Dr. med. Sebastian D. Schäfer / Roman Spelsberg MSc / Dr. med. Nadine Rohloff / Dr. med. Charlotte Weber / Hans-Holger Bleß / Teresa Götz MSc / Hannah Ehlert MSc / Nicole R. Heinze MSc / Dr. med. Marco Zugaj MHBA / Prof. Dr. med. Daniel M. Pöpping

Multimodal pain therapy for patients with endometriosis: care structure in German pain centres

It is estimated that every tenth woman of childbearing age has endometriosis. That's around 1.7 million sufferers in Germany. There are around 40,000 new diagnoses every year (Diedrich et al. 2006). The most important leading symptom is severe pain during menstruation, but also abdominal pain independent of the period. The more severe the pain, the greater the reduction in quality of life (Facchin et al. 2015). Depending on the localisation of endometriosis lesions, other symptoms, functional complaints and accompanying symptoms may also occur. Endometriosis is a chronic pain disorder that often takes several years to be diagnosed. In addition, current therapies result in high recurrence rates and the cause of the disease remains unclear (Diedrich et al. 2006; AWMF 2020). The long-lasting pain leads to complex neurological changes that often cause the pain to become chronic (Ball and Khan 2020; Brawn et al. 2014). Pain is defined as chronic if it lasts for more than three months or is recurrent (Treede et al. 2019).

>> Improving quality of life in everyday life through information and help for self-help, multimodal pain therapy and low-threshold access to specialised and interdisciplinary support for all those affected should be one of the primary goals of endometriosis therapy. Expert recommendations, guidelines and reviews agree on this (Arnold et al. 2014; As-Sanie et al. 2019; Greco 2003; Glier 2019; Becker et al.). At the same time, researchers (As-Sanie et al. 2019), treating physicians and patients (Weber et al. 2023) denounce the current inadequate care of endometriosis patients and call for a holistic treatment approach for endometriosis both in Germany and internationally. Access to multimodal therapy is limited in Germany. The RKI's care report shows a low number of inpatient rehabilitations for endometriosis as a gap in care and outpatient interdisciplinary disease management programmes for endometriosis are not available (Robert Koch Institute (RKI) 2020).

Opinions of different experts regarding the content and coordination of treatment sector, intervention and multidisciplinary therapy approaches for the pain management of patients with endometriosis differ. For this study, the definition by Arnold et al. 2009 and the German Pain Society from 2014 is used (Arnold et al. 2014; Arnold et al. 2009): 'Multimodal pain therapy is the term used to describe the comprehensive treatment of patients with chronic pain syndromes that is closely coordinated in terms of time and content, in which various somatic, physical exercise, psychological exercise and psychotherapeutic procedures are integrated according to a predetermined treatment plan with an identical treatment goal agreed between the therapists.'

Although multimodal pain therapy is considered the standard of care for patients with chronic pain due to endometriosis, there is little literature on the structure of care in Germany (Willimann 2012; Mechsner 2021a, 2021b; Maass and Janni 2015; Kayser et al. 2022; Carl 2021).

This study examines the current care structures for endometriosis patients in German pain centres. The aim is to analyse the specific challenges in the care of patients with endometriosis from the perspective of pain centres. Furthermore, the therapeutic needs with regard to the pain therapy care of endometriosis patients will be revealed. In addition, an overview of the treatments used in pain centres for the multimodal pain therapy of patients with endometriosis and their reimbursement structures will be compiled.

Methodology

Study design

In this study, an online survey and expert interviews were conducted. The web application SoSci Survey was used for the online survey. The expert interviews were conducted by the authors (Charlotte Weber, Teresa Götz, Roman Spelsberg) by telephone or online and took place separately from the online survey. The semi-structured interview guide was based on the initial results of the online survey and was made available to the experts prior to the interviews.

Recruitment

Recruitment for the study took place online in the period from 1 August 2023 to 30 September 2023. The pain centres were approached via participating experts and institutions as well as specialist societies and publicly available contact details. The invitation to participate in the study, including the link to the online survey, was sent to the pain centres by email. All participants were informed about the study objectives and the anonymity of their data and received the contact details of the study management.

Study population

Pain centres that offer multimodal pain therapy (outpatient, day-care or inpatient), are located in Germany, have Internet access and are motivated to complete the online survey were included in the study. The exclusion criterion was the lack of consent to participate in the study.

The study population for the expert interviews consisted of some of the experts who had received an invitation to take part in the online survey by email or had taken part in it. Following the online survey, the experts were able to indicate that they were

willing to participate in the expert interviews voluntarily.

Analysis

Descriptive analyses were carried out using SPSS to evaluate the quantitative questions of the online survey. These included the number of responses as well as the maximum, minimum, median and mean values of the responses on the rating scales.

The summarised content analysis according to Mayring was used to evaluate the expert interviews (Mayring 1994). This was carried out by authors who were not involved in the interviews.

