international studies [20], whereby country-specific differences are observed [21].

The Internet is where young people obtain health information as well, which is also confirmed by other studies for the German population as a whole [22] and for the adolescent target group [23]. The sourcing offer is completed by professional sex and contraception counselling in certified counselling centres and gynaecological surgeries.

Sexuality education and contraception counselling in Germany are therefore organised intersectorally, and are based on many pillars. If one pillar is unavailable – for example the home – other authorities and offerers can compensate for this proportionately, and especially the school setting is particularly important here. Sexuality education is mandatory for all school types in Germany [24]. By attending school, all young people in Germany thus have access to fact-based health information in the field of sexuality and contraception. Furthermore, for Islamic girls and boys, and for girls and boys under strict religious influence and/or with low obtained or aspired levels of education, the school as the place for sexuality education provides important compensation for the fact that their parents are available more rarely as contact persons for sexual matters.

The fact that this combined effort from different sources and authorities has been highly successful for the evidence-based and skills-oriented health communication in Germany in the last few decades, is reflected in the high contraception competency of young people. When having intercourse for the first time, only 9% did not use contraceptives, during the most recent intercourse only 5% did not use

contraceptives [8], while the uninterrupted drop in teenage pregnancies by more than two thirds since 2004 can be seen as indicator for the respective generations of young people's high knowledge and safe behaviour in terms of contraception and sexuality [25].

Fact-based and skills-oriented concepts, media, and offerings for sexuality education, contraception and family planning, which institutions, associations and sponsors provide free of charge across Germany, are an essential element when it comes to boosting sexual and reproductive health among young people in Germany. Promoting behaviours and stimulating the motivation to make behavioural changes are, in addition to the transfer of knowledge, the central elements of these concepts and offerings. The offerings are aimed at both the target group of adolescents and their parents or of young adults, respectively, but also at disseminators in schools, medical surgeries and certified counselling centres.

This evidence-based health communication is all the more important because young people also use testimonials and recommendations from 'health amateurs' as relevant sources of information, which are found especially in the digital domain and on social media [26]. For example, influencers with large audiences make their personal experiences the centre of their messages, while scientific evidence is not represented in a well-balanced manner, and myths, even conspiracy theories are disseminated, especially in the context of contraceptives [26]. It is important here to empower young people to source and evaluate digital information in the field of sexual and reproductive health, and to further develop target group-specific digital offers that provide fact-based knowledge [27, 28]. Institutionalised sexuality education in schools, certified counselling centres and gynaecological surgeries function as a kind of antagonistic anthesis, and are of essential importance for the dissemination of evidence-based sexuality education to young people.

As part of the COVID-19 pandemic, the offering of sexuality education and contraception in Germany had to be stopped virtually completely [29]. The emergence of access barriers to preventative health services in this field as a result of the pandemic are also reported by international studies [30, 31]. The impact of this development on the sexual and reproductive health of young people in Germany will most likely be visible in the next representative iteration of the Youth Sexuality Study, which is currently being planned.

The overall aim is to maintain and to intensify the intersectoral commitment in the field of sexuality education and family planning. This is the only way to ensure the sexual and reproductive health of future generations, to reduce possible negative consequences of the COVID-19 pandemic, and to use fact-based and skills-oriented health information to counteract the experience-based messages in the digital domain.

Finally, it is worth mentioning that the findings at hand are based on self-reported information by young people in Germany, and that distortive answer tendencies based on social desirability can therefore not be ruled out. Indications pointing to a differential effectiveness of the individual sources, information paths and offerings relating to sexual and reproductive health, can also not be inferred based on the results at hand. Additional research efforts are called for here, which comparatively analyse the advantages and

disadvantages of the sources for sexuality education in view of availability, utilisation and effects on the transfer of knowledge and skills, thus promoting good health.

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## Conflicts of interest

The authors declared no conflicts of interest.

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**Annex Table 1**
**Questions and answer options of the used items of the 9th Iteration of the Youth Sexuality Study**
Source: Youth Sexuality Study, 9th iteration (BZgA)

| Questions | Answer options | Database |
|---|---|---|
| What is the predominant source of your knowledge about sexuality, reproduction, contraception, etc.? | Multiple answers, list template<br>11: Discussions<br>12: Lectures<br>13: School lessons<br>14: Books<br>15: Magazines/newspapers<br>16: Youth journals<br>17: Complementary sexuality education leaflets<br>18: DVDs, videotapes<br>19: Television films<br>20: Radio<br>21: Computer programs, computer games<br>22: Internet<br>23: Own experience<br>98: Other (From where? Please describe briefly) | 14- to 17-year-olds<br>(n=3,556, unweighted) |
| Did you discuss sexuality education topics in class? | 1: Yes<br>2: No | /* |
| Who were the most important persons for you for information about sexual matters? | Multiple answers, list template<br>11: Father<br>12: Mother<br>13: Teacher<br>14: Doctor<br>15: Brother<br>16: Sister<br>17: Friend or partner, respectively<br>18: The best friend<br>19: Other boys<br>20: Other girls<br>21: Youth group leader<br>22: Kindergarten staff<br>98: Other persons (Who? Please describe briefly) | 14- to 17-year-olds<br>(n=3,556, unweighted) |
| Does your family talk about sexuality and partnership? | 1: Yes<br>2: No | 14- to 17-year-olds<br>(n=3,556, unweighted) |

* Database cannot be specified because the analysis refers to the trend of the past nine iterations

*Continued on next page*

**Annex Table 1** *Continued*
**Questions and answer options of the used items of the 9th Iteration of the Youth Sexuality Study**
Source: Youth Sexuality Study, 9th iteration (BZgA)

| Questions | Answer options | Database |
|---|---|---|
| From which media would you prefer to obtain additional information about the topics mentioned by you? | Multiple answers, list template<br>11: Books<br>12: Magazines/newspapers<br>13: Public lectures<br>14: Helpline<br>15: Complementary sexuality education leaflets<br>16: Youth magazines<br>17: Sexuality education games, e.g. boardgames<br>18: DVDs<br>19: Television films<br>20: Radio<br>21: Comics<br>22: CDs<br>23: Computer programs, computer games<br>24: Internet<br>25: Public exhibitions<br>(Only 18- to 25-year-olds)<br>26: I do not want any additional information | 14- to 25-year-olds (n=6,032, unweighted) |
| Have you found out something that is important to you about sexuality on the Internet yet? | 1: No<br>2: Yes | 14- to 25-year-olds (n=6,032, unweighted) |
| Assuming you want to source information about sexual matters you are interested in on the Internet, where do you look first? | Multiple answers, NO list template, but open answers<br>11: YouTube<br>12: Facebook<br>13: Instagram<br>14: Twitter<br>77: Wikipedia<br>88: Simply by 'Googling' (search engines)<br>97: Other, namely: (Please describe briefly)<br>98: I do not use digital media to look for information | 14- to 25-year-olds (n=6,032, unweighted) |

*Continued on next page*

**Annex Table 1** *Continued*
**Questions and answer options of the used items of the 9th Iteration of the Youth Sexuality Study**
Source: Youth Sexuality Study, 9th iteration (BZgA)

| Questions | Answer options | Database |
|---|---|---|
| Where did you find out something about sexuality that was important to you? | Multiple answers, list template<br>11: Wikipedia<br>12: Sexuality education or counselling sites<br>13: Forums on which experts answer questions<br>14: Forums on which other forum visitors answer questions<br>15: Chats with others<br>16: Sex films I have watched<br>17: Influencers<br>98: Other, namely: (Please describe briefly) | 14- to 25-year-olds, who indicate that they've found out something important about sexuality on the Internet (N=4,112, unweighted) |
| From which persons would you prefer to get additional information about the topics mentioned by you? | Multiple answers, list template<br>11: Father<br>12: Mother<br>13: Teacher<br>14: Doctor<br>15: Experts in a certified counselling centre<br>16: Brother<br>17: Sister<br>18: Friend or partner, respectively<br>19: Other boys<br>20: Other girls<br>21: Other persons<br>22: I do not want additional information | 14- to 17-year-olds (n=3,556, unweighted) |
| How old were you when you first visited a gynaecologist? | Open answer | 14- to 25-year-old girls/ young women (n=3,604, unweighted) |
| What was the reason for this first visit to the gynaecologist's? | Multiple answers, list template<br>1: (Problems with) menstruation, menstrual bleeding<br>2: Contraception<br>3: Fear of being pregnant<br>4: Unclear abdominal pain<br>5: HPV vaccination (vaccination against human papillomavirus)<br>8: Something else (What? Please describe briefly) | 14- to 25-year-old young women, who visited a gynaecologist (n=2,797, unweighted) |

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# Abortions in Germany – Current data from the statistics on terminations of pregnancy

## Abstract

Unwanted pregnancies and abortions are experiences shared by many women. In light of the fact that some general framework conditions are currently changing in Germany, and that the Corona pandemic represents a particular challenge for the care of women with unwanted pregnancies, current data from the statistics on terminations of pregnancy of the Federal Statistical Office are outlined. Compared to Europe, Germany has a low proportion of induced abortions. In 2021, 94,596 abortions were reported. The number of abortions as well as the abortion rate and the abortion ratio have decreased since 2001. 95.8% of abortions took place according to the so-called counselling provision. In more than half of the abortions (52.1%) vacuum aspiration was used, in 11.4% curettage, 32.3% were medical abortions using mifepristone. There are large regional differences in the method used.

