Self-conductive interventions by educators aiming to promote individual occupational well-being—A systematic review

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A R T I C L E   I N F O

A B S T R A C T

Educators experience mental and physical workload affecting their individual occupational well-being requiring attention. The aim of this systematic review is to summarize current research on self-conducted interventions aiming to promote individual occupational well-being of educators during working hours. This systematic review using narrative synthesis followed the PRISMA guidelines. The literature search was conducted without time limits using the databases CINAHL, Cochrane, ERIC, PsycInfo and PubMed resulting 13 studies. Self-conducted interventions were found using either physical (e.g. voice hydration/walking) or psychological exercises (e.g. meditation/self-reflection). Interventions' achieved outcomes on educators' individual occupational well-being was increasing their physical (e.g. physical activity/voice health) and mental resources (e.g. stress management/job satisfaction). This knowledge is useful for maintaining and promoting occupational well-being of educators.

1. Introduction

1.1. Educators' occupational well-being

Educators' have an important role in preparing students in innovative learning environments with skills and knowledge required for the future challenges (Schleicher, 2018). Educators experience challenges maintaining and promoting their Occupational Well-being (=OW) affecting to the core of educators' profession, teaching and fostering students' learning (OECD, 2020; Schleicher, 2018). Maintaining and promoting OW during working hours is important for the well-being of the individual, but also for the whole working community by promoting a healthy and therefore productive work environment needing to be addressed (ILO, 2016). This review focuses on educators who are, according to internationally standard classification of occupations, trained teaching professionals educating students at all levels of education (e.g. from kindergarten to higher education) (International Standard Classification of Occupations (ISCO) (2014)). As a result, educators are a large occupational group, with the European Union education sector alone consisting of approximately eight percent of the total workforce (Eurofound, 2017).

The concept OW is multidimensional and varies within different fields of research. Considering educators, OW is found to be

constructed from four aspects: 1) worker and work (e.g. individual mental and physical factors) 2) working conditions (e.g. physical workplace factors) 3) professional competence (e.g. pedagogical knowledge and skills) and 4) work community (e.g. work management factors). All these four aspects consist of resources and workload factors (Laine et al., 2018; Saaranen, Tossavainen, Turunen, Kiviniemi, & Vertio, 2007; Saaranen, Pertel, Streimann, Laine, & Tossavainen, 2015). OW is the balance between resources and workload factors within these four aspects (Dicke, Stebner, Linninger, Kunter, & Leutner, 2018; Saaranen et al., 2007). Individual resources (e.g. educators' good health and fitness), communal resources (e.g. appreciation of others' work in working community and sufficient administrative support), conditional resources (e.g. healthy working environment) and professional resources (e.g. possibilities to maintain and enhance professional competence), reduce the experience of strain of work (Saaranen et al., 2015).

Educators have challenges as regards their OW. Many educators experience physical health problems commonly related to voice (e.g. dysphonia and voice fatigue) and musculoskeletal symptoms (e.g. cervical spondylitis and back pain) due to voice abuse during teaching (e.g. speaking at an excessive loudness level) and hectic workloads and are therefore unable to maintain physical health (Ramprasad, Lakshmana Das, & Maruthi, 2014). The psychosocial health problems of educators, such as emotional stress, are caused for instance by extensive workloads and demanding student encounters (EU-OSHA, 2018; OECD, 2020). Educators' experience mental workload creating stress, emotional exhaustion, a poor recovery and burnout (Gluschkoff et al., 2016; Näring, Briët, & Brouwers, 2006). The increasing ageing of the educational workforce also sets demands on maintaining an adequate level of OW; this is due to increased prevalence of chronic conditions among ageing workers and longer, cumulative exposure to workplace hazards and risks (e.g. extensive workload) (EU-OSHA, 2018; Eurofound, 2017).

Educators' OW is an issue that it is important in education. Inadequate OW can be the cause of absence from work or the reason for an intention to leave the educational profession permanently (Chambers Mack, Johnson, Jones-Rincon, Tsatenawa, & Howard, 2019; Yedidia, Chou, Brownlee, Flynn, & Tanner, 2015). Apart from educators themselves, their OW also has an influence on the well-being of students (Harding et al., 2019) as well as the quality of education provided (Klusmann et al., 2008; Warne, Snyder, & Gillander Gådin, 2013). Educators' OW is also associated with students learning outcomes due to such reasons as lack of educators' self-efficacy to use various teaching methods or use collaborative approach with other educators for professional development (Schleicher, 2018). Therefore, educational organizations have an important reason to invest in strengthening the sustainable OW culture in educators' daily working life needing more research.

1.2. This study

This review presents self-conducted interventions aimed at promoting individual occupational well-being to better understand the possibilities to strengthen educators' individual OW during working hours. Individual OW refers to the first of the four aspects (worker and work) of educators' OW (Saaranen et al., 2007, 2015) as being the most relevant from this study's point of view. Individual OW level is the balance between individual resources (e.g. physical and mental health, fitness and personal traits, such as self-efficacy and optimism) in relation to the mental and physical strain of the work itself (e.g. workload factors such as demanding student encounters) (Dicke et al., 2018; Hobfoll, Halbesleben, Neveu, & Westman, 2018; Laine et al., 2018; Saaranen et al., 2007). If workloads or work demands are too easy it leaves individual resources unused creating dissatisfaction, while, on the other hand, overtly difficult or stressful work depletes these resources (Saaranen et al., 2015). When there is a balance between individual resources, and workload factors (i.e. job demands), it is possible to reach the optimal level of individual OW (Dicke et al., 2018; Saaranen et al., 2015). Individual resources are seen to be vital to educators' OW also in the context of work-life balance (Nilsson, Blomqvist, & Andersson, 2017). Individual aspects also play an essential role in attaining sustainable health changes as does the amount of outside support (Ryan, 2009).