Results

294 German pain centres were contacted between 4 August and 13 September 2023. 19 experts from pain centres took part in the online survey, 10 of whom completed the questionnaire in full. In addition, 9 experts took part in interviews.

Some of the interviewees had previously taken part in the online survey. All nine interviewees had completed specialist training in a relevant field. 8 of the 9 interviewees had completed specialist training in anaesthesiology with the additional qualification of special pain therapy. 7 of the 9 experts worked in a senior or other management position. 4 of the participants worked in university institutions, 3 in non-university clinics and 2 in outpatient pain centres.

In the online survey, the experts from the pain centres (N = 10) stated that they cared for an average of 206 pain patients per quarter (SD = 144.9), including an average of 5.9 endometriosis patients (SD = 2.6). 83.1% of pain patients in the centres surveyed have statutory health insurance (SD = 28.2).

Procedure of multimodal pain therapy for endometriosis patients

Based on the study results and a systematic literature search, Figure 1 shows a schematic representation of the treatment process for endometriosis patients treated in pain centres.

Various procedures are used to make the diagnosis. Firstly, unimodal measures are used to treat pain. With regard to the diagnosis, both the online survey and the expert interviews discussed the excessively long diagnosis time for endometriosis due to gaps in care. The experts also agree that the treatment path to multimodal pain therapy must be greatly shortened for endometriosis. During one of the expert interviews, one expert commented: ' I think the women come far too late, and most of them come when they are no longer able to work. That's a shame, because a regular daily routine, a certain amount of recognition, appreciation and meaningfulness is part of coming to terms with the illness, dealing with it and self-efficacy.'

One problem is the visibility of endometriosis patients in pain centres. In both survey modalities, the experts state that around half of the patients who are also treated for symptoms of endometriosis receive a different main diagnosis. The main and referral diagnosis is usually chronic pain disorder with somatic and psychological factors (F45.41). This can prolong the time it takes to initiate the necessary specific therapy.

Both the online survey and the expert interviews show that the treatment processes for pain therapy vary depending on the centre, clinic or practice. As a rule, an assessment is carried out first, including an evaluation of the German Pain Society's pain questionnaire. Medication and non-medication measures are used in a patient-specific manner with a holistic view in order to strengthen individual resources and create a salutogenic counterbalance to the burden of disease as well as pain relief In multimodal pain therapy in the narrower sense, according to the experts interviewed, a team is formed from representatives of the specialist disciplines involved. Coordination is carried out by medical staff. A team usually looks after a group of around 8 patients. The duration of therapy is individualised and is around one to five weeks in this partial/inpatient setting, with inpatient stays lasting shorter than partial inpatient stays. A minimum duration of three weeks is aimed for in order for the therapy to be effective in the long term. During this time, the therapy components are constantly adapted to the patient's needs.

According to most of the experts interviewed, a follow-up appointment takes place around six months after the end of the stay, at which the individual's success in everyday life is discussed and any adjustments to the measures are made.

At the end of multimodal treatment, an individualised therapy concept is developed that should be pursued further. How well the connection works afterwards depends on a variety of circumstances, e.g. place of residence, age or concomitant psychiatric illnesses. The pain centres make every effort to help refer patients to suitable specialists, but there are often long waiting times.

The core objective of multimodal pain therapy is to improve the quality of life by enabling patients to individually organise self-help, which they continue to do independently in their everyday lives (e.g. sleep hygiene, regular exercise).

However, this goal of the experts usually does not correspond to the reality of care. Instead of receiving customised multimodal pain treatment, many endometriosis sufferers are left alone with their pain or are operated on again after an unsuccessful operation, for example, with the same result.

Content of multimodal pain therapy for endometriosis patients

The core components of multimodal pain therapy are pain medicine, psychosomatic medicine/education/therapy and physiotherapy. According to the experts, the core components should be supplemented by a variety of other therapy options, such as nutritional therapy or music therapy, on a patient-specific basis.

Both the online survey and the expert interviews revealed a wide range in the frequency of the individual therapy options, as the design and frequency of each programme should be tailored to the individual patient. A mixture of group and individual treatments is mentioned.

There are no guidelines for the treatment of endometriosis-related chronic pain, however, as part of the individualised therapy design for endometriosis patients, a special therapy focus is placed on the pelvic and lower abdominal area as well as the endometriosis-specific symptoms.