ABORTION · WOMEN'S HEALTH · SEXUAL HEALTH · GERMANY

## Introduction

An unwanted pregnancy presents women with a decision situation, which can generally raise questions regarding their future life planning [1]. The decision to have an abortion is usually preceded by an intensive process of reflection. Many women experience unwanted pregnancies and abortions. Almost every sixth (16.8%) of the roughly 4,000 women between the ages of 20 and 44, who took part in the study 'frauen leben 3' by the Federal Centre for Health Education (BZgA) in 2012 [2], indicated that she had an unwanted pregnancy at least once. 42.9% of the women, who had become pregnant unwanted, had used contraception. Less than half (43.0%) of the unwanted pregnancies were terminated. Based on all women participating in the study, every twelfth woman (8.2%) had an abortion at least once in her life [2]. A 'difficult partnership situation' (34.0%) and 'occupational and financial insecurity' (20.3%) were specified thereby as most important reasons. The reasons 'in training or studying' (17.6%) and 'young, immature' (16.4%) were mostly given by younger women, 'health-related concerns' (19.7%) were mostly indicated by older women [2]. The proportion of women, who had an unwanted pregnancy, was significantly lower among women with high educational status than in the low education group. At the same time, unwanted pregnancies were terminated more frequently by women with higher education [2].

With roughly 4.5 abortions per 1,000 women, the proportion of terminations of pregnancy in Germany is low in European comparison [3]. According to the Statistical Office of the European Union (Eurostat), the highest abortion

## Info box
## Exemption from punishment for abortion

Under Section 218a (1) German Criminal Code (StGB) (**counselling provision**), a termination of pregnancy will go unpunished if

- the pregnant woman requests the termination of the pregnancy,
- the pregnant woman has made use of pregnancy conflict counselling in accordance with Section 219 StGB, and obtained the counselling certificate there, and a three-day waiting period between counselling and procedure was adhered to,
- the termination of pregnancy is performed by a physician, and no more than twelve weeks have elapsed since conception. This corresponds to the fourteenth week of gestation, if not counting from the date of conception, but from the first day of the last menstrual period.

A termination of pregnancy is not unlawful if there are

- **medical grounds** (Section 218a (2) StGB): The termination of pregnancy is performed by a physician and, taking into account the present and future circumstances, is medically necessary to avert a danger to the life or the danger of grave impairment to the physical or mental health of the pregnant women; there is no time limit for terminations of pregnancy in case of medical grounds. There must be three full days between the medical diagnosis and the written documentation of medical grounds, unless the life of the pregnant women is in immediate danger.

*Continued on next page*

rates can be found in Georgia, Armenia and Bulgaria, but also the United Kingdom and Iceland have rates of more than ten abortions per 1,000 women of childbearing age [3]. The rate of the reported abortions is lowest in Poland, which has very restrictive legislation and virtually bans abortions completely – as a result, they are carried out illegally or women have to travel to other countries [4, 5]. For Germany, the Report on Women's Health of the Robert Koch Institute (RKI) published in 2020 [6] describes, among others, that based on the data of the terminations of pregnancy statistics of the Federal Statistical Office [7], the number of reported terminations as well as the abortion rates (based on the number of women of childbearing age) and the abortion ratios (based on the number of live births) have decreased since 2001.

In Germany, abortion is generally illegal and thus punishable under Section 218 of the German Criminal Code (StGB) [8, 9]. There are three exceptions: The so-called counselling provision as well as the existence of medical grounds or grounds related to a crime (Info box). Section 219 StGB governs the counselling of pregnant women, whereby the content and the conducting of pregnancy conflict counselling are covered in the Act on Assistance to Avoid and Cope with Conflicts in Pregnancy (SchKG). The purpose of the pregnancy conflict counselling is to protect the unborn life, it is to be conducted with an open outcome, and is based on the responsibility of the woman. Pregnancy conflict counselling services have to be specially recognised by the State. More than 95% of the abortions take place under the counselling provision [6].

In February of 2019, a revised version of Section 219a StGB, which includes an advertising ban for abortions, entered into force. This allows physicians to indicate that they perform terminations. To enable physicians to publicly provide more detailed information about abortions without having to fear prosecution, the abolition of Section 219a was decided by the German Bundestag on 24 June 2022 [10, 11].

In addition, the Corona pandemic drew attention to the health care situation of women, who had an unwanted pregnancy, and the obstacles to find opportunities for counselling and for an abortion became increasingly apparent [12]. To counteract this, the option for pregnancy conflict counselling via digital media or by telephone was created [13]. At the end of 2020, a model project for the telemedical support of abortion at home was developed, which, as it turned out, was used especially by women in underserved regions [14]. In this project, the option of a medical abortion with mifepristone was used. This method is recommended by the WHO in addition to the method of vacuum aspiration [15]. So far, however, it is used comparatively rarely in Germany, in contrast to some other European countries [16].

The fact that women do not have a higher risk for developing mental health problems after a termination than women who have carried out a pregnancy, is now no longer in question [6]. The health and psychosocial care during and after an unplanned pregnancy as well as factors influencing the experience and coping with an unwanted pregnancy are currently being scientifically investigated in a large collaborative study ('Experiences and life situations of people experiencing (un)planned pregnancies', ELSA [17]). To improve care, terminations of pregnancy are to be included in the medical education and training [11], and the development of a medical guideline on safe abortion

## Info box *(Continued)* Exemption from punishment for abortion

Before a physician issues a written determination of medical grounds, he has to counsel the pregnant women as to the medical and psychological aspects of an abortion and to inform her about the option of further psychosocial counselling and she has to confirm this in writing; physicians are obliged to provide contacts to appropriate counselling services upon request (Section 2a (2) and (3), SchKG).

- **grounds related to a crime** (Section 218a (3) StGB): The termination of pregnancy is performed by a physician. According to the physician's knowledge, there are urgent reasons indicating that the pregnancy is a consequence of a rape or of sexual abuse; grounds related to crime always apply for all girls, who become pregnant before they reach the age of 14. Not more than twelve weeks must have passed since conception (14 weeks after the first day of the last menstrual period). The pregnant woman does not have to file a police report. There is no counselling obligation, but a right to counselling, if the pregnant woman wants this.

In both cases the termination of pregnancy must not be performed by the physician, who has issued the written determination stating the preconditions for an abortion on medical or other grounds.

Source: RKI, Report on Women's Health, page 279 [6]; BZgA, www.familienplanung.de [13]

(evidence level S2k) was begun, which is to be completed in April of 2023 [18].

This fact sheet provides current data on abortions, also in light of the above-described current developments.

## Methodology

The Federal Statistical Office conducts the statistics on terminations of pregnancy quarterly. The legal basis is the Act on Assistance to Avoid and Cope with Conflicts in Pregnancy (SchKG)of July 27, 1992 (Federal Law Gazette I, p. 1398), last amended by Article 13a of the law of December 14, 2019 (Federal Law Gazette I, p. 2789). The focus of the statistics are the abortions carried out in Germany (in accordance with Section 16 SchKG); since 2010, the duration of the terminated pregnancies is reported in completed weeks. So-called reporting centres (Meldestellen), i.e. clinics and medical practices, where abortions are carried out, are obliged to provide the data. Overall, the statistics gives information on the magnitude, structure, and development of abortions in Germany as well as on selected living conditions of the women [19].

The number of abortions is shown below on the basis of current data for the year 2021, as well as the abortion rate (proportion according to the age of the women and in relation to 10,000 women of childbearing age) and the abortion ratio (in relation to 1,000 live births). The data on the number of women and live births are based on the statistics of natural movement of the population from the Federal Statistical Office, which provides information on changes in the number and structure of the population (e.g. with regard to the birth rate) [20]. Data on births are not yet available for 2021, so the information on abortions per 1,000 live births refers to the year 2020. The present article provides furthermore information on the development of abortions over time as well as on the reported abortions according to legal justification. It also informs about the reported abortions by duration of the terminated pregnancy, by marital status, and the number of previous live births, as well as by the location and type of the intervention.