Self-conducted interventions can be done individually where the work takes place and are not dependent on the working communities' schedules. As for the most recent example of different working conditions among educators, is the COVID-19 pandemic, which has affected education regardless of nationality or the level of education. Students, especially in less advantaged groups with economical and health issues, have needed support regarding the new learning strategies and in managing remote teaching and thus educators have had to adapt to new pedagogical strategies for which they may not have previously been trained (Aucejo, French, Ugalde Araya, & Zafar, 2020; Schleicher, 2020). Remote teaching sets new demands on educators dealing with various student related issues and maintaining their OW in different working environments. Moreover, as earlier evidence on organizational worksite interventions for improving educators' wellbeing and reducing work-related stress is unconvincing (Naghieh, Montgomery, Bonell, Thompson, & Aber, 2015), this exploration of interventions from an individual perspective warrants close scrutiny; there has been no previous reviews. Therefore, two research questions were formulated:

1) What are the characteristics of the previous self-conducted interventions that aimed at promoting educators' individual occupational well-being?
2) What outcomes have been achieved promoting individual occupational well-being by these interventions?

2. Materials and methods

2.1. Search strategy and study selection

This systematic review follows the PRISMA guidelines (Moher, Liberati, Tetzlaff, & Altman, 2012) and was complemented accordingly with other reporting tools to ensure a rigorous study process. This review search was conducted with a professional

librarian to ensure coverage of the five relevant electronic databases in September 2020: CINAHL (Ebsco), Cochrane Library (Wiley), ERIC (Ebsco), Psycinfo (Ebsco), PubMed (Medline), limited to peer reviewed English articles only. The search consisted terms added together with OR operator withing three different search sentences adding these together with AND operator [supplementary material Appendix 1-HERE]. To reduce the likelihood of overlooking any relevant self-conductive articles, we also included terms expressing the self-regulative nature of the interventions often used synonymously in health promotion studies (e.g. self-care and self-efficacy) (Richard & Shea, 2011). Main terms were: 1) "occupational well-being", "occupational wellbeing", "job satisfaction", "quality of working life", "occupational health", "work ability", "ability to work", "work engagement", "work recovery", "recovery from work", "work capacity", "work-related well-being", "work-related wellbeing" AND 2) educator, teacher, instructor, lecturer, "school staff", faculty, "education staff" AND 3) intervention, action, activity, trial, strategy, self-care, self-management, self-regulation, self-efficacy, self-monitoring. The search produced a total of 3520 records imported to Mendeley reference management software; after removing duplicates 2732 records remained for screening.

The eligibility criteria for the included studies was made with PICOS (Table 1) (Murad et al., 2014). Because of the wide range of outcome measures of OW in different studies, the present review focuses on studies that have used either the actual concept of OW or the interventions aimed to promote individual resources (e.g. health, mental and physical fitness), such as promotion of educators' physical activity, work engagement and job satisfaction in relation to the strain of the work itself (workload factors).

The study selection consisted of three stages based on the eligibility criteria (Table 1, Fig. 1). First, the duplicates were removed, after which 2732 records remained. Second, there were two independently working authors screening the remaining records by title and abstract (J.R. & S.K.) after which 57 records remained. Excluding criteria at this stage was done on the basis of the following: 1) wrong study design, 2) wrong population, or 3) wrong outcome. The screening was implemented blinded in the electronic, Rayyan-software, to lessen the risk of selection bias (Parekh-Bhurke et al., 2011). The final stage of the independent reading (J.R. & S.K.) was the reading of the full texts of the 57 studies, of which 13 were selected for this review thus excluding 44 articles for following reasons: 1) wrong study design, 2) wrong outcome interest, 3) wrong population, 4) not self-conductible and 5) was not implemented during working hours.

2.2. Data extraction process and narrative analysis

The data extraction involved compiling all the included studies into a form to produce textual descriptions in a systematic way, including the same information for all studies (Table 4) (Popay et al., 2006). The TIDieR checklist was used to extract the information about the interventions, name, purpose, main content, providers, implementation and location (Hoffmann et al., 2016). The data extraction process was conducted by the first author (J.R.) after piloting the method with two randomly selected studies and the second author (S.K.) checked the extracted data. The narrative analysis of the data was conducted by textual descriptions and grouping the interventions' self-conducted elements and individual OW outcomes bases on their similarities and differences (Popay et al., 2006). Disagreements in this process were resolved by discussion between the two authors and finally with the whole research team. It was not possible to conduct a meta-analysis to estimate the effectiveness within the interventions in terms of effect sizes as populations, interventions, measurements and data outcomes of the included studies were very heterogeneous from the outset, resulting from the research question (Crocetti, 2016).

2.3. Quality assessment

The quality of the 13 studies included was assessed independently by two authors (J.R. & S.K.) using JBI critical appraisal tools (Porritt, Gomersall, & Lockwood, 2014). Two quality assessment checklists were used: 1) randomized controlled trials (n = 1) (Table 2) and 2) non-randomized experimental studies (n = 12) (Table 3) (Tufanaru, Munn, Aromataris, Campbell, & Hopp, 2017). Studies were scored with the answer option "yes" assigned one point and the options "no" and "unclear" assigned zero. The scale for the study quality appraisal was scored either with 0–13 (n = 1) or 0–9 (n = 12), depending on how many of the criteria were included in the specific quality appraisal tool (Table 4). The quality of the selected studies was generally considered to be good (5/9–9/9 and 10/13)

Table 1
A summary of the PICOS elements that comprise the systematic review.

