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Higher Subjective Burden in Psychiatric Compared to Somatic Healthcare Workers in Germany During the first wave of the COVID-19 Pandemic

Höhere subjektive Belastung des medizinischen Personals der psychiatrischen gegenüber der somatischen Versorgung in Deutschland während der ersten Welle der COVID-19 Pandemie

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Key words

healthcare workers, COVID-19, mental health, stress, psychiatry

Schlüsselwörter

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ABSTRACT

The COVID-19 pandemic has posed unprecedented challenges for health care workers (HCWs) worldwide. While the adverse effects of the pandemic on the well-being of HCWs in general have now been established, little is known about the impact on HCWs of psychiatric hospitals (PHCWs). PHCWs are of special interest, given that they faced both an increase in infection rates among psychiatric patients as well as in mental strain of the general public due to consequences of the pandemic. The aim of the present study was to investigate how the pandemic affected PHCWs as well as possible differences between PHCWs and other health care workers (OHCWs) in Germany during the first wave of the pandemic. We conducted a country-wide anonymous online survey early during the first pandemic wave between April 15th and May 1st, 2020, to assess different aspects of subjective burden and perceived stress using 5-point Likert-scale questions. We analysed data of 1530 PHCWs and 2114 OHCWs and showed that PHCWs reported higher subjective burden and stress compared to OHCWs ($p < 0.001$). Overall, nurses from both groups of HCWs showed higher ratings in subjective burden and stress than physicians. These higher ratings for subjective burden were even more pronounced for nurses working in psychiatric hospitals. Future

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research is needed to investigate the causes for PHCWs' increased stress and subjective burden, especially when taking into account the long-term effects of the pandemic, which may lead to further challenges and an ever-increasing workload, especially for PHCWs.

ZUSAMMENFASSUNG

Die COVID-19-Pandemie stellte medizinisches Personal weltweit vor ungeahnte Herausforderungen. Während die negativen Folgen der Pandemie auf das Wohlbefinden des medizinischen Personals (HCWs) im Allgemeinen bereits nachgewiesen wurden, ist über die Auswirkungen auf das Gesundheitspersonal in psychiatrischen Krankenhäusern (PHCWs) wenig bekannt. PHCWs sind von besonderem Interesse, da jene Berufsgruppe sowohl mit einem Anstieg der Infektionsraten bei psychiatrischen Patient:innen als auch mit der psychischen Belastung der Allgemeinbevölkerung durch die Folgen der Pandemie konfrontiert waren. Ziel der vorliegenden Studie war die Untersuchung der Folgen der Pandemie auf PHCWs sowie der

Unterschiede zwischen PHCWs und anderem medizinischen Personal (OHCWs) in Deutschland während der ersten Welle der Pandemie. Wir führten eine bundesweite, anonyme Online-Befragung zu Beginn der ersten Pandemiewelle zwischen dem 15. April und dem 1. Mai 2020 durch, um verschiedene Aspekte der subjektiven Belastung und des wahrgenommenen Stresses anhand von Fragen auf einer 5-Punkte-Likert-Skala zu erfassen. Wir analysierten die Daten von 1530 PHCWs und 2114 OHCWs und konnten zeigen, dass PHCWs im Vergleich zu OHCWs eine höhere subjektive Belastung und Stress aufwiesen ($p < .001$). Insgesamt bewertete pflegerisches Personal aus beiden Gruppen die subjektive Belastung und den Stress höher als ärztliches Personal. Die höchsten Werte subjektiver Belastung wiesen Pflegekräfte in psychiatrischen Krankenhäusern auf. Weitere Studien sind erforderlich, um die Ursachen für den erhöhten Stress und die subjektive Belastung von PHCWs zu untersuchen. Dabei sollten insbesondere die langfristigen Auswirkungen der Pandemie, die zu weiteren Herausforderungen und einer kontinuierlich ansteigenden Arbeitsbelastung führen könnten, berücksichtigt werden.

