Empirical Measurement of Access to Abortion Care Using the Example of Great Britain

A Critical Analysis of the Methods

Merit Henkel

Freie Universität Berlin

BACHELOR THESIS

B.A. Politikwissenschaften

1st Review: Prof. Dr. Dieter Ohr

Freie Universität Berlin

Methoden der empirischen Sozialforschung

2nd Review: Prof. Dr. Thorsten Faas

Freie Universität Berlin

Politische Soziologie der BRD

Abstract

Background:

Access to safe abortion is not guaranteed in many parts of the world, nor is there a standardized method to measure access to abortion care.

Objective:

The present study aimed to analyse how selected studies in the UK measure access to abortion. This is intended to facilitate the following researchers to operationalize access, thus facilitating the collection of scientific data on access and, in the long run, creating the possibility to improve access to abortion care.

Methods:

Through a systematic literature review, ten studies were identified that met the inclusion criteria. Differences between the studies with regards to the coding categories setting, participants, methods, dimensions of access, and indicators were compared. Advantages and disadvantages of the different approaches and methods to record access to abortions were discussed.

Results:

Differences between the studies were found in all coding categories. The various approaches to investigate access to abortion care led to differences in the data and the results, limiting their comparability and generalizability.

Conclusion:

There is a high heterogeneity between the studies and how they measure access to abortion care. Further research is needed to operationalize access and develop a common framework.

Index

1 Introduction

"Defending women's health means defending access to abortion […]. We know that restricting access doesn't make women less likely to end a pregnancy. It just makes abortion less safe. And that then threatens women's lives."

Hillary Clinton (Reilly, 2016)

"I learned the value of data and the ability to shape that information into an answer."

Pete Buttigieg – US-American politician (2003)

Abortions are common medical procedures that are criminalized in many parts of the world but are nevertheless widespread. The criminalization of abortions prevents safe abortions, but they take place illegally, which makes them less safe and a major cause of maternal death (Cameron, 2018, p. 1). Central to improving the access to safe abortions is reliable data for decision-makers to consider when developing policies. Still, there is no generally accepted way to scientifically collect access-related data on abortions.

To gain an understanding of the current practice, the present paper analyzes how access to abortions was measured methodically in selected studies in Great Britain. Great Britain was chosen as an example because of its extensive data collection on other medical topics and so it was reasonable to assume this would also apply to abortion-related data.

The present work shall provide ground to subsequently operationalize access and develop methods that can be used to scientifically investigate access to abortion care in other contexts and countries.

Explicitly not investigated were the outcomes of the included studies. It was also not intended to be a (pilot) study that develops indicators that can be used directly to scientifically investigate access in other contexts, but rather to be a preliminary work.

A systematic literature review was used to identify ten studies examining access to abortions in Great Britain. Inclusion and exclusion criteria ensured the actuality (since 2005) and thematic fit of the studies to the research question. Access was theorized using the concept of access

dimensions by Pechansky und Thomas (1981). The coding categories setting, participants, methods, dimensions of access, and indicators were established and compared across the studies. Finally, it was analyzed how the individual subdomains of access were examined in the different studies. Concluding, the results are summarized and an outlook on further research possibilities is given.

1 Theoretical Background

1.1 The Situation of Abortion and Data on Abortion in Great Britain

To provide context for the studies reviewed, the following paragraph provides some background information on abortion in Great Britain.

Abortions Are Common

In 2021, a total of 228,014 abortions were reported in England, Scotland, and Wales (Office for Health Improvement and Disparities, 2022; Public Health Scotland, 2022). This makes abortion, according to the Royal College of Obstetricians and Gynaecologists UK, one of the most commonly performed gynecological procedures (2011, p. 1). Furthermore, one in three women in the UK has had at least one abortion by the age of 45 (Stone & Ingham, 2011, p. 209). The high importance of abortions is also visible in surveys of the population. For example, in a 2021 study, 80% of the participants said abortion should be permitted and 65% said it should be possible if desired (Ipsos, 2021, p. 2).

Legal Framework

Legally, abortion in England, Scotland, and Wales is governed by the Abortion Act of 1967. This act states that abortion is legal only under certain circumstances (National Institute for Health and Care Excellence (NICE) 2019, p.72). According to this act, to perform an abortion without penalty, it must be independently approved by two physicians, performed by a licensed doctor, and the procedure must be reported to the Department of Health and Social Care (DHSC) (Zhou et al., 2020, p. 2). In addition, a reason must be given. However, this requirement may rather be seen as a formality, as 98% of the abortions provided are terminated under "Ground C," the "risk to women's mental health" (Office for Health Improvement and Disparities, 2022).

In England and Wales, the funding for 99% of the abortions in 2021 was provided by the Department of Health (Office for Health Improvement and Disparities, 2022).

Abortion Data Collection

Data is collected to monitor compliance with the Abortion Act and guidelines such as the NICE abortion care guideline (NICE, 2019). Officially, the responsibility "to monitor the Abortion Act and produce abortion statistics" lies at the DHSC (Department of Health, 2014, p. 1), which oversees the National Health Service (NHS).

On request, the DHSC confirmed that all their data available (used for the statistics that are being published) are based on the information the abortion care providers sent to the NHS through the notification form HSA4 (DHSC, email correspondence, 5th October 2022). This data relates to parameters such as abortion rates in relation to age, grounds for abortion, and gestation age (see HSA4 in: Department of Health, 2006). For England and Wales, these statistics are offered by the Department of Health, whereas in Scotland they are provided by the Information Services Division (Royal College of Obstetricians and Gynaecologists, 2011, p. 1).

Access-Related Data

When it comes to access-related data, the situation looks different. Upon request, the NHS confirmed that no data describing the access situation to abortion care is collected there nor at any other institution or central location known to the NHS (NHS, email correspondence, 5th October 2022). The information collected, including by the Royal College of Obstetricians and Gynaecologists, relates merely to data that does not assist to describe the access situation. Information on the access situation to abortion is therefore only accessible through studies. Ten relevant studies will be examined in this thesis. These studies refer to different dimensions and aspects of access and use a wide range of different indicators. To theorize access and explain how the studies in this thesis were examined, the concept about access dimensions by Penchansky & Thomas (1981) is used.

