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Embregts, P. J. C. M.; van Oorsouw, W. M. W. J.; Nijs, S. L. P.

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RESEARCH

Impact of Infection Outbreak on Long-Term Care Staff: A Rapid Review on Psychological Well-Being

Petri Embregts, Wietske van Oorsouw and Sara Nijs

Context: Older people and people with an intellectual disability who receive long-term care are considered particularly vulnerable to infection outbreaks, such as the current Coronavirus Disease 2019. The combination of healthcare concerns and infection-related restrictions may result in specific challenges for long-term care staff serving these populations during infection outbreaks.

Objectives: This review aimed to: (1) provide insight about the potential impact of infection outbreaks on the psychological state of healthcare staff and (2) explore suggestions to support and protect their psychological well-being.

Method: Four databases were searched, resulting in 2,176 hits, which were systematically screened until six articles remained. Thematic analysis was used to structure and categorise the data.

Findings: Studies about healthcare staff working in long-term care for people with intellectual disabilities were not identified. Psychological outcomes of healthcare staff serving older people covered three themes: emotional responses (i.e., fears and concerns, tension, stress, confusion, and no additional challenges), ethical dilemmas, and reflections on work attendance. Identified suggestions to support and protect care staff were related to education, provision of information, housing, materials, policy and guidelines.

Limitations: Only six articles were included in the syntheses.

Implications: Research into support for long-term care staff during an infection outbreak is scarce. Without conscious management, policy and research focus, the needs of this professional group may remain under-exposed in current and future infection outbreaks. The content synthesis and reflection on it in this article provide starting points for new research and contribute to the preparation for future infection outbreaks.

Keywords: older people; intellectual disability; infection outbreak; COVID; care staff; policy

The Coronavirus Disease 2019 (COVID-19) was labelled a pandemic by the World Health Organization in March 2020, with outbreaks in countries throughout the world. Service users in long-term care, including older people and people with an intellectual disability, are considered particularly vulnerable to COVID-19 (World Health Organization 2020a). In an attempt to reduce the risk of infections amongst older people and people with an intellectual disability, local government ordered that day care centres for service users be closed. Also, physical contact and visits of relatives were prohibited, or only possible under very strict conditions (World Health Organization 2020b). Moreover, in some countries, healthcare professionals even voluntarily quarantined themselves in a long-term care hospital to join service users during their isolation (Kim 2020), or were quarantined in a hotel (Lee, Son, & Peck 2020). Such circumstances may obviously have a significant effect on the lives of service users (e.g., increased

risk of loneliness, agitation, and distress; Courtenay 2020), but may also affect long-term care staff in many ways.

In regular times, care staff working in long-term care for older people and/or people with an intellectual disability face various psychological challenges. Nurses working in hospitals or nursing homes are more likely to experience job dissatisfaction and burnout compared to nurses working in other settings, such as the pharmaceutical industry (McHugh et al. 2011). Moreover, care staff working in long-term care have an increased risk of burnout and associated physical-health problems, as they are exposed to various factors like shift work, time pressure, and heavy workloads (McHugh et al. 2011; Westermann et al. 2014). This is particularly the case when working with service users who frequently display challenging behaviour (Mitchell & Hastings 2001), or have a dementia diagnosis, as this may be more intense and more emotionally demanding (Mackenzie & Peragine 2003; Rodney 2000). However, care staff working in long-term care do not only experience negative psychological outcomes; they may also feel psychologically rewarded by supporting service users, which encourages them to continue their job in long-term care (Stevens et al. 2019).

During the current COVID-19 crisis, even more specific challenges are posed to long-term care staff serving older people and people with an intellectual disability. First, these service users are a particularly vulnerable group for infection by the virus. They are at risk for becoming very ill or even dying from the infection, which may lead to increased levels of depression and anxiety among care staff (Meng et al. 2020). Second, the extreme measures taken in long-term care (e.g., isolation) may cause agitation and distress in this group of service users. Especially as service users do not always understand the importance of these measures. In situations of increased arousal and anxiety like the current COVID-19 crisis, they may seek proximity and contact with their care staff (Weiss 1991). Third, care staff may also have to work with infected colleagues and, as a consequence, with temporary personnel in an attempt to ensure continuity of care as much as possible. These new challenges exist in addition to the psychological challenges that long-term care staff experience in regular times.

