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# “A bit of a cough, tired, not very resilient – is that already Long-COVID?” perceptions and experiences of GPs with Long-COVID in year three of the pandemic. a qualitative interview study in Austria

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## Abstract

**Background** Long-COVID is a new multisectoral healthcare challenge. This study aims at understanding experiences, knowledge, attitudes and (information) needs that GPs had and have in relation to Long-COVID and how these evolved since the beginning of the COVID-19 pandemic.

**Methods** The study used an exploratory qualitative research design using semistructured interviews. A total of 30 semistructured interviews with GPs in different primary care settings (single practices, group practices, primary care centres) were conducted between February and July 2022. The data were analysed using qualitative thematic content analysis with the software Atlas.ti.

**Results** This is the first study that empirically investigated Long-COVID management by GPs in Austria during the third year of the pandemic. All GPs indicated having experience with Long-COVID. In cities, GPs tended to have slightly better networks with specialists. The GPs who already worked in teams tended to find the management of Long-COVID easier. The symptoms that the physicians described as Long-COVID symptoms corresponded to those described in the international literature, but it is unclear whether syndromes and symptoms such as Post-Exertional-Malaise, autonomic dysfunction such as postural tachycardia syndrome or Mast-Cell-Overactivation-Syndrom, and cognitive dysfunctions were also recognized and correctly classified since they were never mentioned. Most GPs reacted quickly by granting the needed sick leaves and by seeing and discussing with the patients often. The treatment of the patients is described as an enormous challenge and frustrating for patient and GP if the treatment does not yield to significantly improved health also due to the high costs for the patient.

**Conclusion** Long-COVID will continue to preoccupy our health care systems for a long time to come, as new variants of COVID-19 will continue to produce new patients without adequate prevention strategies. Therefore, it is not a question of if but when good support for GPs and adequate care pathways for people with Long-COVID will be

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implemented. Specific contact points that are familiar with therapy-refractory postacute infection syndromes like the postacute COVID condition as a subgroup of Long-COVID are urgently needed.

**Keywords** Post-COVID-19 syndrome, Postacute sequelae of SARS-CoV-2 infection, PACS, Postinfectious disease, Primary health care, Semistructured interviews, post-COVID condition, General practice

## Introduction

The COVID-19 pandemic led to a new global health challenge to tackle: Long-COVID. Long-COVID describes a multisystemic illness which continues during or after a SARS-CoV-2 infection for more than 4 weeks [1, 2]. Other medically terms to designate the chronic condition have emerged, such as postacute sequelae of SARS-CoV-2 infection (PASC), ongoing symptoms of COVID-19, or long-haul COVID-19, and more. Definitions differ, using different terms and different cut-offs. For example, the NICE definition uses Long-COVID as a superordinate term, and differentiates between ongoing symptoms (4–12 weeks after acute infection), and Post-Covid Syndrome for symptoms persisting 12 weeks and more as well as it cannot be explained by alternative diagnoses. WHO uses Post-COVID Condition for symptoms persisting longer than two months after the onset of acute infection, and CDC does not differentiate between the terms Long-COVID and Post-Covid Condition for all symptoms persisting four weeks and more [3–5]. For this article we use the definition of Long-COVID of Hoffmann et al. [6] which is based on the NICE definition, but goes a little further and differentiates it into the three subgroups ongoing symptomatic COVID-19, SARS-CoV-2 induced or exacerbated diseases and post-acute COVID condition. It allows to understand Long-COVID as a spectrum with each subgroup attributed to a specific diagnostic procedure, treatment and risk groups. This is important because to date more than 200 symptoms have been reported, yet the most commonly reported are fatigue, shortness of breath, headache, cognitive dysfunction, muscle aches, palpitations, chest pain, dizziness and sleep disturbance besides other symptoms involving different organs [7–9]. Recent studies show that Long-COVID symptoms often decline after two to three years, however in some cases the symptoms persist [1, 10]. The percentage of people affected by Long-COVID globally varies, yet studies imply that at least 5–10% of people who were infected with COVID-19 develop Long-COVID symptoms or up to 3% of the overall population, with a decline for the omicron variant and after vaccination [7, 11–16]. Recent international reviews show that there might be a cumulative risk of developing long-term COVID symptoms after reinfections with SARS-CoV-2 [1, 2, 11, 12, 17]. The mechanisms of Long-COVID are to date not fully clear although progress has been made over the past two years [18]. Besides medical research the

patients own account of the evolution of Long-COVID remains crucial to understand and manage it.