1.2 The Dimensions of Access According to Penchansky & Thomas (1981)

How Access Can Be Theorized

As often in social sciences, no generally accepted standard exists on how to measure access to a medical service scientifically. So as well in abortion care, there is no unity about what indicators and methods can be used to measure the access to abortion care at national or program level (Filippi et al., 2021, p. 1).

In this paper, the concept of access by Penchansky & Thomas (1981) will be used to analyze the how data about the access to abortion care is collected in Great Britain. Penchansky and

Thomas explain access as an overarching concept that subsumes several sub-concepts. To describe the degree of fit between the health care system and the patient, these five sub-concepts of access are used: availability, accessibility, accommodation, affordability, and acceptability (ibid., p.127). These dimensions are not always easily separatable and partially disappear with each other (ibid., p.129). The authors quote here *The Discursive Dictionary of Health Care*, which emphasizes that "access, availability and acceptability […] are hard to differentiate." (ibid., p.127).

As there is no fixed definition of access, in different contexts and studies the word is often loaded with different significations, used for different phenomena, and acts more as a political than an operational idea (ibid.). For example, in some contexts access is used as a concept to describe the use of or entry into the health system. Thus, the condition of the health care system is described. Since the health care system can also be understood as a supply organ for health care services, Penchansky & Thomas describe this type of access understanding as supply-oriented (ibid., p.129).

Other authors see access as a concept to explain factors that influence the entry or use of it (supply and demand). Here, not only the description of the states is important, but the question of reasons and influences of these states of entry or use. However, although there is ambiguity in the exact definition of the term, access is mostly used to explain how the system fits the client's needs (ibid., p.127). In this thesis, the analysis refers to both the demand and the supply side, where possible.

One of the five dimensions of access is availability. Availability describes the extent to which the volume and type of client needs match what services are offered and to what extent. This describes how adequate the supply of “physicians, dentists and other providers; of facilities such as clinics and hospitals; and of specialized programs and services such as mental health and emergency care." (ibid., p.128) is. Availability can be defined as the supply side of the relationship of supply and demand of the “service producing capacity of resources” (ibid., p.129). Or as the allocation of services, which leads to an analysis of the supply by type, area, and the clientele served (ibid.).

The next dimension, accessibility, describes "the relationship between the location of supply and the location of clients” (ibid., p.128). Parts of this dimension are the resources of transportation that are available for the patients, as well as the time and financial resources that must be expended to cover the distance. The term *geographical accessibility* can be used as

well, describing the location of service, travel time, distance, cost, and effort on use (ibid., p.129).

Not only the accessibility and availability of resources are important to explain the access to health care, but also the accommodation, the question of how these care resources are organized to accept the clients. This dimension includes the system for appointment making, operation hours, and teleservices, as well as facilities you can visit without an appointment (ibid., p.128). The relationship between these factors and the perception of their appropriateness by the clients, as well as their ability of accommodation to these factors, is described by the term accommodation. In other words, accommodation is "the effort (in terms of time spent) that the patient must expend to be served" (ibid., p.129).

If all the dimensions mentioned so far provide good access, affordability can still be a hurdle. This dimension describes the link between the supply-side (prices of the services and other financial requirements like special insurance) and the demand side, entailing the client's income, possibly existing health insurance, and their general ability to pay for the services provided. The clients' knowledge about the prices to pay, the total cost of the procedure, and financing possibilities are factors of affordability (ibid., p.128f).

The last dimension is the acceptability or "socio-organizational accessibility" (ibid., p.129). Penchansky and Thomas define it as "the relationship of clients' attitudes about personal and practice characteristics of providers to the actual characteristics of existing providers as well as to provider attitudes about acceptable personal characteristics of clients" (ibid.). This dimension often describes the clients' reaction to attributes of the providers. Examples of the attributes are "ethnicity, type of facility, neighborhood of facility, or religious affiliation of facility or provider", age and sex (ibid.). Yet again, it also describes the attitude of providers towards preferring or refusing clients due to certain attributes like welfare versus private paying patients or certain ethnicities. Providers can often make services more (or less) available for groups with certain attributes (ibid.), e.g., giving private-paying patients earlier appointments or refusing treatment based on racial discrimination.

As mentioned before, these dimensions are not easily separable and there are several ways to analyse them. In the following, the methods and data used in this paper will be elaborated.

it will be explained under the use of which method and data this paper will approach the research question using the dimensions explained above.

2 Methods and Data

The search included academic literature from EbscoHost sources in English. The search term for the systematic literature search on EbscoHost was:

“abortion AND access* AND (uk OR united kingdom OR england)”.

1062 resources were found in the first place. Inclusion criteria were that studies collected access-specific data and had a regional focus on Great Britain or parts of Great Britain. To have current data, only studies that were published between 2005 to 2022 were included. Studies that examined other data, indicators that were not access-specific but general, and unpublicized other sources were excluded. Furthermore, results from Northern Ireland were excluded, because its legal organization differs strongly from the situation in Great Britain. Among other differences, the Abortion Act 1967 does not apply there, and abortion was decriminalized only at the end of 2019 (Brader, 2020). Because the circumstances differ so much from the rest of the UK data collection, even though the search term refers to the UK, this thesis only examined studies from the Great Britain context.

After removing all studies that didn’t meet the inclusion criteria, in total, ten studies were included in this thesis.

Since these studies examined access in very different ways, heterogeneity exists between studies. To be able to answer the question and to compare the studies, coding categories were defined. These are setting, participants, methods, dimensions of access, and indicators. In the following, these categories are highlighted in such a way that their occurrence and conspicuousness in the studies are analyzed. The coverage of the dimensions is examined as well as the consequences for the data situation, the advantages and disadvantages and the suitability of the methods, indicators, settings, and participants used in the studies.