Introduction

The outbreak of COVID-19 in December 2019 and its declaration as a global pandemic in early 2020 has presented unprecedented challenges for health care workers (HCWs) worldwide, leading to an increase in workload and mental stress. The adverse effects of the pandemic on the well-being of HCWs, such as higher prevalence of stress, depression or anxiety, have since then been demonstrated by numerous studies [1–4]. However, little is known about the effects on psychiatric HCWs (PHCWs). PHCWs are of special interest, given that they faced both an increase in infection rates among psychiatric patients as well as in mental strain of the general public due to consequences of the pandemic. The negative impact of the pandemic on public mental health was shown in a recent umbrella review, that revealed a higher prevalence of mental disorders than before the onset of the pandemic, specifically regarding depression and anxiety [5].

Regardless of the circumstances and challenges posed by the pandemic, the underlying risk factors in PHCWs for stress and burnout must be considered. A survey of 35 psychiatric nurses showed that, in addition to stressors such as proximity and extended duration of patient care in the psychiatric field, the emotional labor required for patients' treatment further leads to increased stress [6]. Other stressors include stigmatization of the profession, patient suicides, challenging and potentially threatening interactions with patients as well as low pay [7]. One study conducted among a sample of 460 PHCWs in the USA revealed that 73 % of workers reported moderate to high levels of role stress and 56 % reported moderate to high levels of emotional exhaustion [8]. In view of the pandemic, there are numerous studies on mental health among other HCWs (OHCWs) not working in psychiatric hospitals [9, 10], but only few on PHCWs' mental health [11–17]. Among the existing studies, the majority assessed working conditions, general well-being or prevalence of depression, anxiety, stress and burnout in sam-

ples exclusively consisting of psychiatrists or PHCWs [12–16]. One study examined potential differences in a sample of 164 psychiatrists and 561 other physicians, regarding distress, life satisfaction as well as COVID-19 specific concerns, anxiety and coping strategies. Aside from the increased prevalence of COVID-19 specific anxiety, no differences were shown between the two groups in terms of mental burden [11]. Additionally, an online survey conducted among a sample of 240 HCWs from an acute care hospital as well as a psychiatric hospital in Canada showed similar scores on the psychometric scales for depression, anxiety and stress for both groups [17]. Considering the similar challenges facilitated by the COVID-19 pandemic for both OHCWs and PHCWs, this limited amount of evidence on burden among PHCWs presents a significant research gap.

Furthermore, when interpreting the existing evidence on the burden of PHCWs and OHCWs, the transferability could potentially be decreased due to the particularities of the healthcare system and the management of the COVID-19 pandemic in Germany, such as the high number of intensive care beds [18]. In addition to the prerequisites of the healthcare system and the structural changes necessary due to the COVID-19 pandemic, PHCWs were confronted with particularly challenging and demanding conditions of psychiatric care in comparison to HCWs working in somatic hospitals. For one, the specific challenges for PHCWs included the increased risk of pulmonary infections in patients with severe mental illnesses, making the prevention of COVID-19 infection among this patient population a crucial issue [19]. Moreover, patients with severe mental illness are frequently impaired in their perception of physical symptoms and in their understanding of and compliance with required hygiene measures [19]. Further adding to the challenges is the frequent participation of psychiatric patients in group settings during meals or therapy sessions, which in turn increases the risk of infection [19].

Given the lack of evidence on the burden of HCWs working in psychiatric settings in countries with similar characteristics of the healthcare system, the aim of the present study is to investigate the impact of the pandemic on this professional group under these distinct conditions. In line with prepandemic research on the challenges of “emotional work” in mental health care, we hypothesized that PHCWs would have higher values of subjective burden during the first COVID-19 wave than OHCWs.

Methods

Disclaimer

The data used for analyses in this paper originate from an online survey, the overall results of which have already been published comparing subjective burden of HCWs in general [20], using a licensed LimeSurvey version 2.06. The study was reviewed by the data protection officer of the University Hospital Munich (LMU Munich) and the local ethics committee.

Participants and recruitment procedures

In total, $N = 5822$ HCWs (3406 females) took part in the online survey carried out from April 15th until May 1st, 2020. We contacted 35 management boards of University Hospitals, 58 hospitals of second or third medical care, the Association of Psychiatry, Psychotherapy and Psychosomatic Medicine, (APPPM, ~ 10000 members), the German Society of Surgery (GSS, ~ 20000 members) and the German Interdisciplinary Association for Intensive and Emergency Medicine (AIEM, ~ 2500 members) and asked them to share the survey link via their member e-mail mailing list. Cochrane Deutschland@Cochrane_DE shared the survey link via twitter as well. Participants ($n = 479$), who did not reach question 9 (commencement of content-based questions) of the questionnaire were excluded from further analyses. We further excluded all participants who did not work in a hospital or in direct patient care (allocated to administration ($n = 608$), research ($n = 240$), other reason for not working in patient care ($n = 199$), missing data ($n = 627$)), as well as all participants with missing data regarding working area ($n = 25$), leaving a total of $n = 3644$ (2208 females). 1530 HCWs (1009 females) worked in mental health facilities and 2114 in somatic hospitals (1199 females).