General practitioners (GPs) have a central role in preventing, diagnosing, managing and coordinating diagnostics and treatment of Long-COVID where continuity of care is crucial [2, 19]. However, to guarantee the quality and continuity of care, the challenges for primary health care should be well documented and addressed [20–22]. For managing Long-COVID, studies in primary care show that much like during COVID-19, GPs tried to adapt quickly after a difficult and unclear beginning yet what make their healthcare difficult is missing regulations, interventions, knowledge and guidelines [23, 24]. Some important guidelines for primary care and Long-COVID have emerged in the past two years, but only few focus on the disease in a transdisciplinary way and not only on one specific set of symptoms (neurological, pulmonary and others) [25–28]. The second challenge is the lack of adequate treatment centers in the secondary healthcare sector, if the Long-COVID symptoms after the initial diagnostic process and treatment attempts persist or worsen, which in particular happens in the case of the subgroup of patients with postacute COVID condition like ME/CFS [6, 29]. If this happens with other multisystemic severe diseases like Multiple Sklerosis (MS), then GPs can refer the patients to the secondary healthcare sector for further diagnostics and targeted treatment plans, which is not possible for Long-COVID due to the lack of adequate secondary treatment structures [2].

## Long-COVID and Austrian primary care

COVID-19 was a challenge for GPs in Austria as they were not part of the pandemic plan (like in many other countries) but had to fulfill many new tasks. Even though support structures were lacking GPs adapted quickly to the challenges showing a flexible and creative way of securing quality and continuity of care [30]. Since the end of 2021/2022, in Austria, there have been few specific Long-COVID interventions by health authorities. The very few facilities in the secondary healthcare sector closed by the year 2023. At date there is only a webpage of the patient initiatives Long-Covid Austria as well as the Austrian Society of ME/CFS<sup>1</sup> where one can find information on where to seek help. Also several rehabilitation spots have been created for Long-COVID

<sup>1</sup><https://www.longcovidustria.at/wichtige-anlaufstellen-fuer-betroffene/> (20.08.2023).

patients, though not enough. Although in Austria there is free access to all levels of healthcare, Long-COVID patients are usually directed towards their general practitioner for managing and coordinating Long-COVID. Therefore, the Austrian Society of General Practice (Österreichische Gesellschaft für Allgemein- und Familienmedizin, ÖGAM) worked out an S1 Long-Covid guideline together with seven other Austrian medical societies that was published in December 2021 [31] and has been updated in 2023 [26]. It is directed towards primary health services in Austria and is supposed to be a helpful and practical tool that is also available via an easy-to-use webtool<sup>2</sup>.

This study contributes to research on Long-COVID in primary care. It aims to understand the experiences, knowledge, attitudes and (information) needs that GPs have in relation to Long-COVID in the third year of the pandemic and how these evolved since the beginning of the COVID-19 pandemic in 2020.

## Methods

This study was conducted in the framework of the Austrian research project “Cov-FIT”. It used an exploratory qualitative research design. The study investigated infection protection, infrastructure, framework conditions and the treatment of people with and without infectious diseases during the COVID-19 pandemic in family doctor primary care in Austria through semistructured interviews in the year 2022. It was conducted according to the SRQR checklist. The checklist has been added as supplement 1 (S1).

### Participant recruitment and data collection

A total of 30 semistructured interviews with GPs in different primary care settings (single practices, group practices, primary care centres) in Austria were conducted between February and July 2022. All GPs had a contract with social insurance companies and were thus public practices and not private. Physicians were recruited through the Austrian Society of General Practice (ÖGAM) via e-mail information and newsletters and through the research network of the Department of Health Services Research in Primary Care at the Medical University of Vienna (now Department of Primary Care Medicine). Of the 1350 physicians contacted, 34 expressed their interest by email. They were contacted by telephone or e-mail. After a description of the topic and an introduction by the research team, their consent to participate in a qualitative interview was obtained. Of these, four were lost to follow-up due to time constraints,

and 30 returned the consent form and demographic short questionnaire. An interview date was then arranged.