|	POPULATION	INTERVENTION	CONTROL	OUTCOME	STUDY DESIGN
INCLUDE	Qualified professional educators working at all levels of education in any country	Any interventions during working hours aiming to promote OW including exercises done by educators themselves	Not comparison or control group necessary	Occupational well-being: promotion of individual resources in relation to the mental and physical strain of work itself	Randomized con-trolled trials (RCT), non-randomized controlled trials, controlled before and after measurement trials, interrupted time series trials, quasi-experimental designs, uncontrolled with before and after measurement
EXCLUDE	Student educators, school leaders, social workers, school personnel	Instructor lead interventions, interventions needing to exact time and place		Work productivity, work environment safety, teaching outcomes	Studies where there is no pre/post testing design
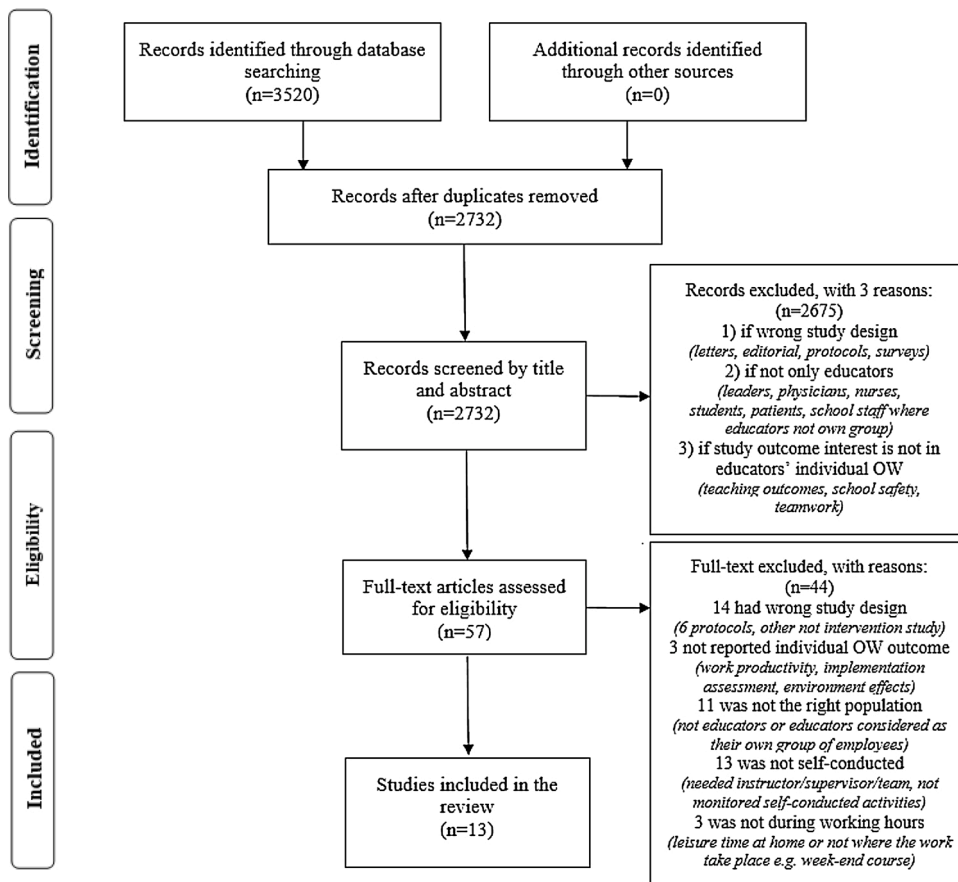
Fig. 1. Search strategy and study selection process (PRISMA).

and therefore all the selected 13 studies remained in this review.

3. Results

3.1. Description of the selected studies

The 13 studies selected were published between 1999–2018, mostly between 2015–2018. The interventions were conducted during the working hours of the educators, mostly in primary school surroundings. Studies were implemented in Hong Kong (n = 3), USA (n =

Table 2
The quality assessment of the randomized controlled trials.

	Morgan & Atkin, 2016
RCT1: randomization appropriately performed	Y
RCT2: allocation to treatment groups concealed	Y
RCT3: treatment groups similarity at baseline	Y
RCT4: participants blinded to treatment assignment	U
RCT5: treatment delivers blinded to the assignment	Y
RCT6: outcome assessors blinded to assessment	N
RCT7: groups treated identically other than the intervention	Y
RCT8: follow up complete/differences adequately described and analyzed	Y
RCT9: Analyze of the participants in randomized groups	N
RCT10: outcomes measured in the same way between croups	Y
RCT11: outcome measurement reliable	Y
RCT 12: used appropriate statistical analysis	Y
RCT13: RCT design appropriate	Y
Score total	**10/13**

Y = Yes, N = No, U = Unclear.

Table 3
The quality assessment of the non-randomized experimental studies.

	Anderson et al., 1999	Chan, 2010	Cheung et al., 2008	de O. Bastos and Hermes, 2018	Faham et al., 2016	Liu et al., 2015	Masson & de Araujo, 2018	Santana, Masson, & Araujo, 2017	Shuai et al., 2014	Stegen & Wankier, 2018	Tsang et al., 2015	Van Wingerden et al., 2017
NR1: cause and effect is clear	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NR2: participants similar included in comparisons	Y	Y	N	U	Y	Y	Y	Y	Y	Y	Y	Y
NR3: comparisons receiving similar treatment other than the intervention exposure	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	Y	Y
NR4: control group provided	Y	N	Y	Y	Y	Y	N	N	N	N	Y	Y
NR5: multiple outcome measurements	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NR6: follow up complete or in pre/post differences adequately described and analyzed	Y	U	Y	Y	U	Y	Y	U	U	U	Y	Y
NR7: outcomes measured in the same way pre/post or if included comparisons	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
NR8: outcome measure-med reliable way	Y	Y	Y	Y	Y	Y	Y	Y	Y	U	Y	Y
NR9: Used appropriate statistical analysis	Y	U	Y	U	U	U	U	U	U	U	Y	U
Score total	**9/9**	**6/9**	**7/9**	**7/9**	**7/9**	**8/9**	**7/9**	**6/9**	**6/9**	**5/9**	**9/9**	**8/9**

Y = Yes, N = No, U = Unclear.

Table 4

Characteristics and main outcomes of the interventions (in alphabetic order of authors).