Interdisciplinary cooperation is important for multimodal pain

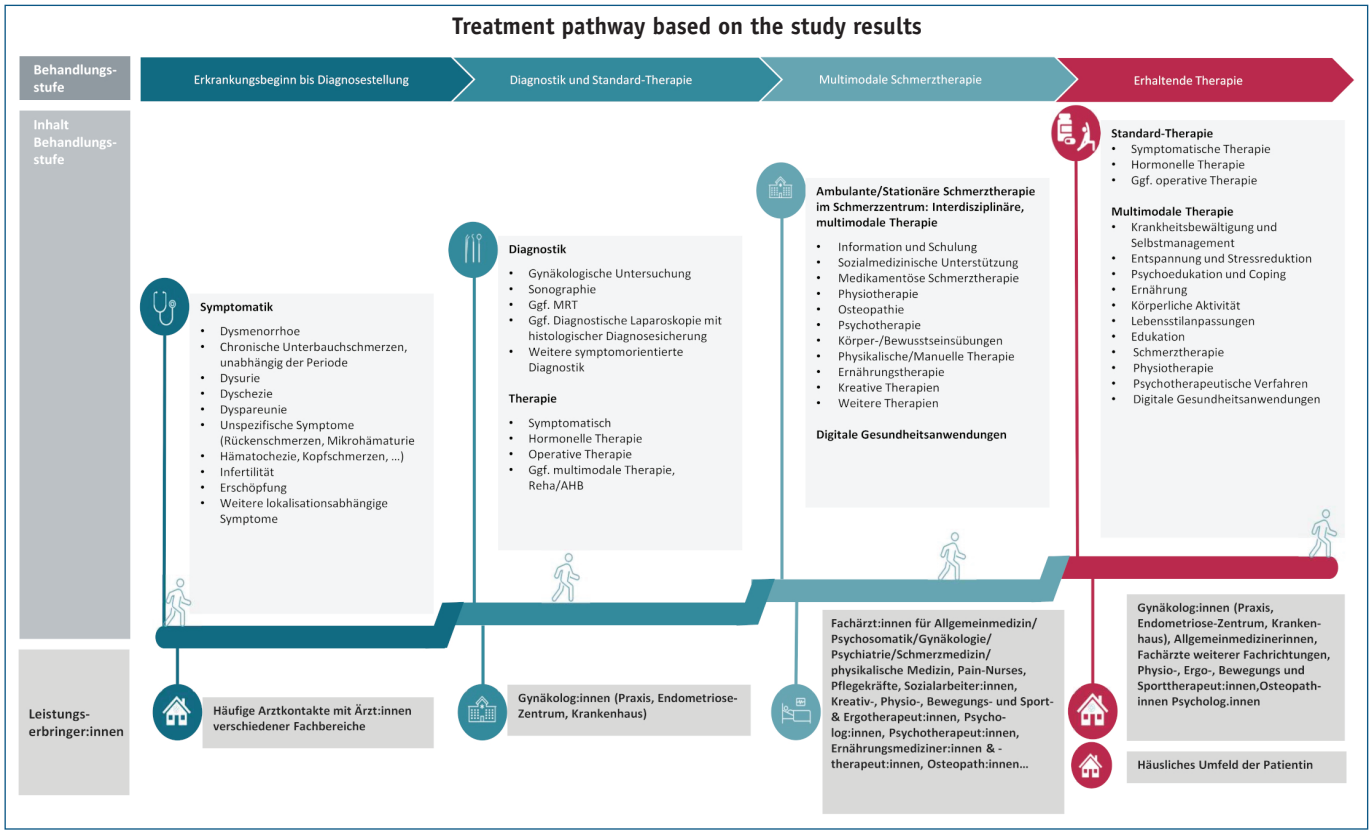


Fig. 1: *Treatment pathway, own illustration based on the study results.*

therapy. 11 centres answered the question about service providers who are involved in interdisciplinary treatment sessions for interdisciplinary, multimodal pain therapy for endometriosis patients (see Fig. 2). Other service providers mentioned in the free text are: 'osteopath', 'specialist in internal medicine', 'doctor of physical medicine' and 'nutritionist'.

In the expert interviews, multimodal pain therapy is also differentiated from other forms of therapy through intensive interdisciplinary collaboration. The mixture of the diverse offers and the individual customisation in this holistic approach are seen as therapeutic advantages. Furthermore, the comparatively longer duration of individual appointments is mentioned as an advantage, which is often lacking in other settings in order to do justice to the complexity of the illness.

An important topic in the expert interviews is the need for multimodal therapy options outside of inpatient treatment. The majority of multimodal pain therapy currently takes place in an inpatient setting. There is currently little or no outpatient care, partly because it is currently not cost-covering. The remuneration of multimodal pain therapy in the narrow sense only covers the costs incurred in the case of partial/inpatient admission and remuneration through daily/case flat rates.

Multimodal therapy options outside of inpatient treatment are very attractive for many patients due to local commitments and could be utilised by a larger number of people. They could provide a wider range of treatment options and be used earlier and preventively before manifest pain chronification. In contrast to inpatient treatment, which is often only initiated in the case of advanced pain chronification and pronounced symptoms of the disease, when the prospect of successful treatment has already deteriorated significantly. Experts therefore believe that multimodal therapy options are also desirable outside of inpatient treatment, but fail not only due to remuneration but also due to functional concepts, the necessary specialists and close interdisciplinary coordination.