Interviews were conducted in person, by telephone or via WebEx. The interviews were recorded using an audio-recorder or the WebEx tool. The duration of the interviews ranged from 26 min to 1 h and 25 min. The average length was 56 min. None of the respondents dropped out during the interview. It was always a one-on-one setting. No interview was discontinued or repeated. The interviews were conducted by three interviewers, two of whom are coauthors (MM, NS), and the other is mentioned in the acknowledgements. The interview guide was based on the six research questions found in the supplementary material (S2). However, the order of the questions was modified after initial experience acquired through the interviews and subquestions were added.

### Research questions and interview guide

For the research questions of this paper, the research questions regarding Long-COVID were considered relevant (Fig. 1). The other topics are explored in a separate publication [30].

### Data analysis

The 30 interviews were transcribed verbatim using Tucan software (contract, data protection agreement and data security agreement were concluded). The data were analysed using qualitative content analysis [32]. The interviews were coded inductively by two researchers independently (SW and MM) and analysed along the research questions using the qualitative content analysis software atlas.ti as well as Microsoft Excel to ensure reliable and repeatable analysis of the material. The codes were discussed together, and a code book was developed with code names, descriptions, and categories. Relevant quotes from the material were directly cited. A demographic short questionnaire (Supplement S3) was statistically analysed to describe the sample descriptively and to analyse similarities and differences between the primary care organizational forms.

## Results

A total of 30 GPs participated in the study. Participants were recruited from eight of the nine Austrian provinces (all except Salzburg) (Table 1). The gender distribution was well balanced, and we included all three types of general practice in Austria. Details are given in Table 1.

### Experiences with and attitudes towards Long-COVID

During the interviews on managing COVID-19 in their daily work, the GPs almost never (except for one Interview partner, I12) talked about Long-COVID without being explicitly asked about it. However, all GPs indicated having experience with Long-COVID. The range of

<sup>2</sup><https://www.kl.ac.at/de/allgemeine-gesundheitsstudien/long-covid-leitlinie> (24.08.2023).

### Interview guide/Long-Covid questions

Do you have patients with Long-Covid?  
 How do you deal with them?  
 How do you diagnose Long-Covid?  
 What therapies or treatment do you recommend?  
 How often does Long-Covid appear in your practice?  
 What are the professions you collaborate with for LONG-COVID patients?  
 What support is there?  
 What kind of support would you need/would be necessary?

**Fig. 1** Interview guide/Long-COVID questions

**Table 1** Interview partners

Variable	Subvariable	N
All	Burgenland	30
County	Carinthia	3
	Lower Austria	1
	Upper Austria	4
	Salzburg	2
	Styria	0
	Tyrol	4
	Vienna	1
	Vorarlberg	13
Sex	Female	15
	Male	15
Type of practice	Single-handed (1 GP)	11
	Group-practice (2+ GPs)	11
	PVE	8

how often it occurred did vary greatly from a few cases a week or month to patients with Long-COVID symptoms on a daily basis. One physician assumed that it occurred in “20 to 25% of all those having had a COVID-19 infection” (I22), and another guessed it was 10% (I23). One-fifth of all interview partners indicated that Long-COVID occurred only very rarely.

*Only rarely. Thinking about it now it was approximately 4 or 5 patients who suffered that much with Long-COVID that I sent them to Medical Specialists. That is not much. (I10)*

*Not every day, but I see Long-COVID approximately 2–3 times per week. (I20)*

Only one (I25) indicated that s/he had no case of Long-COVID in her/his practice, although she/he actually mentions symptoms defined as Long-COVID in the context of her patients.

*I don't think I have real Long-COVID patients. However, I see a lot of patients who truly do suffer over many weeks. A bit of a cough, tired, not very resilient. I am not sure if that can be classified as long already, but people who have a longer healing process. (I25)*

However, the citation already indicates one of the biggest problems in dealing with Long-COVID: many of the interviewed GPs had varying understandings of what Long-COVID was and how long the symptoms were supposed to last to diagnose the patient with Long-COVID. Some already spoke of Long-COVID when there were symptoms for approximately four weeks, others guessed six weeks, and others supposed it was eight weeks. Most importantly, almost all GPs took Long-COVID very seriously because they had seen severe cases of Long-COVID, and they tried to treat it in a wide variety of ways, usually a combination of physiological and psychological treatment. Some were very proactive and indicated searching for much information on Long-COVID. Many named the important support of the ÖGAM (Austrian Society for General Practice and Family Medicine), which formulated a guideline on Long-COVID. Most GPs explained that they took much time to manage their Long-COVID patients. They were trying to help in many different ways.