However, as the COVID-19 pandemic is very topical, little is known about its actual psychological impact on long-term care staff. Research into this subject is important because negative psychological impact may cause burnout or depression, as well as temporal or permanent leave of long-term care staff. In times of crisis, such as the COVID-19 pandemic, the presence of well-qualified and experienced care staff is particularly essential in order to provide high-quality care for people with an intellectual disability and older people. Moreover, policy makers are in need for state-of-the-art overviews of current scientific knowledge to inform decision makers. In addition to urgently needed studies focusing on the current COVID-19 crisis, potentially useful insights may be derived from research studies on previous infection outbreaks.

Rapid reviews contain all elements of the systematic review process, albeit in adapted forms to produce the

knowledge synthesis in a timely manner (Khangura, Konnyu, Cushman, Grimshaw & Moher 2012). The present study contains two rapid reviews. First, we provided an overview of the potential impact of infection outbreaks on the psychological outcomes of long-term care staff serving older people and/or people with an intellectual disability. Second, we explored suggestions to support and protect the psychological well-being of this group of long-term care staff related to infection outbreaks at work. In accordance with earlier recommendations of Watt and Colleagues (2008) and Ganann and Colleagues (2010), this study was conducted systematically, and the authors aimed to be transparent about the characteristics of the approach that was used to conduct a timely overview of evidence.

Method

Search strategy

Databases Embase, Psych INFO, and MedLine (i.e., all searched via Ovid) and Google Scholar were systematically searched, for relevant, English, peer-reviewed articles that were published in the period from January 1, 2003 (i.e., SARS outbreak) until April 22, 2020 with help of an information specialist. Search terms referring to “long-term care staff” (e.g., support staff, nurse) were combined with search terms referring to “long-term care” (e.g., intellectual disability, older care, institutional care, nursing home), search terms referring to “infection outbreak” (e.g., general terms like: pandemic, infection outbreak, infectious disease; specific terms like: Corona, Ebola, SARS), and search terms referring to “psychological outcomes” (e.g., resilience, wellbeing, emotion, stress, fear, exhaustion, grief, trauma, coping). Each database required a particular use of terms and specifications. As an example, the full search strategy applied in Psych INFO is shown in **Table 1**.

Table 1: Search strategy adapted to Psych INFO Ovid.

(exp Health Personnel/OR Staff Development/OR (personnel OR employee* OR nurse* OR physician* OR worker* OR professional* OR staff* OR Doctor* OR Clinician* OR ((Healthcare OR health) ADJ3 (Provider*)) OR Employee* OR attendant* OR fieldworker* OR support-staff OR therapist* OR (professional* ADJ3 (care-giver* OR caregiver* OR carer*))) .ab,ti.) AND (exp Intellectual Disability/OR exp Long-Term Care/OR exp Housing for the Elderly/OR exp Developmental Disabilities/OR exp Mentally Disabled Persons/OR Nursing Homes/OR exp Residential Facilities/OR Institutionalization/OR exp Mental Health Services/OR (((intellectual* OR mental* OR cognitive* OR development* OR learning) ADJ3 (impair* OR deficien* OR handicap* OR defect* OR disorder* OR disab*)) OR (developmental ADJ (delay*)) OR ((long-term OR longterm OR elderly OR geriatric OR institutional*) ADJ3 (care OR patient*)) OR ((home OR housing) ADJ3 for-the-aged) OR dementia* OR nursing-home* OR institutional* OR resident*) .ab,ti.) AND (Pandemics/OR Epidemics/OR exp Coronaviridae Infections/OR Zika Virus Infection/OR Zika virus/OR Ebolavirus/OR Hemorrhagic Fever, Ebola/OR Severe Acute Respiratory Syndrome/OR Coronaviridae infection/OR Methicillin-Resistant Staphylococcus aureus/OR (pandemi* OR epidemic* OR epidemia* OR outbreak* OR sars OR mers OR corona* OR ebola* OR zika OR ncov OR covid* OR mrsa OR (Emerging ADJ3 (Communicable OR infect*) ADJ3 Disease*) OR severe-acute-respiratory-syndrome).ab,ti.) AND (Resilience, Psychological/OR exp Occupational Health/OR exp Emotions/OR Burnout, Psychological/OR exp Stress, Psychological/OR exp Psychology/OR Psychomotor Agitation/OR exp Fatigue/OR exp Sleep Wake Disorders/OR exp Headache/OR Occupational Stress/OR Object Attachment/OR Stress Disorders, Post-Traumatic/OR (resilien* OR (occupation* ADJ3 health) OR wellbeing OR well-being OR emotion* OR burnout OR burn-out OR stress* OR burden OR psycholog* OR anxi* OR fear* OR frustration* OR anger* OR worry* OR helpless* OR hopeless* OR mood OR nervous* OR unhapp* OR restless* OR dilemma* OR insecur* OR fatigue* OR exhaust* OR (personal* ADJ3 concern*) OR (sleep ADJ3 (disorder* OR problem*)) OR headache* OR head-ache* OR irritat* OR over-involv* OR overinvolv* OR compassion OR empath* OR attachment* OR grief OR mourning OR doubt* OR hesitat* OR (Adaptive ADJ3 Behav*) OR persever* OR trauma* OR posttrauma* OR ptsd OR ptss OR (mental ADJ3 (effect* OR impact* OR outcome* OR comfort* OR workload OR work-load OR recover*)) OR coping OR relaxation* OR tension*) .ab,ti.)

