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Review Article

Psychosocial Risk Management in the Teaching Profession: A Systematic Review☆

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ABSTRACT

Teachers are facing various job demands with psychosocial aspects being fundamental due to the nature of the occupation. Although teachers' work is associated with different psychosocial health risks, little is known on how to identify and tackle those.

Thus, a systematic literature search as per the PRISMA statement was conducted via MEDLINE (PubMed), PSYNDEX (PubPsych), and ScienceDirect. Two reviewers independently screened 2261 titles and abstracts and 169 full-texts. According to the inclusion criteria established *a priori*, articles from peer-reviewed journals (English or German) on psychosocial risk management in teachers were incorporated.

Despite a comprehensive and sensitive search, only four publications could be identified, outlining a process to implement risk management and different assessment tools. Taken together, data presented in the articles were scarce.

Recommendations for process steps and the assessment of psychosocial risks can be derived from the findings. To implement effective psychosocial risk management in the teaching profession, further research is needed, though. Effective and practicable approaches, which are accepted by the target group, should be further developed and investigated. Relevant causes of occupational strain in the teaching profession must be identified and assessed reliably. Low-threshold interventions should be implemented, and the outcome must be evaluated afterward.

1. Introduction

Risk management as part of the occupational safety and health process is mandatory in several countries to minimize work-related health risks [1–4]. A holistic approach in this context evaluates chemical, physical, and biological as well as psychosocial health risks and demands comprehensive strategies, including the evaluation of technology, work organization, social relationships, and the working environment [2]. Approaches regarding physical, chemical, and biological health risks are well established, while psychosocial factors are often viewed as harder to address and need a more sophisticated strategy [5,6].

General instructions on how to proceed during psychosocial risk management help identify ubiquitous risks and lay the foundations for implementing the process [7]. However, because different occupations come along with differing working conditions, the need for customized instructions for psychosocial risk management arises [8].

1.1. Teachers' job demands

Due to the nature of the teaching occupation as a human service profession with the core task of educating children, psychosocial factors of work are of particularly high relevance [9]. Teachers have to deal with classroom disturbances and disruptive student behavior as well as emotional labor and time pressure [9–15]. Of course, there are also the job demands which have shown negative effects throughout various professions: experiencing high demand while having limited possibilities of control, organizational injustice, and effort–reward imbalance in particular [16–18]. In

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addition, work environment conditions such as noise with multiple adverse consequences and potential harm to both physical and mental health are common in the teaching profession [19].

Based on the specific job demands, this profession is considered to be associated with a higher vulnerability to mental stress than many other occupations [12,20].

1.2. Risk management

For the purpose of a uniform terminology, the main conceptual definitions in this context shall be introduced.

According to the International Labour Organization “hazard” is “the inherent potential to cause injury or damage to people's health”, while “risk” is “a combination of the likelihood of an occurrence of a hazardous event and the severity of injury or damage to the health of people caused by this event” [21].

The European Commission (1996) describes “risk assessment” as the “systematic examination of the work undertaken to consider what causes injury or harm, whether hazards could be eliminated and, if not, what preventive or protective measures are, or should be, in place to control the risks”, while “risk management” brings together the whole process of identifying, assessing, and controlling work-related health risks [22,23].

As there are several definitions of “stress”, the use of this term will also be explained.

“Stress” is used as a term for job demands that can cause illness, and the paper further differentiates between “stress” and “strain”, which is in accordance with ISO 10075-1:2017 [24]. The standard defines “mental stress” as “total of all assessable influences impinging upon a human being from external sources and affecting that person mentally” [24]. “Mental strain” is further defined as the “immediate effect of mental stress within the individual depending on their current condition”, such as individual coping strategies [24].

Law does not precisely define the immanent steps of a risk management. However, the British Standard Institution (2011) as well as the PRIMA-EF framework (2008) for example propose five phases [25,26]:

1. Risk assessment
2. Action plans
3. Risk reduction (interventions)
4. Evaluation
5. Organizational learning

In the first step, the risk assessment, three main approaches are suggested depending on the circumstances of the workplace: surveys, observation methods, and individual or group discussions [26]. Of course, each approach has its individual strengths and limitations. According to Beck and Splittgerber (2016) [27], one fundamental limitation of group discussions (workshops) is the high potential for bias due to group dynamics, whereas on the other hand a strong reference to the experiences of those affected is possible. Detecting psychosocial stress independently of employees' perceptions is one valuable advantage of observation interviews, but it takes very much time and effort [27]. One major challenge of surveys is the participation of employees, respectively, a high return rate, so that the data are conclusive [27]. However, it allows the involvement of all employees and the detection of a wide range of stress factors [27].

To cover the relevant areas of action within a psychosocial risk management, numerous classifications of job demands have been developed. To give an overview in this article, the classification published by the World Health Organization (WHO) is introduced. This includes the following items [28]:

- Job content
- Workload and work pace
- Work schedule
- Control
- Environment and equipment
- Organizational culture and function
- Interpersonal relationships at work
- Role in organization
- Career development
- Home–work interface

These instructions are valuable in setting the framework for psychosocial risk management. However, because teachers are facing various dimensions of mental stress as described before and are predominantly working through social interaction, general approaches are not suited enough to cover all relevant job demands and to implement appropriate interventions. Furthermore, this occupational group neither has the classic working conditions of a white-collar worker nor the classic ones of the service or healthcare sector as schools are special environments, which cannot necessarily be compared with other workplaces.