*How do you deal with it?*

*I am there for my patients all the time, they can come whenever they need and we discuss it over and over. Another point is assessing where further diagnostics are needed. (I24)*

Only a few (3/30 or 10%) said that they had some patients who only believed or pretended to have Long-COVID

although they did not. It is important to note that even those who were sceptical indicated that they did have a few patients – at least one – who were suffering from “real” Long-COVID.

*Strangely enough, the usual suspects all have Long-COVID now. Before they had a burn-out or a bullying problem, now they have Long-COVID. There are a few who are truly suffering, yes. (I11)*

*It is a bit complicated with the Long-COVID patients. Sometimes it is difficult to estimate if it is Long-COVID or if the person is pretending. It is not always easy to determine where the problem lies. (I27)*

*They are coming with the diagnosis already, “I have Long-COVID” (laughs). They had been to the AKH (university hospital in Vienna) or to an outpatient clinic or wherever. I have a bit of a problem with Long-COVID because I don’t know. It is a bit like chronic fatigue syndrome. (I9)*

### Diagnosing long-covid

How did the GPs diagnose Long-COVID, and what were the challenges of diagnosing Long-COVID at the time of the interviews in 2022.

*It is a very complicated matter, the people are weak, the people are depressed, the people are desperate, the people have the feeling that nobody truly understands or takes them seriously with their problems and the whole thing has a strong psychological layer and we find it very difficult to somehow classify them*

*diagnostically in our existing diagnostic scheme. We do 100 blood tests, 99 of which, except for the vitamin D, are somehow normal, so how do we deal with the situation? (I1)*

The citation from the GP above illustrates what many interview partners explained in the interviews. Many felt it was very difficult to diagnose Long-COVID because it was always a mix of different factors, and those were different from case to case. It was mostly a combination of physical and psychological aspects yet the biggest problem was that the standard tests to check for the physiological problems (e.g. lung or heart function, neurological functions) hardly brought any results. The GPs often mentioned that there were no clear diagnostic parameters and that it was difficult for them to deal with Long-COVID or potential Long-COVID patients.

*“There is not truly a lab value” (I1),*

*“You can only diagnose it through thorough case history” (I2),*

*“It is not measurable or tangible” (I3),*

*“It is not tangible yet the people are not well.” (I10).*

Another problem was that at the time of the interviews, the definition of Long-COVID was not clear to many physicians. Additionally, the difference between post-COVID and Long-COVID was not clear for some and was often used synonymously.

Nonetheless, the physicians spontaneously named a wide range of symptoms as a basis for applying a long-COVID diagnosis (Fig. 2).

The majority of GPs said that they would not diagnose Long-COVID only by themselves but that it was a cooperation between different professions. Only one

#### Long-Covid Symptoms mentioned by GPs

- Limited physical performance (I: 1,3,9, 10,12,13, 15,16,20, 24, 29, 30)
- Chronic Fatigue (I: 6, 9, 14, 20, 21, 22, 23, 29,16)
- Depression, lethargy (I: 1,5,7,9,12,15,18,20)
- Shortness of breath (I: 1,10,18, 23, 11, 29)
- Limited cognitive performance (I: 2,12,18,21,23, 29)
- Neurologic symptoms (I: 3,15,18)
- Sleep problems (I: 9,12)
- Loss of appetite (I: 12, 21)
- Heart symptoms (I10)
- Hair loss in women (I12)
- Chronic headache (I15)
- Elevated inflammation parameter (I23)
- Accute elevated liver values (I2)
- Motorical problems (I2)

**Fig. 2** Long-Covid symptoms from interviews

GP mentioned that it was him/her only who provided treatment because s/he was in a very rural place with no access to other medical specialties. Most interview partners indicated that when they had a patient where they suspected Long-COVID they would send the patient to different specialists to do a medical checkup. Many also indicated that they would work with psychologists or psychotherapists to check the mental health aspects of the patient because depression was also seen as a symptom of Long-COVID, and many patients also had problems dealing with the new and problematic situation that Long-COVID produced for them. Doctors from rural areas sometimes mentioned that there was a lack of capacity in specialist care. Some specifically indicated that they used the questionnaire from the ÖGAM (Austrian Society for General Practice and Family Medicine) to help with the Long-COVID diagnosis (4/30). Other GPs said they would record the case history and, according to the results, send their patients to respective specialists. Some, especially those who work in a primary care center (PVE) or cooperate closely with other medical professions in their practice, stressed that they diagnosed Long-COVID together within their team.