Note: Similar search strategies were used for Embase, Medline and Google Scholar, with the mere difference that the associated thesaurus terms were used.

Study selection

During the selection process, four phases were completed in succession (i.e., identification, screening, eligibility, and inclusion; see **Figure 1**). First, all potentially relevant records were identified in the four different databases by using the search strategy as depicted in **Table 1**. Second, after removing duplicates, titles and abstracts were selected in the screening phase. Based on the in- and exclusion criteria (see **Table 2**), two authors (SN and WvO) independently assessed 20% of all records. To control for chance agreement, an inter-rater reliability score was calculated using kappa. A kappa coefficient of 0.66 was obtained, which indicates substantial agreement (Landis & Koch 1977). Disagreements were discussed with the other author (PE). Next, two authors (SN and WvO) each assessed half of the remaining records. All records that did not convincingly meet the criteria based on title and abstract information, were retained at this stage. Next, the remaining full-text articles were selected in the eligibility phase. Again, two authors (SN and WvO) independently assessed 20% of all records. To control for chance agreement, an inter-rater reliability score was calculated using

kappa. A kappa coefficient of 0.77 was obtained, which indicates substantial agreement (Landis & Koch 1977). Next, two authors (SN and WvO) each assessed half of the remaining full text articles based on in- and exclusion criteria. In case of doubt, the other author (PE) was consulted. Finally, after the eligibility phase the remaining studies were included in the present review, and the reference lists of these articles were screened for any additional relevant studies.

The methodological quality of the included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) (Hong et al. 2018). This tool allowed to appraise the quality of qualitative, quantitative, and mixed methods studies. For every study, two screening questions were answered and rated afterwards in the appropriate category of criteria by “yes”, “no” or “can’t tell.” The third author (SN) assessed the quality of the studies, which was checked by the second author (WvO). In case of discrepancy, the first author (PE) was consulted until consensus was achieved. The assessment of the methodological quality was not used as a selection criterion, but to provide more information of the quality of the included studies.