## Results and discussion

In 2021, 94,596 abortions were carried out in Germany [19]. This corresponds to an abortion rate of 43.0 abortions per 10,000 women. Due to the fact that the number of women among a population can change, this information is especially relevant for comparisons of age groups or over time. To describe the relationship between terminated pregnancies and pregnancies that were carried to term, the abortion ratio (number of abortions per 1,000 live births) is used. For 2020, this amounts to 128.5 abortions per 1,000 live births. The number of the abortions and the abortion rate are very low among under 18-year-olds, while the abortion ratio is high. This means that girls under the age of 18 rarely become pregnant, but if they do, they are very likely to have an abortion. Among women aged 40 years and older, the number of abortions and the abortion rate per 10,000 women as well as the abortion ratio based on 1,000 live births are fairly low. This means that women from the age of 40 onwards rarely become pregnant but if they are pregnant, they are more likely to actually carry it to term (Table 1).

Since the turn of the millennium, the number of reported abortions in Germany has been decreasing, from 134,964

**Table 1**
**Number of abortions (based on all places of residence), abortion rates (based on women with permanent place of residence in Germany) and abortion ratios by age groups**
Source: Statistics of the terminations of pregnancy, statistics of the natural movement of population [7, 20]

| Age group | Abortions | | Abortions per 10,000 women[1] | Abortions per 1,000 live births |
|---|---|---|---|---|
| | Total | Women with place of residence in Germany | 2021 | 2020 |
| 15–17 years | 2,183 | 2,176 | 19.7 | – |
| 18–24 years | 21,944 | 21,838 | 73.7 | 292.0 |
| 25–29 years | 21,154 | 21,010 | 87.6 | 115.0 |
| 30–34 years | 23,187 | 23,058 | 85.9 | 82.3 |
| 35–39 years | 17,973 | 17,848 | 68.5 | 113.2 |
| 40–44 years | 7,300 | 7,246 | 29.3 | 217.0 |
| 45–49 years | 580 | 576 | 2.2 | – |
| under 18 years | 2,442 | 2,434 | 8.4 | 857.7 |
| aged 45 years and older | 596 | 592 | 1.0 | 313.0 |
| aged 15–49 years altogether | 94,321 | 93,752 | 55.8 | – |
| **Total[2]** | **94,596** | **94,026** | **43.0** | **128.5** |

[1] Preliminary calculation on the basis of the population size in 2020
[2] Women aged 10–54 years

**Compared to Europe, abortion rates in Germany are low; in 2021, 94,596 abortions were reported.**

in 2001 to 94,596 in 2021 (Figure 1) [19]. This corresponds to a decline of approximately 30%. Compared to the previous year, the number of abortions in 2021 declined by 5.4%. In 2020, which was likewise affected by the Corona pandemic, the number of abortions only declined by 0.9% [21].

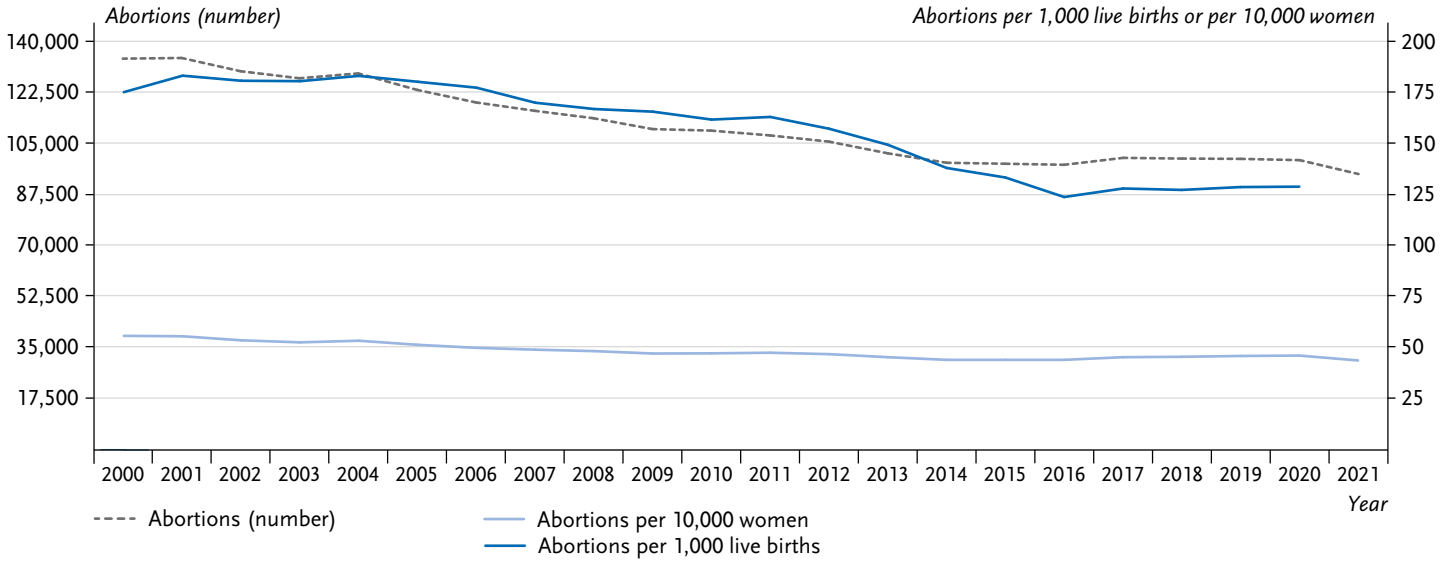
The abortion rate of women of childbearing age (15 to 49 years) also decreased, from about 68 abortions per 10,000 women in 2001 to about 56 abortions per 10,000 women in 2021. At the same time, the abortion ratio referring to live births is also declining. This means that in the last 20 years, abortions have decreased more than births.

With 95.8%, the majority of abortions reported in 2021 was performed in accordance with the counselling provision. Abortions on medical grounds (4.1%) and on grounds related to a crime (0.05%) were considerably less frequent. The majority of abortions occurs early within the 12-week period: In 42.2% of the women, the gestational age was under seven weeks, in 33.6% it was seven to eight weeks, in 21.0% it was nine to eleven weeks. These proportions have not changed significantly since 2010.

With 58.2%, most of the women who had an abortion, were single; 38.0% were married, 3.8% were widowed or divorced. There were significant changes compared to 1996 with a higher proportion of married (52.3%) and a lower proportion of single women (40.6%). More than half of the women had already given birth to children: 21.7% had one child, 23.5% two, 13.9% three and more children, 40.9% of the women did not have children. The proportion of the women without children has increased slightly since 1996 (36.5%), the other proportions have decreased or remained the same.

Abortions are carried out almost exclusively on an outpatient basis: In 2021, 81.0% of the procedures took place in gynaecological practices or surgery centres, 15.7% took place on an outpatient basis in the hospital, 3.3% on an inpatient basis. In 1996, 13.6% of the procedures took place

**Figure 1**
**Abortions (number, per 10,000 women (aged 10 to 54) and per 1,000 live births)**
Source: Federal Statistical Office, statistics of terminations of pregnancy




**The number of abortions as well as the abortion rate and the abortion ratio have decreased since 2001.**

on an inpatient basis (52.1% in practices, 34.3% on an outpatient basis in the hospital) [7]. Regionalised data show differences between the women's place of residence and the federal state, in which the abortion takes place. In more than one third (38.7%) of the women from Rhineland-Palatinate and in more than one sixth (18.6%) of the women from Lower Saxony, the abortion was carried out in a different federal state, mostly in Saarland or Bremen [19]. The number of the facilities performing abortions (so-called reporting centres) has been determined systematically by the Federal Statistical Office since the fourth quarter of 2018. In the fourth quarter of 2021, there were 1,092 reporting centres [22]. Their number has decreased sharply: In 1999, about 1,650 reporting centres, in 2003 about 2,050 reporting centres existed [23].

Vacuum aspiration is the method used predominantly for terminations of pregnancy, more than half (52.1%) of the abortions in 2021 were performed in this way. In 11.4% of the abortions a curettage is used, just under one third (32.3%) are medical abortions using mifepristone (other methods: 4.2%). Medical abortions with mifepristone have been reported in the statistics since 2000, then with a proportion of 3.1%, in 2019 – before the Corona pandemic – it was 25.0%. During this period, the proportion of vacuum aspirations has decreased significantly (2000: 82.6%, 2019: 56.9%), while the proportion of curettages has remained approximately the same with some fluctuations (2000: 11.2%, 2019: 14.1%). In addition, there are differences between the federal states: for example, the proportion of vacuum aspirations is highest in Rhineland-Palatinate (77.7%) and proportionately fewer medical abortions (12.5%), but also fewer curettages (8.8%) are carried out there than in the national average. In contrast, ahead of Berlin (51.6%), Schleswig-Holstein (52.9%) has the highest

**95.8% of the abortions in 2021 took place according to the so-called counselling provision.**

proportion of medical abortions, but the proportion of curettages (18.5%) is also significantly higher than the national average, while the proportion of vacuum aspirations (27.0%) lies below the national average. Hamburg has the lowest proportion of curettages (4.5%) [19]. It should be noted, however, that the abortion statistics only allows to report one method of abortion. In practice, however, it may happen that methods are combined (e.g. vacuum aspiration after medication), so that the corresponding proportions may be over- or underestimated.