Billing multimodal pain therapy for endometriosis patients

Although multimodal pain therapy is considered by experts to be the standard of care for endometriosis patients with chronic pain, there is a gap in care. This is not least due to the billing situation. As in other disease areas, care follows reimbursement. While there are established billing modalities for multimodal pain therapy in the inpatient and day-care setting (see Table 1 and Table 2), the billing options in the outpatient setting are not sufficient. The experts point to the potential of outpatientisation of multimodal pain therapy for endometriosis patients. Where billing options were seen in the outpatient setting, an attempt was made to characterise these, whereby the individuality of the therapy was always emphasised, which must be the top priority of multimodal therapy (see Table 3).

As part of the care provided in university outpatient clinics or pain outpatient clinics, some of the services of multimodal pain therapy are billed via flat rates per case. In an exemplary case, this flat rate amounts to 150 euros per patient per quarter. This covers



Fig. 2: *Service providers, own representation based on the study results.*

basic pain medical care consisting of assessment, therapy planning and education on therapy. Physiotherapy and psychotherapy services are not included in this flat rate and are billed separately. These services are billed according to the standardised assessment scale (EBM). In addition, care contexts were described in which the core services of multimodal pain therapy are coordinated in a medical care centre (MVZ) and billed according to EBM. Following an initial assessment with up to 5 trial sessions, at least 12 units of physiotherapy, 6 sessions of behavioural therapy, 4 counselling appointments and further treatment options are offered in a three-week therapy programme for this outpatient care. In addition, 4 pain therapy case conferences are held to coordinate treatment.

Challenges

The online questionnaire presented 15 hypotheses on the treatment of patients with endometriosis in Germany, which could be rated on a scale from 1 ('agree') to 5 ('disagree'). The results are shown in Table 4.

Overall, the experts surveyed see major gaps in the treatment of endometriosis patients in Germany.

In both survey modalities, the often very advanced chronicity of the patients is mentioned

Stationäre Abrechnung		
OPS-Code	**Beschreibung / Behandlungsdauer**	**Durchschnittliche Entgelte (DRG + Pflege) modelliert mit DRG-Grouper (durchschnittliche Verweildauer) in Euro**
8-91b	Kurzzeitbehandlung ≥ 6 Behandlungstage	2.180,07 (3 Tage)
8-918.0	≥ 7 bis höchstens 13 Behandlungstage	4.853,30 (10 Tage)
8-918.1	≥ 14 bis höchstens 20 Behandlungstage	8.421,13 (17 Tage)
8-918.2	≥ 21 Behandlungstage	12.498,65 (25 Tage)
Modellannahmen basierend auf Durchschnitten für die beschriebene Patientenpopulation: Geschlecht: weiblich; Diagnosen: N80.0 (Endometriose des Uterus) und F45.41 (Chronische Schmerzstörung mit somatischen und psychischen Faktoren); Alter: 27 Jahre; Basisfallwert 4.200 Euro; Pflegeentgeltwert: 230 Euro; DRG N62A		

Table 1: Inpatient billing. Source: own illustration.

Teilstationäre Abrechnung		
OPS-Code	**Beschreibung / Behandlungsdauer**	**Durchschnittliche Entgelte (DRG + Pflege) modelliert mit DRG-Grouper (durchschnittliche Verweildauer) in Euro**
8-91c.0	≥ 2 Verfahren*; ≥ 120 Min. Therapiezeit pro Tag	2.180,07
8-91c.1	≥ 3 Verfahren*; ≥ 180 Min. Therapiezeit pro Tag	DRG: N62A
8-91c.2	≥ 4 Verfahren*; ≥ 240 Min. Therapiezeit pro Tag	

Table 2: Partial inpatient billing. Legend: *The following are considered to be team-integrated procedures: 1) physical exercise procedures such as activating physiotherapy, training therapy, endurance training, stretching exercises, sensorimotor training, occupational therapy, workplace training; 2) psychotherapeutic exercise procedures, also provided by therapists, such as muscle relaxation, autogenic training; 3) medical or psychological psychotherapeutic procedures such as psychological pain therapy, group psychotherapy, education, everyday life planning, disorder-orientated individual therapy; 4) other procedures such as social interventions, creative therapy, artistic therapy (art and/or music therapy). Model assumptions based on averages for the patient population described: Gender: female; diagnoses: N80.0 (endometriosis of the uterus) and F45.41 (chronic pain disorder with somatic and psychological factors); age: 27 years; base case value 4,200 euros; care fee value: 230 euros. Source: own presentation.

as a challenge. Multimodal pain therapy is often used as a last resort after various other therapies have been unsuccessful. Preventive therapy to prevent pain chronification is cited as the ideal treatment. However, as there are currently no resources available for such prevention, it is seen as one of the greatest challenges and gaps in care.