1.3. Systematic reviews

A systematic review is a method of bringing together the evidence on a specific research question with eligibility criteria of studies being specified in advance [29]. Research, which is relevant in accordance with the research question and eligibility criteria, is systematically identified and critically appraised [30]. After the standardized study selection, all relevant data are extracted and summarized. For the data synthesis, the results are either summarized in a quantitative way (meta-analysis) or by means of a narrative synthesis. In case of a meta-analysis, the data are pooled in one statistical key figure [30].

To our knowledge, no systematic review has yet been conducted regarding psychosocial risk management in the teaching profession. To identify the critical and relevant risks for teachers' health and to implement a goal-oriented risk management, knowledge of successful procedures is necessary, though. Thus, the objective of this systematic review was to assess the scientific evidence for existing methodological approaches to psychosocial risk management in the teaching profession with regard to effective processes and validated assessment tools.

2. Methods

A systematic review was conducted as per the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement, with a review protocol being set up in advance [29,30]. According to the objective of the research, the following review question was developed: which evidence-based approaches to risk management in the teaching profession can be derived from scientific data published so far?

To potentially include a wide range of studies, as few restrictions as possible were made regarding the inclusion of process types or practical implementation of a risk management and validated assessment tools as a key component of the procedures.

2.1. Search strategy

Search terms were derived based on the participants, interventions, comparisons, outcomes (PICO) framework, and developed as per the instructions for effective and efficient searching by Allison et al. (1999) [31] and Cochrane Handbook for systematic reviews [29,31]. The search strategy focused on two key

areas: teachers/schools and risk assessment, respectively, stress and strain. The terms “teacher” and “school” were used both in singular and plural and were combined with different terms and synonyms for risk assessment as well as “stress” and “strain”. The ratio of including terms referring to “stress” and “strain” was to include studies that may not have used the terms for risk assessment but were investigating an analogous process. The exact search terms are given in Appendix 1.

The systematic literature search was performed in January 2019 and updated in June 2020, using the following databases: MEDLINE (via PubMed), PSYNDEX (via PubPsych), and ScienceDirect. Searching via PubPsych allowed to include psychosocial studies of additional databases such as ERIC and PASCAL. Thus, the literature search covers a wide field of research ranging from medical publications to psychosocial articles and educational papers. In a second step, the reference lists of all included studies were manually searched for additional relevant articles [29,32].

2.2. Eligibility criteria and study selection

Inclusion and exclusion criteria were defined *a priori* and were based on the review question and the PICO framework [29]. Thus, studies concerning teachers (participants) and a psychosocial risk management (interventions) were defined as eligible. Studies describing a process similar to risk management were also included. As we anticipated finding only a small number of relevant publications, no restrictions were given regarding comparison and outcome of studies as well as special methodological approaches. Original articles, systematic reviews, and meta-analysis of peer-reviewed journals, published in English or German, were defined as eligible. No restrictions of publication dates were applied either. Studies solely dealing with risk management of physical, biological, or chemical risks for teachers without any consideration of mental stress or referring to teaching activities outside of schools (e.g. kindergarten or university) were defined to be excluded.

Studies were assessed according to Higgins and Green (2011) [29]. Two reviewers independently screened title, abstract, and full-text in accordance with the inclusion and exclusion criteria. Disagreement was resolved by consensus or consultation of a third reviewer. For articles excluded during the full-text screening, reasons for exclusion were documented.

2.3. Data extraction and analysis

As the research question was rather broad-based, all potentially relevant information was extracted and summarized. Studies were sorted by content based on the implementation process or survey instruments. General article information (e.g. authors, year, title, country), study population, study design, and sample size were documented.

Outcome was analyzed descriptively for feasibility, effectiveness, and acceptance of approaches as well as for validation results, if applicable. As recommended by Higgins and Green (2011) [29], the authors' key conclusions were also extracted.

Quality assessment was carried out according to Higgins and Green (2011) [29] as well as the University of York (2008) [33] and was complemented by the Quality Assessment Tool for Quantitative Studies [29,33,34]. Because of the heterogeneity of the studies, approaches to quality assessment had to be combined, as recommended by the University of York (2008), and we focused on seven steps, assessing the following aspects:

- Study design
- Risk of bias
- Confounders
- Data collection methods
- Analyses and statistical methods
- Presented scientific data

3. Results

3.1. Study selection

As shown in Fig. 1, a total of 2862 studies were identified. Respective results for each database are listed in Appendix 1. After duplicates were removed, 2261 articles remained to be screened. With 2092 records being excluded, 169 full-texts were assessed for eligibility. Exclusion of studies in the first step was mainly due to the research questions dealing with risk assessment of disaster scenarios (e.g. natural disasters and school shootings), having children as the target group or regarding medical teachers.

All abstracts on studies that were even remotely related to the research question were included for full-text screening. Nevertheless, 165 studies had to be excluded because of the language, type of study, study population, or content as per the exclusion criteria. The majority of studies were excluded because of content, since most studies solely collected sources of stress. These articles did not present a management or assessment of risks or any embedding within the framework of a risk management with the aim of eliminating or decreasing health risks for the employees. In total, four studies met the inclusion criteria [35–38].