Study	Design	Participants (educators)	Self-conducted worksite intervention (intervention name bolded)	Measurements: Timepoints (T0=baseline) and instruments	Main OW findings	Quality (JBI)
Anderson et al., 1999 USA	pretest-posttest study with waitlist control group	n = 91 Intervention: n = 45 Control: n = 46 Worksite: elementary, middle, and high school surroundings Age: 22–60 years Gender (m, f): 14, 77 Health requirements: not provided	**Standardized Meditation (SM)** for occupational stress management. 5week program instructed meditation procedure done lying down involving muscle relaxation, mantras for focus and observation of breathing. Done by educators themselves 20 min twice daily; once at work and at once at home. Regular checking of practices was done formally. A manual of meditation instructions was given to participants. Control group: normal daily routines.	T0, T1: 5 weeks, T2: 9 weeks 1) Teacher Stress Inventory (TSI) 2) State-Trait Anxiety Inventory for Adults (STAIA) 3) Maslach Burnout Inventory (MBI)	The intervention group had significantly better results. SM intervention reduced educators' perceived stress. Reported mediation times: 60 % at least six times/week.	9/9
Chan, 2010 Hong Kong	one group pretest-posttest study	n = 96 Worksite: university surroundings Age: mean 33.1 Gender (m, f): 17, 79 Health requirements: not provided	**Gratitude intervention program** in worksite surroundings to enhance educator's self-awareness through self-reflection to increase well-being. Started with a session training on the intervention procedures. Intervention information was online. Weekly log of three good things that happened during the week recording them to count-your-blessings form online and then reflection using Naikan-meditation-like questions online.	T0, T1: 8weeks 1) Gratitude questionnaire (GQ-6) 2) Maslach Burnout Inventory (MBI) 3) Orientations to Happiness Scale (OHS) 4) Satisfaction with Life Scale (SWLS) 5) Positive and Negative Affect Schedule (PANAS) 6) Gratitude Adjectives Checklist (GAC)	The intervention increased the scores on satisfaction with life and positive affect and lessened the scores on the burnout scale. Groups were divided after pretesting in High gratitude (n = 42) and Low gratitude (n = 47) groups. The intervention was found to be more effective in Low gratitude group.	6/9
Cheung et al., 2008 Hong Kong	quasi experimental study with control group	n = 52 Intervention: n = 38 Control: n = 14 Worksite: primary school surroundings Age: mean 38.9/26.5 years (intervention/control) Gender (m, f): 9/2, 29/12 (intervention/control) Health requirements: not provided	**Exercise using environmental stimuli** to promote physical activity (PA) at work and at home for 6 weeks. Formal brief training on the intervention procedures: using the pedometer, recordings. Intervention included pedometer for daily step accounting, text messages sent about exercise benefits, information leaflets and posters at school premises as exercise reminders. Tailored to school educators working over 8 h during working hours. Control: normal daily routines.	T0: 5 days monitoring before start, T1: 6 weeks 1) Pedometer, number of steps recorded at 3 points/ day a) on arriving at school b) when leaving school c) when removing it to go to bed 2) Stage of change Questionnaire to assess the readiness to participate in PA (only intervention group) 3) Anthropometric measures (height, weight, waist/hip circumferences, body fat)	The change to step taken increasing physical activity at work surroundings increased significantly in the intervention group. Anthropometric measures had no significant difference.	7/9
de O. Bastos and Hermes,	experimental study with convenience	n = 48 Intervention: n = 34 Control: n = 14	**Teacher's Vocal Health Program (TVHP)** to reduce or eliminate the	T0, T1: 4 months 1) Vocal Symptom	The intervention group had significantly better VoiSS scores than those	7/9

(*continued on next page*)

Table 4 (*continued*)

Study	Design	Participants (educators)	Self-conducted worksite intervention (intervention name bolded)	Measurements: Timepoints (T0=baseline) and instruments	Main OW findings	Quality (JBI)
2018 Brazil	sampling, experimental and control groups	Worksite: school surroundings Age: not provided Gender (m, f): 15 %, 85 % Health requirements: having vocal symptoms	high prevalence of vocal symptoms among educators and improve vocal resources in work surroundings. Program included two instruction lectures, two training workshops, at least 80% of the 3-month vocal exercise spreadsheet routine (hydration, vocal warm-up, resonantal balance, full breathing, vocal cool-down) and reading the complementary material on vocal health. Control: normal daily routines.	Scale questionnaire (VoiSS)	in control group. In the control group the vocal symptoms increased over time and in the intervention group they decreased.	
Faham et al., 2016 Iran	semi-experimental study with intervention and control groups	n = 132 Intervention: n = 66, completed 61 Control: n = 66 Worksite: elementary school surroundings Age: not over 50 years Gender: only female Health requirements: nonsmoking, no history of voice therapy/singing instruction, heart/ pulmonary disease, head/neck surgery or neurological disease, no acute voice disorder in the past 2 years.	**A Voice Education Program** to improve work-related voice health in female educators. Program lasted 8 weeks of which the first 4 weeks consisted of instructed voice training by experts (1 h/week at work) and the second 4 weeks following the program without instruction (vocal hydration, reducing voice abuse, breathing exercises, release larynx tension, reflux control, healthy habits). Control: normal daily routines.	T0, T1: after 8 weeks 1) Vocal Handicap Index questionnaire (VHI)	Voice health outcome for intervention group was significantly better than in control group. In intervention group voice health got better and in control group got worse in every domain.	7/9
Liu et al., 2015 Taiwan	experimental study with control group	n = 40 Intervention: n = 20 Control: n = 20 Worksite: elementary school surroundings Age: mean 43.8/43 (intervention/control) Gender (m, f): 3/6, 17/14 (intervention/control) Health requirements: not having heart conditions/ hypertension, the Beck Anxiety Inventory (BAI) anxiety degree below 10	**Moderate Exercise (ME)** on relieving mental load. 12 weeks of training in the school playground/in the school building when the students had left the school. Average 30 min/ day three times a week walking at the pace of 6 km/h. Control: normal daily routines.	T0, T1: 4weeks, T2: 8weeks, T3: 12weeks 1) Physiological heart parameters: 1.1 Handheld HRV meter (HRV = heart rate variability) 1.2 electronic blood pressure monitor 2) Body fat and weight measurement device	All physiological heart parameters had significant differences between baseline and post testing at the end of 12 weeks so that intervention group had better ratings than the control group. No significant difference was noted in weight and body fat.	8/9
Masson & de Araujo, 2018 Salvador/ Bahia/Brazil	interventional pretest-posttest design with two experimental groups	n = 53 Group VA: n = 26 Group NEB: n = 27 Worksite: public high school surroundings Age: mean 50.3/44.9 (VA/NEB), not over 65 years Gender (m, f): 20, 33 Health requirements: not upper respiratory	**Protective strategies against dysphonia** comparing voice amplification (VA) and 0.9% NaCl nebulization (NEB). To improve educators voice health in worksite surroundings. VA: Portable amplifier during all lectures for 4 weeks (at least 20 h/	T0, T1: after 4 weeks 1) Screening index for Voice Disorder (SIVD) 2) Consensus of Auditory-Perceptual Evaluation (CAPE-V) 3) Acoustic analysis (vocal parameters)	SIVD and vocal parameter, irregularity, had significant difference so that group NEB had better results than the group VA. Voice health improved significantly in both groups indicating that both strategies can help	7/9

