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Title Page

Methamphetamine use in Central Germany: protocol for a qualitative study exploring demands and challenges in health care

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Abstract

Introduction

The synthetic drug methamphetamine with its high addiction potential is associated with substantial adverse health effects. In Germany, the increase in the consumption of methamphetamine has exceeded that of other illegal drugs. Central Germany has been especially hard hit by the rise in methamphetamine consumption. The treatment system and service providers are facing new challenges because of the rise in consumption. This qualitative study will explore the demand created by the increasing healthcare needs of methamphetamine-addicted persons in Central Germany and the difficulty of rehabilitating addicted people.

Methods and analysis

The collection of empirical data will take place in a consecutive, two-stage process. In the first part of data collection, the experiences and perspectives of 40 professionals from numerous health care sectors for methamphetamine-addicted persons will be explored with the help of semi-structured face-to-face interviews and probed by the research team. These findings will be discussed in two focus groups that comprised the second part of data collection. The interviews will be audiorecorded, transcribed and then subjected to qualitative content analysis.

Ethics and dissemination

All interviewees will receive comprehensive written information about the study and sign a declaration of consent prior to the interview. The study will comply rigorously with data protection legislation. The research team has obtained the approval of the Ethical Review Committee at the Martin Luther University Halle-Wittenberg, Germany. The results of the study will be published in high-quality, peer-reviewed international journals, presented at several congresses and used to design follow-up research projects.

Registration number

This study has been registered in the German health care research database under registration number VfD_METH_MD_15_003600.

Strengths and Limitations of the Study

- This qualitative study will provide new evidence on increasing healthcare needs of methamphetamine-addicted persons and the challenges related to rehabilitative measures from an experts' perspective.
- It explores deficits in the treatment to deduce potential for optimal treatment of methamphetamine addiction.
- It will help to enable a more timely integration of the increasing number of methamphetamine users into the rehabilitative treatment system and adequate treatment for them in the future.
- Because of the diversity of national health care systems, these findings cannot entirely be transferred to other health care systems.

Introduction

Methamphetamine: Epidemiology and health consequences

The use of methamphetamine (crystal meth), one of the most widespread psychostimulants worldwide, has reached epidemic proportions in the past decade.[1-4] Crystal meth belongs to the class of amphetamine-type stimulants (ATS), which are consumed by around 24 million users worldwide.[3] It is estimated that in 2014 about 1.3 million young adults (aged 15-34) in Europe consumed amphetamines.[2] In 2011 alone, methamphetamine accounted for nearly 71% of all ATS seizures worldwide.[3] Several studies have shown that methamphetamine ranks highest among the illicit drugs consumed in many countries, right after cannabis.[1, 2, 5-9] It is enormously popular, has created subcultures of methamphetamine users all over the globe and is associated with a high addictive potential.[3-5, 10, 11] In Germany, the increase in the consumption of methamphetamine has outpaced that of all other drugs (2013: 19.210 first-time hard drug user; of this 13.721 first-time methamphetamine user).[5] The current German Statistical Report on substance abuse treatment reveals an increase in outpatient and inpatient addiction treatment and counselling due to the use of "stimulants".[12]

Methamphetamine, with its high addiction potential, is associated with substantial adverse health effects that include dermatologic or cardiovascular diseases, cognitive impairments and mental health problems such as depressions or psychosis.[4, 10, 11, 13-20] An often polyvalent consumption with other substances like alcohol, cannabis and hallucinogenic exacerbates these adverse health effects.[12, 21, 22] Furthermore, there is strong evidence that methamphetamine harms its users' social relationships and often leads to legal and economic problems.[19, 21, 23, 24]

Because of its proximity to the Czech Republic, Central Germany has been hit by the rise of methamphetamine consumption.[2] The Czech Republic is the main production region for the methamphetamine sold in Central Germany. In 2013, the federal state of Saxony witnessed an increase of the clients in the sector of "illicit drugs", which is primarily due to the increase in the number of methamphetamine users.[25] This general trend has been observed for five years and continued in 2014.[26] In Saxony most of the illicit substances consumed belonged to the class of stimulants (of which more than 67% is crystal meth).[26] The number of methamphetamine users recorded in the counselling service in this region is four to five times the national average.[26] About two-thirds of the clients who use illicit drugs show symptoms of addiction to crystal meth.[26]

Consumer groups, motives and consumption pattern

The users of methamphetamine and their motivations for its use have been well documented in international research.[19, 21, 27-29] Methamphetamine consumption is not limited to a special target group (e.g. the party scene) but can be found in different social groups. It is often used to raise capacity, to work longer, to do more housework, to care for children (especially by young mothers).[19, 21] It is also used for self-medication (e.g. as an antidepressant or painkiller), to foster feelings of "being in control" and "fully focused", to "have more fun" but also to "escape from current life" or to lose weight.[19, 21] A first explorative study on 400 (meth-

)amphetamine users in Germany also identified different consumer groups and motives for methamphetamine use.[30] Some people use it in the school context or at work, but there are also users with mental illness and consumers with children.[30] Beside its function as a "party drug", the results of the study showed that in Germany methamphetamine is also often used to raise capacity in different contexts. Half of the interviewees reported increased demands at work as a reason for their crystal consumption.[30]

Methamphetamine treatment and treatment approaches

So far, behavioral therapies such as cognitive behavioral therapy or contingency management have proven the most effective treatments for methamphetamine addiction.[4, 9, 31-35] Although medications have shown to be effective in treating some substance use disorders (e.g. opioid addiction) and though there is compelling evidence for the effectiveness of certain medications, there are currently no medications to counter the effects of methamphetamine or reduce its abuse by an individual addicted to the drug.[4, 9, 35] For this reason, treatment of methamphetamine addiction is a serious challenge that has yet to be met.