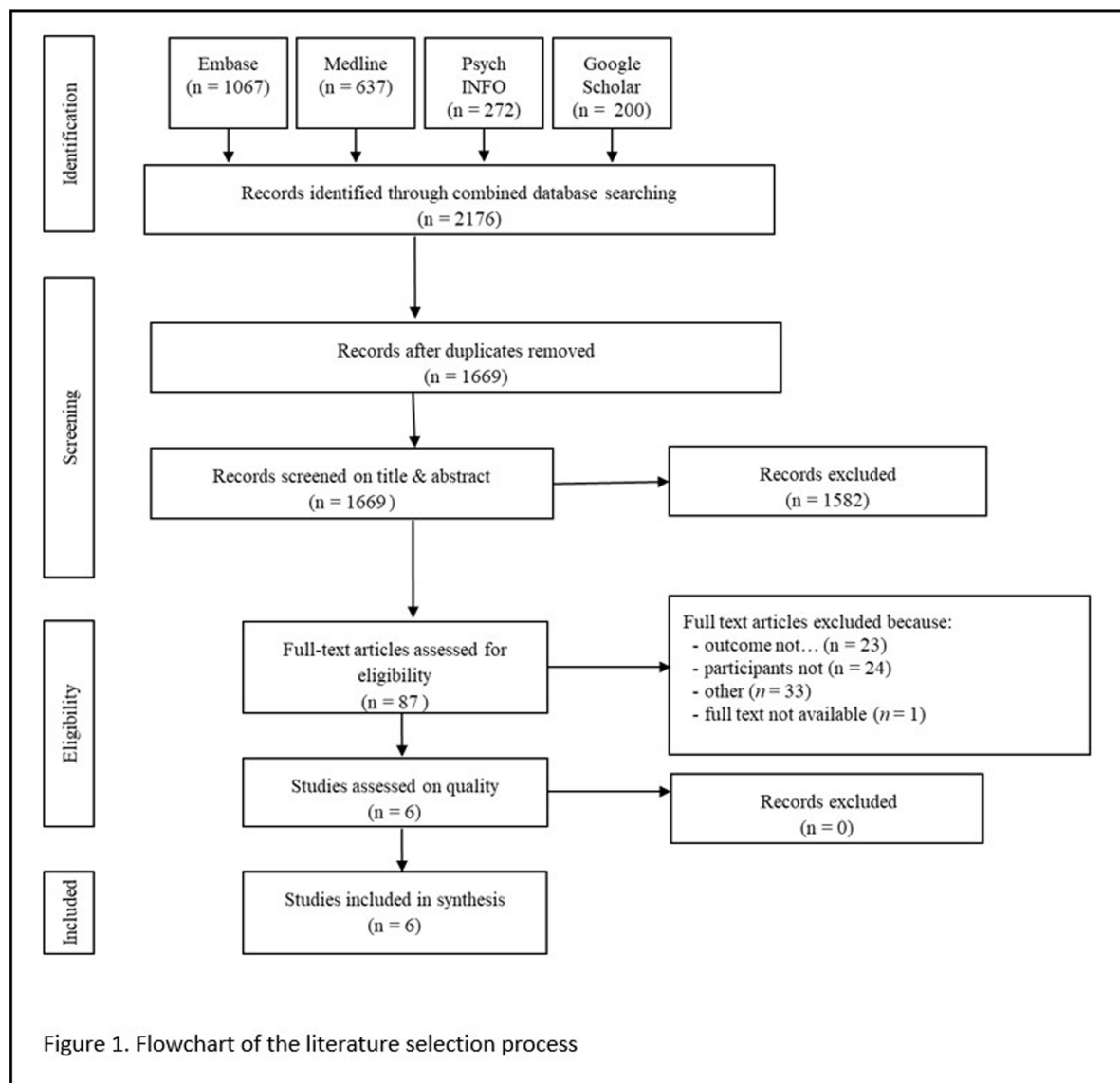


Figure 1: Flowchart of the literature selection process.

Table 2: Inclusion and exclusion criteria.

Inclusion criteria

Participants:

- Care staff working in long-term/24hr care for adults (i.e., 18 years and above) people with intellectual disabilities or older people.

Exposure:

- Covid-19 and comparable pandemics like SARS, MERS and EBOLA.

Outcome:

- Results could be interpreted as psychological outcome variables (e.g., stress, resilience fear, knowledge).

General:

- English language
- Peer-reviewed journals

Exclusion criteria

Participants:

- Students
- Mainstream hospital staff
- Community members
- Patients
- Family members

Exposure:

- Other types of pandemics (e.g., dementia pandemic)

Outcome:

- Epidemiological studies
- Guidelines

General:

- No original research
- Grey literature
- Unpublished articles
- >January 1st 2003

Data extraction and analysis

General information (i.e., study and participant characteristics, and study appraisal) and main results of included studies are briefly presented in **Table 3**. Relevant information about psychological outcomes and potential facilitating and risk factors to support long-term care staff during infection outbreaks was extracted by using thematic synthesis (Thomas & Harden 2008). This procedure implied that one of the authors (WvO) inductively coded the results sections of the included articles line-by-line. These codes and related text segments were examined by a second author (SN) to check for consistency of interpretation. Second, one author (WvO) grouped the codes into themes. Again, a second author (SN) checked the categorization for consistency. In case of uncertainty, the other author (PE) was consulted. Finally, all three authors discussed and agreed upon the final list of codes and themes. The present results section was structured according to the final list of themes, i.e., three themes concerning psychological outcomes (i.e., emotional responses, ethical dilemmas, and work attendance), and one theme concerning protective and risk factors in supporting care staff.

Results

Figure 1 presents the literature selection process and visualises that the database search generated 2176 records,

of which six studies were selected for final inclusion and analyses. Screening of the reference lists of these articles did not result in new potential records.