3 Results

In total, ten studies were examined. Table 1 shows an overview of the studies and the analysis’ results.

Table 1
Overview of Studies Examining Access to Abortions in the UK

Name, Setting	Study Type	Participants	Methods	Access Related Indicator Examined	Dimensions
Aiken et al (2018); UK	qualitative mixed- method study	all women who contacted "*women on web*" from 11/2016-03/2017; N = 519	content analysis of anonymized emails to the service to explore their reasons for seeking help	long waiting times, distance to clinic, work or childcare commitments, lack of eligibility for free NHS services, prior negative experiences of abortion care, lack of confidentiality of services, stigma, preferring the privacy and comfort of using pills at home, partner violence, partner/family control	accessibility, accommodation, availability, acceptability
Aiken et al (2021); UK	quantitative cohort analysis	data from three main abortion providers; cohort 1: n = 22.158 Medical abortions at home at ≤69 days, in person with ultrasound, 01/20-03/20; cohort 2: n = 29.984 either in person or via telemedicine without ultrasound 04/20-06/20, Sample (N = 52.142) comprises 85% of all medical abortions provided nationally	data from electronic records and incident databases were used to compare outcomes between cohorts, adjusted for baseline differences	waiting times	accommodation
Cochrane & Cameron (2013); Scotland	quantitative questionnaire study	delegates at a meeting for abortion providers in Scotland; N = 70 (74% response rate of 95 questionnaires distributed)	participants completed a questionnaire about their views on abortion provision over 16 weeks and their perceived barriers to service provision	various indicators that review the willingness of doctors and nurses to take part in late abortion process	acceptability, availability, accommodation
Duffy et al (2018); England (+ Ireland, Northern Ireland)	quantitative internet research to evaluate the information situation	619 webpages were found, 83 related to access to service, 30 from England	in two search engines, four search terms were used and the first two pages of results were analyzed; evaluation: five-item tool combining user-based indicators and a question on jurisdictional accuracy	quality of information about accessing abortion on the internet	accommodation

Finnie et al (2006); South Durham, Northeast of England, UK	mixed method	women (N = 132) in fertility control clinics; General Practitioners (GPs) (N = 140) who referred the women to these clinics	women: structured, face-to-face interviews; follow-up questionnaire after clinic stay; GP: questionnaire	waiting times, women's rating of care, GPs' attitudes, and self-reported practice	availability, accommodation, acceptability
Heller et al (2016); Scottish Highlands and Western Isles	qualitative interview study	women who had undergone abortion in the Scottish Highlands NHS (10/2014 - 05/2015), N = 16	semi-structured audio-recorded telephone interviews; six stages of thematic analysis were followed to explore themes in and across participant accounts	process from first suspecting pregnancy to abortion; travel for abortion; (non)disclosure of abortion; community attitudes to abortion; their views on abortion services in their area	acceptability, accessibility, accommodation
Lipp (2009); Wales	quantitative questionnaire survey	National Health Service Trusts, N = 10 (of 13 answered)	questionnaire based on national guidelines and demographic abortion questions was sent to the lead NHS Trust nurse/midwife	abortion method and choice of it, doctors in training, referral times, dedicated abortion clinic provided, information provision	(future) availability; accommodation
Porter Erlank et al (2021); England	quantitative evaluation of introduction of EMA for home use	all MSUK's (big provider of abortion services in UK) telemedicine EMA patients between April and August 2020 were invited; N = 1243 replied	follow-up calls on average within 5 days post procedure	receiving of medications (by post or pick-up from a clinic), information supply	accommodation, availability
Reinnison et al (2022); UK	quantitative cross- sectional survey	relevant medical ethics and clinical leads from the 33 established UK medical schools (N = 25)	online surveys with multiple-choice questions on the ethical, legal, or clinical aspects, respectively, of their institution's abortion teaching	number of hours spend on teaching abortions, hours of clinical teaching, barriers, teaching methods, content, assessment, desire for further guidance on teaching abortion	acceptability, availability
Smith & Cameron (2019); Chalmers Centre[a], Edinburgh, Scotland	quantitative study with self-administered anonymous questionnaire	women requesting abortion care at a community abortion service, N = 154	participants selected the top three options from predefined lists of barriers to seeking abortion, facilitators of care, and future service improvements	waiting time, distance, work/care commitments, feeling towards the abortion process, preferred referral process, availability of information, possibility for EMA, buffer zones around clinic	accommodation, accessibility

Note. EMA = early medical abortion

[a] Main provider for abortion care in the region.

In the following, the main results are summarized according to the analysis criteria setting, participants, dimensions, methods, and indicators.

Setting

In four cases, studies examined the UK setting (A. R. Aiken et al., 2018; A. Aiken et al., 2021; Porter Erlank et al., 2021; Rennison et al., 2022) . One study each covered a country: England (Duffy et al., 2018), Scotland (Cochrane & Cameron, 2013), and Wales (Lipp, 2009). The other three studies analyzed single providers of abortion care in a region (Scottish Highlands and Western Isles; Heller et al, 2016) or a city (South Durham; Finnie et al., 2006; Edinburgh Smith & Cameron, 2019).

Participants

Due to very different research methods, settings, and research questions, the number of participants ranged from N = 10 NHS Trusts interviewed (Lipp, 2009, p. 15) and N = 16 semi-structured interviews (Heller et al., 2016, p. 1686) up to N = 52142, which represents 85% of all the abortions that were provided nationally and medically in the time period of the study (A. Aiken et al., 2021, p. 1469).

Not only the total number of participants were examined, but their perspectives as well. In four studies, the participants were abortion seekers, one study took their perspective, one study analyzed the access to abortion care from the providers' and the abortion seekers' perspective and three exclusively asked health care professionals. One study analyzed data that was already in a healthcare database. To summarize, the studies either examined the view of people[1] seeking an abortion, the view of health care professionals, or evaluated database material.