The expert interviews also discuss the need to raise awareness among gynaecologists and general practitioners for the topic of pain in women, for interdisciplinary cooperation and for multimodal pain therapy in order to improve care.

The care situation varies from region to region and is particularly critical in rural areas. One expert notes the following: 'I don't believe that the pain centres can generally meet the demand.' Another expert explains: 'There are certainly areas where there is sufficient capacity. And then there are absolute diasporas where there is no pain therapy centre at all.'

This applies to access to multimodal pain therapy and follow-up treatment. Therapy concepts that have been determined can often not be implemented. Waiting times are often longer than six months. The shortage of specialists, especially psychotherapists and psychosomatic specialists, poses a challenge for care in and outside of multimodal pain therapy. In addition, current care is not focussed on endometriosis-related chronic pain and concentrates on the most common chronic pain disorders, e.g. chronic back pain.

Etablierte Abrechnungsmodalitäten

	EBM-Bezeichnung	EBM-Ziffer	Vergütung in Euro	Anmerkung / Erklärung der Berechnung	Summe in Euro
Assessment	Grundpauschale	30700	47,02	1 x je Behandlungsfall	716,63
	Zusatzpauschale	30702	59,43	1 x je Behandlungsfall	
	Zuschlag	30704	35,68	1 x je Behandlungsfall	
	Teilnahme an einer schmerztherapeutischen Fallkonferenz	30706	10,26	berechnet für 1 Sitzung	
	Beratung und Erörterung und/oder Abklärung im Rahmen der Schmerztherapie	30708	141,19	min. 70 Minuten (berechnet für 70 Minuten)	
	Probatorische Sitzung	30931	423,05	berechnet für 5 Sitzungen mit min. 50 Minuten	
Psychotherapie	Teilnahme an einer schmerztherapeutischen Fallkonferenz	30706	41,04	berechnet für 4 Sitzungen (2 pro Monat)	961,99
	Beratung und Erörterung und/oder Abklärung im Rahmen der Schmerztherapie	30708	242,04	berechnet für 4 Sitzungen mit 30 Minuten	
	Verhaltenstherapie – Gruppentherapie mit 3 Teilnehmer:innen	35543	669,48	berechnet für 6 Sitzungen mit min. 100 Minuten	
	Psychotherapeutische Grundpauschale	23211	9,43	1 x je Behandlungsfall (für Patient:innen im Alter von 6-59 Jahren)	
	Leistung	**HM-PosNr**	**Vergütung**	**Anmerkung / Erklärung der Berechnung**	**Summe in Euro**
Physiotherapie	Krankengymnastik – Einzelbehandlung	X0501, X0521	333,60	Höchstmenge je Verordnung von 6 Einheiten (berechnet für 2 Verordnungen von je 6 Einheiten)	961,99
	Leistung	**Abrechnung**	**Vergütung**	**Anmerkung / Erklärung der Berechnung**	**Summe in Euro**
Sonstige Therapien	z. B. Ernährungstherapie, Kreativtherapie, künstlerische Therapie	Pauschalen	ca. 150,00	Pauschale pro Patientin pro Quartal, (berechnet für 1 Quartal z.B. für Hochschulambulanzen oder psychiatrische Institutsambulanzen (§ 120 Abs. 3 SGB V)	333,60
Therapiekosten für ein dreiwöchiges Programm					2.162,22

Table 3: Outpatient billing, own presentation based on the study results. Legend: EBM: standardised evaluation scale, HMPosNr: therapeutic product item number, OPS: operation and procedure code.

Finally, the media attention for the topic of endometriosis is discussed. On the one hand, it increases patient awareness. On the other hand, society still lacks a proper understanding of the topic of 'pain' and the associated burdens. Nevertheless, a dramatising presentation of the disease should be avoided. Transparent, competent and encouraging information is recommended by the experts.

Discussion

This study shows the importance of interdisciplinary multimodal pain therapy for endometriosis patients, both curative and preventive (Mechsner 2021a; Pickett et al. 2023). The key to successful treatment is to find the right individualised strategies for each patient that they can use in everyday life (Kieselbach et al. 2022). Multimodal pain therapy is considered the standard of care. However, this does not correspond to the reality of care; instead, there are gaps in care. Various factors play a role here.

Availability is a major challenge in many regions of Germany. The shortage of specialists is often a problem (Mechsner 2021a). In some cases, the current remuneration structures make it difficult or even impossible to provide endometriosis patients with pain therapy that meets their needs (Mechsner 2021b). GPs and gynaecologists are often under-informed and only refer patients to multimodal pain

therapy after significant chronification. Just like the long diagnosis time, this leads to a lack of care, especially for patients with subchronic pain (Kieselbach et al. 2022; Mechsner 2021b). In addition, misdiagnoses can delay appropriate treatment (Mechsner 2021a).

