

An exploration of the psychological effects of the COVID-19 Pandemic on healthcare professionals: implications for mental health support

Theresa Halms

Angaben zur Veröffentlichung / Publication details:

Halms, Theresa. 2024. "An exploration of the psychological effects of the COVID-19 Pandemic on healthcare professionals: implications for mental health support." Augsburg: Universität Augsburg.

Nutzungsbedingungen / Terms of use:

licgercopyright

Dieses Dokument wird unter folgenden Bedingungen zur Verfügung gestellt: / This document is made available under these conditions:

Deutsches Urheberrecht

Weitere Informationen finden Sie unter: / For more information see:

<https://www.uni-augsburg.de/de/organisation/bibliothek/publizieren-zitieren-archivieren/publiz/>



Aus der Klinik für Psychiatrie, Psychotherapie und Psychosomatik der
Universität Augsburg

An Exploration of the Psychological Effects of the COVID-19 Pandemic on Healthcare Professionals: Implications for Mental Health Support

Kumulative Dissertation

zur Erlangung des akademischen Grades

Dr.rer.biol.hum.

eingereicht an der

Medizinischen Fakultät der Universität Augsburg

von

Theresa Halms

Augsburg, 18.08.2023



Eidesstattliche Versicherung und Erklärung

Hiermit versichere ich an Eides statt, dass die vorliegende Dissertation von mir selbständig und ohne unerlaubte Hilfe angefertigt wurde. Zudem wurden keine anderen als die angegebenen Quellen verwendet. Außerdem versichere ich, dass die Dissertation keiner anderen Prüfungskommission vorgelegt wurde und ich mich nicht anderweitig einer Doktorprüfung ohne Erfolg unterzogen habe.

Statutory declaration and statement

I declare that I have authored this thesis independently, that I have not used other than the declared sources/resources. As well I declare that I have not submitted a dissertation without success and not passed the oral exam. The present dissertation (neither the entire dissertation nor parts) has not been presented to another examination board.

Augsburg, 18.08.2023

Dissertation eingereicht am: 18.08.2023

Erstgutachter (Hauptbetreuer): Prof. Dr. Alkomiet Hasan

Zweitgutachter: Prof. Dr. Marco Roos

Drittgutachterin: Prof. Dr. Claudia Traidl-Hoffmann

Tag der mündlichen Prüfung: 29.04.2024

1 Table of contents

List of publications	4
1 Contributions to Publications	5
1.1 Contribution to Paper I	5
1.2 Contribution to Paper II	5
1.3 Contribution to Paper III	6
2 Introduction	7
2.1 Background	7
2.1.1 Challenges and stressors for HCWs during the COVID-19 pandemic	7
2.1.2 Impact of the COVID-19 pandemic on the mental health of HCWs	8
2.2 Overall objective	9
2.2.1 Project 1: Existing recommendations and guidelines for the support of HCWs	10
2.2.2 Project 2: Subjective burden of psychiatric compared to somatic HCWs	11
2.2.3 Project 3: HCWs' views on support strategies	13
3 Discussion	14
4 Abstracts	18
4.1 Abstract (Deutsch)	18
4.2 Abstract (English)	19
References	20
5 Danksagung	26

List of publications

Publication I:

Halms, T., Strasser, M., Kunz, M., Hasan, A., 2021. How to Reduce Mental Health Burden in Health Care Workers During COVID-19?-A Scoping Review of Guideline Recommendations. *Frontiers in psychiatry* 12, 770193. 10.3389/fpsy.2021.770193. Impact factor: 5.4

Publication II:

Halms, T., Thoma, A., Kramer, V., Kunz, M., Falkai, P., Schneider-Axmann, T., Hierundar, A., Wagner, E., Hasan, A., Papazova, I., 2024. Höhere subjektive Belastung des medizinischen Personals der psychiatrischen gegenüber der somatischen Versorgung in Deutschland während der ersten Welle der COVID-19 Pandemie. *Fortschr Neurol Psychiatr* 92 (1-02), 27–32. 10.1055/a-2125-8906. Impact factor: 0.8

Publication III:

Halms, T., Strasser, M., Papazova, I., Reicherts, P., Zerbini, G., Grundey, S., Täumer, E., Ohmer-Kluge, M., Kunz, M., Hasan, A., 2023. What do healthcare workers need? A qualitative study on support strategies to protect mental health of healthcare workers during the SARS-CoV-2 pandemic. *BMC psychiatry* 23 (1), 195. 10.1186/s12888-023-04686-z. Impact factor: 4.1

1 Contributions to Publications

1.1 Contribution to Paper I

This publication addressed and evaluated previously developed recommendations and guidelines for the management of psychological burden among healthcare workers (HCWs) during the COVID-19 pandemic (Halms et al., 2021). With regard to the realization of this work, I was involved at all stages. The research question underlying this literature review was first outlined by AH and MK and later concretized together in a discussion process involving MS and myself. Subsequently, I conducted a structured literature search for eligible publications including aforementioned guidelines and recommendations under the supervision of AH and MK. In collaboration with co-author MS, we independently performed a critical quality appraisal of the included 41 guidelines using the AGREE II tool (Brouwers et al., 2010). After calculating the final quality scores and with the help of MS, I extracted the recommendations from the publications, synthesized them and developed thematic clusters of the included recommendations. In a further step, I prepared and presented the results using charts and tables. The original draft of the manuscript was written by me in its entirety (introduction, methods, results and discussion) and was modified after receiving feedback and additions from all co-authors. Furthermore, based on the feedback and suggestions of the handling editor and the reviewers during the peer review process of the academic journal "*Frontiers in Psychiatry*", the manuscript was adapted by myself under supervision of AH and MK up to the point of publication.

1.2 Contribution to Paper II

This publication (Halms et al., 2024) is a secondary analysis of a cross-sectional study that investigated the subjective burden, views and perspectives of German HCWs during the COVID-19 pandemic (Kramer et al., 2021). The data used in this publication were derived from an anonymous online survey conducted among a total of 5822 HCWs in Germany from April 15th to May 1st, 2020. While the primary analysis assessed the subjective burden, views, COVID-19 infection status and perceptions of information policy as well as of structural measures among all surveyed HCWs, the aim of the secondary analysis conducted in this work was to investigate differences between medical personnel from somatic and psychiatric hospitals. The survey was first developed by AH, VK, AT and revised by MK, EW and TSA. Statistical analysis of the

data was performed by TSA and IP in consultation with AH and myself. The research question underlying this secondary analysis was initially drafted by AT, IP and AH and subsequently discussed and further developed by myself. Under supervision of IP, I was responsible for the interpretation and presentation of the results. The first draft of the methods and results section of the manuscript was written by AT and later revised by me. Under supervision of IP, I then prepared a draft of the remaining sections of the manuscript (introduction and discussion). Based on the feedback and suggestions of the co-authors, I revised and adjusted the manuscript accordingly. In a final step, I submitted the manuscript to "*Fortschritte der Neurologie – Psychiatrie*" and modified it during the peer review process under supervision of IP and AH until publication.