*Mostly it is tiredness, lower resilience in the sense that there's often a bit of shortness of breath and cardiac symptoms, so if that is the case, then I arrange for a corresponding specialist examination,... Yes, but I have to say that nothing has truly come out for the patients I'm treating. (I10)*

The problem the physician (I10) mentioned in the above citation is a common problem among the interviewed physicians: In many cases, the GPs would send their patients to pulmonologists or cardiologists, since there is no special expertise on Long-COVID as such in the public health sector. Mostly there were no significant results from examinations by the mentioned organ system specialists. This was also one reason for some GPs to wait slightly longer before sending their patients to specialists.

One other physician, for example, stressed that their job as a GP was to talk extensively with patients and to accompany the patients through the process. Many physicians reported that in the case of Long-COVID, it was the patients who came to the physician with the assumption to have Long-COVID. Most physicians were fine with that proactive behavior; only two indicated that it was a problem and explained that they were the ones who did the diagnosis and not the patients themselves.

*When people come to my practice and say they have Long-COVID, I send them away. I make the diagnosis not them. (I11)*

On the other hand, some GPs also wished for more adequate information to be circulated via the media in order for people to know more about it. One GP (I25) spoke about the important role and responsibility of different media outlets for informing about Long-COVID and about informing about the effects that a COVID-19 infection can have on a person. The GP felt that the media could provide more and better information about Long-COVID. It would help the GPs to have better informed patients.

#### **Treatment/Therapy of long-covid**

How do GPs treat Long-COVID? The GPs often stressed that they made a very individual therapy plan according to the symptoms of the patient because each patient with Long-COVID had different symptoms. It is important to mention again that at the time of the interviews there was almost no evidence on how to treat Long-COVID which has been an immense challenge for the GPs.

*As physiological treatment methods, the following were mentioned: infusions (especially vitamin C, then zinc), vitamin D substitution and special Long-COVID rehabilitation are the most commonly mentioned, together with physiotherapy. The importance of the rehabilitation possibilities - some where the patient could go during the day or even part time rehab/part time work and others where the patient would go to a rehab for a few weeks - was often mentioned as one of the most efficient treatments, and at the same time, it was stressed that more places were needed in order for less waiting times. Other treatments that GPs mentioned were inhaled steroids or betamimetics, Vitamin C in drug form, giving COVID-19 vaccine for those who have no vaccine yet, Cortisone, antihistamine, massages, and electrolytes.*

*As psychological treatment, they named fewer interventions than the physiological treatments: Long-COVID groups, psychotherapy, seeing a social worker, going to a psychiatric clinic/prescribing drugs against depression.*

In addition to the abovementioned treatments, which many GPs said were often not enough, many saw that their role was a lot about raising awareness, talking and accompanying and motivating the patients as well as prescribing sick leaves.

*The important thing is to give the people a perspective, how their life will be different - because it will be different for someone with Long-COVID - but how they can still manage to have a certain quality of life and help them learn to deal with it. (I13)*

*[...] However, of course, they are desperate; when a young father sits in front of you and says, "I'm taking care of my two little children then I have to lie down and I just cannot do anything anymore." [...] Then,*



*you cannot do much more than sit with them for a long time, somehow persuade them to take the time, telling them that it affects many, that it will most likely get better again and just try to find a place for them for rehabilitation. On the one hand, this is time-consuming, and on the other hand, I have to say that it truly gets to me.” (I16).*

From the last citation of participant I16, we learn that the support of Long-COVID patients can be difficult for GPs. Often, the patients are desperate, and it is difficult for the GP to handle the situation, as the major problem is that there is not a single treatment for Long-COVID that helps, but it is a time-intensive and very individual treatment that can be emotionally stressful for both the patient and the GP.

Regarding problems with regard to long-COVID health provision, many indicated that there was not enough space for rehabilitation available and that the waiting times in specific long-COVID outpatient clinics were very long (up to six months at this point in time). Other problems that were mentioned were that the treatment with Vitamin C infusions and other treatments were not refunded from the social insurance, but the patient had to pay privately, and that sometimes there were problems with the social insurance in relation to sick-leaves: as many sick-leaves for Long-COVID had a longer duration, it happened that social insurance would end the sick-leaves automatically and the GP would have to call the insurance to change that again.