Dimensions

Accommodation was investigated by eight studies (A. R. Aiken et al., 2018; A. Aiken et al., 2021; Duffy et al., 2018; Finnie et al., 2006; Heller et al., 2016; Lipp, 2009; Porter Erlank et al., 2021; Smith & Cameron, 2019). Acceptability was covered by six studies (A. R. Aiken et al., 2018; Cochrane & Cameron, 2013; Finnie et al., 2006; Heller et al., 2016; Lipp, 2009; Rennison et al., 2022) whereas availability was examined by four studies (Cochrane & Cameron, 2013; Finnie et al., 2006; Porter Erlank et al., 2021; Rennison et al., 2022),

[1] Either "patients" or "women" were used as terms, it is not possible to tell from the data if trans, inter, and nonbinary abortion seekers were included

accessibility by three studies (A. R. Aiken et al., 2018; Heller et al., 2016; Smith & Cameron, 2019), and affordability by none.

Methods

One of the studies had a qualitative approach, two were mixed-method and seven studies had a quantitative approach. In total, two interview studies, five questionnaire studies, two data-based analysis, and one content analysis were carried out.

Indicators

In total, 36 indicators were identified that can be more or less uniquely assigned to one or more dimensions of access. Examples of indicators that appeared frequently are waiting times, distance to clinic, stigma surrounding abortion and the availability of information. A list of them can be found in the appendix.

4 Discussion

Hereafter, the results will be discussed to improve the understanding of how the data about access to abortion care is collected in the studies examined.

4.1 Setting

In the following, the different settings found in the studies will be compared and analyzed with regards to their possible effect, as well as advantages and disadvantages.

As shown previously, a wide range of settings was used. From the whole UK to single countries (England/Scotland/Wales), and to single providers that provide care for a whole region or city. Thus, wide-ranging data and coverage of various contexts on national and regional level is available. At the same time, this results in a lack of comparability of the data because they all refer to different settings.

The larger the setting, i.e. UK in this case, the more subjects with specific characteristics are available in the first place, for example "relevant medical ethics and clinical leads from […] medical schools" (Rennison et al., 2022, p. 2) or people who come from UK and contacted "*women on web",* a website that provides abortion seekers with abortion medicine (A. R. Aiken et al., 2018, p. 1). Examining opinions of groups so few in number is only possible in large settings, especially if they are quantitative studies. Particularly when they are quantitative, studies in large settings allow generalized and representative data to be sent to large institutions, such as the National Health Service (NHS), based on which more damming decisions can then

be made with high reach. However, the potential is high for studies in large settings to miss the regional differences of heterogeneous regions, which can lead to erroneous conclusions and a misconception of the actual access situation to abortion.

The same is true for medium sized settings, such as England, Scotland, and Wales, where the advantage may also be that there are centralized forms of governance. Here, as for example in Wales, decisions to improve access to abortions can be made and policies implemented specifically for Wales, based on the analysis of compliance in Wales with national guidelines by Lipp (2009).

However, the situation is different for smaller settings. Here, either individual providers or smaller regions are analyzed based on one provider, resulting in a high degree of specificity in capturing regional needs and services. For example, Heller et al. capture "temporal factors unique to this population" (2016, p.1684) as a barrier to access, and Cochrane and Cameron examine the attitude of abortion care providers, which can vary widely by region (2013, p. 215). In addition, the regional focus allows a deeper content analysis because often fewer participants are studied. One disadvantage is the large amount of effort involved in collecting specific data for individual subunits until this process is incorporated into regular data collection.

Thus, smaller contexts are more suitable when more specific and differentiated pictures of a care situation are needed, such as the access situation in a rural and difficult-to-access region with only one abortion provider. In contrast, large settings are useful in studies of access to abortions to make generalized statements that affect a large context, such as the evaluation of the introduction of early medical abortion (EMA) for home use. Large settings are equally fitting when participants with very specific characteristics are studied who are therefore rare like clinical leads from medical schools. This highlights the importance of looking at the perspective that is observed in the study.

4.2 Participants

Subsequently, the studies' participants will be examined and by thereby identified whose perspective is taken into consideration. Possible consequences, advantages, and disadvantages of the choice of participants will be analyzed.

The number of participants per study varied between 10 and 52.142 subjects. This can be explained by the very different study designs. In large-scale questionnaire studies, many people can be reached with a rather small effort. Face-to-face interviews, however, are much more complex and resource-consuming.

On the supply side, medical professionals were asked. These were delegates at a meeting for abortion providers in Scotland (Cochrane & Cameron, 2013, p. 215), relevant medical ethics and clinical leads from UK medical schools (Rennison et al., 2022, p. 2), and NHS Trusts (Lipp, 2009, p. 15). Gathering data on abortion access based on them has the advantage that medical professionals involved in abortion have a lot of expertise and experience with this topic, have a regular insight to the processes and/or numerous contacts with abortion seeking people. On the other hand, the opinions of these experts are often already present in the discourse and are often dominant due to their reach and prestige. Therefore, expert interviews must be critically scrutinized in terms of how much new they contribute to the discourse.

On the demand side, three studies analyzed access by exclusively asking pregnant women who profited from NHS (funded) abortion services (Heller et al., 2016, p. 1688; Porter Erlank et al., 2021, p. 261; Smith & Cameron, 2019, p. 207). This way, it was possible to collect data on large numbers of abortion seekers, as in Porter Erlank et al. (2021) where all requests for early medical abortion (EMA) made in the provider organization during the period of the study were tracked.

If women and other pregnant people are recruited in abortion care settings such as in clinics or at the General Practitioner, the study and data will only represent the views of people who managed to overcome the access barriers. Thus, their view on access to abortion may become dominant, while the problems and views of the people who are not present in these healthcare institutions are not included. However, the very reason they are not present may be access barriers that are possibly even more urgent to be removed. When examining access, this "who-is-not-there-can-not-say-why"-problem can be seen as a systemic one. A solution to this problem may be the method used by A. R. Aiken et al. by actively searching for affected people where the service needed (in this case abortion care) is being offered outside the formal health care system. The authors analyzed the reasons why women contacted "*women on web"*, a website to receive abortion medication (A. R. Aiken et al., 2018, p. 1).