1.3 Contribution to Paper III

This publication addressed the protective factors, wants and needs as well as barriers to HCWs' use of employer support services to cope with the challenges and stressors during the COVID-19 pandemic through a qualitative approach (Halms et al., 2023). The realization of this work consisted of several steps. Based on the research question outlined by AH and MK and concretized with myself, I first developed an interview guide for conducting the semi-structured interviews with the help of ET, which I modified based on two pilot interviews and the feedback of PR and GZ. Under the supervision of AH and MK, I then drafted a socio-demographic questionnaire and an invitation email to recruit potential interview partners. With the help of MOK, nurses and physicians employed at the University Hospital Augsburg were invited via email to participate in this qualitative study. After successful recruitment of eligible participants, I conducted and recorded the interviews. Subsequently, the interview transcripts were independently analyzed by co-author MS and myself under the supervision of AH and MK. In the next step, I interpreted the results of the evaluation in collaboration with SG and under supervision of AH and MK. The initial draft of the manuscript was written by me in its entirety (introduction, methods, results, discussion) and modified based on feedback from all co-authors. Further, I adapted the manuscript according to the reviewers' suggestions during the revision process of the academic journal "*BMC Psychiatry*" under supervision of AH up to the point of publication.

2 Introduction

2.1 Background

2.1.1 Challenges and stressors for HCWs during the COVID-19 pandemic

Following the outbreak of COVID-19 in Wuhan, China, in December 2019, the previously unknown virus rapidly spread worldwide and was declared a global pandemic by the World Health Organization (WHO) in March 2020 (Siddiqui et al., 2022). Subsequently, the impact of COVID-19 on society, public healthcare and the economy has been tremendous. In addition to the sometimes serious and even fatal consequences for those infected with COVID-19, a number of patients also suffered long-term effects, such as fatigue, impaired concentration, or myalgia (Carvalho et al., 2021; Di Toro et al., 2021). With increasing incidence rates and a growing number of patients with severe courses of disease requiring treatment, the challenges and burdens for healthcare workers (HCWs) increased simultaneously.

For both the general population as well as HCWs, strict measures were taken to reduce the risk of transmission, such as social distancing, frequent disinfection and restriction of social contacts (Gupta et al., 2021). With particular regard to the field of healthcare, further problems and challenges arose, which HCWs were confronted with. On the one hand, HCWs faced a massive shortage of resources, such as hospital beds, personal protective equipment (PPE) and ventilators, as these were needed extensively for the treatment of COVID-19 patients (Jiang et al., 2021). Additionally, the possibility of rapid testing for COVID-19 was often not available, preventing detection of infection when symptoms occurred and thus causing uncertainty (Shanafelt et al., 2020). In connection with the lack of testing possibilities, PPE and other resources to protect against infections, the fear of contracting COVID-19 oneself or infecting family members and friends was a particular concern, especially prior to the start of vaccinations (Shanafelt et al., 2020). Other challenges for HCWs included frequently changing regulations regarding the number of visitors patients may receive, the frequency of testing for COVID-19 and the policies regarding the use of protective clothing (Shanafelt et al., 2020). Moreover, childcare frequently posed a major challenge for affected HCWs, as schools, nurseries and daycare facilities were closed at multiple time points over a period of several months during the pandemic, necessitating alternative forms of childcare (Freundl et al., 2021). Other stressors that affected all HCWs included stigma from the

public due to a possibly increased risk of infection, lack of access to up-to-date information and communication and an increased workload (Chemali et al., 2022). Additional factors causing difficulties were deployment of untrained medical staff to intensive care units (ICU) or special COVID-19 wards as well as unequal distribution of work (Chemali et al., 2022).

The aforementioned stressors and challenges, which intensified repeatedly during the course of the multiwave dynamics of the pandemic, placed enormous strains on HCWs that affected their physical and mental health.

2.1.2 Impact of the COVID-19 pandemic on the mental health of HCWs

Due to its far-reaching consequences, the COVID-19 pandemic posed a unique and unprecedented challenge and burden to HCWs worldwide. Although HCWs received a great amount of recognition and gratitude for their dedication and efforts, especially during the first months of the pandemic, the impact on the well-being of this professional group needs to be highlighted in order to combat the potentially detrimental outcomes of this crisis. Apart from the impact on the physical health of HCWs, which included infection with COVID-19 and its associated symptoms as well as high rates of skin damage and painful lesions due to prolonged wear of PPE and frequent hand disinfection (Shaukat et al., 2020), those stressors caused by the pandemic also had a tremendous impact on HCWs' mental health.

One meta-analysis including 239 studies and a total of 271,319 HCWs investigating the state of mental health and the prevalence of mental disorders among HCWs during the COVID-19 pandemic showed increased prevalences of depression, anxiety, stress, post-traumatic stress disorder, burnout and insomnia among HCWs compared to the general population (Aymerich et al., 2022). The prevalence of depressive symptoms, for instance, was 33% among HCWs compared to 21-28% in the general population (Aymerich et al., 2022). Regarding insomnia, the prevalence in HCWs was 42%, whereas among the general population, it ranged between 18-31% (Aymerich et al., 2022). Another meta-analysis, which included 38 studies and a total of 53,784 participants, confirmed these findings and further showed that more than a quarter of HCWs developed mental health problems during the COVID-19 pandemic, with post-traumatic stress disorder being the most common (Saragih et al., 2021). Furthermore, a meta-analysis of 20 studies comprising a total of nearly 11,000 HCWs showed that female employees, nurses and frontline HCWs in particular were more likely to

experience mental health problems than other subgroups of HCWs (Hao et al., 2021). One meta-review of 40 systematic reviews with a total of 3,245,768 participants supported these results and further revealed that anxiety, depression and post-traumatic stress disorder were the most common mental health conditions experienced by HCWs during the COVID-19 pandemic (Chutiyami et al., 2021). Within the subgroup of nurses, another meta-analysis including 16 studies (total N = 18,935 nurses) revealed that risk factors for burnout within this group included young age, lack of social support, insufficient PPE and staffing as well as increasing workload and long working hours (Galanis et al., 2021). With regard to the impact of the pandemic on the well-being of HCWs in Germany, one online survey conducted during an early time period of the pandemic in 2020 among 3678 participants demonstrated no increased prevalence of mental disorders compared to the general population (Morawa et al., 2021). However, another cross-sectional study from Germany with 4724 HCWs showed that more than 40% of respondents felt strongly or very strongly burdened by the pandemic and approximately 20% suffered from depressive symptoms or symptoms of an anxiety disorder, respectively (Steudte-Schmiedgen et al., 2021). The results of the aforementioned study further indicated that the occurrence of post-traumatic stress disorder (PTSD) symptomatology was related to increased fear of COVID-19 infection, sleep disturbances as well as mental and physical exhaustion (Steudte-Schmiedgen et al., 2021).