When performed professionally, abortion has a very low risk of complications. In 2021, a total of 279 complications were reported, which corresponds to 0.29% of the procedures. Among these, secondary bleeding (30.8%) was the most common, with blood loss of more than 500ml in second place (27.6%) [19].

In summary, it can be stated that Germany is a country with a comparatively low and further decreasing rate of abortions. Whether the decrease in abortions in 2020 and the relatively strong decrease in 2021 are related to the Corona pandemic, cannot be determined at this point in time. The same applies to the significant increase in medical abortions. However, current figures also show that their proportion in Germany is still comparatively low at around one third; for example, medical abortions had a proportion of 79% in Switzerland [24] and 96% in Sweden (abortions before the ninth week) [25] in 2020, and 70% in France in 2019 [26]. Also, a relatively large percentage of curettages are still performed – with regional differences – although this method should no longer be used in the time up to 14 weeks of gestation according to WHO recommendations [15]. This could change through the teaching of skills and standards in medical education and training, as well as through the medical guideline on safe abortion, which is currently being worked on [18]. In Germany, the federal states are legally obliged to provide sufficient and professionally equipped facilities for the performance of abortions (Section 13 (2) SchKG). However, the decreasing number of reporting centres and the proportion of abortions, which do not take place in the federal state, in which the women live, indicate that the supply and the accessibility of care have to be increased.

For women, the question of autonomy plays a central role in the discussion about unwanted pregnancies [1, 6]. According to the first Women's Health Report of 2001, autonomy demands that 'on the one hand, an improvement in the social framework conditions for living with children and, on the other hand, access to safe and women-friendly abortion options which cause as little physical and mental stress as possible, once a woman decides to have an abortion' [1]. In addition to good sexuality education and good health information, low-threshold access so safe contraceptives can contribute to further reducing the number of unwanted pregnancies and therefore the number of abortions [6].

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## Data protection and ethics

The data presented in this article are based on anonymized aggregated data from the statistics of the terminations of pregnancy of the Federal Statistical Office. The legal basis are Section 15 to 18 of the Act on Assistance to Avoid and Cope with Conflicts in Pregnancy (SchKG) in conjunction with the Federal Statistics Act (BStatG). The information collected is kept secret in accordance with Section 16 BStatG.

## Conflicts of interest

The authors declared no conflicts of interest.

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# Survey of sex/gender diversity in the GEDA 2019/2020-EHIS study – objectives, procedure and experiences

**Abstract**

Sex/gender diversity is increasingly recognised by society and should be taken into account more in population-representative studies, as they are important data sources for targeting health promotion, prevention and care. In 2019, the Robert Koch Institute started a population-representative health survey with the study Health in Germany Update (GEDA 2019/2020-EHIS) with a modified, two-stage measures of sex/gender. The survey covered sex registered at birth and gender identity with an open response option. This article describes the aims, the procedure and the experiences with the operationalisation of sex/gender and the results. Out of 23,001 respondents, 22,826 persons are classified as cisgender, 113 persons as transgender and 29 persons as gender-diverse. 33 respondents were counted as having missing values. A survey of interviewers showed that the two-stage measures of sex/gender had a high level of acceptance overall and that there were only a few interview drop-outs. On the basis of previous experience, the modified query can be used for further surveys, but should also be adapted in perspective. For this purpose, participatory studies are desirable that focus on how the acceptance of measures of sex/gender can be further improved and how hurtful experiences in the context of the questions asked can be avoided.

SEX/GENDER DIVERSITY · GENDER IDENTITY · GEDA/EHIS · HEALTH MONITORING

## 1. Introduction

Population-representative surveys on health are important data sources for targeting health promotion, prevention and care to specific population groups. In this way, they contribute to reducing health inequalities. You can make these, as well as the underlying mechanisms of formation, visible. The prerequisite for this is a sufficiently differentiated data base.

With regard to the standard sociodemographic variable sex/gender, a binary variable (woman/man or female/male) has been collected in population-representative surveys in Germany up to now and the results have usually been differentiated according to women and men. Both when using different questions or question modules for women and men (e.g. on gynaecological complaints) in epidemiological studies and health-related surveys and in the analysis of study results, respondent assignment was guided by a binary and cisnormative understanding of sex/gender. Cisgender means that a person identifies as a woman or a man and that this gender identity corresponds to the sex assigned at birth (Info box). The cisnormative understanding becomes

## Info box
## Selected sex/gender groups [11]

**Cisgender persons or cis** identify with the sex/gender they were assigned at birth. They describe themselves as women or as men. The definition used here does not include people who were classified as intersex at birth or who were diagnosed as intersex during the course of their lives.

**Intersex, intersexual or inter* persons** are born with variations of sex characteristics. They do not correspond genetically and/or anatomically and/or hormonally to the medically established norms of 'female' or 'male'. This term covers a wide range of physical variations. While in some cases they are already visible at birth, others only become apparent over the course of life, e.g. during puberty, or remain unrecognised throughout life. Intersex people can have different gender identities.

**Transgender, transsexual, transident or trans* persons** do not or not completely identify with the sex/gender they were assigned at birth. These terms cover a variety of gender identities and expressions within and beyond the binary gender norm [32].

apparent when, for example, the interviewer assigns a respondent to a sex/gender based on their voice in a telephone interview, or when the previous query about sex/gender did not differentiate whether it asks about official sex/gender marker, gender identity or sex characteristics [1]. Although the majority of the population is cisgender, it is scientifically, legally and ethically problematic when being cisgender is assumed to be universally valid for the entire population, as is implicit in the common binary sex/gender query.

In everyday understanding, sex and gender are often unquestioningly equated (In German, the term 'Geschlecht' (sex/gender) does not differentiate between sex and gender). In contrast, a scientific distinction is made between a social (gender) and a biological (sex) dimension. Both are in complex interrelationships with each other [2–4]. The social dimension (gender) includes social norms and conventions of femininity and masculinity. In interaction with other social categories of difference (e.g. intersections with age, education), certain cultural conventions, norms, social roles and identities apply [5, 6]. Gender classifications and their intersections with other social categories of difference are linked to social power relations and the distribution of resources. On the individual level, persons can feel that they belong to one gender or to no gender (agender) in modification of and in differentiation from social norms and conventions. The biological dimension (sex) refers to genetic, anatomical and physiological, including hormonal characteristics. Both dimensions show great variations within themselves, but also in relation to each other [7–9]. Sex groups are medically defined on the basis of biological characteristics. Gender identity cannot be inferred from a person's sex characteristics. The gender identity and sex characteristics of a person can change in the course of life (e.g. through gender reassignment procedures). This also has implications for research into health differences, which should be based on a scientifically sound definition of sex/gender.

Overlooking or denying sex/gender diversity, as implied by the sex/gender query that has been common up to now, is problematic. In the socially dominant understanding of sex/gender, innate variations in sex characteristics (intersex) are not recognised and that gender identity does not have to correspond to the sex assigned at birth (transsexuality, gender diversity) [10, 11]. The proportion of transgender and intersex persons in the population cannot yet be reliably estimated. In an international meta-analysis calculated there are 4.6 transgender people per 100,000 people [12]. In Germany, a change of official sex/gender marker and first name is possible on the basis of the Transsexual Act (TSG) from 1980. The number of these annual applications increased from 903 in 2008 to 2,687 in 2020 [13]. This increase is due, among other things, to a ruling by the Federal Constitutional Court in 2011. Until then, transgender persons had to undergo surgical sterilisation to change their personal status. With regard to intersex, a review of scientific and clinical studies estimates that between 0.018% and 2.1% or 3.8% of all births have so-called 'variants of sex development' or of the urogenital system [14]. The Free & Equal Initiative of the United Nations assumes that between0.05% and 1.7% of the population are intersex [15, 16]. For a long time, intersex children were operated on after birth in order to match them to a female or male sex, so that their share of the population has probably been

## GEDA 2019/2020-EHIS

Fifth follow-up survey of the German Health Update

**Data holder:** Robert Koch Institute

**Objectives:** Provision of reliable information on the health status, health behaviour and health care of the population living in Germany, with the possibility of European comparisons

**Study design**: Cross-sectional telephone survey

**Population:** German-speaking population aged 15 and older living in private households that can be reached via landline or mobile phone

**Sampling:** Random sample of landline and mobile telephone numbers (dual-frame method) from the ADM sampling system (Arbeitskreis Deutscher Markt- und Sozialforschungsinstitute e.V.)