In Germany, there is widespread availability of counselling and treatment for drug-addicted persons, which is subdivided into measures of early diagnosis and intervention (identification of risky consumption), measures of acute and post-acute care (withdrawal therapy and long-term rehabilitation therapy) as well as measures of aftercare.[36] Based on an interdisciplinary and integrated treatment service, a focus lies on the medical rehabilitation with the aim of the viability and capacity of the affected people in occupation and everyday life.[37, 38] Generally, measures of rehabilitation are financed by German pension insurance or German health insurance, depending on the insurance conditions of the insured person. Access to the addiction treatment system is determined by different caregivers like counseling centers, family doctors and psychotherapists and by acute care hospitals.[12] An effective and efficient treatment of the drug addicts requires an intensive cooperation of the different care sectors and actors. Nevertheless, experiences from different care contexts have shown that cooperation is often complicated by different kinds of expertise, treatment concepts and financing structures.[39-41]

Required research

The majority of existing qualitative research has focused on users' perspectives, e.g. their consumption patterns and their motivation, their need for adequate health care and their experience with the drug addiction treatment system.[e.g. 29, 42-46] These studies examine the history of abuse, requirements of addiction therapy, experiences and wishes from the viewpoint of the methamphetamine users themselves. Because of the diversity of national health care systems, these findings cannot entirely be transferred to the German health care system and therefore the question about the status of medical care for methamphetamine users in Germany remains unanswered.

So far, there have been no studies assessing the current treatment structures for methamphetamine users in Central Germany. It is therefore necessary to first explore basic knowledge from the expert's perspective. For example, it is unknown how people addicted to methamphetamine gain access to treatment services, in what ways they differ from each other and how caregivers,

especially rehabilitation centers, will be able to accommodate to the growing healthcare requirements of these affected groups in the future. Furthermore, it is important to discover how the rising number of the methamphetamine user can be integrated in a timely manner into the counseling and treatment system and what the barriers to integration are.

Methods and analysis

Aims, objectives and research questions

This qualitative study will explore the demands on increasing healthcare needs of methamphetamine addicted persons in Central Germany and the challenges related to rehabilitative measures. Therefore, the study will focus on the perspectives of professionals in the ambulant counselling centers and clinics, in the acute care and in rehabilitation clinics. The professionals will be questioned about central aspects and challenges of treating the affected persons and asked about their own experiences with and assessments of these risk groups. The content of, access to, utilization of and the quality of rehabilitative treatment of methamphetamine users will be explored as will the potential for optimization within these sub-areas from the expert's perspective.

The following research questions will be the focus of our study:

How is the current treatment structure for methamphetamine-addicted persons constructed? Where are central challenges (access to, use of and quality of treatment) from the experts' perspective?

With which groups of methamphetamine users are the experts of the different counselling and treatment institutions confronted (consumption pattern, consumption motivation, sociodemographic aspects, seriousness of addiction etc.)? How are these groups different? How must rehabilitative treatment institutions adjust to the growing healthcare needs of these different affected persons?

Which potential for optimization for an adequate treatment of methamphetamine users can be deduced from the experiences and assessments of the experts for the financiers of rehabilitative measures, with the aim of a successful (re)integration in school, education and occupation?

Study design

An open qualitative approach that aims at exploration, instead of hypothesis testing, will be used to answer these research questions.[47] Qualitative methods have become a key method in the health services research, because they allow a subject orientation and the consideration of different perspectives on treatment problems.[48-50] For this research project, the open approach offers the chance to reconstruct the experiences related to practice and views of professionals in the treatment of addiction. It also explores perceived deficits in the treatment from the practitioners' perspective to deduce potential for optimal treatment of methamphetamine addiction. The use of expert interviews is highly recommended given the dearth of research on this topic. Particularly at this stage, where the topic has not been well documented and structured, such interviews provide more compact data production than other methods of data collection

like participant observation or a quantitative study, which are much more time-consuming and expensive.[51] Hence, the empirical data collection will take place in a consecutive, two-stage process with separate semi-structured face-to-face interviews with experts followed by focus groups of experts across professions. Focus groups are a resource-efficient form of group discussions and allow the capture of collective knowledge concerning a special topic while opening up new subject areas.[52, 53] Therefore, to explore the current treatment structures of methamphetamine-addicted persons and their potential deficits, the combination of semi-structured interviews and focus groups is suitable.