Questionnaire

We assessed subjective burden and demographics using a questionnaire consisting of 33 items, developed first by AH, AT and VK and revised by EW, TSA and MK. Questions 1–8 included demographic items (e. g. age, gender, area of work). We measured mental strain with 20 items on subjective burden (e. g. workload, loss of free time, sleeping disorder, worries about the future; Q9, 10, 12, 24, 25, 26, 30, 33), worries about the virus (Q27, 28, 29), measures and management by political leaders and hospital management (Q11, 13, 14, 19, 20, 21, 22) and the treatment of both patients tested positive and negative for COVID-19 (Q31, 32). The items were rated on a five-point-Likert-scale from 1 („strongly disagree“) to 5 („strongly agree“). The survey was administered in German (for an English version see **Supplementary Table 1**).

Statistical analyses

We used IBM SPSS (version 25) and JASP (version 0.14.1.0) for Windows for statistical analyses. We applied 20 Mann-Whitney-U-Test (MWU) to compare the subjective burden of psychiatric and somatic HCWs as measured by Questions 9 to 33. In addition, group-specific comparisons between PHCWs and OHCWs were undertaken using MWU tests for the professional groups of physicians and nurses as well as for the groups of male and female participants. To control for multiple testing, significance level was Bonferroni-adjusted to $\alpha = .05/20 = .0025$. Results of $p > .0025$, but $p < .05$ were indicated as trends. Since our previous study indicated significant differences in stress levels due to occupation and working area with high risk of being in contact with COVID-19, we repeated the comparison analysis between OHCWs and PHCWs separately for occupation (nurses and physicians), working areas (intensive care unit, emergency room and COVID-19 units and all others) as well as for gender groups (female, male) [20]. Group differences in demographics were tested with Chi-square tests and one-way-ANOVAs. Sample sizes smaller than 3644 indicate missing responses for the respective variable.

Results

Demographics

Chi-squared tests showed significant differences of distribution in gender, area of work and hospital, type of hospital and self-reported COVID-19 infection of participants between the samples of OHCWs and PHCWs (all $p < .001$). The majority of respondents worked in a ward (56.7 % of OHCWs and 74.7 % of PHCWs). At the time of the survey, 19.2 % of all participants worked in an intensive care unit (ICU), emergency room (ER) or in a COVID-19 ward ($n = 702$), of which 26.6 % belonged to the group of OHCWs ($n = 563$) and 9.1 % were PHCWs ($n = 139$). See **Supplementary Table 2** for the demographic characteristics of the complete sample.

Comparison of mental burden (PHCWs vs. OHCWs)

The MWU-analysis showed that PHCWs reached higher values on questions regarding an increase of daily workload (Q9), stress during daily life (Q25) and mental strain (Q10) as well as a decrease in time for personal life (Q24) due to the COVID-19 pandemic ($p < .001$ for Q9, Q10, Q25, Q24). OHCWs, on the other hand, showed higher scores on the question concerning feeling abandoned by political decision-makers (Q14, $p < .001$). Regarding the perception that their hospital was well prepared for the COVID-19 pandemic, PHCWs had lower values than OHCWs (Q22, $p < .001$). Another significant difference was found with regard to questions related to the provision of adequate healthcare for both COVID-19 patients and other patients in the respondents' respective hospital. OHCWs scored higher on both of these questions (Q31, Q32, $p < .001$). For the remaining questions, there were no significant differences. See **Supplementary Table 3** for descriptive data and statistics of the comparison between PHCWs and OHCWs. To control for differences in distribution of gender, we conducted the analysis separately for male and female participants and observed similar results (see **Supplementary Tables 4 and 5**).