**Sample size:** 23,001 respondents

**Study period:** April 2019 to September 2020

**GEDA survey waves:**
- GEDA 2009
- GEDA 2010
- GEDA 2012
- GEDA 2014/2015-EHIS
- GEDA 2019/2020-EHIS

Further information in German is available at www.geda-studie.de

underestimated so far (medically not necessary surgery on children who have variations of sex characteristics and are incapable of giving consent have only been prohibited since 2021). The rough estimates indicate that minoritised sex/gender groups make up only a small proportion of the population. However, this does not justify their systematic exclusion from health studies. In terms of the public health mandate, the health situation of the entire population in its diversity should be surveyed, analysed and recommendations for action be derived from this [17, 18].

The health situation of transgender, intersex and gender-diverse population groups is characterised by specific social challenges (e.g. discrimination, binary sex/gender and cisgender norm) and shows a particular need for action [11]. Up to now, there is only little information about the health situation of these population groups and this information mostly comes from the Anglo-American context, so that a transferability of the key figures to the German context is only possible to a limited extent. Apart from an existing need for research, the issue of sex/gender diversity is gaining political relevance due to the 2018 change of the Civil Status Act. Since then, it has been possible for intersex persons to indicate 'diverse' in addition to 'female' or 'male' in their sex/gender marker or to leave the field blank (the latter since 2013). Also to comply with the changed legal situation, a change in the sex/gender query is therefore required in social and health science studies.

With a modified sex/gender query, an international comparability is to be established, data gaps are to be closed and equal health opportunities for minoritised sex/gender groups are to be promoted. At first glance, the simplest solution seems to be to add 'diverse' to as a response category. This should give intersex persons visibility. However, the category 'diverse' is an officially introduced collective category that does not allow any differentiation and thus no representation of sex/gender diversity (e.g. transgender, agender and non-binary persons). This is because not all people who come into question identify themselves with this category, or they may also have a female or male sex/gender marker and therefore cannot identify with this official category. Furthermore, transgender and gender-diverse persons also change their civil status to 'diverse'. In order to measure sex/gender diversity as accurately as possible in a scientific sense, it is not enough to introduce of the response category 'diverse'.

In 2019, the Robert Koch Institute (RKI) launched a population-representative health survey with a modified, two-stage sex/gender query. This article describes the objectives, the procedure and the experiences with the operationalisation of sex/gender in the RKI's study German Health Update (GEDA 2019/2020-EHIS). First, the survey of sex/gender diversity in Germany and internationally is outlined. Next, we describe the survey instrument used to measure sex/gender in GEDA 2019/2020-EHIS and the sample by sex/gender and by sociodemographic characteristics. How the sex/gender query was assessed by the interviewers and their experiences in the survey are presented in the following section. Finally, the results are summarised and conclusions and challenges are formulated.

## 2. The measure of sex/gender diversity in Germany and internationally

The spectrum of sex/gender diversity in Germany has so far been little or not at all represented in official statistics and in population-representative surveys. Many surveys either do not differentiate whether the sex/gender query refers to sex characteristics, civil status or identity. In addition, sex/gender is often recorded by an assessment of the interviewer instead of asking for it directly. This is also the case in household surveys where one person provides information about the other household members [19].

### 2.1 International examples of good practice

Internationally, there are already examples of sex/gender diversity surveys and some countries have been pioneers, including Australia. The Australian Human Rights Commission recommended in 2009 that in cases where it is necessary to collect data on the sex/gender of individuals, a further option in addition to 'female' or 'male' should be included [20]. In 2015, government guidelines followed that are intended to make transgender and gender-diverse people visible and to recognise them. In addition, they regulate the consideration of sex/gender diversity in the collection of sex/gender by government institutions (e.g. statistical data collection by ministries or in government agencies) [21]. The Australian Bureau of Statistics now collects both sex and gender identity with two separate questions and offers three response options for both ('Male', 'Female', 'Other, please specify ...') [22].

Canada is also one of the first countries to survey both 'sex' and 'gender' beyond the sex/gender binary and cisgender norm [23]. This has also been reflected in the statistical standards since 2018, in which no specific survey instrument for sex/gender is formulated, but rather the understanding of sex/gender is presented: According to this, the biological dimension refers to the sex assigned at birth with the categories 'male', 'female' and 'intersex' [24]. 'Gender' refers to the gender identity and/or the gender that a person expresses in their daily life (gender expression), regardless of gender identity, with the categories: 'Man', 'Woman', 'Non-binary person' [25]. It is also recognised that some persons do not identify with a particular gender and that of the gender identity and/or gender expression can change throughout the life course. Some surveys are planned to ask only about 'gender', while others will continue to use the two-step approach [26].

An example of recommendations from academia for surveying sex/gender diversity in population-based studies is the 2014 Gender Identity in U.S. Surveillance Group (GenIUSS Group) [27]. For surveys of the general population, they recommend a two-step query to include transgender persons and other minoritised sex/gender groups: The self-reported records of sex assigned at birth ('Male', 'Female') and current gender identity ('Male', 'Female', 'Transgender', 'Do not identify as female, male, or transgender').

An analysis of different two-stage sex/gender survey instruments used in population-representative studies in the USA and Canada problematises the response option 'transgender' when asking about gender identity, since persons do not necessarily identify as transgender [28]. A two- to three-step questionnaire is recommended, which should

first ask about the sex entered on the birth certificate ('Male', 'Female'), and then about the current gender identity ('Male', 'Female', 'Indigenous or other cultural gender minority identity (e.g. two-spirit)', 'Something else (e.g. gender fluid, non-binary'). A third (filter) question should be asked if respondents have chosen a different option for their gender identity than is recorded on their birth certificate. This asks about the gender that is lived in everyday life ('Male', 'Female', 'Sometimes male, sometimes female', 'Something other than male or female'). However, transferability and general comprehensibility in the German context is limited. Nevertheless, the analysis provides important information for the development and reflection of the survey instrument presented here.

### 2.2 Developments in Germany

In Germany, efforts are being made both by public institutions and by academics to measure sex/gender diversity in a differentiated way. For example, in 2018, the Federal Anti-Discrimination Agency – which was established after the introduction of the General Equal Treatment Act (AGG) in 2006 – commissioned an expertise on the topic of discrimination in social science repeated surveys in Germany (e.g. in the Microcensus and the Socio-Economic Panel) [19]. Here the focus on the categories protected by the AGG was sex/gender, ethnic origin/ racializing ascriptions, religion/belief, disability/impairment, age and sexual orientation. In addition, the report also makes recommendations for repeated surveys. According to these, the question on gender identity should be covered by a question with at least four possible answers: 'Which of the following terms to describe sex/gender applies to you? (Response options: 'Female', 'Male', 'Transman', 'Transwoman', 'Trans* (e.g. transgender, transident, transgender, transsexual)', 'Inter* (e.g. intersex, inter sex/gender, between genders), 'Different, namely...', 'For me personally, I reject classification into sex/gender categories'. The third to sixth answer categories are considered optional or they can be given as a further differentiation of the category 'Different, and that is...' Subsequently, the sex assigned at birth should be asked.

Since the 1970s, recommendations for collecting central sociodemographic characteristics in surveys have been available at irregular intervals (so-called demographic standards) [28]. The aim is to standardise the sociostructural survey characteristics in population surveys in order to enable greater comparability between individual surveys. However, there are currently no agreed minimum requirements for standard items and standard variables, such as those on sex/gender.

Since 2020, the Consortium for the Social, Behavioural, Educational and Economic Sciences (KonsortSWD) has had the task of further developing and harmonising the research data infrastructure in Germany. In this context, the measurement of sex/gender in survey studies is also addressed. For this purpose, an overview of the survey instruments of sociodemographic variables in large German studies was developed and the challenges of harmonisation were described [29]. For the survey of sex/gender, the conclusion is drawn that since the introduction of the sex/gender entry 'diverse', sex/gender diversity has been increasingly taken into account in the various survey instruments, but due to the diversity of survey instruments, less comparability is

**In the sense of public health, the health situation of the entire population should be recorded in its diversity, evaluated and recommendations for action derived from this.**

possible. The survey of gender identity is seen as a useful addition, even if this characteristic is not (yet) one of the standard demographic variables.