Identification of participants and sample size

Approximately 40 professionals across the treatment system of methamphetamine-addicted persons will be interviewed in order to acquire a broad range of expert knowledge and experience. The experts include family doctors and staff members of counseling centers, acute care facilities and rehabilitation treatment centers (tab. 1).

Tab. 1: Sample face-to-face interviews (N=40) and focus groups (N=2)

Sector of care	**Interviews (N)**
1. Face-to-face Interviews	
Family doctors	10
Counseling centers	10
Acute care	10
Rehabilitation	10
Total	**40**[1]
2. Focus groups	
8-10 professionals from all 4 sectors of care	2

Family doctors, the first professional contact for health questions, are in the best position to guide methamphetamine users to treatment in a timely manner. They are trustworthy and reliable counselors and offer in the case of solid physician-patient relations a context for discussion of issues like addiction.

Outpatient counseling centers prepare methamphetamine-addicted patients for inpatient treatment. Counseling centers support patients by consultation and therapeutic talks up to the beginning of the therapy and afterwards they are responsible for aftercare treatment.

Institutions with obligatory psychiatric care and under specialized medical management implement inpatient or outpatient acute care for methamphetamine-addicted patients. The purpose of acute treatments is, beside the transfer in self-help, the preparation of measures for follow-up treatment by institutions of the professional addiction treatment system whilst taking into account the psychic, somatic and social dimensions of this illness.

[1] If a content saturation appears in the stakeholder interviews before reaching the planned interview number (N = 10 interviews per sector of care), this number can decrease.

The rehabilitation of methamphetamine-addicted persons aims at the recovery and preservation of active participation in normal life including education, occupation, family and society as well as the development of compensation strategies in case of remaining health disorders.

Findings of the face-to-face interviews will be discussed in focus groups in the second stage of the project. This offers the opportunity to reveal problems at the interface of health care sectors and to develop optimization measures. Two focus groups should take place with the greatest possible heterogeneity of professionals. This is an established practice[49] to bring a broad range of opinions and views to a subject area.

Recruitment and data collection

The recruitment of all study participants is organized in cooperation with the section of general medicine at the university clinic, Halle-Wittenberg. The federal Centers for Addiction Issues (Landesstellen für Sucht) of Saxony, Saxony-Anhalt and Thuringia will also support the recruitment. The extent and form of recruitment are adapted to the responsiveness of the target group. It will occur in a consecutive procedure by telephone or by letter. All face-to-face interviews will be conducted by the same researcher in a private, undisturbed room at the participant's place of employment (e.g. clinic or medical offices).

For the two planned focus groups, the participants from the face-to-face interviews will be asked for renewed participation. Because of the difficult recruitment of family doctors, incentives in the amount of 50 euros will be paid for interview participation. For both the face-to-face interviews and for the focus groups, a semi-structured interview guide will be developed which will contain open questions and set topics of conversation that will be raised (in no particular sequence) during the interview.

The following key topics will be explored during the semi-structured, guided interviews:

- Experiences with methamphetamine-addicted persons (consumption groups, motives, patterns, social demographics, social economy, general living conditions, state of health, comorbidity etc.).
- Assessment of the current treatment structure for methamphetamine-addicted persons with regard to access, utilization and quality.
- Specifics in the treatment of methamphetamine addiction in comparison to other addictive disorders (e.g. longer duration of treatment, abstinence motivation, relapse etc.).
- Key difficulties in the current treatment for methamphetamine-addicted persons (among other things information/knowledge, cooperation/interface management).
- Improvement suggestions/wishes (especially in the area of rehabilitation).

Before any data are collected, the interview guide will be pilot-tested with a minimum of two professionals.

Data analysis

All interviews will be audiorecorded, transcribed and imported into MAXQDA software, which will be used to assist the data management and analyses. The expert interviews and the focus groups will be subjected to qualitative content analysis.[54-57] During the first step of "open coding", short, concise and relatively abstract concepts (codes), which characterize the segment

will be developed. In the second step, "axial coding" will look at a particular category more closely, and relationships between this category and other categories will be assessed. As a third step, "selective coding" will focus on key categories and prepare theoretical generalization. At the same time relationships and interactions between topics will be examined.[54] The research associate (LH) will conduct the coding and there will be a continuous exchange among the associate, the head of the project (MR and AK) and another research associate (NS), as well as a presentation of categories and interpretations in the qualitative research group at the Institute of Medical Sociology (IMS). Lastly, the consolidation criteria for reporting qualitative research (COREQ) will be taken into account to ensure high-quality qualitative research.[58]