### Support (needs) for GPs

The answers to the question whether the GPs wished for more support in the case of Long-COVID were very diverse. Some said they had a very good support network around them, and others said they had no support and had to search for all information on the topic by themselves. GPs in the city tended to have more access to resources such as specialists and rehabilitation. The knowledge of where to find support seemed to be very diverse among GPs:

*We did not truly get support. However, I would say that family physicians are used to that. (I21)*

*We have our information from the ÖGAM, and there are already trainings on Long-COVID. I believe every colleague has to look out for it and be active. There are offers for example the Billroth Gesellschaft, the Wiener Gesellschaft für Allgemeinmedizin has a training on Long-COVID for example, it is even online, hybrid. (I2)*

The work of ÖGAM (Austrian Society for General Practice and Family Medicine) was mentioned several times as helpful and supportive with regard to the topic of Long-COVID. Both its guidelines on the diagnosis of Long-COVID and the training offered in the field were mentioned positively. However, it was mentioned that the guidelines were very extensive, which limited their practicability in the everyday work of general practitioners. It was not clear why the short version of the guideline as well as the point-of-care Webtool was less widely noticed, since they were accessible from the same website. It was also mentioned that the ÖGAM was facilitating the research on Long-COVID by giving an overview of recent studies in the field and providing summaries.

One outpatient clinic for Long-COVID in Vienna was mentioned a few times as very useful with the negative additional info that there were already long waiting times. A few GPs explained that they did not need any support. One GP (I30) mentioned a tool for Long-COVID diagnosis refund that had been promised by the Austrian Medical Association (*Ärztchamber*) but which s/he was still waiting for.

*Apparently there is a system (from the Ärztekammer) to get refunded for Long-COVID diagnostics, but I have never seen that tool or I have not found it thus far. (I30)*

### Discussion

Overall, this study provides insight into the experience, lessons learned, and challenges of GPs with Long-COVID diagnosis and treatment. This is the first study that empirically investigates long-COVID management by GPs in Austria. The study shows that even in year three of the COVID-19 pandemic, there were still many challenges to attend to, and support has to be scaled up everywhere. The GPs who already worked in teams tended to find the management of Long-COVID easier. Most GPs interviewed try to find solutions for the patients despite the difficulties of treating and diagnosing Long-COVID; most commonly when still little was known about Long-COVID they granted the needed sick leaves and talked a lot to their patients. This has also been shown as one of the main non-pharmaceutical interventions in a qualitative study with GPs in Germany [23].

### Frequency and definition

Physicians' reporting on the amount of Long-COVID patients they saw varied from 20 to 25% of SARS-CoV-2-infected patients to hardly any patients with long-COVID. This leads immediately to an important issue, the definition of Long-COVID. At the beginning of 2022, when the study was conducted, the NICE and

WHO definitions were already in place but obviously not very well known. However, even the two definitions of the WHO [5] and NICE [3] differ from each other. And those definitions would then also differ from what GPs meant when they spoke of Long-COVID. Physicians mostly diagnose Long COVID as what the NICE guidelines define as ongoing symptomatic COVID-19 or post-COVID condition [6]. In line with this, it may have depended on the personal definition of the GP if she or he counted all patients with symptoms longer than 4 weeks after SARS-CoV-2 infection as Long-COVID patients or only one or two of the subgroups. Reviews of the incidence of Long-COVID from the study period concluded an incidence of 10–35% in mildly ill persons [33]. Later reviews continue to suggest an overall incidence of 5–10% of all SARS-CoV-2-infected persons when vaccinated beforehand [11, 12, 34].

### Symptoms and diagnostics

Most GPs interviewed stated that they took Long-COVID seriously because they had seen severe courses of COVID-19 and therefore knew what SARS-CoV-2 could do to the human body. The symptoms that the physicians described and listed as Long-COVID symptoms corresponded very closely to those described in the international literature [2, 11, 35].