Despite the inconclusive findings on the state of mental health among HCWs in Germany, the results of the presented meta-analyses suggest increased mental distress among HCWs worldwide. The tremendous impact of the pandemic on the work situation of HCWs emphasizes the need for supportive services and measures for this particular professional group.

2.2 Overall objective

The unique challenges posed by the COVID-19 pandemic to HCWs and the resulting psychological burden have been demonstrated by numerous studies, as previously outlined. Moreover, evidence suggests that younger employees, nurses, frontline HCWs and females were particularly affected (Hao et al., 2021; Lee et al., 2023; Pappa et al., 2020). So far, however, HCWs working in somatic healthcare have been the primary focus of research, and thus, possible differences between HCWs from different medical fields, such as psychiatric care, have been insufficiently investigated regarding their

respective mental burden during the pandemic (Thome et al., 2020; Tong et al., 2023; Vizheh et al., 2020). Further, the demands and possible barriers to the use of support services to mitigate the negative impact of the pandemic on HCWs' mental health have been scarcely addressed (Buselli et al., 2021; David et al., 2022). To address this gap in knowledge regarding the impact of the COVID-19 pandemic on the well-being of HCWs and thus contribute to a better understanding of this professional group's burden, my work aims to investigate the mental health of the previously neglected subgroup of HCWs working in psychiatric facilities as well as to identify current needs and potential barriers to support services. For this objective, I used a multistep mixed-method approach using methods of evidence-based medicine, quantitative as well as qualitative data collection and analyses.

2.2.1 Project 1: Existing recommendations and guidelines for the support of HCWs

To provide a comprehensive understanding of the situation and working conditions in healthcare settings partly caused and partly intensified by the COVID-19 pandemic, a synopsis of recommendations regarding support services, interventions and regulations to mitigate the negative impact on the mental health of HCWs is needed. The relevance of professional support services for HCWs was previously demonstrated by a meta-analysis including 44 randomized controlled trials (RCT) with a total of 7974 participants (Kunzler et al., 2020). The results indicated that participation in interventions or support services designed to promote resilience was associated with higher levels of resilience and lower levels of depressive symptoms (Kunzler et al., 2020). Another meta-analysis of 27 studies concerning interventions to support HCWs' mental health during pandemics identified trends regarding the positive impact of support services on sleep quality, self-esteem, general well-being and anxiety (Robins-Browne et al., 2022). The first project of this thesis therefore aimed to provide an overview of existing recommendations and guidelines for the support and maintenance of HCWs' mental health (Halms et al., 2021).

For this purpose, a scoping review of articles or guidelines developed up to the time of the literature search including recommendations for the support of HCWs during the COVID-19 pandemic was conducted. By means of a structured literature search for existing recommendations and guidelines through the literature database PubMed in May 2021, 41 articles were included, which were critically appraised with regard to their quality using the AGREE II tool (Brouwers et al., 2010). Further, the featured recommendations were extracted and grouped into thematic categories. For details,

please see the main publication. Regarding the quality of the articles, only four of the included 41 articles achieved a score above 60% and could therefore be recommended on the basis of the quality assessment. In particular, the majority of articles were found to demonstrate poor stakeholder involvement, insufficient quality of evidence on which the recommendations were based as well as lack of strategies to implement the suggested recommendations into practice. Concerning their content, the recommendations could be sorted into four main categories addressing the following aspects: 1. Social and structural support, 2. Work environment, 3. Communication and 4. Mental health support. As for social and structural support recommendations, a large number of articles mentioned recommendations on staff retention and social support offered by friends and family as well as colleagues and superiors. Recommendations concerning the work environment of HCWs mainly included suggestions on creating a safe and employee-oriented working environment, such as providing HCWs with adequate PPE and specialized occupational training. Recommendations on communication were primarily concerned with the dissemination of information through colleagues and superiors in order to prevent the spread of misinformation via unreliable sources. The recommendations listed by the largest number of included articles focused on mental health, with suggestions on self-care and access to professional mental health support being mentioned above all.

In summary, Project 1 (Halms et al., 2021) revealed that while existing recommendations addressed a wide range of areas, there was little involvement of those affected by the recommendations in the development of these guidelines and the effectiveness of the recommendations was not assessed. Further, the included articles rarely addressed the post-pandemic period and instead focused their recommendations on the acute situation, potentially neglecting long-term consequences.

2.2.2 Project 2: Subjective burden of psychiatric compared to somatic HCWs

As previously discussed, studies on the psychological distress and burden of HCWs during the pandemic focused primarily on HCWs in somatic care settings. As a result, HCWs working in other medical specialties who were also exposed to the negative impact of the COVID-19 pandemic and experienced similar psychological distress were inevitably neglected. In particular, the occupational group of HCWs working in psychiatric settings (PHCWs) was given little consideration, rarely constituting the primary focus of research (Alexiou et al., 2021; Eissazade et al., 2022; Kane et al., 2022; Ögütlü et al.,

2021). Given that PHCWs, in addition to the increased prevalence of mental disorders among the general population and thus an increased patient volume within the distinctive working conditions in psychiatric facilities (Byrne et al., 2021; Kane et al., 2022; Yellowlees, 2022), were also confronted with challenges similar to those faced by HCWs in other healthcare settings (OHCWs), investigating the mental burden of this occupational group is of particular interest. Therefore, the aim of project 2 was to assess and compare subjective burden in PHCWs and OHCWs to counteract the insufficient recognition of PHCWs' mental strains and the associated adverse effects on the mental well-being of this group (Halms et al., 2024)

In addition to the effects of the pandemic on employees' stress experience and working conditions, we further aimed to assess personal experiences with the COVID-19 virus as well as attitudes and opinions on the employer's management of the pandemic situation. For this purpose, a nationwide online cross-sectional survey with HCWs working in hospitals in Germany was conducted during the first wave of the pandemic (N = 3644, including n = 1530 PHCWs). Subjective burden was assessed by means of a questionnaire consisting of 20 items on workload, worries about the future and the virus, sleeping disorder, loss of free time, measures and management by political leaders and hospital management and the treatment of patients, amongst others. Items were rated on a five-point-Likert-scale from 1 ("strongly disagree") to 5 ("strongly agree") and group-specific comparisons between PHCWs and OHCWs were performed using Mann-Whitney-U-Tests. In summary, the survey found higher levels of subjective burden and stress among PHCWs compared to OHCWs. Additionally, PHCWs reported higher scores regarding a decrease in time for leisure or personal life than OHCWs. Further, nurses were found to report higher levels of burden compared to physicians and, in particular, nurses working in psychiatric settings experienced higher levels of subjective strain than all other surveyed groups. Simultaneously, physicians in non-psychiatric care settings were more affected by decreasing job satisfaction than psychiatric physicians. Moreover, significant differences in subjective stress were identified between acute care staff (Intensive care unit, COVID-19 ward, emergency room) and non-acute care staff. Nurses and physicians in acute care showed higher levels of stress than HCWs working in non-acute care settings. While the results of this presented study indicate higher subjective burden among PHCWs compared to OHCWs, ratings for stress observed across the entire sample were generally rather low.