Experts see an important approach to closing the gaps in care in the expansion of preventive measures to prevent pain chronification. In the long term, this can reduce costs in the healthcare system, which are currently caused, for example, by many operations and long periods of incapacity to work for endometriosis sufferers. This would be possible, for example, in a step-by-step scheme in which treatment is tailored to the severity and type of pain as well as the overall disease situation (Mechsner 2021b, 2021a). Digital concepts that can be used by a larger number of patients, even in the early stages of pain, could form part of this step-by-step scheme. This is in line with the experts' recommendations for the expansion of multimodal pain therapy outside of inpatient treatment, as there is currently often underuse and misuse in the outpatient sector for chronic pain patients due to a lack of remuneration, functional concepts and necessary specialists (Mechsner 2021a; Kieselbach et al. 2022).

Literature

Arnold, B.; Brinkschmidt, T.; Casser, H-R; Diezemann, A.; Gralow, I.; Irnich, D. et al. (2014): Multimodale Schmerztherapie für die Behandlung chronischer Schmerzsyndrome. Ein Konsensuspapier der Ad-hoc-Kommission Multimodale interdisziplinäre Schmerztherapie der Deutschen Schmerzgesellschaft zu den Behandlungsinhalten. In: Schmerz (Berlin, Germany) 28 (5), S. 459–472. DOI: 10.1007/s00482-014-1471-x.

Arnold, B.; Brinkschmidt, T.; Casser, H-R; Gralow, I.; Irnich, D.; Klimczyk, K. et al. (2009): Multimodale Schmerztherapie: Konzepte und Indikation. In: Schmerz (Berlin, Germany) 23 (2), S. 112–120. DOI: 10.1007/s00482-008-0741-x.

As-Sanie, Sawsan; Black, Rebecca; Giudice, Linda C.; Gray Valbrun, Tanika; Gupta, Jhumka; Jones, Brittany et al. (2019): Assessing research gaps and unmet needs in endometriosis. In: American journal of obstetrics and gynecology 221 (2), S. 86–94. DOI: 10.1016/j.ajog.2019.02.033.

AWMF (Hg.) (2020): S2k Leitlinie der DGGG, OEGGG und SGGG zur Diagnose und Therapie der Endometriose. Online verfügbar unter https://www.awmf.org/uploads/tx_szleitlinien/015-045l_S2k_Diagnostik_Therapie_Endometriose_2020-09.pdf.

Ball, Elizabeth; Khan, Khalid S. (2020): Recent advances in understanding and managing chronic pelvic pain in women with special consideration to endometriosis. In: F1000Research 9. DOI: 10.12688/f1000research.20750.1.

Becker, Annette; Becker, Michal; Engeser, Peter (2023): Leitlinie Chronischer Schmerz. Hg. v. AWMF. Online verfügbar unter https://www.awmf.org/leitlinien/detail/ll/053-036.html.

Brawn, Jennifer; Morotti, Matteo; Zondervan, Krina T.; Becker, Christian M.; Vincent, Katy (2014): Central changes associated with chronic pelvic pain and endometriosis. In: Human reproduction update 20 (5), S. 737–747. DOI: 10.1093/humupd/dmu025.

Carl, Annette (2021): Basis und immer begleitend: multimodale und interdisziplinäre Diagnostik und Therapie. In: Schmerz (Berlin, Germany) 35 (5), S. 360. DOI: 10.1007/s00482-021-00578-x.

Diedrich, Klaus; Schultze-Mosgau, Askan; Holzgreve, Wolfgang; Jonat, Walter; Schneider, Klaus-Theo M.; Weiss, Jürgen M. (2006): Gynäkologie und Geburtshilfe. 2. Aufl. Berlin: Springer (Springer-Lehrbuch).

Facchin, Federica; Barbara, Giussy; Saita, Emanuela; Mosconi, Paola; Roberto, Anna; Fedele, Luigi; Vercellini, Paolo (2015): Impact of endometriosis on quality of life and mental health: pelvic pain makes the difference. In: Journal of psychosomatic obstetrics and gynaecology 36 (4), S. 135–141. DOI: 10.3109/0167482X.2015.1074173.

Glier, Barbara (2019): Chronischen Schmerz bewältigen. Verhaltenstherapeutische Schmerzbehandlung. Fünfte Auflage. Stuttgart: Klett-Cotta (Reihe Leben lernen, 153).

Greco, Christine D. (2003): Management of adolescent chronic pelvic pain from endometriosis: a pain center perspective. In: Journal of pediatric and adolescent gynecology 16 (3 Suppl), S17-9. DOI: 10.1016/s1083-3188(03)00064-0.