However, the question arises, in particular because GPs refer to severe courses of COVID-19, whether the Long-COVID subgroup of postacute COVID condition syndromes and symptoms, which mainly occur after mild courses of COVID-19, such as PostExertional Malaise (PEM) [11, 12, 36, 37], autonomic dysfunction such as postural tachycardia syndrome (POTS) [38–40] or Mast-Cell-Overactivation-like syndrome (MCAS) [41, 42] are also recognized and correctly classified, since they were never mentioned by the GPs. In particular, these can hardly be detected by standard diagnostic methods [36]. Specific examinations are often not yet known or not paid for by health insurance companies or not yet available [43]. In addition, it is precisely these post-acute COVID condition syndromes that most frequently persist or even worsen over the course of the disease if no treatment is given or the wrong treatment is given. This is precisely where there is the greatest lack of care in the secondary healthcare system for severe cases [11, 29, 37, 44, 45].

In particular, the differentiation between Long-COVID and depression/burnout syndrome was difficult for the GPs because of the lack of the knowledge and existing tools for diagnosing specific Long-COVID symptoms/syndromes that appear similar at first. One example is POTS, which can be mistaken for a panic disorder without the knowledge about and execution of a Schellong diagnostic test [11, 12, 29, 46].

Patients often bring up this diagnosis by themselves. Most physicians feel fine with this; however, some physicians are ambivalent or negative about it and some few do not take their patients seriously. A study from Gamillschegg et al. [47] on patient experiences with Long-COVID in Austria have comparable findings regarding patient perspectives: difficulties in finding knowledgeable medical professionals, high out-of-pocket payments for treatments, long waiting times for specialist care. Our study shows that adequate training for health workers on Long-COVID is indeed important as many GPs did not know about the even back then existing trainings on Long-COVID or the webtool for diagnosing Long-COVID.

In line with the challenges described above, diagnosis was described by the interviewees across the board as time-consuming. Specialist appointments for clarification of possible organ damage were very difficult to obtain and only with long waiting times, and the few public Long-COVID outpatient clinics already had waiting times of 6–12 months in the first half of 2022 and closed during the year 2023. These problems are also known in other countries [48]. In contrast, physicians described the Austrian guideline on Long-COVID of the ÖGAM very positively.

### Treatment and support needs for GPs

In terms of treatment, physicians communicated to their patients the prevailing information at the time that most symptoms would go away on their own after a few weeks or at least a few months. In contrary, an increasing number of studies have shown that approximately 20–30% of affected patients still have symptoms after two years [44, 49–54]. Some studies even show that in approximately 5% of infected patients, the symptoms have even worsened after two years [17, 52, 53, 55]. Here too, it would be important for GPs to differentiate which subgroup of Long-COVID patients they are dealing with. The primary care physicians see above all the great burden on the patients, especially with regard to their ability to work, the loss of quality of life and the increasing functional limitations in everyday life. Another very important negative factor mentioned by GPs and also in line with the study on patient perspectives from Gamillschegg et al. [47] is the high treatment costs that Long-COVID patients very often have to pay privately without refund possibilities.

GPs in the city tended to have more access to resources, especially to medical specialists. However, in general, we found that regardless of whether they were in urban or rural places, the GPs tended to be better equipped to handle Long-COVID patients when they already worked in teams with different health professions (e.g., in PVEs)



as in those cases the knowledge of therapeutic options was better.

It is important to note that in the first half of 2022, there were no official recommendations of suitable therapy attempts for Long-COVID. GPs obviously attempted to alleviate symptoms by using interventions they considered non harmful and possibly helpful [56–60]. In terms of therapy, GPs also lacked knowledge about specific aspects like the negative influence of graded exercise therapy in the presence of PEM. Fortunately today there is more and better knowledge about treatment options, although for the Long-COVID subgroup of patients with post-acute COVID conditions and ME/CFS still symptom-relieving and stabilizing therapies are only available off-label and no cure in sight yet. However, what we know as of today is that the recommendation of graded exercise therapy by several GPs without the knowledge and diagnosis of PEM in Long-COVID can be potentially damaging. When PEM is present, it is of high importance to stabilize the condition of the patient with pacing first; otherwise, the patient runs the risk of deteriorating her/his condition [29].

Therefore, to support the GPs and patients, in particular the patients with with post-acute COVID conditions and ME/CFS, it would be important to implement specific transprofessional medical contact points for postinfectious syndromes, in which both medical staff and health and social professionals work on site, telemedically and through home visits. This is where primary care physicians could refer patients when a refractory postinfectious syndrome like post-acute COVID condition is diagnosed. The same applies to rehabilitation offers. Public funding for treatment interventions, specific outpatient clinics and targeted and adequate rehabilitation possibilities should be increased to reduce the burden on both the patients and primary health care settings. Referral to outpatient assessments and clinics has been recommended in several countries [61].