2.2.3 Project 3: HCWs' views on support strategies

Although the findings from Project 1 demonstrated that the recommended support services cover a wide range of topics, suggested interventions were generally not based on the views, preferences and specific circumstances of the affected HCWs. Further, while strategies and interventions to support and counteract the challenges faced by HCWs were established in a number of countries, insufficient consideration was given to the effectiveness as well as the evidence on which the implemented interventions were based (Williams et al., 2020). To gain an in-depth insight into those factors that affected HCWs' coping with the pandemic and to identify previously unknown factors, I pursued a qualitative approach and analyzed the obtained data using qualitative content analysis according to Udo Kuckartz in Project 3 (Kuckartz, 2018). Specifically, the aim was to capture HCWs' actual protective factors, preferences, desires, and inhibiting factors, which we assessed through semi-structured individual interviews with nurses and physicians (N = 21, including n = 11 nurses) from April 8th to May 6th, 2021.

In summary, the analysis of the semi-structured interviews showed that the interviewed HCWs considered social support from friends, family, and colleagues to be the main protective factors in dealing with the challenges and stressors caused or intensified by the pandemic. In addition, common leisure activities, such as sports and time spent outdoors, were mentioned as important resources in coping with the increased burden at work. Regarding potential improvements, needs and desires, the responses received from nurses and physicians were rather mixed. For the group of nurses, the improvement of working conditions and processes in general, such as better planning of work schedules and prompt help when problems arise, was the main focus. For physicians, on the other hand, the most frequently mentioned demand was an increase in staff resources. With regard to communication between superiors and staff, the desire for a reaction to complaints and difficulties on the part of superiors was frequently mentioned by nurses, among other things. For both occupational groups, mutual appreciation among colleagues and superiors as well as a more open approach to mistakes were of relevance. Regarding barriers to the use of support services, the reasons given by the respondents were varied. On the one hand, practical factors such as lack of time and motivation to participate in post-work activities played a role, however, on the other hand, the fear of negative consequences when seeking professional psychological help as well as the inhibition of self-disclosure and reliving potentially traumatic experiences were mentioned. In connection with the aforementioned fear of negative consequences,

interviewees expressed a fear of stigmatization and, given the prevailing expectations and norms in medical professions, the inhibition to show weakness in front of colleagues or superiors.

Overall, the results from Project 3 revealed clear trends in the changes necessary for HCWs to cope with the increased burden caused by the COVID-19 pandemic and to prevent negative mental health outcomes.

3 Discussion

The impact of the COVID-19 pandemic posed an immense challenge to the entire global population and, in particular, to HCWs who have been directly affected by the physical and mental health impacts of the pandemic. The adverse effects on the mental well-being of this specific occupational group were recognized at an early stage of the pandemic and investigated in numerous studies. In my cumulative dissertation, special attention was therefore paid to previously neglected aspects that are essential to mitigate the negative consequences and to protect the mental health of HCWs. The aim of this dissertation based on three independent, but tightly interconnected projects with different methodological approaches was to investigate the impact of the COVID-19 pandemic on the previously underrepresented group of HCWs in psychiatric care settings, as well as possible strategies to support medical staff. Project 1, which examined existing recommendations and guidelines for supporting HCWs, provided an overview of the areas of action covered by the recommendations, while also identifying shortcomings. This publication formed the basis for the subsequent projects. To consider the impact of the pandemic on all HCWs and to best support previously neglected subgroups, Project 2 assessed and compared the subjective burden of HCWs in psychiatric settings and HCWs in somatic facilities across Germany. Based on the findings from Projects 1 and 2, Project 3 focused on HCWs' perceptions, desires, and barriers to the use of support services. The findings provided novel insights which may be used to develop evidence-based recommendations and, ultimately, to contribute to the provision of effective support for all HCWs.

While the overview of existing recommendations and guidelines showed that most publications included recommendations on self-care, creating safe working conditions and providing access to mental health care, these aspects were only reflected to a limited extent in the expressed needs and desires of the HCWs interviewed in Project 3.

Although the participants in Project 3 reported a need for professional therapeutic support, their demands regarding working conditions related primarily to basic structural processes, as well as to communication procedures. Furthermore, recommendations on psychological support services targeted at HCWs can only be implemented if such recommendations also consider possible inhibiting factors for participation and provide potential countermeasures. Low participation rates in professional support services for mental health problems with concurrent high levels of mental distress were previously reported in a cross-sectional study from UK with a total of 1127 participating HCWs (Petrella et al., 2021). While 79% of the respondents suffered from medium to very high levels of psychological distress, only 13% and 9% of HCWs, respectively, stated that they have ever made use of the services of the occupational health department or staff psychology and welfare services (Petrella et al., 2021). However, as was reported by the interviewees in Project 3, the cause for low participation rates as demonstrated by Petrella et al. likewise did not stem from lack of awareness about the existence of support services: Less than 3% of respondents were unaware of the available psychological services (Petrella et al., 2021). The results from Project 3 suggest that the actual reasons for non-participation in support services often involve fear of stigmatization, a change in the perception of colleagues as being weak or mentally unstable, as well as possible changes in one's own self-image. The limited available evidence on barriers to the use of support services confirmed these findings (Billings et al., 2021; Keyworth et al., 2022) and further showed that a prevailing ambivalence between the role as a healthcare provider and a recipient of care was perceived as a barrier (Keyworth et al., 2022). In addition, a lack of trust in confidentiality when participating in support services was an inhibiting factor (Keyworth et al., 2022). However, the barriers, which significantly affect the implementation of existing recommendations for the support of HCWs, were scarcely considered as presented in Project 1. Moreover, the discrepancy between recommended interventions and the actual needs and barriers of HCWs was previously identified in a narrative review including 27 studies on implemented interventions, suggesting an additional possible reason for the low participation rates (Robins-Browne et al., 2022).

Further, the recommended interventions did not consider different treatment settings of HCWs. As shown in Project 2, ratings for subjective burden were higher for HCWs in psychiatric settings than for HCWs in other care settings. However, the scoping review conducted in Project 1 showed that no interventions or recommendations specifically adapted to the working conditions in psychiatric facilities were developed. Given the wide range of changes in psychiatric care, such as adjustments to overall daily work routines

that had often included group activities prior the COVID-19 pandemic, as well as the somatic symptoms arising from COVID-19 infections that PHCWs need to treat (Öngür et al., 2020), support strategies for HCWs should be adapted to their particular working conditions.