Background, participants and research quality of included studies

Six studies met the inclusion criteria. These studies were conducted in six different countries (i.e., Sweden, the United Kingdom, Australia, Norway, Hong Kong, and the United States). All studies were conducted in long-term care settings, including five homes for older people (Andersson et al 2016; Hewitt, Nalabanda, & Cassell 2014; Huhtinen et al. 2019; Thorstad, Sie, & Andersen, 2011; Tse, Pun, & Benzie 2003). In one study, the particular population of long-term care service users was not specified (Qureshi et al. 2005). Zero studies were conducted in specialized care for people with an intellectual disability.

Two studies focused on MRSA (Andersson et al. 2016; Thorstad et al. 2011), one on scabies (Hewitt et al. 2014), one on influenza (Huhtinen et al. 2019), one on SARS (Tse et al. 2003), and one more generally on catastrophic disasters in which smallpox and SARS outbreaks were included as infection diseases. Overall, by far the most respondents were nurses (Andersson et al. 2016; Huhtinen et al. 2019; Qureshi et al. 2005; Thorstad et al. 2011; Tse et al. 2003)

Table 3: Overview of included studies.

| Authors | Year | Country | Title | Study design | Long-term care setting | Care group | Virus/disease | Participants |
|---|------|----------------|--|---|---|--------------|--|---|
| Andersson, Gleissman, Lindholm, & Fossum | 2016 | Sweden | Experiences of nursing staff caring for service users with methicillin-resistant <i>Staphylococcus aureus</i> | Descriptive qualitative approach based on interviews | Hospitals and care units, including emergency and geriatric wards and nursing homes | Older people | MRSA | Nurses (n = 15) |
| Hewitt, Nalabanda, & Cassell | 2014 | United Kingdom | Scabies outbreaks in residential care homes: factors associated with late recognition, burden and impact. A mixed methods study in England | Descriptive mixed methods study based on semi-structured survey | Residential care homes | Older people | Scabies | Representatives of residents (n = 39) and 28 staff members (n = 28) |
| Huhtinen, Quinn, Hess, Najjar, & Gupta | 2018 | Australia | Understanding barriers to effective management of influenza outbreaks by residential aged care facilities | Descriptive mixed method study based on survey | Residential care facilities | Older people | Influenza | Residential care staff (n = 28) |
| Thorstad, Sie, & Andersen | 2011 | Norway | MRSA: A Challenge to Norwegian Nursing Home Personnel | Descriptive quantitative analyses off questionnaire | Nursing homes | Older people | MRSA | Staff members and managers (n = 388) |
| Tse, Pun, & Benzie | 2003 | Hong Kong | Experiencing SARS: Perspectives of the Older people Residents and Health Care Professionals in a Hong Kong Nursing Home | Descriptive qualitative analyses of interviews | Nursing home | Older people | SARS | Residents (n = 40) & staff members (n = 27) |
| Qureshe, Gershon, Sherman, Straub, Gebbie, McCollum, Erwin, & Morse | 2005 | United States | Health Care Workers' Ability and Willingness to Report to Duty During Catastrophic Disasters | Quantitative analyses of survey data | Hospitals, long-term care facilities, and community health centers | N/A | Catastrophic disasters: severe weather, smallpox outbreak, chemical terrorist attack, environmental disaster, mass casualty incident (MCI), radioactive "dirty" bomb attack, and SARS outbreak | Health care workers (n = 6428) |

or assistant nurses (Andersson et al. 2016; Thorstad et al. 2011). Respondents from other disciplines were managers (Hewitt et al. 2014; Huhtinen et al. 2019; Thorstad et al. 2011; Tse et al. 2003), support staff (Hewitt et al. 2014; Qureshi et al. 2005), directors of nursing (Huhtinen et al. 2019), CEO (Huhtinen et al. 2019), sisters (Thorstad et al. 2011), administrators (Qureshi et al. 2005), physicians (Qureshi et al. 2005), psychotherapist (Tse et al. 2003), health care assistants (Tse et al., 2003), domestic staff (Tse et al. 2003), and other professionals (Qureshi et al. 2005).

A variety of study designs was used: two mixed-method studies (Huhtinen et al. 2019; Hewitt et al. 2014), two quantitative descriptive studies (Thorstad et al. 2011; Qureshi et al. 2005), and two qualitative studies (Andersson et al. 2016; Tse et al. 2003). Regarding study quality, on some of the studies lacked thorough information about topics such as the sampling procedure (Huhtinen et al. 2019) or sample representativeness (Hewitt et al. 2014; Qureshi et al. 2005), the statistical analyses (Thorstad et al. 2011), non-response (Qureshi et al. 2005), or quotes to substantiate the interpretation of the results (Huhtinen et al. 2019; Tse et al. 2003).