Ethics and dissemination

The Institute of Medical Sociology has obtained approval for the study from the Ethical Review Committee of the Medical Faculty at Martin Luther University, Halle-Wittenberg, and its recommendations for the study have been implemented. The Committee did not express any ethical concerns about the study. The study complies rigorously with data protection legislation, and will be conducted according to the principles of the Helsinki Declaration, following standard of good scientific practice. All participants will receive an information sheet, which will describe the study. They will also sign a consent form before conducting the interview. Participation is voluntary and may be discontinued at any point. There will be no consequences for anyone who decides not to participate. Consent withdrawal is possible at any time, in which case all relevant data will be deleted. To ensure data protection, each participant will receive an individual identification number for the purposes of pseudonymisation. All data will be collected under this pseudonym. As a result, no individuals or places will risk identification and all personal data will be protected. The name of the interviewee will not be mentioned during the interview to prevent attribution of the interviews and transcripts to any individual. The gathered interview data (record and transcript), personal data (declaration of consent) and the list assigning pseudonym to individuals will be stored separately in locked locations. The declaration of consent and the pseudonym assignment list will be accessible only to members of the research team. The pseudonym assignment list will be deleted once data collection has been completed. The results of the study will be published in high-quality peer-reviewed international journals, and will be presented at several congresses and research conferences. They will also be used for as the basis of a follow-up study, which might contain interviews with methamphetamine users to explore their special needs regarding rehabilitation therapy in Central Germany. A summary of the results will also be sent to participants who have indicated a wish to receive them.

Relevance to practice/conclusion

The results of this qualitative study will provide an interdisciplinary overview on the healthcare requirements of methamphetamine-addicted persons in Central Germany in addition to what experts view as the challenges to successful treatment. Current treatment structures for affected persons will be collected as well as perceived optimization possibilities from experts' point of view will be explored. This enables a more timely integration of the increasing number of

methamphetamine users into the rehabilitative treatment system and adequate treatment for them in the future.

Authors contribution:
Laura Hoffmann, Nadine Schumann, Thomas Fankhaenel, Carolin Thiel, Andreas Klement, Matthias Richter

LH wrote the initial draft of this manuscript, will conduct the interviews and focus groups, and analyse the data. CT is responsible for the recruitment of the study participants. MR is the principal investigator of the study and is responsible for the conception of the project, led the grant application and critically reviewed the manuscript. MR and NS wrote the original study protocol in collaboration with TF and AK. All authors have read and approved the final version of the manuscript.

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Ethics approval
Ethical Review Committee of the Medical Faculty of Martin Luther University, Halle-Wittenberg (nr. 2015-35)

Competing Interests
The authors declare that they have no competing interests.

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Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Domain 1: Research Team and reflexivity Personal Characteristics	
1. Interviewer/facilitator	Which author/s conducted the interview or focus group? – *Laura Hoffmann*
2. Credentials	What were the researcher's credentials? – *M.A.*
3. Occupation	What was their occupation at the time of the study? – *research associate*
4. Gender	Was the researcher male or female? - *female*
5. Experience and training	What experience or training did the researcher have? – *studies social sciences, specialization on qualitative research*
Relationship with participants	
6. Relationship established	Was a relationship established prior to study commencement? - *no*
7. Participant knowledge of the interviewer	What did the participants know about the researcher? – *nothing*
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? – *reasons and interests in the research topic*
Domain 2: study design Theoretical Framework	
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? – *content analysis*
Participant selection	
10. Sampling	How were participants selected? – *purposive, consecutive*
11. Method of approach	How were participants approached? – *telephone, mail, e-mail*
12. Sample size	How many participants were in the study? – *40*
13. Non-participation	How many people refused to participate or dropped out? Reasons? – *ongoing study*
Setting	
14. Setting of data collection	Where was the data collected? – *at the workplace of the participants*
15. Presence of non-participants	Was anyone else present besides the participants and researchers? – *no*
16. Description of sample	What are the important characteristics of the sample? – *participants must work in the health care system in connection to methamphetamine-addicted persons*
Data collection	
17. Interview guide	Were questions, prompts, guides provided by the authors? – *yes* Was it pilot tested? – *yes, two times*
18. Repeat interviews	Were repeat interviews carried out? If yes, how many? – *no*
19. Audio/visual recording	Did the research use audio or visual recording to collect the data? – *audio*
20. Field notes	Were field notes made during and/or after the

	interview or focus group? – *yes*
21. Duration	What was the duration of the interviews or focus group? – *ca. 40 minutes (conducted face-to-face interviews, up to now)*
22. Data saturation	Was data saturation discussed? *Not yet (ongoing study)*
23. Transcripts returned	Where transcripts returned to participants for comment and/or correction? – *no*
Domain 3: analysis and findings - Due to the fact that this is an ongoing study, there are no findings right now.	
Data analysis	
24. Number of data coders	How many data coders coded the data?
25. Description of the coding tree	Did authors provide a description of the coding tree?
26. Derivation of themes	Where themes identified in advance or derived from the data?
27. Software	What software, if applicable, was used to manage the data? – *we will use maxqda*
28. Participant checking	Did participants provide feedback on the findings? – *not yet*
Reporting	
29. Quotations presented	Where participant quotations presented to illustrate the themes/findings? Was each quotation identified?
30. Data and findings consistent	Was there consistency between the data presented and the findings?
31. Clarity of major themes	Where major themes clearly presented in the findings?
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?