Two studies did not include any participants. One analyzed the availability of online information from an abortion seeker perspective (Duffy et al., 2018, p. 33). This may be seen as a way that produces data that is close to real circumstances, because the authors used the information available for abortion seekers. Another study used data from the electronic records of patients to evaluate results between cohorts (A. Aiken et al., 2021, p. 1470). If the

infrastructure is in place to collect this data, electronic patient records can be a good source of data to access.

To include the view of the demand side to produce a broader picture of the access situation, one study asked both pregnant women and General Practitioners (GP) about how they perceived the referral process from the GP to an abortion provider (Finnie et al., 2006, p. 15). One could argue that including both sides, the demand, and the supply side of the medical service, draws a more differentiated picture and gives more content validity to the results. E.g., on the supply side, in Rennison et al., “the perception of abortion as a sensitive topic” (2022, p.2) is identified as a barrier when it comes to teaching abortion to young doctors whereas on the demand side the sigma surrounding abortion is identified as a barrier for pregnant people to seek abortion services (Heller et al., 2016, p. 1686). The stigmatized position of abortion is seen as a problem for access to abortion services by both, the providers, and the pregnant people. On the other hand, it may happen that covering both perspectives in one study leads to only a superficial coverage of both perspectives.

As has been shown, studies can examine abortion access either from the perspective of abortion seekers, from the perspective of providers, or draw on patient databases. The "who-is-not-there-can-not-say-why" problem exists on the abortion seeker side but can be circumvented through targeted research design. Coverage of abortion seekers’ and providers’ perspectives must not be weighed against each other in this regard but must be undertaken equally. A central role in capturing the participants' perspective is played by the method, which will be examined subsequently.

4.3 Methods

Strong dominance of quantitative research

Furthermore, the ratio between qualitative and quantitative studies will be examined, discussing possible explanations. Moreover, consequences, advantages and disadvantages of the different methods will be analyzed.

With seven qualitative, two mixed method-, and only one quantitative study, a strong dominance of quantitative research can be observed in the present sample. Probably this is the case because quantitative data lend themselves well to examining the extent of the impact of already known access barriers. This suggests that it is already well-known which barriers to access abortion care exist. So, by the focus to quantitative methods, the research focuses on the

extent to which these already known barriers inhibit access. Quantitative research is well suited for these types of outcomes, such as the extent to which national standard waiting times for referral are met, as examined in Finnie et al. (2006, p. 16).

Qualitative research is more suitable for small groups of participants and for specific contexts like the Scottish Highlands and Western Isles in (Heller et al., 2016, p. 1684). If the quantitative approach becomes too dominant in the discourse, this can lead to a lack of generation of hypotheses and openness to new hypotheses. This can make it harder to discover access barriers that are not known yet, as „prior negative experiences of abortion care" (A. R. Aiken et al., 2018, p. 1), which did not appear as a access hindering indicator in the other studies.

The balance of hypothesis-generating and hypothesis-testing studies of abortion access must therefore be in healthy equilibrium to infer what barriers exist in the first place and to what extent they influence access.

Methods Used

In the ten studies examined, two interview studies, five questionnaire-based studies, two database analyses and one content analysis were made. In the following, differences in methods are examined between studies and their effects are discussed.

Interview

The interview studies were a structured face to face interview (Finnie et al., 2006, p. 15) and a semi-structured telephone interview (Heller et al., 2016, p. 1684). This method works well to create rich and detailed data on abortion seekers' experiences in a specific setting. Due to the lower number of participants and the closer contact between the researchers and the participants, more individual solutions to problems can be found. E.g., Heller et al. offered the choice between telephone or face-to-face interviews, which made the study more accessible for people with different types of needs (2016, p. 1684).

On the other hand, the language barriers are not as easy to bypass in interviews (as they are, e.g., in questionnaires) which excludes the views of (possibly already marginalized) people who do not speak the same language as the interviewer. Especially in the context of access to abortion care, which affects people of all languages, it cannot be ruled out that the language of the study has an influence on the results. Depending on the setting and the participants of the study this problem may be of more or less importance.

Thus, interview studies can be used to accurately capture specific situations when individual attention to participants is helpful. At the same time, however, language barriers are difficult to circumvent, which excludes participants and thus perspectives from the data collection.

Questionnaire

The following studies used different ways of questionnaires to acquire data.

Porter Erlank et al. conducted telephone interviews where the participants needed to answer multiple-choice questions and can therefore be seen as a questionnaire study (2021, p. 262). The researchers chose this specific method because they invited all patients of the provider examined who had an early medical abortion (EMA) at home to follow up. The study was thus built into the regular data collection process which made it, at least theoretically, possible that every patient could be involved in the study. To monitor the access to abortion services on a regular base, the high potential and importance of incorporating data collection about access into regular data collection processes is evident.

Another questionnaire study offered a predefined list of barriers and facilitators that should be ranked by the participants (Smith & Cameron, 2019, p. 208). Even though the study asked for solutions and facilitators seen by the women, due to the questionable quality of the study, the results are suffering from a lack of informative value. The answers were already predetermined by predefined items (barriers/facilitators), which were only to be ranked. Thus, the study was not designed to be open to new categories which led to the limited informative value of the study since it was supposed to generate hypotheses: “We aimed to determine current barriers faced by women seeking abortion” (Smith & Cameron, 2019, p. 207).

Questionnaire studies can be well integrated into the regular data collection process and reach many participants, which has high potential for future surveys of access to abortions. However, the method must fit the objective of the study.

Database Analysis

Not only was new data collected, but studies were also conducted using already existing data from databases.

Duffy et al. examined the quality of information about abortion available on the internet from the perspective of an abortion seeker. The resources were analyzed using a five-item tool that joined user-based indicators and a question on legal correctness of the information provided (2018, p. 34). Thus, the study only used data that was also available to the abortion seeker and

considered their perspective. One could argue that this is a very valid way to collect data about the situation because it analyses the information that is actually available and thus, represents the situation abortion seekers are in quite accurately.