Table 4 (*continued*)

Study	Design	Participants (educators)	Self-conducted worksite intervention (intervention name bolded)	Measurements: Timepoints (T0=baseline) and instruments	Main OW findings	Quality (JBI)
		infection, not in voice therapy	week). NEB: Portable nebulizer with saline solution (0.9%NaCl). Breathing 5 min with nebulizer twice a day in 1) 5 min before class, 2) during break (2 h after the class). Educators took part in workshops to use the devices.		vocal health in educators.	
Morgan & Atkin, 2016 UK	mixed pilot study design with experimental and control groups	n = 42 Intervention: n = 21 Control: n = 21 Worksite: primary school surroundings Age: mean 32.0 Gender (m, f): 14, 28 Health requirements: not provided	**The Work-Related Self-Affirming Implementation Intention (WS-AII)** to promote well-being of educators in worksite surroundings. Participants were asked to write out and then end the sentence stem to self-affirm reflecting on their own work-related feelings and coping strategies. The control group did the same, but they were required to choose one of given four statements and not self-affirm coping strategies in different work-related situations.	T0, T1: right after the intervention, T2: 2 weeks T0 and T2: 1) Emotions in Teaching Inventory (ETI) 2) Emotion Regulation Questionnaire (ERQ) T0 and T1: 3) the Spielberger State-Trait Anxiety Inventory T1: 4) Schwarzer and Jerusalem's general Self-efficacy scale	Intervention group had better results in state anxiety reduction, follow-up measures of using positive emotions and the reappraisal emotion regulation. No significant difference was in follow-up negative emotions, suppression emotional regulation or immediate self-efficacy scores.	10/13
Santana et al., 2017 Salvador/ Bahia/Brazil	one group pretest-posttest intervention design	n = 27 Worksite: public-sector state school surroundings Age: mean 44.9, not over 65 years Gender (m, f): 12, 15 Health requirements: with or without dysphonia, not with upper respiratory infection, not currently in speech therapy	**Surface Hydration intervention** with saline solution (NaCl 0.9%) used 4 weeks on vocal quality (vocal health). Included formal training of the procedures. Surface hydration = inhalation of 5 ml of saline solution for 5 min period daily using nebulizer device. Device was in the classroom. Nebulization example: Twice a day in worksite surroundings: 1) 5 min before class, 2) during break (2 h after the class).	T0: 1 week before intervention, T1: after 4 weeks 1)Consensus of Auditory-Perceptual Evaluation (CAPE-V) 2) Acoustic analysis (vocal parameters)	Overall auditory-perceptual evaluation (CAPE-V) the change in pre/post testing was noticeable, but not yet significant. In acoustic analysis five voice parameters showed significant change in pre/post testing indicating better voice quality after intervention.	6/9
Shuai et al., 2014 China	longitudinal study with one group pretest-posttest design	n = 350 Worksite: primary/ secondary school surroundings Age: not provided Gender: not provided Health requirements: not provided	**Musculoskeletal educational program** to prevention of work-related musculoskeletal disorders among school educators for 8 weeks. Intervention consisted 2 phases: 1) occupational health lectures given by an experienced health educator, 2) ergonomic training given by an experienced health educator and continuing with self-practice at work surroundings (exercises such as stretching/ strengthening muscles, posture improvement,	T0, T1: 6 months (n = 328), T2:12 months (n = 319) 1) A questionnaire was designed for this study, Work-related musculoskeletal disorders (WMSD)	There was significant improvement of WMSD knowledge in pre/post1 testing. There was also significant improvement in attitudes and healthy behavior, such as posture and stretching. The self-reported prevalence for WMSD was lower at post2 testing than baseline.	6/9

Table 4 (*continued*)