As one of the first nationally representative studies, the study Health and Sexuality in Germany (GeSID) took up the recommendations of the GenIUSS Group [27] and asked all participants about their sex assigned at birth ('Male', 'Female') and about their gender identity at the time of the survey ('Male', 'Female', 'Trans*/Transsexual', 'Neither female, male nor trans*/transsexual, but') [30].

In the questionnaire of the Socio-Economic Panel (SOEP) of Sample Q (LGB), a two-stage sex/gender query was used in 2019, which first asks about the sex entered on the birth certificate at birth ('Male', 'Female') and then about gender identity ('Male', 'Female', 'Transgender') [31]. In the meantime, an adapted two-stage questionnaire has been in use in the SOEP questionnaire since 2022. In addition to 'male' and 'female', the question on gender identity now contains an open response option 'Other gender not listed here and namely:'.

In an interdisciplinary joint project funded by the Federal Ministry of Health, a toolbox for operationalising sex/gender diversity in research on health care, health promotion and prevention is currently being developed (duration 05/2020 to 06/2023) (DIVERGesTOOL). The aim is to develop a generally usable set of questions for the sex/gender query in epidemiological health studies and to additionally offer instruments for the consideration of specific study populations and questions. This should enable or facilitate the integration of the different dimensions of sex/gender as well as their complexity, interdependence and mutual influence in health research.

## 3. The operationalisation of sex/gender

The measure of sex/gender in the study German Health Update (GEDA 2019/2020-EHIS) is intended to meet several requirements: First, a theoretically sound definition of sex/gender is used and operationalised in the survey instrument. Secondly, the sex/gender survey builds on experiences with already internationally established survey instruments. Thirdly, a binary evaluation option is retained in order to maintain continuity with previous surveys and to enable weighting according to the data from the Federal Statistical Office [3, 11].

Based on international experience, a survey instrument was developed that operationalises the sex and gender in a two-stage query as follows:

**Which sex (German: Geschlecht) was entered on your birth certificate at birth?**

1. Male
2. Female

**Which gender (German: Geschlecht) do you feel you belong to?**

1. Male
2. Female
3. Or another, namely: ...

The biological dimension is measured by the sex entered on the birth certificate at birth. This is based on a medical classification according to externally visible sexual organs and does not take into account any further sex characteristics. The sex marker can therefore differ from the biological

sex. Intersex traits of a person might not be diagnosed or is only diagnosed in the course of life or this was diagnosed at birth, but no other sex/gender marker than 'female' or 'male' was available or another entry was not selected. Since the GEDA survey includes persons from the age of 15, the last aspect was not relevant (only since 2013 has it been possible to leave the sex/gender marker open, or only since 2018 has it been possible to enter 'diverse' as the sex/gender marker). In this sense, the operationalisation of the biological dimension (sex) perpetuates an official misattribution of intersex people. Nevertheless, this query was chosen in order to maintain a binary response category and thus allow the variable to be weighted according to the data from the Federal Statistical Office.

**The survey of sex/gender diversity should not be limited to the introduction of the response category' diverse'.**

Since a person does not have to identify with the sex/gender assigned at birth, or not completely, gender identity was measured as an aspect of the social dimension in a second step. A person can identify with no gender or a gender other than the one assigned to them at birth. In addition to 'female' and 'male', a third, open response option was provided. Although the formulation 'or (please elaborate):' instead of 'or another, namely:' was discussed in order to avoid othering of further gender identities. However, this variant was discarded in order to achieve better comprehensibility in the oral questionnaire and consistency with other survey instruments.

By combining both questions, cisgender and transgender as well as gender-diverse people can be identified. For example, if 'male' is given for sex at birth and 'female' for gender identity, the respondent is classified as a transgender woman. This does not necessarily correspond to the identity of a specific person, but is a categorization in order to be able to make a statistical analysis. Another misattribution may be included in this categorisation, as adult intersex persons have 'female' or 'male' entered on their birth certificate respectively, and are therefore described as transgender when they identify with an opposite gender. Intersex people can also be in the cisgender group if they identify with the sex/gender they were assigned at birth, or in the gender-diverse group if they do not identify as female or male. Especially with regard to intersex people, the survey instrument proves to be too undifferentiated. If a identity such as 'non-binary' was chosen in the third answer option in the question about gender identity, this entry was assigned to the category 'gender-diverse'. The category 'gender-diverse' is therefore no longer a self-description of the respective person, but a grouping of very different gender identities. This grouping was chosen in order to be able to reach a statistically relevant size.

## 4. Sample description

The statistical analyses in this article serve solely to describe the sample composition according to the sex assigned at birth and the gender identity after the introduction of the new two-stage measures of sex/gender. This description is further differentiated according to age and other socioeconomic and social characteristics (educational and employment status, equivalent income, partnership, marital status) [33, 34]. Further statements on different sex/gender groups are not made. Therefore, all analyses were carried out without sample weighting. The methodology of the GEDA 2019/2020-EHIS survey has already been described in detail elsewhere [33].

**The survey instrument used enables respondents to situate themselves beyond the binary sex/gender and cisgender norm and thus acknowledges sex/gender diversity.**

A total of 23,001 respondents participated in the GEDA 2019/2020-EHIS survey. The response rate was 21.6% according to the standards of the American Association for Public Opinion Research (AAPOR) [33]. Of these, 52.65% were recorded as 'female' at birth and 47.35% as 'male'. 52.30% of the respondents identified with their sex assigned at birth as 'female'. These individuals can be described as cisgender women. 46.94% of the respondents are considered cisgender men. There were 0.62% of respondents who provided information indicating that they are not cisgender. Among these, 0.13% have not identified themselves as either male or female group and are referred to in the study as 'gender-diverse' persons. 0.49% identify as women or men respectively, although they were assigned a different sex at birth. These respondents are referred to in the study as transgender persons. Of these, 0.18% are transgender men (male identity and assigned female at birth), 0.31% are transgender women (female identity and assigned male at birth). In contrast to the measure of sex assigned at birth, there are a few missing data ('don't know' or 'no data') in the survey of gender identity. In relation to the total sample, these are 33 respondents (0.14%) (Table 1). The instrument for the two-stage survey of sex/gender was also used in the 'Study on head, back and neck pain in Germany (2019/2020)' conducted at the RKI almost at the same time, with comparable methodology but a significantly smaller number of cases [35]. The determined proportions of cisgender, gender-diverse and transgender persons as well as the proportion of missing values are almost identical (Annex Table 1).

The sample composition of cisgender and transgender as well as gender-diverse persons partly shows pronounced differences. In terms of age distribution, the subsamples of cisgender and transgender women differ only slightly from each other. Transgender men have a higher proportion of younger persons than cisgender men. Particularly gender-diverse respondents are significantly younger than the general population. About 51.7% of the persons in question are between 18 and 39 years old, compared to only 20.9% in the overall sample. In the survey, there is a tendency for transgender and gender-diverse people to have a low level of education and income more often than cisgender people.

**Table 1**
**Sex entry at birth and gender identity in absolute numbers and sex/gender in the total sample (n=23,001)**
Source: GEDA 2019/2020-EHIS

| | Gender identity | | | | | |
|---|---|---|---|---|---|---|
| **Sex assigned at birth** | **Female** | **Male** | **Gender-diverse** | **No indication[1]** | **Don't know[1]** | **Total** |
| **Absolute numbers** | | | | | | |
| Female | 12,030 | 42 | 19 | 16 | 4 | 12,111 |
| Male | 71 | 10,796 | 10 | 8 | 5 | 10,890 |
| Total | 12,101 | 10,838 | 29 | 24 | 9 | 23,001 |
| **Proportion in % of the total sample** | | | | | | |
| Female | 52.30 | 0.18 | 0.08 | 0.07 | 0.02 | 52.65 |
| Male | 0.31 | 46.94 | 0.04 | 0.03 | 0.02 | 47.35 |
| Total | 52.59 | 47.11 | 0.13 | 0.10 | 0.04 | 100.00 |

[1] Answer to the question of gender identity

cisgender people | transgender people | gender-diverse people

The connection with education is particularly pronounced among transgender men, and that with income among gender-diverse people. Particularly transgender women are less likely to be employed than cisgender women, but gender-diverse persons are also proportionally less likely to be employed compared to the total sample. With regard to a stable partnership, there are no marked differences between cisgender and transgender or gender-diverse persons between cisgender and transgender women. In contrast, transgender men live in a partnership less often than cisgender men. The proportion of respondents in a stable partnership is lowest among gender-diverse persons. Gender-diverse persons in particular are more likely to have a single marital status. Gender-diverse people are 61.1% single and 19.4% married in contrast to 24.5% single and 54.6% married in the total sample. However, transgender women and men are also less often married and slightly more often divorced than cisgender women and men (Table 2). The differences described cannot be generalised due to the sample size and are probably also partly due to the younger age of the transgender and gender diverse sub-samples.