Regarding the burden on both HCWs from psychiatric and other care settings, the long-term implications that may prevail after the crisis is over, must be considered. One longitudinal study from Japan conducted at four time points from March to November 2020 demonstrated that HCWs suffered from a significant increase in psychological distress over the measurement period compared with the general population (Sasaki et al., 2021). Further, one recently published systematic review including 18 studies on the longitudinal impact of the pandemic on the mental health of HCWs showed a worsening of mental health conditions such as anxiety, depression and insomnia in the majority of included studies (Umbetkuloova et al., 2023). Although few studies are available on the long-term impact of the pandemic on the mental health of HCWs, the results of the aforementioned systematic review suggest a progressive deterioration in the health status of this occupational group that may not seize even after the crisis over. In contrast, recently published results of a repeated cross-sectional survey, conducted initially between August and September 2021 with N = 510 participants and again between October and December 2022 with a total of N = 1,372 HCWs, revealed lower scores for mental disorders during the second survey period (Vroege and van den Broek, 2023). However, at the same time, higher numbers of sick leave and absenteeism were reported (Vroege and van den Broek, 2023). Overall, in view of the far-reaching consequences of the prevailing psychological distress and the critical working conditions of HCWs, developing adequate support strategies to counteract the adverse effects on the entire healthcare system is essential. One systematic review investigating turnover intention among HCWs during the COVID-19 pandemic revealed that, in addition to the fear of infection, mental stress due to the growing challenges, adverse working conditions and lack of organizational support were associated with increased turnover intention (Poon et al., 2022). Additionally, one survey conducted at a total of 104 hospitals in Germany showed that the staff shortage at German hospitals, which existed prior to the pandemic, was significantly associated with lower patient satisfaction (Winter et al., 2020). To address the pre-existing staff shortage in Germany, the resulting increased workload faced by the remaining HCWs and to strengthen the resilience of the healthcare system, a holistic strategy is required to improve the working conditions of healthcare facilities.

The results of this thesis should be considered in light of some limitations. First, due to the broad variance in publication types and the novelty of the topic, no systematic literature search was conducted in Project 1. Therefore, the possibility of overlooking further articles containing recommendations to support HCWs and thus missing potentially important content in our overview cannot be eliminated. Second, to the quantitative study conducted in Project 2, it must be acknowledged that online surveys are not representative and may hold the possibility of receiving fake answers. Furthermore, the possibility of recall bias as well as social desirability bias due to the methodology of qualitative interviews must be considered, given that sensitive topics as well as past experiences were addressed in the interviews. Additionally, only nurses and physicians, who were not randomly selected, were interviewed, so that a sampling bias cannot be ruled out. Finally, all projects are limited by the fact that they were conducted at specific time points during the pandemic, thus the findings may not be transferable to the entire time period of the COVID-19 pandemic.

Nevertheless, the results of this thesis suggest that HCWs from different healthcare settings are heavily burdened by the challenges of the pandemic, yet have so far received insufficient support that is adapted to their actual needs. Further, the results of this dissertation demonstrate that, simultaneously, underlying challenges unrelated to the COVID-19 pandemic, such as overcoming the stigma of mental illness within this occupational field, play an important role in protecting the well-being of HCWs.

To counteract the potentially long-term negative impact of the pandemic on the well-being of HCWs as well as the resulting profound effects on the entire healthcare system, conditions required for participation in support services must first be established. In addition to an open, non-judgmental approach to mental health problems in professional settings, medical staff need more time available to participate in interventions as well as structural changes, such as opportunities enabling direct communication between decision-making supervisors and frontline staff. Future research is needed to address the long-term post-pandemic impact on the mental health of HCWs, with a particular focus on subgroups of HCWs that have received little attention to date but are none the less affected by the challenges that are likely to prevail even after the crisis is over.

4 Abstracts

4.1 Abstract (Deutsch)

Die COVID-19-Pandemie stellt eine nie dagewesene Herausforderung für medizinisches Personal (HCWs) weltweit dar. Während die negativen Auswirkungen der Pandemie auf die psychische Gesundheit insbesondere von HCWs aus dem somatischen Versorgungsbereich bereits nachgewiesen wurden, wurde der Einfluss auf HCWs anderer Versorgungsbereiche unzureichend untersucht. Des Weiteren wurden bislang entwickelte Strategien zur Unterstützung von HCWs sowie deren tatsächliche Bedürfnisse und Barrieren für die Teilnahme an jenen Interventionen bislang nicht ausreichend berücksichtigt. Aus diesem Grund war es das Ziel der vorliegenden Dissertation, diese in der Forschung bislang unberücksichtigten Aspekte der COVID-19-Pandemie hinsichtlich der psychischen Gesundheit von HCWs zu untersuchen. Zu diesem Zweck wurde anhand von drei eng miteinander verknüpften Projekten 1. eine Übersicht vorhandener Empfehlungen zur Unterstützung von HCWs erstellt, 2. eine quantitative Untersuchung der subjektiven Belastung von HCWs in psychiatrischen Settings sowie in somatischen Settings durchgeführt und 3. die genauen Wünsche, Bedürfnisse und Barrieren für die Teilnahme an Unterstützungsangeboten mittels qualitativer Befragungen ermittelt.

Die Ergebnisse dieser Dissertation zeigten einerseits, dass bestehende Empfehlungen und Leitlinien zur Unterstützung von HCWs nur unzureichend auf Evidenz basierten und zudem die Ansichten der Zielgruppe kaum berücksichtigt wurden. Des Weiteren wurde gezeigt, dass die durch die Empfehlungen abgedeckten Handlungsbereiche sich häufig auf die Bereiche Selbstfürsorge, sichere Arbeitsbedingungen sowie den Zugang zu professioneller Unterstützung bei psychischen Problemen bezogen, ohne dabei die Implementierung dieser Maßnahmen zu berücksichtigen. Anhand der Online-Querschnittsumfrage in Projekt 2 wurde gezeigt, dass HCWs aus psychiatrischen Settings eine höhere subjektive Belastung aufwiesen als HCWs aus somatischen Settings. Insbesondere Pflegekräfte sowie Mitarbeiter:innen aus der Akutversorgung schienen stärker belastet zu sein als Mitarbeiter:innen anderer Subgruppen. Schließlich konnte aus den Ergebnissen der qualitativen Untersuchung in Projekt 3 Rückschlüsse darauf gezogen werden, dass die vorherrschenden Erwartungshaltungen an medizinisches Personal im Krankenhaussetting sowie das damit verbundene Stigma psychischer Erkrankungen in diesem Berufsfeld wesentliche Barrieren für die Teilnahme an Unterstützungsangeboten darstellten. Darüber hinaus wiesen die Interviews darauf

hin, dass die Befragten einen Bedarf an mehr Freizeit, struktureller Veränderungen sowie kürzeren Kommunikationswegen als notwendig erachteten.