3.2. Overview of included studies

Three included articles were from Germany, one from the United States, with different study objectives of each paper: Wolff et al. (2012) [34] evaluated a process for psychosocial risk management, while Paridon et al. [36] (2010) validated the questionnaire for risk assessment used during this exact risk management procedure. Schumacher et al. (2005) [37] evaluated a pilot project for sustainable health promotion, starting with a risk assessment, followed by specific health interventions. The fourth article by Johnson and Richards (1983) [38] covered a group discussion technique to assess job demands and to derive interventions. Thus, two articles outlined a process to implement psychosocial risk management and two studies focused on assessment tools. A structured summary of the included articles is presented in Tables 1 and 2.

Wolff et al. (2012) [35] evaluated a seven-step procedure for the management of psychosocial risks, including four pathways, which can be chosen depending on the results of an initial employee survey.

After carrying out the risk management procedure, school management and school administrators were asked to evaluate each part of the process and the approach as a whole. Process steps of the risk management were evaluated in terms of manageability and benefit as well as the need of improvement. Furthermore, the authors investigated the motivation for the pathway choice along with beneficial and inhibiting framework conditions within the process. The procedure for psychosocial risk management evaluated by Wolff et al. (2012) [35] can be seen in Table 1. Results and the authors' conclusions are summarized in Table 2.

Paridon et al. (2010) [36] validated the “brief-check-questionnaire” for risk assessment used within the process of psychosocial risk management described before. The questionnaire allowed a short orientating assessment of specific and most significant stress and consisted of 17 items, which are listed in Table 1. Results and conclusions can be seen in Table 2, respectively.

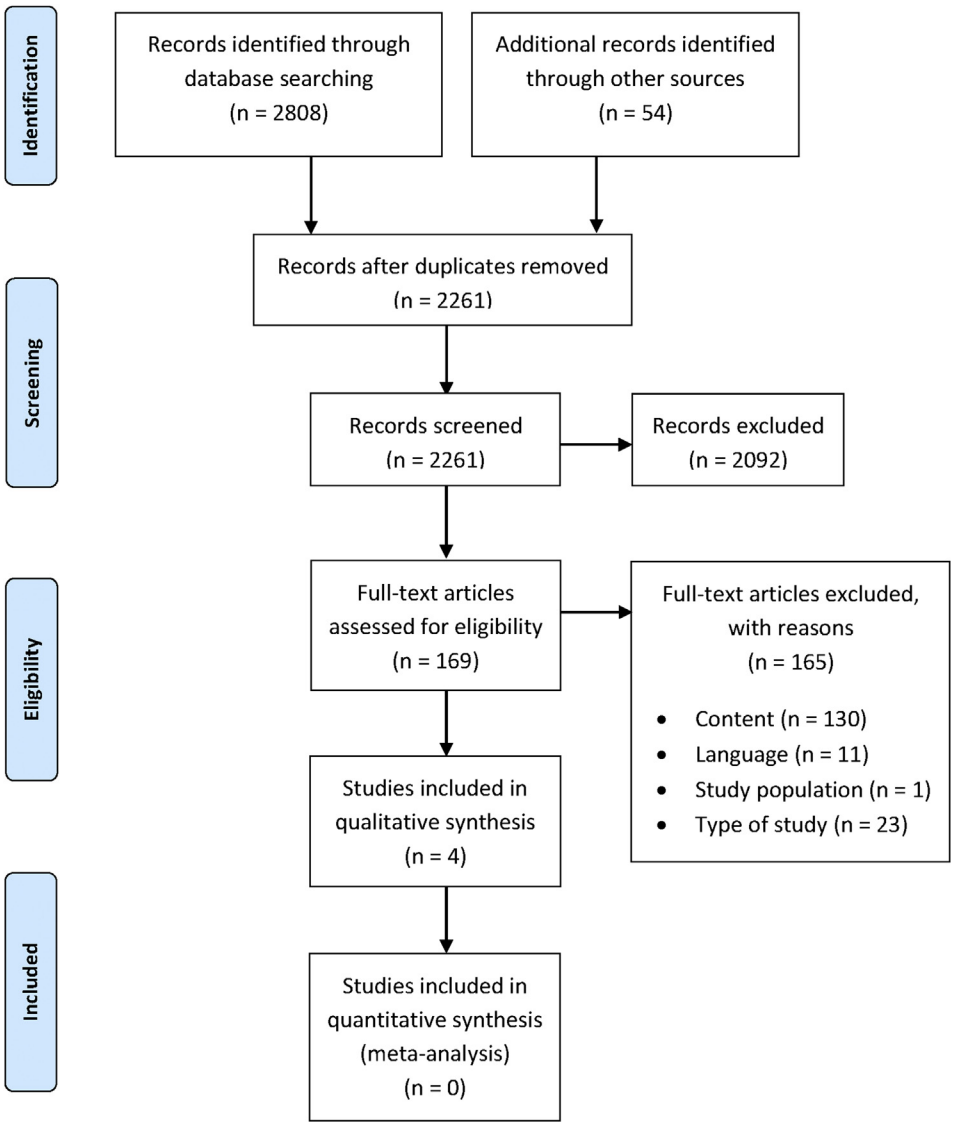

Fig. 1. The flow diagram of the study selection.