Contrasting OHCWs and PHCWs with focus on occupation (physicians and nurses)

The two separate sets of MWU for physicians and nurses showed significant differences between psychiatric nurses (PNs) and other nurses (ONs) on the one hand, and between psychiatric physicians (PPs) and other physicians (OPs) on the other hand. PNs reached significantly higher values on questions about the increase in daily workload, stress and mental strain due to the COVID-19 pandemic as well as a decrease in job satisfaction than ONs ($p < .001$ for Q9, Q10, Q12, Q25). Furthermore, PNs scored lower on items about the provision of adequate healthcare for COVID-19 patients and other patients compared to ONs ($p < .001$ for Q31 and Q32). Regarding questions about satisfaction with the measures taken by the hospital (Q19), the feeling of being abandoned by political decision-makers (Q14) and the hospital's adequate preparation for the COVID-19 pandemic (Q22), ONs scored higher than PNs ($p < .001$ for Q19 and Q22; $p = .002$ for Q14). MWU showed similar differences in the group of physicians. PPs reached higher scores on questions regarding an increase in daily workload, stress, mental strain and a decrease in time for personal life compared to OPs ($p < .001$ for Q9, Q10, Q21, Q24). Unlike the group of ONs, OPs achieved higher values than PPs in terms of decreasing job satisfaction (Q12, $p < .001$). See **Supplementary Tables 6 and 7** for descriptive data and statistics.

Contrasting OHCWs and PHCWs with focus on working area (ICU, COVID-19 ward, ER and others)

The separate MWU comparison analyses for ICU, COVID-19 wards and ER and for the other non-acute wards showed that PHCWs working in acute care had significantly higher values on the question of an increase in daily workload than OHCWs (Q9, $p < .001$). Both PHCWs in ICU, COVID-19 wards and ER as well as in non-acute care wards had lower scores on the question representative of the provision of adequate healthcare for patients infected with COVID-19 compared to OHCWs (Q32, $p < .001$). Comparisons of PHCWs and OHCWs working in non-acute care wards showed significant differences reflected in higher scores of PHCWs regarding questions on an increase in workload (Q9), mental strain and stress (Q10, Q25), feeling left alone by their employer (Q13), a decrease of time for personal life (Q24), as well as worries about the well-being and possible COVID-19 infections of family and relatives (Q27, Q29) (all $p < .001$). No significant differences were found for the remaining questions. See **Supplementary Tables 8 and 9** for descriptive data and statistics.

Discussion

The aim of the present study was to investigate and compare PHCWs' and OHCWs' subjective burden in Germany during the first wave of the COVID-19 pandemic. We were able to show higher levels of subjective burden, stress, and reduced time for personal life in PHCWs compared to OHCWs. The first wave poses a suitable period to address this question given that the menace due to unknown consequences of the pandemic and the lack of vaccination were two major stressors at this time-point, especially for HCWs.

In addition to the increased subjective burden of PHCWs, our results showed higher subjective burden of nurses working in psy-

chiatric hospitals. One potential cause for these results could be the specific working conditions of psychiatric care. Besides the necessary measures to contain the COVID-19 virus all medical facilities were required to implement, such as the establishment of specialized COVID-19 wards, time- and labor-intensive hygiene measures as well as regular testing for COVID-19, psychiatric hospitals faced additional challenges. Potential difficulties in preventing an outbreak of the COVID-19 virus for PHCWs included open-spaced wards, where patients can move freely and interact with each other, isolation of patients with behavioral dysregulation, less stringent hygiene standards of some patients and limited ability to understand instructions due to existing psychiatric illnesses of some patients [21]. Some of these challenges may have been more pronounced for nursing staff, given their work-related close contact to patients and the distribution of tasks in daily work. These findings are consistent with previous evidence, such as the higher prevalence of depression and anxiety disorders among nurses compared to physicians during the COVID-19 pandemic shown in a meta-analysis of 65 studies [22].