Aus den Erkenntnissen dieser Dissertation kann abgeleitet werden, dass es grundlegender Veränderungen hinsichtlich der Arbeitsbedingungen und des Umgangs mit Belastungen im medizinischen Berufsfeld bedarf. Zudem erfordert eine erfolgreiche Implementierung von Interventionen zur Unterstützung medizinischen Personals eine Ermittlung und Berücksichtigung der tatsächlichen Bedürfnisse und Wünsche dieser Berufsgruppe. Zukünftige Studien sollten sich insbesondere auf bislang kaum berücksichtigte Subgruppen medizinischen Personals sowie auf die möglicherweise langfristigen Folgen der durch die Pandemie verstärkten Herausforderungen fokussieren.

4.2 Abstract (English)

The COVID-19 pandemic poses an unprecedented challenge to healthcare workers (HCWs) worldwide. While the negative impact of the pandemic on the mental health, particularly of HCWs in somatic care settings, has been demonstrated, the impact on HCWs in other healthcare settings has been insufficiently investigated. Furthermore, strategies developed to date to support HCWs as well as their actual needs and barriers to participation in those support interventions were given inadequate consideration. For this reason, the goal of this dissertation was to investigate aspects of the COVID-19 pandemic that have been insufficiently considered in research related to the mental health of HCWs. To this end, three closely related projects were conducted to (1) provide a review of existing recommendations for the support of HCWs, (2) perform a quantitative survey of HCWs' subjective burden in psychiatric settings as well as somatic settings, and (3) identify the specific wants, needs and barriers to participation in support services through qualitative interviews.

The results of this dissertation showed, on the one hand, that existing recommendations and guidelines for supporting HCWs were scarcely evidence-based and, moreover, that the views of the target group were rarely considered. Furthermore, it was shown that the areas of action covered by the recommendations often referred to the domains of self-care, safe working conditions, and access to professional psychological support, without considering the implementation of these measures. Based on the results of the online cross-sectional survey in Project 2, it was shown that HCWs from psychiatric settings reported higher levels of subjective burden than HCWs from somatic settings and, in

particular, nurses and acute care staff appeared to be more distressed than staffing from other subgroups. Finally, the findings of the qualitative study in Project 3 suggested that the prevailing expectations of medical staff in hospital settings and the stigma associated with mental disorders in this professional field were significant barriers to participation in support services. In addition, the interviews indicated that respondents identified a need for more free time, structural changes and improved communication structures.

Based on the findings of this thesis, it can be concluded that fundamental changes regarding working conditions and the management of psychological burden in the medical profession are needed. Furthermore, a successful implementation of interventions to support medical staff requires an identification and consideration of the actual needs and wishes of this professional group. Future studies should focus explicitly on subgroups of medical staff that have been insufficiently considered thus far and on the possible long-term consequences of the challenges posed by the pandemic.

References

- Alexiou, E., Steingrimsdottir, S., Akerstrom, M., Jonsdottir, I. H., Ahlstrom, L., Finizia, C., Wijk, H., Degl'Innocenti, A., 2021. A Survey of Psychiatric Healthcare Workers' Perception of Working Environment and Possibility to Recover Before and After the First Wave of COVID-19 in Sweden. *Front. Psychiatry* 12, 770955. 10.3389/fpsy.2021.770955.
- Aymerich, C., Pedruzo, B., Pérez, J. L., Laborda, M., Herrero, J., Blanco, J., Mancebo, G., Andrés, L., Estévez, O., Fernandez, M., Salazar de Pablo, G., Catalan, A., González-Torres, M. Á., 2022. COVID-19 pandemic effects on health worker's mental health: Systematic review and meta-analysis. *European psychiatry : the journal of the Association of European Psychiatrists* 65 (1), e10. 10.1192/j.eurpsy.2022.1.
- Billings, J., Abou Seif, N., Hegarty, S., Ondruskova, T., Soulios, E., Bloomfield, M., Greene, T., 2021. What support do frontline workers want? A qualitative study of health and social care workers' experiences and views of psychosocial support during the COVID-19 pandemic. *PLOS ONE* 16 (9), e0256454. 10.1371/journal.pone.0256454.
- Brouwers, M. C., Kho, M. E., Browman, G. P., Burgers, J. S., Cluzeau, F., Feder, G., Fervers, B., Graham, I. D., Grimshaw, J., Hanna, S. E., Littlejohns, P., Makarski, J.,

- Zitzelsberger, L., 2010. AGREE II: advancing guideline development, reporting and evaluation in health care. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne* 182 (18), E839-42. 10.1503/cmaj.090449.
- Buselli, R., Corsi, M., Veltri, A., Baldanzi, S., Chiumiento, M., Del Lupo, E., Marino, R., Necciari, G., Caldi, F., Foddis, R., Guglielmi, G., Cristaudo, A., 2021. Mental health of Health Care Workers (HCWs): a review of organizational interventions put in place by local institutions to cope with new psychosocial challenges resulting from COVID-19. *Psychiatry research* 299, 113847. 10.1016/j.psychres.2021.113847.
- Byrne, A., Barber, R., Lim, C. H., 2021. Impact of the COVID -19 pandemic – a mental health service perspective. *Prog. Neurol. Psychiatry* 25 (2), 27. 10.1002/pnp.708.
- Carvalho, T., Krammer, F., Iwasaki, A., 2021. The first 12 months of COVID-19: a timeline of immunological insights. *Nature reviews. Immunology* 21 (4), 245–256. 10.1038/s41577-021-00522-1.
- Chemali, S., Mari-Sáez, A., El Bcheraoui, C., Weishaar, H., 2022. Health care workers' experiences during the COVID-19 pandemic: a scoping review. *Human resources for health* 20 (1), 27. 10.1186/s12960-022-00724-1.
- Chutiyami, M., Cheong, A. M. Y., Salihu, D., Bello, U. M., Ndwiga, D., Maharaj, R., Naidoo, K., Kolo, M. A., Jacob, P., Chhina, N., Ku, T. K., Devar, L., Pratitha, P., Kannan, P., 2021. COVID-19 Pandemic and Overall Mental Health of Healthcare Professionals Globally: A Meta-Review of Systematic Reviews. *Front. Psychiatry* 12, 804525. 10.3389/fpsy.2021.804525.
- David, E., DePierro, J. M., Marin, D. B., Sharma, V., Charney, D. S., Katz, C. L., 2022. COVID-19 Pandemic Support Programs for Healthcare Workers and Implications for Occupational Mental Health: A Narrative Review. *The Psychiatric quarterly* 93 (1), 227–247. 10.1007/s11126-021-09952-5.
- Di Toro, A., Bozzani, A., Tavazzi, G., Urtis, M., Giuliani, L., Pizzoccheri, R., Aliberti, F., Fergnani, V., Arbustini, E., 2021. Long COVID: long-term effects? *European heart journal supplements : journal of the European Society of Cardiology* 23 (Suppl E), E1-E5. 10.1093/eurheartj/suab080.
- Eissazade, N., Shalbafan, M., Saeed, F., Hemmati, D., Askari, S., Sayed Mirramazani, M., Eftekhari Ardebili, M., Gondek, T. M., Da Pinto Costa, M., 2022. The Impact of the COVID-19 Pandemic on Iranian Psychiatric Trainees' and Early Career Psychiatrists' Well-being, Work Conditions, and Education. *Academic psychiatry : the journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*. 10.1007/s40596-022-01674-

5.