Schumacher et al. (2005) [37] implemented a procedure similar to a psychosocial risk management, based on findings of organizational development. The approach covered a cycle of diagnosis, intervention, and evaluation with the diagnosis (risk assessment) being carried out via an employee survey as well. An evaluation of the procedure was not outlined.

The authors focused on describing the process for establishing a sustainable health promotion programme, which is illustrated in Table 1. The questionnaire used in the first step regarding the analysis of the status quo, respectively, risk assessment within the participating schools, involved the topics as listed in Table 1.

The authors only reported very little scientific data from their programme. No evaluation of the questionnaire for risk assessment was outlined. Extractable results of the publication and the authors' conclusions are illustrated in Table 2.

Johnson and Richards (1983) [38] described in detail the steps of the nominal group technique to assess job demands and to find proper solutions, accordingly. A process for the implementation and evaluation of interventions was not illustrated. For the approach of the nominal group technique and results as well as conclusions by the authors, please see Tables 1 and 2.

3.3. *Appraisal of included studies*

Quality assessment leads to a weak rating of the articles. All included publications are based on convenience samples; thus the study collectives cannot be seen as representative, and a selection bias has to be considered. Study design of all four studies cannot be rated as strong, and confounders must be taken into account as well (also see Table 3). However, each study is of high value and is therefore briefly discussed and appraised individually:

The evaluation of the risk management process by Wolff et al. (2012) [35] was the most comprehensive and most transparent procedure described. Even though the study results are based on a convenience sample, 1.048 teachers from 76 schools were involved and a certain validity of the results can be assumed. The authors describe the process and the assessment tool thoroughly, so that it can be well comprehended.

The validation of the “brief-check-questionnaire” by Paridon et al. (2010) [36] does not precisely list the items of the questionnaire, and readers do not know to which items the authors refer as appropriate or not suitable. Selectivity should range from 0.30 to 0.50 according to Bühner (2011) [39]; therefore, the three items

Table 1
Methodological summary of included studies

References	Country	Study purpose	Study collective	Outcome measures	Processing steps	Method for risk assessment	Items, covered by the risk assessment
Wolff et al. (2012) [35]	Germany	Process evaluation of a seven-step "brief-check" method for psychosocial risk management	132 principals and school administrators from 26 schools	Manageability of the procedure Acceptance and benefit of the approach Options of improvement Inhibiting framework conditions Beneficial framework conditions Knowledge about risk assessments	1. Preparation 2. "Brief-check-questionnaire" 3. Analysis of results 4. Decision for one of four pathways 5. Presentation of results and chosen pathway in teachers' conference 6. Documentation and information 7. Re-evaluation of the appropriateness of the chosen pathway	Questionnaire	Working situation (14 items, including tasks, reward, working materials, working environment, work–life balance, organization of work, support, social relations) Health and ability to work (1 item) Potentials for change (2 items)
Paridon et al. (2010) [36]	Germany	Validation of a questionnaire assessing mental stress for risk assessment	1.048 teachers from 76 schools	Cronbach α Popularity Selectivity Convergent validity Criterion validity			
Schumacher et al. (2005) [37]	Germany	Identifying health risks and resources for the development, implementation and evaluation of health promotion measures (proceeding similar to psychosocial risk management)	557 teachers from 9 schools	Diversity of schools regarding satisfaction with school management, satisfaction with collegial cooperation, and job satisfaction	1. Analysis of *status quo* (questionnaire) 2. Feedback (individually for every teacher) 3. Feedback (whole staff) 4. Identification of areas of stress and topics for interventions 5. Development of behavioral and situational interventions by the teachers 6. Evaluation of the processes and results 7. Documentation	Questionnaire	Physical and mental strain Job satisfaction Life satisfaction Occupational stress School-specific stress Personal resources Organizational resources
Johnson and Richards (1983) [38]	United States	Investigating the benefits of the nominal group technique and identifying suitable measures	55 teachers from 5 school districts	Categories of job demands	No actual processing steps for risk management described. The nominal group technique is illustrated in six steps: 1. Building groups 2. Listing job demands individually 3. Collecting results within groups 4. Clarifying results 5. Choosing six most important job demands and rank-order them individually 6. Summing up the six most important job demands in groups	Nominal group technique (group discussion)	Open questions to assess major job demands and solutions