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Methamphetamine use in Central Germany: protocol for a qualitative study exploring requirements and challenges in health care from the professionals' perspective

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Title Page

Methamphetamine use in Central Germany: protocol for a qualitative study exploring requirements and challenges in health care from the professionals' perspective

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Abstract

Introduction

The synthetic drug methamphetamine with its high addiction potential is associated with substantial adverse health effects. In Germany, the increase in the consumption of methamphetamine has exceeded that of other illegal drugs. Central Germany has been especially hard hit by the rise in methamphetamine consumption. The treatment system and service providers are facing new challenges because of the rise in consumption. This qualitative study will explore the demand created by the increasing healthcare needs of methamphetamine-addicted persons in Central Germany and the difficulty of rehabilitating addicted people.

Methods and analysis

The collection of empirical data will take place in a consecutive, two-stage process. In the first part of data collection, the experiences and perspectives of 40 professionals from numerous health care sectors for methamphetamine-addicted persons will be explored with the help of semi-structured face-to-face interviews and probed by the research team. These findings will be discussed in two focus groups consisting of the participants of the face-to-face interviews that comprised the second part of data collection. The interviews will be audiorecorded, transcribed and then subjected to qualitative content analysis.

Ethics and dissemination

All interviewees will receive comprehensive written information about the study and sign a declaration of consent prior to the interview. The study will comply rigorously with data protection legislation. The research team has obtained the approval of the Ethical Review Committee at the Martin Luther University Halle-Wittenberg, Germany. The results of the study will be published in high-quality, peer-reviewed international journals, presented at several congresses and used to design follow-up research projects.

Registration number

This study has been registered in the German health care research database under registration number VfD_METH_MD_15_003600.

Strengths and Limitations of the Study

- This qualitative study will provide new insights on increasing healthcare needs of methamphetamine-addicted persons and the challenges related to rehabilitative measures from an experts' perspective.
- It explores structural deficits and challenges in the treatment as well as strategies and solutions to deduce potential for optimal treatment of methamphetamine addiction.
- It will help to enable a more timely integration of the increasing number of methamphetamine users into the rehabilitative treatment system and adequate treatment for them in the future.

- Because of the diversity of national health care systems, these findings cannot entirely be transferred to other health care systems.

Introduction

Methamphetamine: Epidemiology and health consequences

The use of methamphetamine (crystal meth), one of the most widespread psychostimulants worldwide, has reached epidemic proportions in the past decade.[1-4] Crystal meth belongs to the class of amphetamine-type stimulants (ATS), which are consumed by around 24 million users worldwide.[3] It is estimated that in 2014 about 1.3 million young adults (aged 15-34) in Europe consumed amphetamines.[2] In 2011 alone, methamphetamine accounted for nearly 71% of all ATS seizures worldwide.[3] Several studies have shown that methamphetamine ranks highest among the illicit drugs consumed in many countries, right after cannabis.[1, 2, 5-9] It is enormously popular, has created subcultures of methamphetamine users all over the globe and is associated with a high addictive potential.[3-5, 10, 11] In Germany, the increase in the consumption of meth-/amphetamine has outpaced that of all other drugs (2013: 19.210 first-time hard drug user; of this 13.721 first-time meth/-amphetamine user).[5] The current German Statistical Report on substance abuse treatment reveals an increase in outpatient and inpatient addiction treatment and counselling due to the use of "stimulants".[12]

Methamphetamine, with its high addiction potential, is associated with substantial adverse health effects that include dermatologic or cardiovascular diseases, cognitive impairments and mental health problems such as depressions or psychosis.[4, 10, 11, 13-20] An often polyvalent consumption with other substances like alcohol, cannabis and hallucinogenic exacerbates these adverse health effects.[12, 21, 22] Furthermore, there is strong evidence that methamphetamine harms its users' social relationships and often leads to legal and economic problems.[19, 21, 23, 24]

Because of its proximity to the Czech Republic, Central Germany has been hit by the rise of methamphetamine consumption.[2] The Czech Republic is the main production region for the methamphetamine sold in Central Germany. In 2013, the federal state of Saxony witnessed an increase of the clients in the sector of "illicit drugs", which is primarily due to the increase in the number of methamphetamine users.[25] This general trend has been observed for five years and continued in 2014.[26] In Saxony most of the illicit substances consumed belonged to the class of stimulants (of which more than 97% is crystal meth).[26] About two-thirds of the clients who use illicit drugs show symptoms of addiction to crystal meth.[26]

Consumer groups, motives and consumption pattern

The users of methamphetamine and their motivations for its use have been well documented in international research.[19, 21, 27-29] Methamphetamine consumption is not limited to a special target group (e.g. the party scene) but can be found in different social groups. It is often used to raise capacity, to work longer, to do more housework, to care for children (especially by young mothers).[19, 21] It is also used for self-medication (e.g. as an antidepressant or painkiller), to foster feelings of "being in control" and "fully focused", to "have more fun" but also to "escape from current life" or to lose weight.[19, 21] A first explorative study on 400 (meth-)amphetamine users in Germany also identified different consumer groups and motives for

methamphetamine use.[30] Some people use it in the school context or at work, but there are also users with mental illness and consumers with children.[30] Beside its function as a "party drug", the results of the study showed that in Germany methamphetamine is also often used to raise capacity in different contexts. Half of the interviewees reported increased demands at work as a reason for their crystal consumption.[30]

Methamphetamine treatment and treatment approaches

So far, behavioral therapies such as cognitive behavioral therapy or contingency management have proven the most effective treatments for methamphetamine addiction.[4, 9, 31-35] Although medications have shown to be effective in treating some substance use disorders (e.g. opioid addiction) and though there is compelling evidence for the effectiveness of certain medications, there are currently no medications to counter the effects of methamphetamine or reduce its abuse by an individual addicted to the drug.[4, 9, 35] For this reason, treatment of methamphetamine addiction is a serious challenge that has yet to be met.