### Strengths and limitations

This is the first qualitative study investigating the experiences and needs of GPs regarding Long-COVID in Austria. As the aim of the study was to gain an in-depth understanding of the experiences of GPs with Long-COVID, a qualitative study was the right choice. However, a representative quantitative survey on the experiences and needs of GPs in relation to Long-COVID would be important as a further study – especially given that in our sample – although only a few – they were GPs who misinterpreted Long-COVID. With a larger sample, it would become clearer how many GPs would potentially need more information on Long-COVID to treat their patients correctly. Furthermore, the study includes interviews in all Austrian regions except for one,

all organizational forms in which GPs work in Austria (single-practice, group practice, and primary care facility (PVE) as well as a gender balance of interview partners. One limitation of the data collection is that it took place in the first half of 2022 – during the Omicron BA1 and 2 COVID-19 waves when cases in Austria were extremely high and the workload for GPs was disproportionately high as well. Therefore, it is possible that the GPs who participated in the study were already quite interested in the topic of Long-COVID and generally engaged in research activities. On the other hand, the themes of the interviews were not limited to Long-COVID and were related to the management of the pandemic in general. Therefore, it also spoke to GPs who were not particularly interested in the topic of Long-COVID. Another limitation is that when the study took place, knowledge on Long-COVID in Austria was still scarce, with the first version of the ÖGAM guideline coming out in December 2021 only.

### Conclusion

Long-COVID will continue to preoccupy our health care systems for a long time to come, as new variants of SARS-CoV-2 will continue to produce new patients without adequate prevention strategies. Therefore, it is not a question of if, but when and how good care pathways for people with Long-COVID will be implemented and when primary care physicians as first contact for diagnostics and care will be adequately equipped, supported, and financed. Diagnostic tools, adequate payment schemes and adequate training are needed, as well as specific points of contact for patients, in particular with therapy-refractory postacute infection syndromes like the post-acute COVID condition, including ME/CFS (including multidisciplinary teams, telemedicine, home visits) and patient-centred rehabilitation, with a focus on PEM. Training for healthcare workers should be disseminated in various ways and channels to reach many or most GPs. The most important aspect in addition to diagnosis and treatment, however, should be to prevent any new cases.

K Hoffmann has a full professorship in Primary Care Medicine and chairs the Department of Primary Care Medicine at the Medical University of Vienna, Austria. Additionally, she is MD, Master of Public Health and General Practitioner.

### Abbreviations

EXPH	Expert Panel on effective ways of investing in health
GP	General practitioner
ME/CFS	Myalgic encephalomyelitis/chronic fatigue syndrome
NICE	National Institute for Health and Care Excellence
ÖGAM	Österreichische Gesellschaft für Allgemeinmedizin
PASC	Postacute Sequelae of SARS-CoV-2 Infection
PVE	Primärversorgungseinheit
POTS	Postural Tachycardia Syndrome
PEM	Post Exertional Malaise
WHO	World Health Organization

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12889-024-20475-z>.

Supplementary Material 1

Supplementary Material 2

Supplementary Material 3

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### Author contributions

The research study was conceptualized KH. MM and NS conducted the research. The article was conceptualized by SW and KH. Data was formally analysed by SW and MM. The original draft was written by SW and KH. Review and editing were conducted by SW with SR, MM, and KH. All authors agreed on the final version of the manuscript.

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### Data availability

The data collected and analysed during the current study are available from the corresponding author upon reasonable request.

### Declarations

#### Ethics approval and consent to participate

The research team guarantees that the project was conducted in accordance with the Declaration of Helsinki (1964) and all subsequent updates of the Declaration. The team is responsible for ensuring that the project is conducted in accordance with the European Commission's "Guidelines of Good Clinical Practice", national requirements and the requirements of the Medical University of Vienna. All study protocols were approved by the Ethics Committee from the Medical University of Vienna; a positive vote for the study from the Ethics Committee of the Medical University of Vienna is available (EC no.: 1491/2021). For all interviews, a written informed consent form and a written agreement to maintain anonymity and data protection were signed by the participants after they were informed in detail about the study.

#### Consent for publication

Not applicable.

#### Competing interests

The authors declare no competing interests.

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