Kayser, Hubertus; Schneider, Nadine; Schmiemann, Guido (2022): Vorstellung eines innovativen interdisziplinären, sektoren-übergreifenden und gestuften Behandlungskonzepts für Schmerzpatient*innen im Rahmen eines regionalen Selektivvertrages nach §140a SGB V. In: Schmerz (Berlin, Germany) 36 (5), S. 363–370. DOI: 10.1007/s00482-021-00612-y.

Kieselbach, Kristin; Wirz, Stefan; Schenk, Michael (Hg.) (2022): Multimodale Schmerztherapie. Ein Praxislehrbuch. 1. Auflage. Stuttgart: Verlag W. Kohlhammer (Medizin).

Maass, N.; Janni, W. (2015): Multimodale Behandlungskonzepte der Endometriose. In: Gynäkologe 48 (3), S. 198–199. DOI: 10.1007/s00129-014-3394-0.

Mayring, P. (1994): Qualitative Inhaltsanalyse. In: A. Boehm, A. Mengel, & T. Muhr (Hg.): Texte verstehen. Konzepte, Methoden, Werkzeuge. Konstanz: Univ.-Verl. Konstanz (Schriften zur Informationswissenschaft, 14), S. 159–175.

Mechsner, Sylvia (2021a): Management of endometriosis pain: Stage-based treatment strategies and clinical experience: Springer Medizin (Schmerz, 35) (3).

Mechsner, Sylvia (2021b): Multimodale Therapie so früh wie möglich, aber spätestens, wenn die chronischen Schmerzen da sind. In: Schmerz (Berlin, Germany) 35 (5), S. 361–362. DOI: 10.1007/s00482-021-00579-w.

Pickett, Charlotte; Foster, Warren G.; Agarwal, Sanjay (2023): Current endometriosis care and opportunities for improvement. In: Reproduction & fertility 4 (3). DOI: 10.1530/RAF-22-0091.

Robert Koch-Institut (RKI) (2020): Gesundheitsbezogene Lebensqualität. Gesundheitsberichterstattung des Bundes. Online verfügbar unter https://www.rki.de/DE/Content/Gesundheitsmonitoring/Gesundheitsberichterstattung/GBEDownloadsB/Gesundheitliche_Lage_der_Frauen_2020.html, zuletzt geprüft am 18.07.2023.

Treede, Rolf-Detlef; Rief, Winfried; Barke, Antonia; Aziz, Qasim; Bennett, Michael I.; Benoliel, Rafael et al. (2019): Chronic pain as a symptom or a disease: the IASP Classification of Chronic Pain for the International Classification of Diseases (ICD-11). In: Pain 160 (1), S. 19–27. DOI: 10.1097/j.pain.0000000000001384.

Weber, Charlotte; Rohloff, Nadine; Götz, Teresa; Rothenhöfer, Markus & Schäfer, Sebastian D. (2023): Konzeptbeurteilung und Interesse von Fachärzt:innen für Frauenheilkunde und Betroffenen an der Smartphone-Applikation Endo-App. [Poster presentation]. 15. Deutschsprachiger Endometriosekongress. Saarbrücken, Saarland, Germany, 2023. Online verfügbar unter https://www.mes-berlin.com/veranstaltungen/15-endometriosekongress-deutschsprachiger-laender/.

Willimann, Patrick (2012): Multimodale Schmerztherapie bei Endometriose: Pathomechanismen, Charakteristika und Behandlungsgrundsätze.

Limitations

As part of the study, various operations, online surveys and expert interviews, were used to mutually validate the subjective data using a triangulation convergence model.

A limitation of the study is the low response rate of the pain centres surveyed and the associated small study sample. Furthermore, the participants were not randomly selected; self-selection in the sense of experts interested in the topic of endometriosis cannot be ruled out. In addition, qualitative expert interviews are always subject to the selective and subjective opinions of the interviewees. Finally, the perspective of those affected on their care situation was not recorded and should be analysed in further studies. <<

Author's statement

Sebastian D. Schäfer works at the Gynaecological Clinic of the Clemenshospital Münster, Marco R. Zugaj works at the Department of Anaesthesiology at Heidelberg University Hospital and Daniel M. Pöpping works at Münster University Hospital. Hans-Holger Bleß and Roman Spelsberg are employees of _fbeta GmbH. Nadine Rohloff is Managing Director of Endo Health GmbH. Charlotte Weber, Teresa Götz, Hannah Ehlert and Nicole R. Heinze are employees of Endo Health GmbH. Sebastian D. Schäfer, Marco R. Zugaj and Daniel M. Pöpping worked free of charge on analysing the data and interpreting the results. The analysis was financially supported by Endo Health GmbH and carried out by _fbeta GmbH in Berlin.