| | Female (cis) | Female (trans) | Male (cis) | Male (trans) | Gender-diverse | Total |
|---|---|---|---|---|---|---|
| **Age group** | | | | | | |
| 18–39 years | 18,31 | 19,12 | 23,78 | 30,95 | 51,72 | 20,93 |
| 40–59 years | 28,17 | 27,94 | 33,00 | 30,95 | 24,14 | 34,02 |
| ≥60 years | 53,52 | 52,94 | 43,22 | 38,10 | 24,14 | 45,05 |
| **Education** | | | | | | |
| Low education group | 8,19 | 12,68 | 5,65 | 23,81 | 17,24 | 7,05 |
| Medium education group | 48,54 | 46,48 | 35,14 | 45,24 | 27,59 | 42,20 |
| High education group | 43,27 | 40,85 | 59,21 | 30,95 | 55,17 | 50,75 |
| **Employment status** | | | | | | |
| Employed | 50,40 | 37,14 | 56,62 | 50,00 | 44,83 | 53,27 |
| Not gainfully employed | 49,60 | 62,86 | 43,38 | 50,00 | 55,17 | 46,73 |
| **Equivalent income** | | | | | | |
| 1. Quintile | 13,41 | 26,76 | 10,79 | 26,83 | 41,38 | 12,28 |
| 2.–4. Quintile | 61,44 | 60,56 | 54,93 | 43,90 | 41,38 | 58,33 |
| 5. Quintile | 25,15 | 12,68 | 34,28 | 29,27 | 17,24 | 29,39 |
| **Stable partnership** | | | | | | |
| Yes | 64,68 | 60,56 | 73,18 | 59,52 | 46,43 | 68,63 |
| No | 35,32 | 39,44 | 26,82 | 40,48 | 53,57 | 31,37 |
| **Marital status** | | | | | | |
| Unmarried | 20,64 | 32,39 | 28,59 | 28,57 | 64,29 | 24,48 |
| Married | 52,04 | 46,48 | 57,60 | 42,86 | 17,86 | 54,57 |
| Widowed | 15,96 | 5,63 | 6,06 | 16,67 | 14,29 | 11,27 |
| Divorced | 11,37 | 15,49 | 7,76 | 11,90 | 3,57 | 9,68 |

**Table 2**
**Sex/gender groups according to socidemographic factors, proportion in % (cisgender women n=12,030, cisgender men n=10,796, transgender women n=71, transgender Men n=42, gender-diverse persons n=29),**
Source: GEDA 2019/2020-EHIS [33]

## 5. Survey of the interviewers

In order to ascertain the acceptability of the two-part sex/gender query, a process data analysis was conducted in November 2020 to record interview dropout rates, as well as a written survey of people who had conducted interviews in GEDA 2019/2020-EHIS. The questionnaire was sent to the 90 interviewers in November 2020. 42 interviewers (46.7%) participated in the survey by the end of November. The 42 interviewers conducted approximately 7,000 of the total 23,124 GEDA interviews. The written information provided by the interviewers was analysed quantitatively with descriptive statistics and via a summary content analysis according to Mayring [36] with a quantification of the categories. Selected citations are presented as examples (Table 3).

**Overall, the two-stage query of sex/gender has proven to be functional and easy to implement.**

### 5.1 Dropout rates and reported reactions of the interviewees

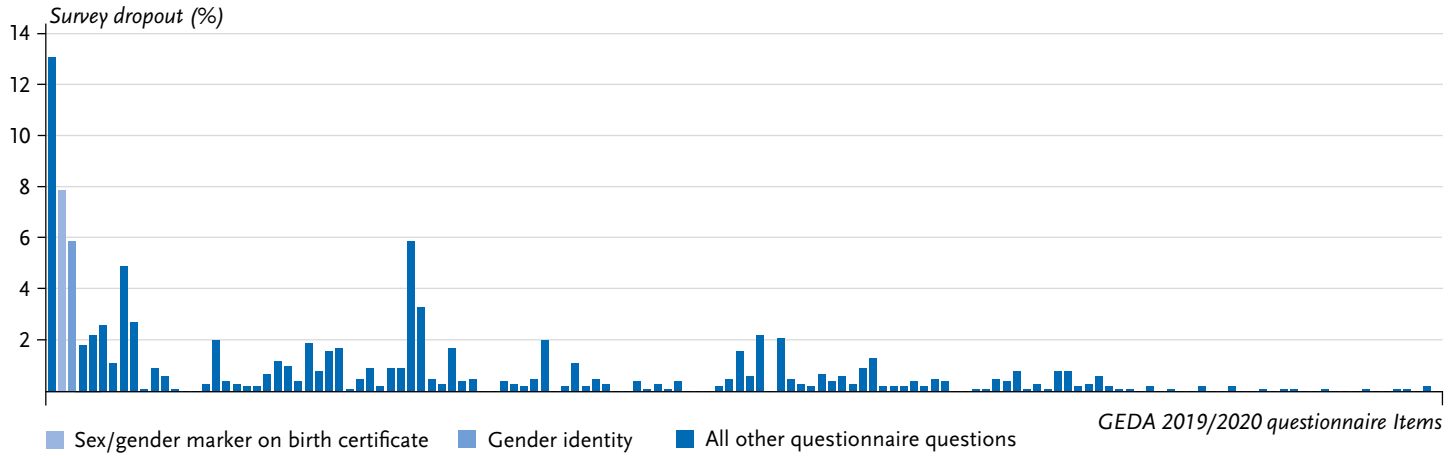
For the process data analysis, the GEDA data set was prepared and then analysed with the statistics programme STATA version 17.0. The analyses included descriptive frequency counts of the dropouts by the interviewees at the last telephone interview contact.

In total, there were 1,056 interview terminations by the interviewees. In relation to the total number of complete interviews conducted for GEDA 2019/2020-EHIS, the number of dropouts by interviewees is very low. 13.8% of interview dropouts by respondents occurred at the two-step sex/gender query. This corresponds to 83 terminations after the question about the sex registered at birth and 62 terminations after the question about gender identity. These terminations are final terminations, after which further attempts to call the interviewee did not result to an interview with the person questioned. If one looks at the dropout rates in an overview of the entire questionnaire, it becomes apparent that the beginning of the questionnaire is characterised by many interview dropouts. Thus, the sex/gender query, which follows directly after the consent to participate as the second and third question in the questionnaire, is also characterised by many dropouts (Figure 1). Accordingly, the relatively high dropout figures for the sex/gender question cannot be attributed exclusively to its content, but also to its positions at the beginning of the questionnaire.

The interviewers described different reactions of the interviewees when asked about the sex registered at birth and the gender identity. It is not possible to reconstruct how often irritation or acceptance of the query occurred per interviewer. While 26 interviewers reported neutral and accepting reactions to the question about the sex registered at birth and eight interviewers reported negative reactions (Table 3, Citation 1, 2) 14 interviewers reported neutral and accepting reactions to the question about gender identity and 29 reported negative reactions (Citation 3). Four interviewees reported that younger respondents and five interviewees that women showed more acceptance and less irritated reactions to the sex/gender query (Citation 4). For older respondents, 19 interviewers described angry and irritated reactions, scepticism and interview drop-outs (Citation 5). This was reported by five interviewers, especially for older men as opposed to older women (Citation 6).

Nine interviewers stated that the respondents had problems understanding when asked about the sex assigned at

**Figure 1**
**Terminations of the survey by the interviewees differentiated according to the questions of the entire GEDA 2019/2020-EHIS questionnaire (n=1,056 terminations by the respondents)**
Source: GEDA 2019/2020-EHIS




**Further discussions with representatives of transgender, intersex and gender-diverse people are helpful to further develop the query to meet the needs of large health studies as well as minoritised sex/gender groups.**

birth and 25 interviewees when asked about their gender identity. Interviewers reported comprehension problems especially for the term 'birth certificate' among respondents whom they perceived as 'of non-German origin' and among younger persons (Citation 7, 8). When asked about gender identity, nine interviewees described that there was confusion with sexual orientation probably due to the wording of the question about 'belonging to a gender' (Citation 9, 10). Five interviewees reported that they included further explanations and repetitions of the question of gender identity (Citation 11).