Study	Design	Participants (educators)	Self-conducted worksite intervention (intervention name bolded)	Measurements: Timepoints (T0=baseline) and instruments	Main OW findings	Quality (JBI)
			taking breaks between tasks).			
Stegen & Wankier, 2018 USA	one group convenience sample with pre and post survey	n = 51 nurse educators Worksite: nursing school surroundings Age: not provided Gender (m, f): 8 %, 92 % Health requirements: not provided	**Generating Gratitude**, multiple gratitude interventions in worksite surroundings to promote job satisfaction and collaboration among nurse educators. Gratitude activities throughout the school year by one school organization: 1) A Gratitude book was provided as support and guidance for the gratitude theme, 2)optional lunch sessions 4 times/year to discuss with co-workers about themed subject, 3) gratitude moments listened to in meetings by any faculty members (reflection), 4)private social media group website related to this topic to discuss with co-workers, 5)gratitude bulletin board in break room to give notes of thanks.	T0, T1: one school year (n = 31) 1) Survey questions adapted from The Grateful Organizations Questionnaire 1.1. expression of gratitude (leaders' and self) 1.2. job satisfaction	Leaders' expressions to thanks or gratitude towards educators statistically increased. Job satisfaction and self-expressions to gratitude increased, statistically significant difference in job satisfaction among educators.	5/9
Tsang et al., 2015 Hong Kong	quasi-experimental design with waitlist control group	n = 93 Intervention: n = 47 Control: n = 46 Worksite: elementary school surroundings Age: mean 39.1/37.7 (intervention/control) Gender (m, f):15, 78 Health requirements: having mild to severe depression, anxiety and stress symptoms	**12-h Stress Management Program** in worksite surroundings to alleviate work related stress and to empower abilities to cope among elementary school educators. Six component intervention with 1 h instructed lecture given by professionals/ following 1 h self-conducted exercises keeping log for daily self-practices: 1)stress/muscle relaxation, 2)mind-body yoga/yoga exercise, 3) mind-body qigong/ qigong practices, 4) acupressure/ self-acupressure exercises, 5) self-management and managing changes/ revision on mind-body exercises, 6) cognitive behavioral therapy and aromatherapy/ class assignments and revision on mind-body exercises. Control group: normal daily routines.	T0, T1: 6 weeks, T2: 9–10 weeks (n = 37/ 38, intervention/ control) 1) The 21-item Depression, Anxiety, and Stress Scales 2) 4 subscales of Occupational Stress Indicator (OSI): a) Sources of stress b) Mental well-being c) Physical well-being d) Job satisfaction 3) Teacher's Sense of Efficacy Scale 4) Salivary cortisol (Csal)	Intervention group had significant reduction in post testing depression, anxiety and stress, but not in follow-up. Both groups had lowered the levels of Csal. No significant difference was found in OSI subscales in any time points.	9/9
Van Wingerden et al., 2017 Netherlands	quasi-experimental design with control group	n = 102 Three intervention groups: 1)personal resources	**Personal Resources (PR) and Job crafting (JC) interventions** to enhance individual work-	T0: two weeks before, T1: after 6 weeks 1) Psychological	PR intervention had significant positive effect on work engagement comparing	8/9

Table 4 (*continued*)

Study	Design	Participants (educators)	Self-conducted worksite intervention (intervention name bolded)	Measurements: Timepoints (T0=baseline) and instruments	Main OW findings	Quality (JBI)
		(PR): n = 26 2)job crafting (JC): n = 32 3) PR&JC combo: n = 26 Control: n = 18 Worksite: primary school surroundings Age: mean 45 Gender (m, f): 11, 91 Health requirements: not provided	related resources to promote work engagement and performance. **PR intervention**: 3 training sessions conducted in the school consisting of exercises done daily aiming to increase hope, optimism, self-efficacy, and resilience (reflection, feedback and work control). These exercises were in everyday use. **JC intervention**: 3 training sessions at school based on Michigan Job crafting exercise and Job demands-resources model consisting of prioritizing job tasks, teamwork, reflections of personal resources and the desired changes in workplace, personal crafting plan implemented in working hours. **PR&JC combo:** participating in both. Control group: normal daily routines.	capital: a) General Self-efficacy scale b) Optimism scale c) Resilience scale d) Hope scale 2) Job crafting scale 3) Work engagement (UWES) 4) In-role performance + structured interviews about the intervention feasibility	with the control group. PR&JC combo had significant positive effect on self-ratings of in-role performance comparing with the control group. Interviewing the intervention groups, all interventions found to be pleasant and useful.	

2), and one study in each of the following countries: Brazil, China, Iran, the Netherlands, the UK, and Taiwan. Two studies cooperated internationally in Salvador, and Bahia, Brazil. The sample size varied from 27 to 350 educators, the participants being mostly female. The average age was 35 years and a few studies (n = 4) reported special health related requirements.

The interventions were aimed at promoting educators' individual OW, and were measured with different instruments depending on the aim in each of the selected studies (e.g. stress management, voice health and satisfaction); the studies included 26 different self-assessment instruments and instruments used to measure physical body-responses such as pedometers, voice parameters, heart rate variance -meters (HRV) and anthropometric measures (Table 4). There were various instruments used to measure individual mental resources from a mental load point of view, such as the Teacher Stress Inventory (TSI), the State-Trait Anxiety Inventory for Adults (STAIA), Maslach Burnout Inventory (MBI), the 21-item Depression, Anxiety, and Stress Scales and Occupational Stress Indicator (OSI)
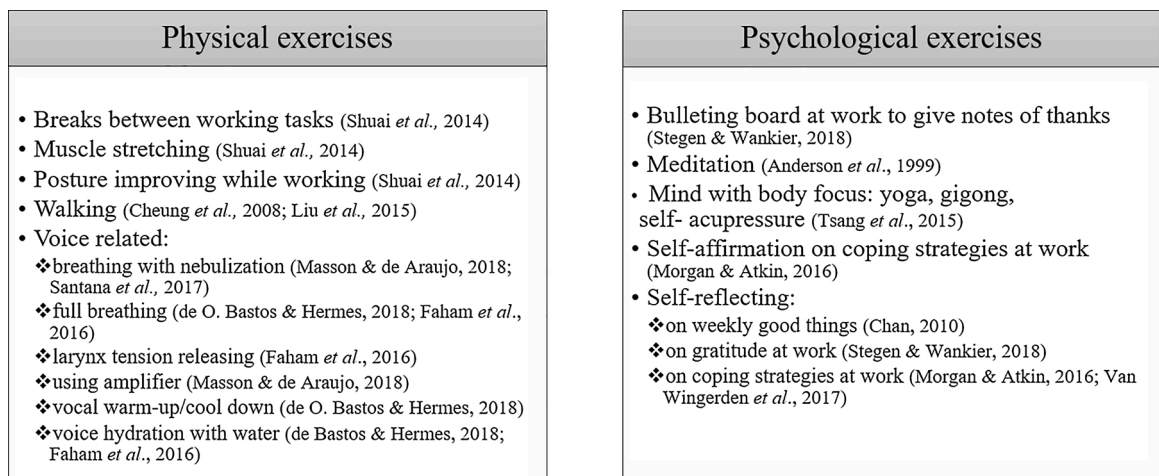
Physical exercises	Psychological exercises
• Breaks between working tasks (Shuai *et al.*, 2014) • Muscle stretching (Shuai *et al.*, 2014) • Posture improving while working (Shuai *et al.*, 2014) • Walking (Cheung *et al.*, 2008; Liu *et al.*, 2015) • Voice related: ❖breathing with nebulization (Masson & de Araujo, 2018; Santana *et al.*, 2017) ❖full breathing (de O. Bastos & Hermes, 2018; Faham *et al.*, 2016) ❖larynx tension releasing (Faham *et al.*, 2016) ❖using amplifier (Masson & de Araujo, 2018) ❖vocal warm-up/cool down (de O. Bastos & Hermes, 2018) ❖voice hydration with water (de Bastos & Hermes, 2018; Faham *et al.*, 2016)	• Bulleting board at work to give notes of thanks (Stegen & Wankier, 2018) • Meditation (Anderson *et al*., 1999) • Mind with body focus: yoga, gigong, self- acupressure (Tsang *et al*., 2015) • Self-affirmation on coping strategies at work (Morgan & Atkin, 2016) • Self-reflecting: ❖on weekly good things (Chan, 2010) ❖on gratitude at work (Stegen & Wankier, 2018) ❖on coping strategies at work (Morgan & Atkin, 2016; Van Wingerden *et al*., 2017)