Citation

Schäfer et al.: 'Multimodal pain therapy for patients with endometriosis: care structure in German pain centres', in: „Monitor Versorgungsforschung“ (MVF 04/24), S. 61–69. http://doi.org/10.24945/MVF.04.24.1866-0533.2635

Dr. med. Sebastian D. Schäfer ORCID: 0000-0002-8010-1463



is Head Physician of the Gynaecological Clinic at Clemenshospital Münster. He previously headed the certified endometriosis centre at Münster University Hospital for over 10 years. As 2nd Chairman of the Endometriosis Working Group, member of the Advisory Board of the Gynaecological Endoscopy Working Group, the Endometriosis Research Foundation and Ambassador of the World Endometriosis Society, he is particularly committed to researching and improving the care of patients with endometriosis. Contact: Seb.Schaefer@alexianer.de

Roman Spelsberg MSc ORCID: 0000-0003-2935-9642



is a consultant at _fbeta in Healthcare Research & Market Access and Digital Health. He has been supporting companies with pricing strategies and benefit assessment procedures since 2015. He holds a Master of Science in Healthcare Policy, Innovation and Management from Maastricht University. He is currently working on his PhD in cooperation with this university. Previously, he worked in Market Access of pharmaceuticals at Roche Pharma and ALK Abello. Contact Roman.Spelsberg@fbeta.de

Dr. med. Nadine Rohloff ORCID: 0009-0005-5799-8849



is a doctor, founder and managing director of Endo Health GmbH and is the medical director of the Endo App. She studied human medicine at the University of Münster and worked at the Endometriosis Centre of the Women's Clinic at Münster University Hospital before joining the digital health sector.
Contact: Nadine@endometriose.app

Dr. med. Charlotte Weber ORCID: 0000-0003-1451-7206



was employed as a research assistant and doctor at Endo Health GmbH. Prior to this, she worked for several years as a junior doctor in the clinics of the city of Cologne. She is currently working as a doctor in a practice clinic in Minden. She studied human medicine and completed her doctorate at the Christian-Albrechts-University of Kiel and the Medical University of Innsbruck.
Contact Charlotte-Weber@outlook.de

Hans-Holger Bleß ORCID: 0000-0001-7643-9966



is a partner at _fbeta and heads the Healthcare Research & Market Access division as well as the Digital Health division. After working in public pharmacies, he worked for AOK Brandenburg, where he most recently headed the 'Fundamentals and Contracts for Pharmaceuticals' department. He worked at the IGES Institute, where he headed the Healthcare Research and HTA & Value Strategy divisions. He was then Managing Director of the Institute for Applied Health Services Research (inav). He studied pharmacy at the Free University of Berlin. Contact: Holger.Bless@fbeta.de

Teresa Götz MSc ORCID: 0000-0002-3854-7795



is a scientific project manager at Endo Health GmbH. She previously worked for five years as a rehabilitation psychologist at Städtische Rehakliniken Bad Waldsee, a rehabilitation centre certified for the treatment of endometriosis. She has a bachelor's degree in psychology and a master's degree in clinical psychology from the University of Heidelberg. During her studies, she worked in the day clinic for orthopaedic pain therapy at Heidelberg University Hospital. Contact: Teresa@endometriose.app

Hannah Ehlert MSc



is an ecotrophologist (BSc) with a master's degree in health psychology from Umeå University. She supports Endo Health GmbH in scientific and technical tasks. She is also a lecturer in statistics at Münster University of Applied Sciences. Previously, she worked as a project manager in health management and as a research assistant at Münster University of Applied Sciences. Contact: Ehlert@endometriose.app

Nicole R. Heinze MSc ORCID: 0000-0002-0146-3467



is a research associate at Endo Health GmbH and a freelance nutritionist. Nutritional counsellor. Before that she worked as a scient. She previously worked as a research assistant at Hannover Medical School and as a freelancer for Endo Health GmbH and as a freelance nutrition counsellor. Nutritional counsellor. She holds a Master in Public Health from Hannover Medical School and a Bachelor in Nutritional Counselling from the German Univ. for Prevention and Health Management Cologne. Contact: Nicole@endometriose.app

Dr. med. Marco Zugaj MHBA ORCID: 0009-0007-3173-3214



is a specialist in anaesthesiology, emergency medicine, special intensive care medicine and special pain therapy. He works as a senior consultant in the Department of Anaesthesiology at Heidelberg University Hospital. He specialises in pain therapy in clinical practice, research and teaching. As a member of the interdisciplinary endometriosis board at the University Hospital, he is involved in finding therapies for complex endometriosis cases. Contact: Marco.Zugaj@med.uni-heidelberg.de

Prof. Dr. med. Daniel M. Pöpping ORCID: 0000-0002-5070-751X



is a specialist in anaesthesiology with additional qualifications in surgical intensive care medicine, emergency medicine and special pain therapy. He works at Münster University Hospital, where he heads the pain outpatient and day clinic. He was awarded the title of Adjunct Professor in 2019. His research interests include regional anaesthesia and its effects on patients in the perioperative phase. Contact: Daniel.Poepping@ukmuenster.de