The other database study was a cohort study that used data from the electronic patient records and the databases for performed abortions to compare the cohorts (A. Aiken et al., 2021, p. 1465). Here, a big sample of N = 22.158 in the first cohort and N = 29.984 participants in the second cohort provided a good basis to obtain representative results. This kind of investigations, where already existing patient data is used, is practical, but only applicable if the data are collected beforehand. If this condition is met, cohort studies are very useful to evaluate a development, as, e.g., after the implementation of a new abortion law.

Database analysis, including the evaluation of data from a large number of abortion seekers, is important to monitor access to abortions on a large scale. However, the data on access must be collected systematically upfront.

Content analysis

The last method identified was the content analysis used by A. R. Aiken et al. (2018, p. 1464). The researchers analyzed the request emails that reached the service "*women on web*", a website to order abortion medicine. These emails were screened for reasons why abortion seekers wanted to use the service of *"women on web"* instead of the formal health care system. A disadvantage of this procedure could be that it is possible that not all reasons appear because they have not been asked specifically and are, e.g., burdened with shame. Besides that, this method is very suitable to learn about the perspectives of people who have not participated in the public health care system to identify possible barriers to access and minimize selection biases. E.g., the barrier "controlling circumstances including partner violence and partner/family control" (ibid., p. 1) does not appear in the other studies and possibly this finding can be attributed to the hypothesis generating study design of the content analysis.

Using existing data for studies of abortion access has the advantage of eliminating some biases, such as the selection or interview bias. However, there must also be existing data on access to abortions.

Additionally, it must be mentioned that the language in which the questionnaires are written, or the interviews are being conducted, always excludes perspectives of people, who do not speak this language. With this situation, studies dealt differently. Smith and Cameron (2019, p.208)

named non-sufficient English skills as an exclusion criteria for the participation, whereas Lipp (2009, p.15) provided questionnaires in both English and Welsh language.

As explained, a wide variety of methods were used to obtain diverse results. However, for the data collection process on access to abortions it is not only important how the data is collected, but also about what. Therefore, subsequently the dimensions of access covered in the studies are discussed.

4.4 Dimensions

The five dimensions of access used in this paper to structure the concept of access are availability, accessibility, accommodation, acceptability, and affordability. As this concept is not universal, most studies do not refer to it but use various indicators instead, that cover more than one dimension of access.

When analyzing the coverage of the different dimensions, it varied considerably between the dimensions. On the one hand, eight studies examined how the health care system is designed to bring abortion seekers and care providers together with a focus on waiting times and information supply (accommodation). On the other hand, six studies examined the acceptability, especially the behavior of the providers, fear of what the abortion process includes, and stigma.

This versatile coverage is emphasized by the fact that no study has specifically examined affordability. This noncoverage could either originate in funding mechanisms for abortion care working considerably well in Great Britain or in researchers not viewing affordability as an issue that prevents abortion seekers from seeking health care. Only one study reported "lack of eligibility for free NHS services" (A. R. Aiken et al., 2018, p.1) as a sub-item of access barriers, cited by 49% of *"women on web"* users as a reason for contacting them (without elaborating further). This suggests that affordability as a barrier to abortion access is likely not regarded a problem by the researchers.

Because of the varying coverage of the dimensions, less strongly investigated areas may suffer from a weaker database and less (political) attention, based on which improved policies can be implemented. However, all sub-dimensions of access significantly modulate access to abortion care, therefore, not covering them can lead to worse access in general.

Different coverage of the dimensions thus leads to individual sub-aspects of access to abortions receiving less attention in the studies and therefore, less consideration in the scientific and political discourse.

4.5 Indicators

The studies were searched for indicators that describe the access situation to abortion care. Due to the wide range of indicators used in the studies, in the following, the indicators will be analyzed by dimension.

Since there were very few separate indicators specified in the concept, the inclusion of the indicators was defined in this paper. Therefore, all indicators are at least minimally suitable, even if some indicators describe dimensions more clearly than others or can be assigned to them. Some indicators can also describe several access dimensions.

Accommodation

Noticeably often, namely in six studies, waiting times were used as an indicator (A. R. Aiken et al., 2018, p. 4; A. Aiken et al., 2021, p. 1469; Finnie et al., 2006, p. 15; Heller et al., 2016, p. 1687; Lipp, 2009, p. 15; Smith & Cameron, 2019, p. 207). As a benchmark that is ascertainable in quantitative and qualitative research, waiting and referral times can readily be used to describe how well a system adapts to the needs of users. Because it is easily determinable, the selection bias could also be a reason for its frequent occurrence.

The information supply was investigated in three studies, namely in the form of the accessibility and the quality of the information (Duffy et al., 2018, p. 34), the access facilitating role the "information on website" played (Smith & Cameron, 2019, p. 207), and whether verbal explanations are supported by written information (Lipp, 2009, p. 16). This indicator captures a relevant facet of access, acknowledging the information on the service as a prerequisite for having access in the first place. This was operationalized by, e.g., Duffy et al., who examined how easily correct information about abortion services can be found on the internet (2018, p. 32).

As a further indicator that hinders access to abortion services, two studies named work or (child) care commitments (A. R. Aiken et al., 2018, p. 4; Smith & Cameron, 2019, p. 210). Since many people generally have work or care commitments, this is probably an indicator that affects many abortion seekers and should be taken into consideration when trying to improve access to abortion services.

Lipp examined in her study if dedicated abortion clinics were provided (2009, p.15). This indicator is not equally meaningful for all contexts. For example, in rural contexts, the benefit of a dedicated abortion clinic can be questionable, because it does not have to be worthwhile to tie up often already limited personnel resources only on abortions. Whereas in urban areas a dedicated abortion clinic can improve access through clear structures and contact points, good expertise, and trained staff.