Fig. 2. Summary of the self-conducted physical and psychological exercises (in alphabetical order).

Table 5

Achieved individual OW outcomes of the interventions (alphabetical order based on the first author's name).

Individual OW outcomes	Physical exercises							Psychological exercises					
	Cheung et al. (2008)	de O. Bastos and Hermes (2018)	Faham et al. (2016)	Liu et al. (2015)	Masson and de Araujo (2018)	Santana et al. (2017)	Shuai et al. (2014)	Anderson et al. (1999)	Chan (2010)	Morgan and Atkin (2016)	Stegen and Wankier (2018)	Tsang et al. (2015)	Van Wingerden (2017)
Physical resources													
improved physical activity	***												
improved healthy behavior towards preventing musculoskeletal symptoms							*nc						
improved vocal health (e.g. voice quality, decreased voice disorder)		***	*		**nc	*nc							
Mental resources													
decreased mental load HRV as an indicator				***									
improved stress management (e.g. decreased stress, anxiety, burnout)								***		***		*	
improved satisfaction with life									***nc				
improved job satisfaction											*nc	*	
improved positive affects/ emotions/reappraisal									**nc	***			
decreased negative affect/ emotions/suppression										*			
improved feelings of gratitude									**nc				
improved work engagement													*

Statistically significant differences between intervention and control group in baseline/post: *P < .05, **P < .01, ***P < .001.

Statistically significant differences without control group (no control = n) in baseline/post testing: nc*P < .05, nc**P < .01, nc***P < 0.001

and the Handheld HRV meter as a mental load indicator.

3.2. Characteristics of the interventions

Different self-conductive interventions were implemented aiming to promote the educators' individual OW in their work surroundings (Table 4). All the interventions consisted of a training period at baseline and in some studies the training lasted throughout the intervention along with the self-conducted activities. Interventions were heterogeneous and used different approaches for promoting the individual OW of the educators. Interventions used self-conductive exercises along with trainee-based ones. In seven of the studies these self-conductive exercises were done individually and covered the whole content of the intervention (Anderson, Levinson, Barker, & Kiewra, 1999; Chan, 2010; Cheung, Chow, & Parfitt, 2008; Liu, Cheng, Wang, Lin, & Chang, 2015; Masson & de Araujo, 2018; Morgan & Atkin, 2016; Santana, Masson, & Araújo, 2017).

The selected studies were grouped narratively using either self-conducted physical or psychological exercises in the interventions (Fig. 2). The physical exercises (n = 7) included stretching, walking and posture improvement aimed to increase daily physical activity during working hours (Cheung et al., 2008; Liu et al., 2015; Shuai, Yue, Li, Liu, & Wang, 2014). In addition, exercises solely concerned with promoting voice related resources were identified (de O. Bastos & Hermes, 2018; Faham et al., 2016; Masson & de Araujo, 2018; Santana et al., 2017). Voice hydration and walking were the practices most used to increase individual OW in the physical exercises (Fig. 2).

In the psychological exercises group (n = 6) there were different mental exercises done during working hours such as meditation during breaks, gratitude expressions, self-affirmation and self-efficacy exercises and mind-body relaxation between working tasks (Anderson et al., 1999; Chan, 2010; Morgan & Atkin, 2016; Stegen & Wankier, 2018; Tsang et al., 2015; Van Wingerden, Derks, & Bakker, 2017). Different self-reflection practices were the psychological exercises most used in the groups (Fig. 2).

The duration of the interventions varied from one day to the entire school year. In the interventions using physical exercises, the duration was mainly four to twelve weeks (n = 5) and in psychological ones the duration was mostly from five to eight weeks (n = 4).

3.3. Achieved individual occupational well-being outcomes

There were improvements on the educators' individual OW using either physical or psychological exercises in the self-conducted interventions during working hours. In the following paragraphs, only the statistically significant ($p < 0.05$) findings as regards the individual occupational well-being outcomes are reported grouping them narratively improving individual physical or mental resources in relation to workload factors (Table 5).