Additionally, psychological challenges, such as perceived fear of infection and insecurity among HCWs may further add to the subjective burden of both PHCWs and OHCWs [3]. One possible reason for this was the shortage of personal protective equipment (PPE) in German hospitals at the beginning of the COVID-19 pandemic [23]. Dealing with the fear of inadequate protection against infection and the simultaneous profession-related high risk environment present a mental burden as well as a major risk factor associated with the prevalence of mental health symptoms, such as depression, anxiety or post-traumatic stress disorder (PTSD), as previous studies conducted in areas with high infection rates have demonstrated [24–27]. Managing the lack of PPE, an increased risk of COVID-19 infection and increased workload pose significant challenges, especially for HCWs working in acute care settings. This was reflected in our study by higher scores of stress and subjective burden for HCWs working in IC, ER or COVID-19 wards, with fewer significant differences between PHCWs and OHCWs than among those not working in acute care. An increased prevalence of mental disorders in frontline HCWs compared to non-frontline HCWs has previously been confirmed in a systematic review and meta-analysis including 47 studies [28].

Although PHCWs showed higher scores of perceived stress in their daily life, overall ratings of stress were rather low. However, the results of a meta-analysis comprising 83 studies showed that the prevalence of mental disorders and stress among HCWs increased over the course of time from the beginning of the pandemic to the second wave of infections [29]. As the results of our study are limited to the time of the first COVID-19 wave, perceived stress among the respondents may have increased over the course of the pandemic.

Our investigation has some limitations. First, online surveys have specific disadvantages, such as not being representative, not providing comprehensive information regarding the participants, or the risk of receiving fake answers. Second, we did not use standard questionnaires because we were interested in questions being especially tailored to the COVID-19 pandemic. Third, as there is no longitudinal design, it is not possible to predict the development of burden among HCWs. Moreover, it must be noted that despite

significant group differences for several questions, the descriptive data (means, medians) showed that these differences were mostly minor. Another limitation is the imprecise definition of the term ICU, which is not commonly used in psychiatric care and could therefore include different types of wards. However, it should be noted that employees of ICUs were grouped together with HCWs of ER and COVID-19 wards as HCWs working in acute care for the purposes of data analysis. Furthermore, our findings are limited to the early phase of the pandemic, not allowing to draw conclusions for the further course from May 2020 as in the pandemic progress. Further, the distinct conditions of the German healthcare system need to be taken into account, which may limit the transferability of our findings to other countries.

Nevertheless, we were able to demonstrate increased stress and subjective burden among HCWs working in psychiatric facilities, whose strain in dealing with the challenges posed by the COVID-19 pandemic has so far been insufficiently investigated. Our study's large sample size, which exceeds other international studies, increases the significance of our results. This is the first assessment of subjective burden comparing PHCWs and OHCWs in the context of the distinct conditions of the German healthcare system. Increased workload, structural changes, risk of infection, uncertainty about future working conditions and the specific challenges in the treatment of patients with mental disorders are possible explanations for the high burden in PHCWs. Future studies should also consider whether HCWs' subjective burden and perception of adequate healthcare might be impacted by other aspects related to the work environment; such as the level of healthcare provided by the respective hospital as well as staffing. Additionally, future research addressing stigma associated with mental disorders is needed to understand the effects of stigmatization among HCWs on the accuracy of responses to surveys concerning their mental health.

Take Home Message

Subjective burden and stress during the COVID-19 pandemic appear to be higher among PHCWs compared to OHCWs in Germany. In particular, nurses showed increased ratings of subjective burden and stress compared to physicians and nurses in somatic settings as well as physicians in psychiatric settings. As there has been little research on burden and mental health among the group of PHCWs, further research is needed to identify the possible causes for these results. Furthermore, specific measures and support services adapted to the working conditions in psychiatric settings should be established to decrease the burden on PHCWs.

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Conflict of Interest

Theresa Halms, Victoria Kramer, Andreas Thomas, Irina Papazova, Anke Hierundar, Miriam Kunz, Elias Wagner, and Thomas Schnei-

der-Axmann report no conflicts of interest. Peter Falkai was honorary speaker for Janssen-Cilag, Astra-Zeneca, Eli Lilly, Bristol Myers-Squibb, Lundbeck, Pfizer, Bayer Vital, SmithKline Beecham, Wyeth, and Essex. During the last 5 years, he was a member of the advisory boards of Janssen-Cilag, Astra-Zeneca, Eli Lilly, and Lundbeck. Presently, he is a member of the advisory boards of Richter Pharma, Abbot, and Otsuka. Alkomiet Hasan has received paid speakerships from Janssen, Otsuka, Rovi, Recordati, Advanz and AbbVie. He was member of Rovi, Recordati, Otsuka, Lundbeck, and Janssen advisory boards.

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