Table 2
Results and conclusions of included studies

References	Results	Conclusions
Wolff et al. (2012) [35]	17 items were considered to cover the actual stress insufficiently (measuring accuracy was doubted) The exclusion of external circumstances like class size or regulation of working hours was criticized Wishes for recommendations on which path to choose after the employee survey were expressed The process was considered an additional burden (experienced ratio of benefit to effort was poor)	Great attention should be paid to anonymity of the risk assessment via questionnaire Teachers should be asked about all relevant working conditions even if those cannot be easily changed Transparency of the overall process should be a priority The complexity of selecting a suitable instrument for risk assessment has to be taken into account Professional help and an independent "pool" of mediators to support the process should be involved Training in health and safety at work is recommended for school management and teachers
Paridon et al. (2010) [36]	Internal consistency: $\alpha = 0.84$ Popularity: 0.20–0.80 (except of two items) Selectivity: $r < 0.30$ in three items Convergent validity: $r = 0.43$ to $r = 0.75$ ($r = .66$ for overall indices) Criterion validity: $r = -0.47$ for overall indices (physical complaints $r = -0.39$; mental complaints r = -.43; general health complaints $r = -0.26$)	Validity of the "brief-check-questionnaire" is acceptable Questionnaire is of good quality and usability and may be used to assess psychosocial risks in the teaching profession The "brief-check-questionnaire" is intended for orientation purposes - if there are signs of stress, a detailed analysis should necessarily follow
Schumacher et al. (2005) [37]	Workshop to derive measures for improving teachers' health is effective (no scientific data presented) Diversity of schools can lead to different inhibiting or contributing framework conditions in risk management (e.g. satisfaction with school management, collegial cooperation, job satisfaction) Individual and collective feedback on the results of the survey promoted willingness to change (no scientific data available to underpin this result) Opportunities for mutual support and joint organization of working conditions are not sufficiently exploited in schools	Organizational development, where teachers themselves find solutions to their problems, is a promising approach Willingness to change is central to the entire process Individual health promotion concepts should be developed due to varying strengths and weaknesses of different schools Short-term success and visible benefits are necessary Comprehensive approaches to improve teachers' health are needed
Johnson and Richards (1983) [38]	54 stressors were grouped into categories and ranked by frequency and priority, with number one being the most severe: 1. Intensity of work demands 2. Student misbehavior and lack of motivation 3. Lack of administrative support 4. Inadequate compensation 5. Lack of respect and parental support 6. Meaningless job demands 7. Large class size	Nominal group technique is effective in assessing main factors of stress in the teaching profession and finding appropriate measures to cope with them (no evaluation presented) The technique combines the advantages of open form and closed form questionnaires Close involvement of the teaching staff is essential for the acceptance of interventions

Table 3
Quality assessment of included studies

References	Step 01 Study design (Higgins and green 2011; University of york 2008)	Step 02 Selection bias a (QATQS)	Step 03 Selection bias b (QATQS)	Step 04 Confounders (QATQS)	Step 05 Data collection Methods (QATQS)	Step 06 Analyses and statistical methods (QATQS)	Step 07 Presented scientific data (self- developed)
	Non-randomized studies of interventions are downgraded to a low-certainty rating due to risk of bias (Higgins and Green 2011); Study design is graded as low or high	Are the individuals selected to participate in the study likely to be representative of the target population?	What percentage of selected individuals agreed to participate?	Especially type of school (e.g. primary, secondary; small, large; rural, urban)	Are Data collection methods reliable and valid?	Are the analyses of the data and statistical methods appropriate?	Is there any data presented regarding the method of risk management?
Wolff et al. (2012) [35]	Low	No representative sample	61%	The authors state that when selecting schools for the random sample, care was taken to ensure that all types of schools were adequately included; Risk of confounders cannot be ruled out, based on the study design, though;	The questionnaire for evaluating the procedure was developed by the scientists;	Analyses of the approach seem appropriate;	Evaluation of specific areas of the procedure as well as the risk management approach as a whole;
Paridon et al. (2010) [36]	Not applicable	No representative sample	Not applicable	Not applicable	Not applicable	Most analyses referred to reliability; The actual validity was examined using a questionnaire, the quality of which was not assured;	Validation study
Schumacher et al. (2005) [37]	Low	No representative sample	No information available	No information available	No information available	No data were analyzed	No
Johnson & Richards (1983) [38]	Low	No representative sample	No information available	No information available	No information available	No data were analyzed	No

Table 4
Content of risk assessment in the teaching profession

Job demands according to WHO classification [28]	Content regarding the teaching profession in particular
Job content	Continuous exposure to students Student misconduct (and lack of discipline and motivation) Large differences in performance between students within the same class and great heterogeneity of students Emotional labor (regarding students as well as parents) Job demands experienced as meaningless
Workload & work pace	Intensity of work demands, including time pressure Interruption of work, including unpredictable interactions by students and/or parents Number of hours to be taught Amount of workload Additional duties, clerical work and lack of administrative support Extra hours
Work schedule	Taking over additional hours for other teachers (especially on short call) Observance of rest periods (between work) Recovery from work (including short breaks during working hours)
Control	Other-directed work, especially through change of curricula (including decisions by authorities, which must be incorporated in daily work with students, but without adequate training to do so) Being evaluated by others (especially if appropriate feedback rules are not followed)
Environment & equipment	Noise and reverberation Size of classes Lack of space Room temperature Possibilities to ventilate the room Digital equipment (e.g. for new forms of teaching, including adequate training for use) Equipment for each individual subject (e.g. science class)
Organizational culture & function	Culture of communication within the school Organizational injustice (including inequitable allocation of extra work) Support from colleagues Support from school management
Interpersonal relationships at work	Relationships with colleagues Relationship with school management Lack of parental support Accusations and insults from parents and students Bullying and harassment
Role in organization	Role conflict and ambiguity Extended responsibilities for students (e.g. looking after a student with diabetes to avoid hypoglycaemia) Bearing responsibility without the authority to make decisions
Career development	Satisfaction with reward (payment, appreciation and career opportunities) Perceived social value of the teaching profession Insecure employment
Home-work interface	Incompatibility of work with other aspects of life (e.g. due to working at weekends)

WHO, World Health Organization.

listed are to be classified as low. Cronbach $\alpha > 0.80$ can be regarded as acceptable [40]. For criterion validity, the authors expected medium correlations, as health problems are of multi-dimensional nature and not exclusively caused by working conditions.