To describe how the supply resources are being organized to accept clients, the indicators used included waiting time, information supply, work and childcare commitments, and the existence of specialized abortion clinics. These are well-suited to describe accommodation in most contexts.

Acceptability

Indicators of acceptability can be defined either from the providers' or the abortion seekers' perspective. It is often measured on the provider side via the provider's attitude (Cochrane & Cameron, 2013, p. 216; Finnie et al., 2006, p. 17; Heller et al., 2016, p. 1688). The question of how providers feel about abortion fits well to the dimension of acceptability. According to Penchansky and Thomas, this dimension describes the "provider's attitude toward acceptable personal characteristics of the client." (1981, p.129). In this case, the characteristic of the patient can be seen as "abortion seeking".

Other indicators that describe the acceptability from the providers' perspective are numbers of hours spend on teaching abortions (theoretical and clinical), difficulty accessing clinical locations, lack of curriculum time, lack of decent teaching methods and the perception of abortion as a sensitive topic (Rennison et al., 2022, p. 2). All these indicators influence how future doctors are educated, which again influences if they will become abortion care providers or if they will consider themselves 'broadly anti-abortion', just as 24% of General Practitioners in South Durham in the Nord East of England (Finnie et al., 2006, p. 15).

On the demand side, the side of the abortion seekers, indicators used are the stigma surrounding abortion (Heller et al., 2016, p. 1688), prior bad experiences of abortion (A. R. Aiken et al., 2018, p. 5), and the concern for what the process of abortion includes (Smith & Cameron, 2019, p. 207). Even though researchers may face difficulties accessing this information (due to stigma, fear ect.), they need to be taken into consideration when analyzing access to abortion care.

The question of acceptability is examined through indicators that examine the teaching of abortions among medical students, as well as the provider's attitude. Stigma, fear, and poor prior experience are indicators used to describe acceptability on the abortion seekers' side.

Availability

When examining availability, a distinction can be made between supply (who is/will be available to provide the service) and demand (how available are abortion pills and appointments).

On the supply side, the main indicator used is the availability of trained staff (Cochrane & Cameron, 2013, p. 215). It is important to maintain a supply in line with demand (Rennison et al., 2022, p. 9). Here, the indicator of training of staff is not clearly separatable from the dimension of acceptability. Analyzing the attitudes towards abortion from medicine students can help to estimate the future availability of abortion care providers. This is significant to be able to react to changed conditions at an early stage. At the same time, this future-orientated approach cannot replace research on the current availability of abortion care providers. In addition, it appears that not only the supply of skilled workers varies from region to region, but also their training (Lipp, 2009, p. 15).

Lipp also examined the availability of abortion methods and the choice of these methods (2009, p.16). In a region where surgical abortion is not available, pregnant people cannot have an abortion after a certain gestational age (depending on the legislation), because medication abortions are only available until a certain stage of pregnancy. This leads to the fact that the availability of the abortion method and the choice of the method can be seen as an indicator that defines the availability, at least for advanced pregnancies.

Demand-orientated indicators to measure availability describe, among others, how women received the abortion medicine (via post or pick up in hospital) (Porter Erlank et al., 2021, p. 266) and the percentage of abortion seekers who needed to make a second appointment due to the anti-abortion attitude of the first General Practitioner (Finnie et al., 2006, p. 16).

Surprisingly, the accurate number of providers was examined nowhere in the studies. On request the NHS has also not made any statement about this ("We do not hold information which shows the number of practitioners (individuals) who currently provide abortion services. We are not aware of a single organization that collects this information" (NHS, email

correspondence, 5th October 2022)). This indicator could be useful to describe the availability of abortion care providers.

To conclude, indicators used in the studies to describe the availability of abortion care are the availability of trained staff (and the quality of their training), the availability of the different abortion methods, the choice of the method, the way how abortion medicine is received, and how many doctors an abortion seeker must visit due to anti-abortion attitudes.

Accessibility

The two main indicators that are used to describe accessibility are the distance and the time traveled (A. R. Aiken et al., 2018, p. 7; Heller et al., 2016, p. 1686; Smith & Cameron, 2019, p. 208). As specified in the concept of Penchansky and Thomas, these are very direct and simple indicators that are well suited to indicate accessibility (1981, p.128). Sometimes the means of travel are stated as well, e.g., "B19, 224 miles, 9 hours 30 minutes, plane/taxi" (Heller et al., 2016, p. 1687). Here, travel time is the most independent indicator of confounding factors such as road conditions or weather conditions. Another indicator that can be classified as accessibility is the existence of buffer zones around the abortion clinic (Smith & Cameron, 2019, p. 211) because they guarantee geographical access. Buffer zones are areas around a clinic where demonstrations are forbidden, just as hanging baby clothing at fences which is often used by pro-life demonstrators to stop abortion seekers to have an abortion. However, this indicator may not be applicable to all contexts, as protesters in front of abortion clinics are not present at every location and therefore do not act as a barrier to access in every context.

5 Conclusion

It can be concluded that there is a large heterogeneity between the studies with regards to methods, indicators, dimensions covered, setting and participants, so that large differences can also be seen within these coding categories.

In setting, the studies varied widely, ranging from one provider to the entire UK. Generally, the setting must fit the research question and the participants of the study. In terms of the comparability of results, the setting has a great influence. As has been shown, studies can examine access to abortion either from the perspective of those seeking abortion or from the perspective of providers, or they can draw on patient databases.

Both qualitative and quantitative studies were examined. Due to the dominance of quantitative studies, a balance between hypothesis-generating and hypothesis-testing studies on abortion

access was not given. To draw conclusions about which barriers exist in the first place and the extent to which they affect access, a healthy equilibrium of exploratory and confirmatory studies is needed.

Interview studies have been used to accurately capture specific access-related data in situations when individualized attention to participants is helpful. There, language barriers are difficult to circumvent, which excludes participants and thus perspectives from data collection. As another method, questionnaire studies help to capture the perspectives of many participants and thus to make statements about access in larger contexts. They can be well integrated into regular data collection processes, which holds great potential for future data collection on access to abortions. The same is true for database analyses, where data from many abortion seekers is processed. This method also has the advantage of eliminating some biases such as the interviewer or selection bias. However, database analysis is only possible if data on access to abortion care has already been collected systematically.