In Germany, there is widespread availability of counselling and treatment for drug-addicted persons, which is subdivided into measures of early diagnosis and intervention (identification of risky consumption), measures of acute and post-acute care (withdrawal therapy and long-term rehabilitation therapy) as well as measures of aftercare.[36] Based on an interdisciplinary and integrated treatment service, a focus lies on the medical rehabilitation with the aim of the viability and capacity of the affected people in occupation and everyday life.[37, 38] Generally, measures of rehabilitation are financed by German pension insurance or German health insurance, depending on the insurance conditions of the insured person. Access to the addiction treatment system is determined by different caregivers like counseling centers, family doctors and psychotherapists and by acute care hospitals.[12] An effective and efficient treatment of the drug addicts requires an intensive cooperation of the different care sectors and actors. Nevertheless, experiences from different care contexts have shown that cooperation is often complicated by different kinds of expertise, treatment concepts and financing structures.[39-41]

Required research

The majority of existing qualitative research has focused on users' perspectives, e.g. their consumption patterns and their motivation, their need for adequate health care and their experience with the drug addiction treatment system.[e.g. 29, 42-46] These studies examine the history of abuse, requirements of addiction therapy, experiences and wishes from the viewpoint of the methamphetamine users themselves. Because of the diversity of national health care systems, these findings cannot entirely be transferred to the German health care system and therefore the question about the status of medical care for methamphetamine users in Germany remains unanswered.

So far, there have been no studies assessing the current treatment structures for methamphetamine users in Central Germany. It is therefore necessary to first explore basic knowledge from the expert's perspective. The use of expert interviews is highly recommended given the dearth of research on this topic in Germany. For example, it is unknown how people addicted to methamphetamine gain access to treatment services, in what ways they differ from each other and

how caregivers, especially rehabilitation centers, will be able to accommodate to the growing healthcare requirements of these affected groups in the future. Furthermore, it is important to discover how the rising number of the methamphetamine user can be integrated in a timely manner into the counseling and treatment system and what the barriers to integration are.

Methods and analysis

Aims, objectives and research questions

This qualitative study will explore the demands on increasing healthcare needs of methamphetamine addicted persons in Central Germany and structural challenges (e.g. collaboration of sponsors and interface management) related to rehabilitative measures as well as strategies and solutions to deduce potential for an optimal treatment of methamphetamine addiction. Therefore, the study will focus on the perspectives of professionals in the outpatient counselling centers and in inpatient facilities like the acute care and rehabilitation clinics. The professionals will be questioned about central aspects and challenges of treating the affected persons and asked about their own experiences with and assessments of these risk groups. The content of, access to, utilization of and the quality of rehabilitative treatment of methamphetamine users will be explored as will the potential for optimization within these sub-areas from the expert's perspective.

The following research questions will be the focus of our study:

How is the current treatment structure for methamphetamine-addicted persons constructed? Where are central challenges (access to, use of and quality of treatment) from the experts' perspective?

With which groups of methamphetamine users are the experts of the different counselling and treatment institutions confronted (consumption pattern, consumption motivation, sociodemographic aspects, seriousness of addiction etc.)? How are these groups different? How must rehabilitative treatment institutions adjust to the growing healthcare needs of these different affected persons?

Which potential for optimization for an adequate treatment of methamphetamine users can be deduced from the experiences and assessments of the experts for the financiers of rehabilitative measures, with the aim of a successful (re)integration in school, education and occupation?

Study design

An inductive qualitative approach that aims at exploration, instead of a deductive approach, will be used to answer these research questions.[47, 48] Qualitative methods have become a key method in the health services research, because they allow a subject orientation and the consideration of different perspectives on treatment problems.[49-51] For this research project, the inductive approach offers the chance to reconstruct the experiences related to practice and views of professionals in the treatment of addiction. It also explores perceived deficits in the treatment from the practitioners' perspective to deduce potential for optimal treatment of methamphetamine addiction. The use of expert interviews is highly recommended given the dearth

of research on this topic. Particularly at this stage, where the topic has not been well documented and structured, such interviews provide more compact data production than other methods of data collection like participant observation or a quantitative study, which are much more time-consuming and expensive.[52] Hence, the empirical data collection will take place in a consecutive, two-stage process with separate semi-structured face-to-face interviews with experts followed by focus groups of experts across professions. Focus groups are a resource-efficient form of group discussions and allow the capture of collective knowledge concerning a special topic while opening up new subject areas.[53, 54] Therefore, to explore the current treatment structures of methamphetamine-addicted persons and their potential deficits, the combination of semi-structured interviews and focus groups is suitable.