### 5.2 Attitude of the interviewers

18 interviewees described a neutral attitude towards the implementation of the two-step sex/gender query. The interviewers tended to regard the question about gender identity as significantly less meaningful than the question about the sex registered at birth. This assessment correlated with a higher age of the interviewers (p=0.007), a connection that was not seen for the question about the sex marker at birth (p=0.850). Seven out of 42 interviewers were uncomfortable asking these questions because the sex/gender query might seem redundant to the respondents. The background to this is that the sex/gender of the respondents had already been asked beforehand by means of the Kish-Selection-Grid (procedure for random selection of respondents in households with several persons) or because the sex/gender should already be recognisable from the voice in the view of the interviewers (Table 3, Citations 11, 12, 13). Single interviewers reported that they deviated from the given standardisation of the questionnaire in order not to have to give further explanations of the two-step sex/gender query (Citation 14).

**Table 3**
**Selected citations from the written questionnaire of the interviewers**
Source: GEDA 2019/2020-EHIS

| |
|---|
| **On the reactions of the interviewees** |
| 1: "Usually problem-free response." (I 20) |
| 2: "One said straight away not so and hung up – Otherwise there were no particular reactions." (I 26) |
| 3: "The participants reacted mostly angrily, without understanding and sometimes aggressively. Many interviews were ended at this point by the participants hanging up." (I 3) |
| 4: "Women had more humour and understanding than men." (I 35) |
| 5: "More scepticism among the older ones. 'This is such a modern issue.'" (I 20) |
| 6: "Rather older men who tended to feel irritated by the question about their gender identity (possibly questioned in their masculinity)." (I 16) |
| **On problems of understanding** |
| 7: "Persons of non-German origin often didn't know what to do with 'birth certificate'." (I 13) |
| 8: "Especially younger persons who probably never needed their birth certificate before. Answer: 'don't know.'" (I 34) |
| 9: "Some even started talking about their sexuality such as: 'How? I'm not gay!'" (I 39) |
| 10: "Some have confused belonging with being attracted to a sex/gender." (I 12) |
| **On the attitude of the interviewers themselves** |
| 11: "What is the point of the question (*Note: Meant is the question about gender*) – you can tell." (I 24) |
| 12: "Question 'considered superfluous' because sex/gender is recognisable from voice." (I 10) |
| 13: "Perhaps irritated because sex/gender was already asked via the Kish-Selection-Grid." (I 41) |
| 14: "Added the sentence 'then there is a supplementary question' after the question about sex." (I 31) |

I=Interviewer

Editor's comment: The spelling of written citations has been adjusted and abbreviations written out.

## 6. Discussion and outlook

The aim of this article was to describe the introduction of a new two-step sex/gender questionnaire in the RKI's GEDA 2019/2020-EHIS study, which distinguishes between sex assigned at birth and gender identity. In addition, respondents were provided with an open response option regarding gender identity. Overall, the two-stage measures of sex/gender has proven to be functional and easy to implement. Out of 23,001 respondents, 22,826 persons are classified as cisgender, 113 persons as transgender and 29 persons as gender-diverse. 33 respondents had missing information regarding gender identity. In another study by the RKI with a comparable procedure, the proportions were very similar. This indicates a high reliability of the measurement instrument.

In relation to the total number of interviews conducted, the number of terminated interviews for the two-stage measures of sex/gender is very low, and the survey of the interviewers shows a high acceptance of this questionnaire among the interviewers and the respondents overall. The interviewers reported that younger respondents and women showed more acceptance and less irritated reactions than other groups when asked about gender identity. Problems of understanding the term 'birth certificate' were reported among younger respondents and people with a presumed migration background. Furthermore, the question about gender identity was occasionally confused with sexual orientation. There was a need for training for the interviewers on the background and objectives on the measures of sex/gender and its standardisation. In addition, further explanations should be integrated into the questionnaire.

An obstacle for the measure of sex/gender – especially for non-binary persons – is the Kish-Selection-Grid used for the selection of respondents. This contains a binary measure of sex/gender and is used by the interviewers before the actual interview to identify the person to be interviewed within the household. Against this background, it should be examined in future whether a variant of the Kish-Selection-Grid can be used in which sex/gender is not asked.

When examining the composition of the sample according to socio-demographic characteristics, some differences are noticeable. In particular, gender-diverse persons are younger than cisgender and transgender respondents. In addition, transgender and gender-diverse persons are more often not employed, more often have a lower education and a lower income, live less often in stable partnerships and are more often single and less often married. However, the findings on the composition of the sample should be interpreted with caution. For example, low education can largely be explained by a younger age in the concerned groups and having not yet completed vocational training. A more robust analysis of such correlations should be carried out on the basis of larger samples, for example with the help of pooled survey waves. Furthermore, own studies on the health of minoritised sex/gender groups are useful, which should be co-designed, conducted and accompanied by community members.

The survey instrument enables respondents to situate themselves beyond the binary sex/gender and cisgender norm and thus acknowledges the sex/gender diversity. It should be noted that in the survey used here, intersex people cannot assign themselves according to their sex characteristics with the indicator of the sex registered at birth. It is true that since 2013 the sex/gender marker can be left open and since 2018 it can be indicated as 'diverse'. However, since this was not possible at all for a long time, a separate question would have to be inserted in surveys to record intersex or another indicator would have to be used to operationalise sex.

Furthermore, very different sex/gender groups are summarised in the category 'gender-diverse'. This thus becomes a collective category, which, also due to the small number of cases, can no longer make differences within this category visible. In addition, the coding of the open response category and the assignment of respondents as transgender based on different information in the two-stage measures of sex/gender can be problematic, since third-party attributions take place here. This problem should be discussed with community members in particular.

In the current and future GEDA analyses that are carried out and published, gender identity is used as a binary variable (female/male), so that transgender and cisgender people are analysed together. Gender-diverse people are not shown separately due to the small number of cases, but remain included in the category of all respondents as a whole. This procedure is intended to recognise the gender identity of transgender persons. Besides a possible misattribution of sex/gender, however, it is problematic that this approach can no longer show that transgender have very different health opportunities compared to cisgender people [11].

An open question is how different questions about sex-related physical differences can be used when study participants are not cisgender. In this context, sex/gender serves as a filter variable. Respondents should be free to

choose which questionnaire they want to fill out. In order to avoid hurtful experiences through use of insensitive language for these study participants, it would be appropriate to offer survey instruments for further sex/gender groups in addition to those for women and men.

The available data show that people also participate in survey studies for whom the sex assigned at birth and the gender identity do not match. These should be given the opportunity to express their sex/gender in surveys, which in perspective will also improve the possibilities for researching the connection between sex/gender diversity and health. In order to achieve better acceptance and minimise hurtful experiences (e.g. dysphoria), participatory studies to further develop the survey instrument are desirable. For example, the question about the sex assigned at birth can be experienced as hurtful [37]. When making adjustments, however, the general comprehensibility and acceptance of the survey instrument must also be ensured. Valuable information for the further development and harmonisation of measures of sex/gender can also come from the DIVERGesTOOL project, from studies on the health of transgender and intersex people as well as non-binary people (TASG, InTraHealth). The experiences reported here with the modified measures of sex/gender are therefore intended to contribute to the debate about the increased consideration of sex/gender diversity in health studies. This includes the careful further development of the instruments used on the basis of these and future experiences.

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www.rki.de/journalhealthmonitoring

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## Data protection and ethics

GEDA 2019/2020-EHIS is subject to strict compliance with the data protection provisions set out in the EU General Data Protection Regulation (GDPR) and the Federal Data Protection Act (BDSG). The Ethics Committee of the Charité – Universitätsmedizin Berlin assessed the ethics of the study and approved the implementation of the study (application number EA2/070/19). Participation in the study was voluntary. The participants were informed about the aims and contents of the study and about data protection. Informed consent was obtained verbally.

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## Conflicts of interest

The authors declared no conflicts of interest.

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**Annex Table 1**
**Sex entry at birth and gender identity in absolute numbers and sex/gender in the total sample (n=5,009)**
Source: Study on head, back and neck pain in Germany (2019/2020)

| | Gender identity | | | | | |
|---|---|---|---|---|---|---|
| **Sex assigned at birth** | **Female** | **Male** | **Gender-diverse** | **No indication[1]** | **Don't know[1]** | **Total** |
| **Absolute numbers** | | | | | | |
| Female | 2,615 | 11 | 5 | 3 | 0 | 2,634 |
| Male | 15 | 2,354 | 4 | 1 | 1 | 2,375 |
| Total | 2,630 | 2,365 | 9 | 4 | 1 | 5,009 |
| **Proportion in % of the total sample** | | | | | | |
| Female | 52.21 | 0.22 | 0.10 | 0.06 | 0.00 | 52.59 |
| Male | 0.30 | 47.00 | 0.08 | 0.02 | 0.02 | 47.41 |
| Total | 52.51 | 47.22 | 0.18 | 0.08 | 0.02 | 100.00 |

[1] Answer to the question of gender identity

cisgender people  transgender people  gender-diverse people

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