It has to be borne in mind that according to Richter (2010) [41], the “BAAM” questionnaire, which was used for the validation process, is classified as having “no quality criteria”, which means that the validation is categorized as deficient [35,41]. On the other hand, a critical consideration of the questionnaire itself contributes to the ongoing development of measurement instruments and is therefore highly valuable.

Schumacher et al. (2005) [37] introduce a process cycle that is similar to psychosocial risk management and highlight specific difficulties that have to be considered herein. Unfortunately, presented results were extremely scarce. No assessment of effectiveness, acceptance, or manageability of the approach was reported. Based on the presented results, some of the authors' conclusions cannot be thoroughly comprehended. However, future approaches could be inspired by their plausible suggestions.

Johnson and Richards (1983) [38] present an approach that has not lost its relevance over time. By the detailed description of the procedure, the implementation can be well understood and reproduced. The paper describes the assessment of job demands and subsequent development of appropriate measures. Nevertheless, it provides no data on the acceptance, effectiveness, efficiency, or practicability of the nominal group technique, and no evaluation of the process is presented. In this context, it has to be considered that the approach described may be more time-consuming and harder to carry out than other methods (e.g. employee survey). Based on the presented procedure, the authors' conclusions seem plausible, though, and add valuable insights for future approaches to psychosocial risk management.

4. Discussion

4.1. Key findings

Because psychosocial risks are viewed as harder to address than physical hazards and simultaneously these aspects are of high relevance in the teaching profession, evidence-based approaches are needed for a practical and goal-oriented risk management [5,6]. As teachers are confronted with profession-specific working conditions, an adaptation to these circumstances becomes necessary.

Despite 2261 articles being screened within this systematic review, only four studies met the inclusion criteria and the review question, with the article by Wolff et al. (2012) [35] being the only

one to evaluate the whole process of a psychosocial risk management in teachers.

Three of the four identified approaches to a risk management were based on employee surveys by questionnaires, while one was based on a group discussion technique. None of the procedures used observational methods to identify relevant risks and, taken together, the data presented were scarce.

4.2. Implications

Due to these aspects and especially to the scarce scientific data presented by the authors of the included publications, recommendations have of course to be drawn up with care. Nevertheless, all approaches introduced by the different authors seem to be likely to identify the relevant psychosocial health risks and have to be considered feasible for risk management in the teaching profession. Thus, the studies contribute important fundamental ideas for further development of suitable approaches, for which we suggest to consider the following groundwork.

4.2.1. Process for psychosocial risk management

Based on Wolff et al. (2012) [35], Schumacher et al. (2005) [37], the British Standard Institution (2011) [25] and Beck et al. (2016) [8], the following action steps are derived for psychosocial risk management in the teaching profession:

1. Preparation of the process
2. Risk assessment
3. Analysis and evaluation of results
4. Action plans
5. Risk reduction (interventions)
6. Evaluation of interventions
7. Documentation of the process
8. Organizational learning

The preparation of the process should not be underestimated. The participation of the teachers as the concerned target group is of major importance for developing expedient and accepted solutions to occupational stress. Thus, the teaching staff has to be involved and informed in advance about the aim and the steps within the process. Furthermore, to ensure a smooth implementation, the procedure itself has to be organized and well prepared.

To carry out risk assessments, several tools are available, which shall be discussed in more detail below. The analysis and evaluation of results should identify the most pressing areas of stress to derive action plans and to develop situational and behavioral interventions. After that, the implementation of these interventions to reduce health risks is mandatory. An evaluation of the measures is needed in the end to verify their appropriateness for eliminating respective risks and to give an opportunity for improvement and organizational learning to reduce health risks in the long term.

4.2.2. Assessment tools for psychosocial risk management

The active involvement of the staff is crucial and questionnaires, respectively, employee surveys as well as group discussion techniques may be most suitable to achieve that goal [25]. Observational techniques seem to be more challenging and less appropriate to assess psychosocial risks in particular. Questionnaires along with group discussion techniques also bear specific advantages and disadvantages, as already stated before and the nominal group technique does not seem to find widespread use in risk assessment, yet. However, the process described by Johnson and Richards (1983) [38] appears to be suited for application, especially because the procedure closely involves the teaching staff. A major advantage of this technique is that, unlike typical group discussions, the participants can express their own opinions first before group dynamics distort the results. Nonetheless, some barriers and shortcomings have to be considered. The teachers themselves might not think of every potentially health-threatening aspect, whereas a professional might identify those through a well-formulated and comprehensive questionnaire. This could be particularly important for areas such as emotional labor or work processes that have not been surveyed for years. Furthermore, this approach is likely to be more complex to implement than employee surveys and requires an independent host, so participants feel safe to share their experiences. However, the acceptance of the derived measures among the teachers is most likely high because both job demands and interventions are discussed and developed together with the staff.

Of course, this procedure strongly depends on the school climate as a whole and might be more practicable for smaller schools. For better manageability, larger schools could carry out the process with a limited number of teachers representing their colleagues (e.g. senior teachers of certain subjects) or combine the approaches in the risk management process: Initially, an employee survey for risk assessment can be carried out to involve as many teachers as possible and to ensure anonymity. Afterwards, the nominal group discussion could help to develop appropriate measures.

Research should examine acceptance and practicability of different approaches of risk assessment among all persons involved (teachers, principals, staff representatives, occupational safety, and health specialists) and perform comparative evaluations of the tools.