In the studies reviewed, the different dimensions of access were highlighted to very different degrees, resulting in little data on, e.g., the affordability of abortions. This non-coverage can be seen as a consequence of and a cause for less attention to this dimension of access in the scientific and political discourse.

A wide range of different indicators were used to define access to abortion care from different perspectives. To describe accommodation, the indicators included waiting time, information supply, work and childcare commitments, and the existence of specialized abortion clinics. These are well suited to describe how the supply resources are organized to accept clients in most contexts. Indicators that describe acceptance on the provider side examine the teaching of abortion among medical students, as well as the attitudes of providers. From the perspective of abortion seekers, indicators entail stigma, fear, and previous negative experiences. For availability, the indicators' range was broad and included the availability of trained staff (and the quality of their training), the availability of the different abortion methods, the choice of the method, the way how abortion medicine is received, and how many doctors an abortion seeker must visit due to anti-abortion attitudes. Accessibility was examined by travel distance or, less dependent on the geographic and meteorological conditions, travel time.

A few points can be noted as recommendations for further research around abortion access. First, to better compare and evaluate access, it is useful to examine similar contexts. To ensure that barriers to access are identified, hypothesis-generating research should not be neglected.

Examining access issues from both the provider's and abortion seekers' perspectives increases the depth of the analysis.

The "who-is-not-there-can't-say-why" problem inherent in access research must be considered in the analysis of barriers to access and can be addressed by recruiting study participants where abortions are offered and performed outside the public health system.

Methodologically, there is a wide range of suitable approaches for investigating access to abortions. The selection of methods must be oriented to the research question, and large quantitative studies can determine the extent to which known barriers limit access to abortions.

Since all dimensions of access have an impact on the quality of access, data must be collected on all dimensions. This is the only way to avoid individual areas of access being not investigated which can have real-life implications, e.g., access to abortion not being guaranteed due to funding problems because this area of access was neglected in the research.

It is also important to highlight the potential of integrating access-related data into regular data collection processes. In the long term, this would be an effective and efficient way to obtain large-scale data on access to abortions and thus provide a basis for making scientifically sound decisions to improve access to abortions. This data collection process could be centralized in e.g., the NHS.

The indicators used were manifold and differently well suited to describe access. It would be a gain for science to universally operationalize access (to medical services/abortions), and thus, enable future researchers to analyze access to medical services, so they can be improved for everyone.

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7 Appendix

Table 2
List of Indicators That Were Identified in the Studies Examined

Indicator		Dimension(s) Associated	Reference(s)
1	Process from first suspecting pregnancy to TOP	accommodation	Heller et al (2016)
2	Travel for TOP	accessibility	Heller et al (2016)
3	Distance to clinic	accessibility	Aiken et al (2018); Smith & Cameron (2019)
4	(Non)disclosure of abortion	acceptability	Heller et al (2016)
5	Stigma	acceptability	Aiken et al (2018)
6	Feeling towards the abortion process	acceptability, accommodation	Smith & Cameron (2019)
7	Community attitudes to TOP	acceptability	Heller et al (2016)
8	Their views on TOP services in their area	acceptability	Heller et al (2016)
9	Prior negative experiences of abortion care	acceptability, accommodation	Aiken et al (2018)
10	Various indicators that review the willingness of doctors and nurses to take part in late abortion process	acceptability, availability, accommodation	Cochrane & Cameron (2013)
11	Waiting times/ referral times (x5)	accommodation	Finnie et al (2006); Aiken et al (2018); Smith & Cameron (2019); Lipp (2009); Aiken et al (2021)
12	Women's rating of care	acceptability	Finnie et al (2006)
13	GPs' self-reported practice	availability	Finnie et al (2006)
14	Receiving of medications (by post or pick-up from a clinic)	accommodation, availability	Porter Erlank et al (2021)
15	Availability of information (x2)	accommodation	Smith & Cameron (2019)
16	Information supply in the clinic	accommodation	Lipp (2009)
17	Quality of information about accessing abortion on the internet	accommodation	Duffy et al (2018)
18	(Number of) doctors in training (2x)	acceptability, (future) availability	Reinnison et al (2022): Lipp (2009)

19	Number of hours spend on teaching abortions	acceptability, (future) availability	Reinnison et al (2022)
20	Hours of clinical teaching	acceptability, (future) availability	Reinnison et al (2022)
21	(The existence of) barriers	acceptability, (future) availability	Reinnison et al (2022)
22	Teaching methods	acceptability, (future) availability	Reinnison et al (2022)
23	Content of teaching abortion care	acceptability, (future) availability	Reinnison et al (2022)
24	Assessment	acceptability, (future) availability	Reinnison et al (2022)
25	Desire for further guidance on teaching abortion	acceptability, (future) availability	Reinnison et al (2022)
26	Work or childcare commitments	accommodation, acceptability	Aiken et al (2018); Smith & Cameron (2019)
27	Lack of eligibility for free NHS services	affordability	Aiken et al (2018)
28	Lack of confidentiality of services	acceptability	Aiken et al (2018)
29	Partner violence	accessibility, acceptability	Aiken et al (2018)
30	Partner/family control	accessibility, acceptability	Aiken et al (2018)
31	Preferring the privacy and comfort of using pills at home	accommodation	Aiken et al (2018)
32	Abortion method and choice of it	accommodation	Lipp (2009)
33	Possibility for EMA (by midwife/nurse or at GP Surgery)	accommodation	Smith & Cameron (2019)
34	Buffer zones around clinic	accessibility	Smith & Cameron (2019)
35	Dedicated abortion clinic provided?	availability	Lipp (2009)
36	Preferred referral process	accommodation	Smith & Cameron (2019)

Note. EMA = early medical abortion. TOP = termination of pregnancy.