- Freundl, V., Lergetporer, P., Zierow, L., 2021. Germany's education policy during the COVID-19 crisis. *Z Politikwiss* 31 (1), 109–116. 10.1007/s41358-021-00262-7.
- Galanis, P., Vrakka, I., Fragkou, D., Bilali, A., Kaitelidou, D., 2021. Nurses' burnout and associated risk factors during the COVID-19 pandemic: A systematic review and meta-analysis. *Journal of advanced nursing* 77 (8), 3286–3302. 10.1111/jan.14839.
- Gupta, N., Dhamija, S., Patil, J., Chaudhari, B., 2021. Impact of COVID-19 pandemic on healthcare workers. *Industrial psychiatry journal* 30 (Suppl 1), S282-S284. 10.4103/0972-6748.328830.
- Halms, T., Strasser, M., Kunz, M., Hasan, A., 2021. How to Reduce Mental Health Burden in Health Care Workers During COVID-19?—A Scoping Review of Guideline Recommendations. *Frontiers in psychiatry* 12, 770193. 10.3389/fpsy.2021.770193.
- Halms, T., Strasser, M., Papazova, I., Reicherts, P., Zerbini, G., Grundey, S., Täumer, E., Ohmer-Kluge, M., Kunz, M., Hasan, A., 2023. What do healthcare workers need? A qualitative study on support strategies to protect mental health of healthcare workers during the SARS-CoV-2 pandemic. *BMC psychiatry* 23 (1), 195. 10.1186/s12888-023-04686-z.
- Halms, T., Thoma, A., Kramer, V., Kunz, M., Falkai, P., Schneider-Axmann, T., Hierundar, A., Wagner, E., Hasan, A., Papazova, I., 2024. Höhere subjektive Belastung des medizinischen Personals der psychiatrischen gegenüber der somatischen Versorgung in Deutschland während der ersten Welle der COVID-19 Pandemie. *Fortschr Neurol Psychiatr* 92 (1-02), 27–32. 10.1055/a-2125-8906.
- Hao, Q., Wang, D., Xie, M., Tang, Y., Dou, Y., Zhu, L., Wu, Y., Dai, M., Wu, H., Wang, Q., 2021. Prevalence and Risk Factors of Mental Health Problems Among Healthcare Workers During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis. *Frontiers in psychiatry* 12, 567381. 10.3389/fpsy.2021.567381.
- Jiang, P., Klemeš, J. J., van Fan, Y., Fu, X., Bee, Y. M., 2021. More Is Not Enough: A Deeper Understanding of the COVID-19 Impacts on Healthcare, Energy and Environment Is Crucial. *International journal of environmental research and public health* 18 (2), 684. 10.3390/ijerph18020684.
- Kane, H., Baumgart, J. G., Rusch, E., Deloyer, J., Fuenzalida, C., Kelemen, G., Krzystanek, M., Marazziti, D., Moraitou, M., Reunanen, M., Shyhrete, R., Thome, J., Verwaest, W., Fond-Harmant, L., Denis, F., 2022. The impact of COVID-19 on psychiatric and mental health services in Europe: suffering experienced by professionals. *BMC Health Services Research* 22 (1), 1360. 10.1186/s12913-022-

08776-8.

- Keyworth, C., Alzahrani, A., Pointon, L., Hinsby, K., Wainwright, N., Moores, L., Bates, J., Johnson, J., 2022. Barriers and enablers to accessing support services offered by staff wellbeing hubs: A qualitative study. *Frontiers in Psychology* 13, 1008913. 10.3389/fpsyg.2022.1008913.
- Kramer, V., Papazova, I., Thoma, A., Kunz, M., Falkai, P., Schneider-Axmann, T., Hierundar, A., Wagner, E., Hasan, A., 2021. Subjective burden and perspectives of German healthcare workers during the COVID-19 pandemic. *Eur Arch Psychiatry Clin Neurosci* 271 (2), 271–281. 10.1007/s00406-020-01183-2.
- Kuckartz, U., 2018. *Qualitative Inhaltsanalyse. Methoden, Praxis, Computerunterstützung*, 4th ed. Beltz, Weinheim.
- Kunzler, A. M., Helmreich, I., Chmitorz, A., König, J., Binder, H., Wessa, M., Lieb, K., 2020. Psychological interventions to foster resilience in healthcare professionals. *The Cochrane Database of Systematic Reviews* 7 (7), CD012527. 10.1002/14651858.CD012527.pub2.
- Lee, B. E. C., Ling, M., Boyd, L., Olsson, C., Sheen, J., 2023. The prevalence of probable mental health disorders among hospital healthcare workers during COVID-19: A systematic review and meta-analysis. *Journal of affective disorders* 330, 329–345. 10.1016/j.jad.2023.03.012.
- Morawa, E., Schug, C., Geiser, F., Beschoner, P., Jerg-Bretzke, L., Albus, C., Weidner, K., Hiebel, N., Borho, A., Erim, Y., 2021. Psychosocial burden and working conditions during the COVID-19 pandemic in Germany: The VOICE survey among 3678 health care workers in hospitals. *Journal of psychosomatic research* 144, 110415. 10.1016/j.jpsychores.2021.110415.
- Öğütü, H., McNicholas, F., Türkçapar, H., 2021. Stress and Burnout in Psychiatrists in Turkey during COVID-19 Pandemic. *Psychiatria Danubina* 33 (2), 225–230. 10.24869/psyd.2021.225.
- Öngür, D., Perlis, R., Goff, D., 2020. Psychiatry and COVID-19. *JAMA* 324 (12), 1149–1150. 10.1001/jama.2020.14294.
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., Katsaounou, P., 2020. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, behavior, and immunity* 88, 901–907. 10.1016/j.bbi.2020.05.026.
- Petrella, A. R., Hughes, L., Fern, L. A., Monaghan, L., Hannon, B., Waters, A., Taylor, R. M., 2021. Healthcare staff well-being and use of support services during COVID-