Identification of participants and sample size

Approximately 40 professionals across the treatment system of methamphetamine-addicted persons will be interviewed in order to acquire a broad range of expert knowledge and experience. The experts include family doctors and staff members of counseling centers, acute care facilities and rehabilitation treatment centers (tab. 1).

Tab. 1: Sample face-to-face interviews (N=40) and focus groups (N=2)

Sector of care	**Interviews (N)**
1. Face-to-face Interviews	
Family doctors	10
Counseling centers	10
Acute care	10
Rehabilitation	10
Total	**40**[1]
2. Focus groups	
8-10 professionals from all 4 sectors of care	2

Family doctors, the first professional contact for health questions, are in the best position to guide methamphetamine users to treatment in a timely manner. They are trustworthy and reliable counselors and offer in the case of solid physician-patient relations a context for discussion of issues like addiction.

Outpatient counseling centers prepare methamphetamine-addicted patients for inpatient treatment. Counseling centers support patients by consultation and therapeutic talks up to the beginning of the therapy and afterwards they are responsible for aftercare treatment.

Institutions with obligatory psychiatric care and under specialized medical management implement inpatient or outpatient acute care for methamphetamine-addicted patients. The purpose of acute treatments is, beside the transfer in self-help, the preparation of measures for follow-up

[1] If a content saturation appears in the stakeholder interviews before reaching the planned interview number (N = 10 interviews per sector of care), this number can decrease.

treatment by institutions of the professional addiction treatment system whilst taking into account the psychic, somatic and social dimensions of this illness.

The rehabilitation of methamphetamine-addicted persons aims at the recovery and preservation of active participation in normal life including education, occupation, family and society as well as the development of compensation strategies in case of remaining health disorders.

Findings of the face-to-face interviews will be discussed in focus groups in the second stage of the project with the aim to develop concrete suggestions for structural improvements (e.g. to optimize cross-sectoral cooperation) for optimal treatment of methamphetamine addiction. This offers the opportunity to reveal problems at the interface of health care sectors and to develop optimization measures. Two focus groups should take place with the greatest possible heterogeneity of professionals. This is an established practice[50] to bring a broad range of opinions and views to a subject area.

Recruitment and data collection

The recruitment of all study participants is organized in cooperation with the section of general medicine at the university clinic, Halle-Wittenberg. The federal Centers for Addiction Issues (Landesstellen für Sucht) of Saxony, Saxony-Anhalt and Thuringia will also support the recruitment. The extent and form of recruitment are adapted to the responsiveness of the target group. It will occur in a consecutive procedure by telephone or by letter. All face-to-face interviews will be conducted by the same researcher in a private, undisturbed room at the participant's place of employment (e.g. clinic or medical offices).

For the two planned focus groups, the participants from the face-to-face interviews will be asked for renewed participation. Because of the difficult recruitment of family doctors, incentives in the amount of 50 euros will be paid for interview participation. For both the face-to-face interviews and for the focus groups, a semi-structured interview guide will be developed which will contain open questions and set topics of conversation that will be raised (in no particular sequence) during the interview.

The following key topics will be explored during the semi-structured, guided interviews:

- Experiences with methamphetamine-addicted persons (consumption groups, motives, patterns, social demographics, social economy, general living conditions, state of health, comorbidity etc.).
- Assessment of the current treatment structure for methamphetamine-addicted persons with regard to access, utilization and quality.
- Specifics in the treatment of methamphetamine addiction in comparison to other addictive disorders (e.g. longer duration of treatment, abstinence motivation, relapse etc.).
- Key difficulties in the current treatment for methamphetamine-addicted persons (among other things information/knowledge, cooperation/interface management).
- Improvement suggestions/wishes (especially in the area of rehabilitation).

Before any data are collected, the interview guide will be pilot-tested with a minimum of two professionals.

Data analysis

All interviews will be audiorecorded, transcribed and imported into MAXQDA software, which will be used to assist the data management and analyses. The expert interviews and the focus groups will be subjected to qualitative content analysis.[55-58] During the first step of "open coding", short, concise and relatively abstract concepts (codes), which characterize the segment will be developed. In the second step, "axial coding" will look at a particular category more closely, and relationships between this category and other categories will be assessed. As a third step, "selective coding" will focus on key categories and prepare theoretical generalization. At the same time relationships and interactions between topics will be examined.[55] The research associate (LH) will conduct the coding and there will be a continuous exchange among the associate, the head of the project (MR and AK) and another research associate (NS), as well as a presentation of categories and interpretations in the qualitative research group at the Institute of Medical Sociology (IMS). Lastly, the consolidation criteria for reporting qualitative research (COREQ) will be taken into account to ensure high-quality qualitative research.[59]