Emotional responses of long-term care staff

Most studies reported strong emotional responses of care staff related to infection outbreaks, which are described in further detail below.

Fears and concerns

Care staff frequently reported experiencing fear and health concerns during infection outbreaks, particularly as related to the risk of infection. Care staff indicated they were afraid to get infected at work (e.g., through service users or visitors) or outside work (e.g., by using the underground) and consequently, to infect their family/children at home or other service users (e.g., Qureshi, et al. 2005; Tse, et al. 2003; Thorstad et al. 2011). Besides, care staff felt unsure about how they could prevent spreading within the nursing home (“Having residents with dementia who wander is very difficult to manage”; Hewitt et al. 2014: p.1549). Because the fear of infection, care staff felt insecure and reported being afraid of infected service users (e.g., being afraid to come close to them; *all personnel will die*; view service users as *a real threat or terror*; Andersson et al. 2016). In the case where a care staff member’s knowledge was not up to date, the staff member was unlikely to speak up. Moreover, care staff were afraid of losing their job when getting infected themselves, they were afraid that (temporary) colleagues would stop working, and had concerns about the consequences for their social life, their family, and their private economy if they would become a carrier of the disease (e.g., Thorstad et al. 2011).

Tension between colleagues

The presence of fear regarding infection outbreaks could also result in tension between colleagues. For example, conflicts between care staff could arise when colleagues were unwilling to work with the (infected) service users. Increased tension could also be related to dilemmas that challenged care staff member’s loyalty to colleagues (e.g.,

if a colleague did not follow the regulations, care staff did not want to ‘snitch’, *but, on the other hand, they were afraid that the infection could be spread*) (Andersson et al. 2016).

Stress

Care staff experienced job-related stress during infection outbreaks, mainly for two reasons. First, stress increased because of an increased workload (e.g., due to time and effort to read guidelines [Huhtinen et al. 2019]; *mass treatment...It has been a nightmare getting everyone to cooperate with the treatment and showering* [Hewitt et al., 2015: p. 1548]; *because they do not have the routines* [Andersson et al. 2016: p. 238]; and increased cleaning needs of service users and the environment [Thorstad et al. 2011]). Moreover, workload increased sometimes without an increase of staff or with help of non-healthcare personnel in the weekends (Hewitt et al. 2014; Thorstad et al. 2011). Second, stress was caused by a lack of single rooms (i.e., in case of mandatory isolation). The extra burden on care staff, who were already exhausted at times, could result in a loss of focus. Therefore, care staff expressed their concerns to make mistakes and overlook routines as a result of being under too much stressed (“You are so careful, so careful, but perhaps you suddenly do something without thinking about it”; Andersson et al. 2016: p. 238).

Confusion

Care staff could become confused about the question who was responsible (e.g., to ensure regulations were followed, or for paying additional costs of medical treatment). Uncertainty about paying costs could, incidentally, create additional challenges for lower-waged care staff because they had to pay for their medical treatment first and were then reimbursed (Hewitt et al. 2014).

No additional challenge

The included articles repeatedly reported strong emotional responses of care staff related to infection outbreaks. However, it should be noted that some care staff indicated *not* to experience any differences in providing care compared to non-crisis situations. For these care staff, care to an infected service user was “neither more complicated nor more challenging... it just demanded a little more thoughtfulness about the infection control precautions”. Furthermore, there was no reason for anxiety, and care for infected service users could even be an asset and stimulating experience (Andersson et al. 2016: p. 237).

Ethical dilemmas of long-term care staff

Next to several emotional responses, care staff reported being confronted with ethical dilemmas during infection outbreaks. The isolation of service users was described as an ethical problem. As part of this isolation, locking doors to prevent service users from being infected by wandering service users is something staff “do not like to do” (Hewitt et al. 2014; Thorstad et al. 2011). Moreover, the physical distance care staff have to maintain from service users poses ethical dilemmas. Care staff felt unable to prevent lonely and isolated feelings of service users (Andersson et al. 2016). One of the participants explained “Nobody

gave them a hug or held their hand if they were feeling sad" (Andersson et al. 2016: p. 237). If physical contact did occur, it was with the use of gloves (Anderson et al. 2016). Care staff participating in the study of Thorstad and colleagues (2011) indicated the maintenance of a good quality of life of service users as one of their largest challenges of isolation. Another type of ethical concern was the fact that the required medical treatment (e.g., frequent application of lotion in case of scabies) could make care staff feel uncomfortable because service users with cognitive impairments did not understand why this treatment (e.g., applying lotion to intimate areas) happened and could therefore not give their consent (Hewitt et al. 2014).