- 19: a UK perspective. *Gen Psych* 34 (3), e100458. 10.1136/gpsych-2020-100458.
- Poon, Y.-S. R., Lin, Y. P., Griffiths, P., Yong, K. K., Seah, B., Liaw, S. Y., 2022. A global overview of healthcare workers' turnover intention amid COVID-19 pandemic: a systematic review with future directions. *Hum Resour Health* 20 (1), 70. 10.1186/s12960-022-00764-7.
- Robins-Browne, K., Lewis, M., Burchill, L. J., Gilbert, C., Johnson, C., O'Donnell, M., Kotevski, A., Poonian, J., Palmer, V. J., 2022. Interventions to support the mental health and well-being of front-line healthcare workers in hospitals during pandemics: an evidence review and synthesis. *BMJ Open* 12 (11), e061317. 10.1136/bmjopen-2022-061317.
- Saragih, I. D., Tonapa, S. I., Saragih, I. S., Advani, S., Batubara, S. O., Suarilah, I., Lin, C.-J., 2021. Global prevalence of mental health problems among healthcare workers during the Covid-19 pandemic: A systematic review and meta-analysis. *International journal of nursing studies* 121, 104002. 10.1016/j.ijnurstu.2021.104002.
- Sasaki, N., Asaoka, H., Kuroda, R., Tsuno, K., Imamura, K., Kawakami, N., 2021. Sustained poor mental health among healthcare workers in COVID-19 pandemic: A longitudinal analysis of the four-wave panel survey over 8 months in Japan. *Journal of Occupational Health* 63 (1), e12227. 10.1002/1348-9585.12227.
- Shanafelt, T., Ripp, J., Trockel, M., 2020. Understanding and Addressing Sources of Anxiety Among Health Care Professionals During the COVID-19 Pandemic. *JAMA* 323 (21), 2133–2134. 10.1001/jama.2020.5893.
- Shaukat, N., Ali, D. M., Razzak, J., 2020. Physical and mental health impacts of COVID-19 on healthcare workers: a scoping review. *International journal of emergency medicine* 13 (1), 40. 10.1186/s12245-020-00299-5.
- Siddiqui, S., Alhamdi, H. W. S., Alghamdi, H. A., 2022. Recent Chronology of COVID-19 Pandemic. *Frontiers in public health* 10, 778037. 10.3389/fpubh.2022.778037.
- Steudte-Schmiedgen, S., Stieler, L., Erim, Y., Morawa, E., Geiser, F., Beschoner, P., Jerg-Bretzke, L., Albus, C., Hiebel, N., Weidner, K., 2021. Correlates and Predictors of PTSD Symptoms Among Healthcare Workers During the COVID-19 Pandemic: Results of the egePan-VOICE Study. *Frontiers in psychiatry* 12, 686667. 10.3389/fpsy.2021.686667.
- Thome, J., Coogan, A. N., Fischer, M., Tucha, O., Faltraco, F., 2020. Challenges for mental health services during the 2020 COVID-19 outbreak in Germany. *Psychiatry and clinical neurosciences* 74 (7), 407. 10.1111/pcn.13019.

- Tong, J., Zhang, J., Zhu, N., Pei, Y., Liu, W., Yu, W., Hu, C., Sun, X., 2023. Effects of COVID-19 pandemic on mental health among frontline healthcare workers: A systematic review and meta-analysis. *Frontiers in Psychology* 13. 10.3389/fpsyg.2022.1096857.
- Umbetkulova, S., Kanderzhanova, A., Foster, F., Stolyarova, V., Cobb-Zygadlo, D., 2023. Mental Health Changes in Healthcare Workers DURING COVID-19 Pandemic: A Systematic REVIEW of Longitudinal Studies. *Evaluation & the health professions*, 1632787231165076. 10.1177/01632787231165076.
- Vizheh, M., Qorbani, M., Arzaghi, S. M., Muhidin, S., Javanmard, Z., Esmaeili, M., 2020. The mental health of healthcare workers in the COVID-19 pandemic: A systematic review. *Journal of diabetes and metabolic disorders* 19 (2), 1967–1978. 10.1007/s40200-020-00643-9.
- Vroege, L. de, van den Broek, A., 2023. Post-pandemic self-reported mental health of mental healthcare professionals in the Netherlands compared to during the pandemic – an online longitudinal follow-up study. *Front. Public Health* 11, 1221427. 10.3389/fpubh.2023.1221427.
- Williams, G. A., Scarpetti, G., Bezzina, A., Vincenti, K., Grech, K., Kowalska-Bobko, I., Sowada, C., Furman, M., Galazka-Sobotka, M., Maier, C. B., 2020. How are countries supporting their health workers during COVID-19? (Special Issue: COVID-19 health system response.). *Eurohealth*, 58–62.
- Winter, V., Schreyögg, J., Thiel, A., 2020. Hospital staff shortages: Environmental and organizational determinants and implications for patient satisfaction. *Health Policy* 124 (4), 380–388. 10.1016/j.healthpol.2020.01.001.
- Yellowlees, P., 2022. Impact of COVID-19 on Mental Health Care Practitioners. *The Psychiatric Clinics of North America* 45 (1), 109–121. 10.1016/j.psc.2021.11.007.

5 Danksagung

An dieser Stelle möchte ich mich bei allen herzlich bedanken, die mich bei der Verwirklichung dieser Dissertation unterstützt haben. Diese Arbeit wäre niemals ohne die Menschen zustande gekommen, denen ich im Folgenden meinen Dank aussprechen möchte.

Ganz besonders danken möchte ich Herrn Prof. Dr. Alkomiet Hasan für die Möglichkeit, diese Dissertation anfertigen zu dürfen, für die außergewöhnliche Betreuung und Unterstützung bei all meinen Fragen und für das mir entgegengebrachte Vertrauen. Für die stets ermutigende und herzliche Hilfe bin ich mehr als dankbar. Ein besonderer Dank gilt auch Frau Prof. Dr. Miriam Kunz für die vielen, äußerst hilfreichen Ratschläge und Korrekturen, die Unterstützung bei den Rekrutierungen und die stets geduldige, hervorragende wissenschaftliche Begleitung. Ein weiterer Dank gilt Frau Dr. Svenja Grundey für all die überaus wertvollen Anregungen und Kommentare, ohne die ich im qualitativen Teil dieser Arbeit den Wald vor lauter (Code-)Bäumen nicht mehr gesehen hätte. Weiterhin möchte ich vielmals der gesamten Arbeitsgruppe sowie allen Kollegen und Kolleginnen, aus denen Freunde geworden sind, danken. Insbesondere möchte ich Frau Dr. Irina Papazova für die geduldige Beantwortung meiner Fragen und die zahlreichen Korrekturen danken. Ebenfalls gilt mein großer Dank Frau Martina Strasser – du hast mich durch alle Etappen begleitet und warst mir in jeder Hinsicht stets eine enorme Unterstützung. Zudem möchte ich Herrn Dr. Marcus Gertzen für jedes motivierende Wort, jeden Ratschlag und jeden humorvollen Kommentar danken, die immer genau zur richtigen Zeit kamen und so manche Sorge relativierten.

Zuletzt möchte ich mich bei meinen Freunden, meiner Familie und insbesondere bei meinen Eltern bedanken, die mir immer bedingungslos mit Rat und Tat zur Seite standen und bei jedem noch so nichtigen Problem ein offenes Ohr für mich hatten.