Ethics and dissemination

The Institute of Medical Sociology has obtained approval for the study from the Ethical Review Committee of the Medical Faculty at Martin Luther University, Halle-Wittenberg, and its recommendations for the study have been implemented. The Committee did not express any ethical concerns about the study. The study complies rigorously with data protection legislation, and will be conducted according to the principles of the Helsinki Declaration, following standard of good scientific practice. All participants will receive an information sheet, which will describe the study. They will also sign a consent form before conducting the interview. Participation is voluntary and may be discontinued at any point. There will be no consequences for anyone who decides not to participate. Consent withdrawal is possible at any time, in which case all relevant data will be deleted. To ensure data protection, each participant will receive an individual identification number for the purposes of pseudonymisation. All data will be collected under this pseudonym. As a result, no individuals or places will risk identification and all personal data will be protected. The name of the interviewee will not be mentioned during the interview to prevent attribution of the interviews and transcripts to any individual. The gathered interview data (record and transcript), personal data (declaration of consent) and the list assigning pseudonym to individuals will be stored separately in locked locations. The declaration of consent and the pseudonym assignment list will be accessible only to members of the research team. The pseudonym assignment list will be deleted once data collection has been completed. The results of the study will be published in high-quality peer-reviewed international journals, and will be presented at several congresses and research conferences. They will also be used for as the basis of a follow-up study, which might contain interviews with methamphetamine users to explore their special needs regarding rehabilitation therapy in Central Germany. A summary of the results will also be sent to participants who have indicated a wish to receive them.

Relevance to practice/conclusion

The results of this qualitative study will provide an interdisciplinary overview on the healthcare requirements of methamphetamine-addicted persons in Central Germany in addition to what experts view as the challenges to successful treatment. Current treatment structures for affected persons will be collected as well as perceived optimization possibilities from experts' point of view will be explored. This enables a more timely integration of the increasing number of methamphetamine users into the rehabilitative treatment system and adequate treatment for them in the future. Because of the diversity of national health care systems, these findings cannot entirely be transferred to other health care systems.

Authors contribution:

Laura Hoffmann, Nadine Schumann, Thomas Fankhaenel, Carolin Thiel, Andreas Klement, Matthias Richter

LH wrote the initial draft of this manuscript, will conduct the interviews and focus groups, and analyse the data. CT is responsible for the recruitment of the study participants. MR is the principal investigator of the study and is responsible for the conception of the project, led the grant application and critically reviewed the manuscript. MR and NS wrote the original study protocol in collaboration with TF and AK. All authors have read and approved the final version of the manuscript.

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Ethics approval

Ethical Review Committee of the Medical Faculty of Martin Luther University, Halle-Wittenberg (nr. 2015-35)

Competing Interests

The authors declare that they have no competing interests.

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Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

Domain 1: Research Team and reflexivity Personal Characteristics	
1. Interviewer/facilitator	Which author/s conducted the interview or focus group? – *Laura Hoffmann*
2. Credentials	What were the researcher's credentials? – *M.A.*
3. Occupation	What was their occupation at the time of the study? – *research associate*
4. Gender	Was the researcher male or female? - *female*
5. Experience and training	What experience or training did the researcher have? – *studies social sciences, specialization on qualitative research*
Relationship with participants	
6. Relationship established	Was a relationship established prior to study commencement? - *no*
7. Participant knowledge of the interviewer	What did the participants know about the researcher? – *nothing*
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? – *reasons and interests in the research topic*
Domain 2: study design Theoretical Framework	
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? – *we use an inductive, qualitative approach to underpin the study*
Participant selection	
10. Sampling	How were participants selected? – *purposive, consecutive*
11. Method of approach	How were participants approached? – *telephone, mail, e-mail*
12. Sample size	How many participants were in the study? – *40*
13. Non-participation	How many people refused to participate or dropped out? Reasons? – *ongoing study*
Setting	
14. Setting of data collection	Where was the data collected? – *at the workplace of the participants*
15. Presence of non-participants	Was anyone else present besides the participants and researchers? – *no*
16. Description of sample	What are the important characteristics of the sample? – *participants must work in the health care system in connection to methamphetamine-addicted persons*
Data collection	
17. Interview guide	Were questions, prompts, guides provided by the authors? – *yes* Was it pilot tested? – *yes, two times*
18. Repeat interviews	Were repeat interviews carried out? If yes, how many? – *no*
19. Audio/visual recording	Did the research use audio or visual recording to collect the data? – *audio*

20. Field notes	Were field notes made during and/or after the interview or focus group? – *yes*
21. Duration	What was the duration of the interviews or focus group? – *ca. 40 minutes (conducted face-to-face interviews, up to now)*
22. Data saturation	Was data saturation discussed? *Not yet (ongoing study)*
23. Transcripts returned	Where transcripts returned to participants for comment and/or correction? – *no*
Domain 3: analysis and findings - Due to the fact that this is an ongoing study, there are no findings right now.	
Data analysis	
24. Number of data coders	How many data coders coded the data?
25. Description of the coding tree	Did authors provide a description of the coding tree?
26. Derivation of themes	Where themes identified in advance or derived from the data?
27. Software	What software, if applicable, was used to manage the data? – *we will use maxqda*
28. Participant checking	Did participants provide feedback on the findings? – *not yet*
Reporting	
29. Quotations presented	Where participant quotations presented to illustrate the themes/findings? Was each quotation identified?
30. Data and findings consistent	Was there consistency between the data presented and the findings?
31. Clarity of major themes	Where major themes clearly presented in the findings?
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?