Work refusal and reflections on work attendance of long-term care staff

Refusal and exclusion of the service user

Infection outbreaks appeared to result in work-refusal in the form of not wanting to care for the infected service user, providing only the most necessary care, or not even wanting to enter the service user's room. Some participants indicated to prefer sick leave (Andersson et al. 2016), or finding a job outside healthcare (Thorstad et al. 2011), rather than caring for service users during an infection outbreak.

Reflections on work attendance

Qureshi and colleagues (2005) reported that female care staff and care staff with childcare or eldercare obligations at home, were less *willing* to report at work if an infection outbreak would occur. Most reported reasons for being unwilling to report to work were fear and concerns for the personal health of family and self. Female care staff, care staff with childcare or eldercare obligations at home, and care staff with personal health issues or no transportation options (i.e., if mass transit was not operating) expected themselves to be less likely *able* to report at work if an infection outbreak would occur.

Protective and risk factors in supporting long-term care staff

Whereas psychological outcomes of long-term care staff during infection outbreaks were quite extensively reported, suggestions of participants to protect and support care staff were less frequently reported.

Housing and materials

Care staff indicated several infection-outbreak challenges that relate to building problems, such as buildings that were not constructed to take care of infected service users (e.g., lack of isolation facilities, and lack of separate bathrooms for service users (Thorstad et al. 2011; Huhtinen et al. 2019), which further increased their stress levels during infection outbreaks. The provision of protective materials seemed to support care staff. For example, they use gloves to feel safe.

Policy and general guidelines

Care staff in the selected studies, had the feeling that they or their colleagues' concerns were ignored (e.g., *despite their protest, the patient arrived*; Andersson et al.

2016: p. 236). Also, care staff did not always agree with the guidelines and, for example, wanted to touch the service user only with gloves, during any type of contact (i.e., *even though the guidelines stated that the use of gloves is only needed when in contact with body fluids*; Andersson et al. 2016: p. 237).

Education and provision of information

A lack of information, understanding, and education of care staff was related to increased stress, fear, concerns, and a lack of compliance with infection control recommendations. Sometimes specific crisis-related knowledge was lacking (e.g., knowing how a virus is spread; knowing how to provide the right type of care for a particular (infected) service user) as a result of not having guidelines, not knowing where to find guidelines, having inappropriate and insufficiently detailed information, and having unanswered questions. Care staff wanted adequate information, real training (e.g., *Not just a poster or a little note; Not just a 1-h lecture for maybe a day or so. Yes, definitely, real training is needed; We should have a proper course*; Andersson et al. 2016: p. 236), and continuous updates. The more information care staff received, the more positive their attitudes about caring for infected service users appeared to be. "Correct information about the infection and how it is spread is crucial for participants to feel secure in caring for the patients...I feel safe because I feel secure about how to handle..." (Andersson et al. 2016: p. 237). Both theoretical training and contact with a doctor and an infection control nurse (in case of questions) was preferred *before* (infected) service users came in as well as *during* the outbreak. Additionally, guidelines and adequate information were believed to be of central importance (Andersson et al. 2016). Moreover, care staff indicated that they had to regularly update their knowledge about the guidelines (Andersson et al. 2016; Tse et al. 2003).

Evidence-based interventions

Interventions that were evidence based for the particular use in long-term care settings during infection outbreaks, were not identified in the present review.

Discussion

The current worldwide COVID-19 crisis has an enormous impact on the long-term care for older people and people with an intellectual disability. Related, this crisis is likely to affect the psychological well-being of long-term care staff as well. Based on a rapid review, we first aimed to provide an overview of psychological outcomes of long-term care staff during infection outbreaks. Reported psychological outcomes were grouped in three themes (i.e., titled: emotional responses, ethical dilemmas, and reflections on work attendance) that together represent both emotional, cognitive, and behavioural aspects of care staffs' psychological responses. Although the identified psychological outcomes in the present rapid review will not be exhaustive, the reported outcomes provide a good impression of the psychological burden placed on long-term care staff during infection outbreaks. This impression is consistent with findings in other healthcare sectors