4.2.3. Content of psychosocial risk assessment

It is of major importance to carry out risk assessments of psychosocial hazards systematically and comprehensively. Fundamental working conditions which potentially contribute to strain should be assessed, regardless of the ability to change them immediately. The objective of risk assessments is to identify job demands that are potentially harmful to one's health and to tackle those [25]. Thus, individual working conditions such as the size of classes or working hours cannot be excluded, simply, because there is no solution straightaway. Close communication with the teaching staff is of vital importance in that case, though. The situation should be honestly discussed and alternative solutions should be developed, that may lie within the own sphere of action of each teacher. Furthermore, being taken seriously and knowing that high job demands are being seen may even reduce perceived suffering, independent of the solution. In the end, e.g., political discussions become more expedient if based on reliable examples from practice, too.

Furthermore, recovery during working hours (e.g. through microbreaks) is known to be an important recovery strategy for staying healthy, beside recovery in the evening and at weekends [42,43]. This has to be considered as a potentially important facet of working conditions in schools, too. Teachers often claim that it is impossible to take breaks during school hours because they have to supervise students' breaks, answer questions, and discuss professional and educational issues with colleagues. A large number of teachers also have to move to another classroom or even to another school between classes. In addition, schools often do not even have a quiet place to take a short break. However, the time in class for teachers is other-directed and cannot easily be influenced by themselves, whereas teaching requires absolute concentration and attention, which should be released afterward. Not least, being an empathic and sensitive person is often incompatible with constant noisy and turbulent working conditions without becoming exhausted or even sick. Thus, the possibility of recovery during school hours must also be considered in risk assessment and

management. Further studies on the effects of microbreaks (including the effect of recreation rooms) would be of great value in this regard.

In general, it should be kept in mind that psychosocial risk assessment focuses on job demands, not on the personal employee's mental health [25]. Thus, the assessment of psychosocial risks in the teaching profession should focus on the areas classified by the WHO [28]. Table 4 shows which content ought to be considered in accordance with the WHO classification [28].

To take a salutogenetic approach to teachers' health and risk management into account, it could also be of great benefit to assess strengths of schools and to eventually utilize them in the development and implementation of measures to reduce health risks.

4.2.4. Measures and interventions

Regarding the development of appropriate interventions to tackle work-related health risks, both measures regarding work environment and organizational conditions as well as behavioral preventive measures at teachers' level can be applied. Organizational-level interventions should be prioritized to tackle the underlying cause of problems, though [25].

A wisely implemented organizational development can improve the effectiveness and efficiency of processes and at the same time have a positive effect on health-related working conditions. Again, a resource-oriented view can be of great value, and both personal and organizational resources should be strengthened and supported [27]. The interventions should also be systematically developed and evaluated in the end.

4.2.5. General instructions

Psychosocial risk management cannot be solved by a predefined process alone and professional advice and support is needed on this subject [35]. Carrying out psychosocial risk management demands an understanding of stress factors and their interactions, methodological knowledge to assess and valuate psychosocial risks, and expertise about how healthy working conditions can be fostered [8]. Thus, the recommendation of an independent “pool” of mediators to help schools navigate through the process and in challenging situations is of great value [35]. Besides that, thanks to their overarching view, an external expert may be able to transfer effective examples of psychosocial risk management from different schools while still seeing each school in their individuality and may consequently find cost-effective and low-threshold solutions of high quality.

In addition, a balanced ratio of benefit and effort or at least the visibility of advantages seems to be of great significance within the process. Tangible benefits arise as soon as appropriate measures are implemented; therefore, the importance of risk-reducing interventions after the assessment cannot be stressed enough.

In this context, also basic instructions of change management as introduced by Kotter (1995) [44] can help to successfully improve challenging job demands. The author illustrates eight steps that are necessary for transformation, ranging from the establishment of “a sense of urgency” to forming a vision and making advantages visible.

Because a short timeframe was identified as an inhibiting factor, it is suggested that schools be enabled to determine date and terms of the risk management process themselves [35]. The structures of school years are determined externally, so that only a variation in the timing of the risk management steps is possible and should be left up to the schools. School-internal peaks (e.g. final exams) should be avoided.

Based on the identified literature, the effectiveness of psychosocial risk management seems to depend strongly on social aspects and for example internal cooperation within the schools [35]. This can turn out to be a vicious circle in this respect because organizations lacking social cooperation and a good working climate tend to pose a greater challenge to the employees' psychosocial well-being [45]. In this case, external assistance and expertise is again highly recommended.

In the end, school management needs to be considered in psychosocial risk management. Principals usually find themselves in a subordinate role to a local authority or ministry and often have only limited decision-making power to change working conditions for teachers as well as themselves. This situation is especially challenging because they are expected to take on management and leadership roles, while at the same time they are executives with sometimes little options of action and job control themselves. Again, in this case a broader external view could bring together similar concerns of principals and search for comprehensive solutions that lie within the system as a whole.

4.3. Limitations and strengths

All included articles, which explicitly cover risk management in the teaching profession, deal with studies conducted in Germany and were written in German, while international publications on this matter are lacking. This is rather surprising, considering that for other countries serious consequences may occur if risk management has not been implemented correctly [46,47]. As only studies in English or German were included, it cannot be ruled out though that there are further articles published in other languages that could be of relevance in this matter. The research question was rather specific, but it is necessary to assess and develop evidence-based approaches to risk management in the teaching profession. On the other hand, a sensitive search strategy was adopted to increase the likelihood of identifying all relevant articles, and a large number of full-texts were screened. The inclusion of publications in German helped to identify four articles in the end.