during infection outbreaks such as palliative care, general hospitals, and emergency rooms (e.g., Al Ghobain et al., 2017; Kisely et al. 2020; Lee et al. 2005; Stuijzand et al. in press; Wallace et al. in press), and gives reason to make the psychological well-being of long-term care staff during infection outbreaks consciously the subject of policy and research. Many of the psychological concerns of long-term care staff relate to their proximity to service users during an infection outbreak. These concerns might be an indication of their close bond with service users and, consequently, of their professionalism. An in-depth exploration of these concerns, and related motivations, would be of interest for future studies. After all, the quality of long-term care depends, amongst others, on the vitality and sustainable employability of healthcare staff. It is important that directors, managers, and policy makers pay attention to the expected impact of the current COVID-19 infection on the psychological well-being of healthcare staff. Sensitively recognizing the meaningful signals that healthcare staff send out, and acknowledging the challenges they face, may be a first and crucial step to support and protect their psychological wellbeing.

Regarding the second aim, this study explored protective and risk factors in supporting care staff prior, during, and after infection outbreaks. Identified suggestions were related to education, provision of information, housing, materials, policy, and guidelines. Most extensively, the present results point at the importance of education and information provision. It should be noted here, that the suggestions listed, are limited in scope, are based on care staffs' perceptions, not evidence. Suggestions and good practices from other healthcare sectors might be inspiring. For example, Kisely et al. (2020) recently reported a rapid review of the occurrence, prevention, and management of psychological effects of healthcare staff working during a variety of virus outbreaks in any type of clinical setting. The most-preferred strategies in the review of Kisely et al. (2020) concerned communication with staff (e.g., clear communication, positive feedback), access to adequate personal protective equipment, adequate rest (e.g., frequent short breaks from clinical duties), and both practical and psychological support (e.g., training in preparation for outbreaks, enforcement of infection control procedures, psychological interventions based on needs of individual staff). Implementing these strategies seems possible by simple adaptations in practice (Kisely et al. 2020). As such, directors, managers, and policy makers can contribute to the prevention of healthcare professionals' psychological burden and focus on their sustainable employability during and following infection outbreaks. Additionally, in this endeavor, the psychological outcomes that were identified in this rapid review could serve as starting points for developing targeted policies and interventions that aim to support healthcare professionals.

A strength of the present rapid review lies in the fact that the method was transparently reported, which supports readers to understand the shortcuts that were taken and allows opportunities for future replication (Tricco et al. 2015). Although this rapid review provides us imperative insights, there are some limitations. First, only six

articles met our inclusion criteria. Conversely, this result is caused by the limited scope of the present study, which is recommended when conducting a rapid review in a timely manner (Tricco et al. 2015). However, the results also seem to represent a real lack of studies on care staff working in long-term care for older people and people with an intellectual disability during infection outbreaks. This finding does not, of course, alter the fact that the small number of included articles limits the insights derived from the studies and generalization. Interpretation of the results, therefore, require caution. Second, not all studies reported the same psychological outcomes. Some of the described themes, such as confusion, report to work, or not experiencing additional barriers, are based on the results of only one study. Also, only a minority of the studies reported on protective and risk factors, and the evidence and impact of providing long-term care staff education regarding the infection is only based on the study of Andersson et al. (2016). It is noteworthy that the majority of identified findings were replicated in other sectors (e.g., Kisely et al. 2020; Stuijzand et al. in press), underlining the relevance of the results and increasing the likelihood that the findings can also be found in other long-term care settings. Third, the infection crises described in the various articles are diverse. Part of the information will be similar across settings and types of infection outbreaks (Kisely et al. 2020), and thus provide us information for the current COVID-19 crisis. Alternatively, every outbreak might also have its own impact and related measures. So, in addition to the important findings of this rapid review, it is crucial to identify the unique impact of the current COVID-19 crisis. This could be done, for example, by conducting qualitative research in which the experiences of older people, people with an intellectual disability, their relatives, and care staff during this pandemic are explored over time. Next, it would be relevant, on the basis of such qualitative research, to develop a questionnaire and administer it to large groups of participants. This would gain more generalized insights into the effects of the pandemic both within and outside the context of long-term care. Policy makers could use rapid review outcomes to inform decision-making processes in healthcare organisations (Tricco et al. 2015). This information will help us to prepare for and quickly intervene in case of a possible second COVID-19 peak or other future infection outbreaks.

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Competing Interests

The authors have no competing interests to declare.

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