5. Conclusions

The major finding of this review is that the scientific literature on how psychosocial risk management in the teaching profession is best implemented is scarce. Based on the existing scientific data, the review question can hardly be answered. Despite an extensive systematic literature search, only few studies could be identified and those were very heterogeneous. This may be attributable to various reasons, including the complexity of the process of psychosocial risk management itself and that risk management of mental stress is only starting to get attention [48]. Moreover, employers find it hard to perform psychosocial risk management, and holistic approaches are lacking [5,6,23]. Multifactorial influences additionally complicate the scientific assessment, as well as the interpretation of results.

Some recommendations can be derived from this paper, but based on the findings, further research is crucial. Relevant causes of occupational strain in the teaching profession have to be identified and assessed reliably. Low-threshold interventions should be implemented, and the outcome has to be evaluated. For that, effective, efficient, and practicable approaches, accepted by the target group, should be further developed and examined.

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Conflicts of interest

All authors have no conflicts of interest to declare.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.shaw.2020.09.007.

Appendix 1

Search terms PubMed	Hits
teacher[All Fields] AND “hazard assessment"[All Fields]	0
teachers[All Fields] AND “hazard assessment"[All Fields]	3
teacher AND “risk assessment"	160
(teachers[Title/Abstract]) AND “risk assessment"[Title/Abstract]	44
teacher[All Fields] AND “risk evaluation"[All Fields]	3
teachers[All Fields] AND “risk evaluation"[All Fields]	5
teacher[All Fields] AND (“sprains and strains"[MeSH Terms] OR (“sprains"[All Fields] AND “strains"[All Fields]) OR “sprains and strains"[All Fields] OR “strain"[All Fields])	132
teachers[Title/Abstract] AND strain[Title/Abstract]	161
(teacher[Title]) AND stress[Title/Abstract]	116
(teachers[Title]) AND stress[Title]	151
(“schools"[MeSH Terms] OR “schools"[All Fields] OR “school"[All Fields]) AND “hazard assessment"[Title/Abstract]	226
school[Title] AND “risk assessment"[Title/Abstract]	128
(schools[Title]) AND “risk assessment"[Title/Abstract]	24
(“schools"[MeSH Terms] OR “schools"[Title/Abstract] OR “school"[Title/Abstract]) AND “risk evaluation"[All Fields]	32
Total	**1185**

Search terms PubPsych (English)	Hits
teacher and “hazard assessment” DT = "Journal Article"	0
teachers and “hazard assessment” DT = "Journal Article"	0
teacher and “risk assessment” DT = "Journal Article"	18
teachers and “risk assessment” DT = "Journal Article"	23
(AB=(teacher and “risk evaluation”) OR SW=(teacher and “risk evaluation")) DT = "Journal Article"	32
(AB=(teachers and “risk evaluation”) OR SW=(teachers “risk evaluation")) DT = "Journal Article"	55
teacher and strain DT = "Journal Article"	81
teachers and strain DT = "Journal Article"	130
TI=(teacher and stress) DT = "Journal Article"	91
TI=(teachers and stress) DT = "Journal Article"	190
school and “hazard assessment” DT = "Journal Article"	1
schools and “hazard assessment” DT = "Journal Article"	0
SW=(school and “risk assessment”) DT = "Journal Article"	43
SW=(schools and “risk assessment”) DT = "Journal Article"	23
school and “risk evaluation” DT = "Journal Article"	10
schools and “risk evaluation” DT = "Journal Article"	1
Total	**698**

Search terms PubPsych (German)	Hits
Lehrer and Gefährdungsbeurteilung DT = "Journal Article"	2
Lehrkraft and Gefährdungsbeurteilung DT = “Journal Article”	0
Lehrkräfte and Gefährdungsbeurteilung DT = “Journal Article”	2
Lehrpersonal and Gefährdungsbeurteilung DT = "Journal Article"	0
Lehrer and Belastung DT = "Journal Article"	66
Lehrkraft and Belastung DT = “Journal Article”	2
Lehrkräfte and Belastung DT = "Journal Article"	26
Lehrpersonal and Belastung DT = "Journal Article"	0
Lehrer and Beanspruchung DT = "Journal Article"	21
Lehrkraft and Beanspruchung DT = “Journal Article”	1
Lehrkräfte and Beanspruchung DT = “Journal Article”	5
Lehrpersonal and Beanspruchung DT = "Journal Article"	0
Schule and Gefährdungsbeurteilung DT = "Journal Article"	2
Schulen and Gefährdungsbeurteilung DT = "Journal Article"	3
Total	**130**

Search terms ScienceDirect	Hits
teacher and “hazard assessment” (all fields)	72
teacher (title, abstract, keywords) and “risk assessment” (all fields)	115
teacher and “risk evaluation”	221
teacher and strain (title, abstract, keywords)	84
teacher and stress (title)	108
school (title, abstract, keywords) and “hazard assessment” (all fields)	45
school (title) and “risk assessment” (title, abstract, keywords)	53
school (title, abstract, keywords) and “risk evaluation”	97
Total	**795**

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