Using physical exercises in the interventions (n = 7) resulted in achieved improvements in physical activity, healthy behavior towards musculoskeletal disorders and voice health. Walking and step counting during working hours improved physical activity (Cheung et al., 2008) and decreased mental load (Liu et al., 2015). Improvements in healthy behavior and attitudes with regards to preventing work-related musculoskeletal disorders were achieved by having ergonomic training with self-conductive exercises (Shuai et al., 2014). Four of the included studies promoted OW by training the educators to maintain better voice health and produced better overall voice health and voice quality (de O. Bastos & Hermes, 2018; Faham et al., 2016; Masson & de Araujo, 2018; Santana et al., 2017).

Using psychological exercises in the interventions (n = 6) resulted in achieved improvements in stress management, satisfaction with life, job satisfaction, work engagement, and emotions (Table 5). Stress management (i.e. decreased the levels of stress, anxiety and burnout) improved using meditation and stress management programs (Anderson et al., 1999; Tsang et al., 2015). There were positive outcomes when using conscious gratitude, self-affirming or self-reflection in work-related situations; this was seen to generate positive emotions towards work, such as increasing job satisfaction and work engagement, and a reduction in negative work related emotions, such as anxiety and stress (Chan, 2010; Morgan & Atkin, 2016; Stegen & Wankier, 2018; Van Wingerden et al., 2017).

4. Discussion

4.1. Consideration of the results

This study provided summarizes the knowledge gained concerning self-conductive interventions aiming to promote educators' individual OW during working hours. The study focused on individual aspect of educators' OW, where the individual OW is a balance between individual resources and workload factors (Dicke et al., 2018; Saaranen et al., 2007, 2015). However, a comprehensive picture of the self-conductive interventions on educators' occupational well-being was lacking, leading to speculation as to why this aspect has not previously been of interest. In the current knowledge, this review was the first to provide a description of the characteristics and achieved outcomes of the self-conductive interventions aiming to promote educators' individual OW.

There was surprisingly little scientific evidence found on these self-conducted interventions implemented during working hours. Instead, when screening the literature, many interventions were found aiming to promote individual OW implemented through instructor-based courses outside of daily working activities and partially at home during leisure time. This could be due to a lack of time during working hours, resources at the workplace, or ability to effectively consider existing evidence in implementing well-being interventions in daily working life (Bennett, Weaver, Senft, & Neeper, 2017).

The first research question was concerned with the characteristics of the self-conducted interventions done by the educators themselves with the aim of promoting their individual OW. The self-conductive exercises were grouped into physical and psychological

ones. The physical exercises included moderate exercise done by walking (Cheung et al., 2008; Liu et al., 2015), and voice health related exercises such as voice hydration with drinking water or nebulizer device (de O. Bastos & Hermes, 2018; Faham et al., 2016; Masson & de Araujo, 2018; Santana et al., 2017). The psychological exercises included self-reflection exercises (Chan, 2010; Morgan & Atkin, 2016; Stegen & Wankier, 2018; Van Wingerden et al., 2017), self-affirmations (Morgan & Atkin, 2016) and mind/body exercises (e.g. yoga) (Tsang et al., 2015) and meditation (Anderson et al., 1999). The results using physical and psychological exercises were quite as expected and the methods traditional. Modern technology, such as mobile applications, could assist in the implementation and maintaining of individual motivation in health behaviour change during these exercises through gamification (Johnson et al., 2016). Moreover, there is evidence of changes in individual's health behavior when educators operate as active agents in promoting their own OW (Ryan, 2009).

The second research question was concerned with achieved individual OW outcomes. The outcomes were grouped by the improvement shown in either the physical or mental resources of the individual. All the interventions managed to improve the educators' individual OW outcome improvements - mainly in stress management (Anderson et al., 1999; Morgan & Atkin, 2016; Tsang et al., 2015) and in voice health (de O. Bastos & Hermes, 2018; Faham et al., 2016; Masson & de Araujo, 2018; Santana et al., 2017). However, it is difficult to determine the most beneficial self-conductive interventions for promoting individual OW, as the outcomes were heterogenic, and it was considered that the way the self-conducted interventions were carried out. In this study, it is important to emphasize that using physical exercises, such as walking, can also provide mental resources along with physical ones (Liu et al., 2015). The fact that many educators suffer from psychosocial workload factors (Eurofound, 2017) provides a reason to assume that educators could benefit from interventions using both physical and psychological exercises to gain more individual resources for these workload factors.

As regards the duration of the interventions, positive results were achieved with interventions lasting mainly one to three months, as indicated also by a previous review (Iancu, Rusu, Măroiu, Păcurar, & Maricuoiu, 2018). Little can be assessed about the effects of the duration of the interventions on permanent health behavior change, because of the short-reported follow up period in most of the studies (e.g. Liu et al., 2015; Morgan & Atkin, 2016; Tsang et al., 2015; Van Wingerden et al., 2017). From the practice perspective, continuous assessment of OW is essential for the quality of the evaluation of emerging health concerns that need to be addressed (Bennett et al., 2017; Burton, 2005). Permanent health behavior change is also challenging without additional individual support (Ryan, 2009; Ory, Smith, Mier, & Wernicke, 2010). There are a few reports and studies of participation by occupational health services providing OW promotive intervention training (Rantanen, Lehtinen, Valenti, & Iavicoli, 2017; Saaranen, Tossavainen, Turunen, & Vertio, 2006). The support given by occupational health services or the organization management could meet the demands of the support needed for sustainable results. There is evidence that the organizations that have an OW promotive culture have typically had strong leaders who value their employees well-being and have made OW an explicit goal within the strategic and long-range goals for organizational success (Bennett et al., 2017).

In the future, developing models and examples of feasible OW promotive interventions for educators during working hours are needed to make OW promotion more evidence based. Educators are a group of employees with their own OW concerns in relation to their job demands (Dicke et al., 2018; Saaranen et al., 2007). With this in mind, effective OW promotive interventions should be well planned, tailored and implemented to the needs of the target group (Kreuter, Oswald, Bull, & Clark, 2000; Schapira et al., 2017); it is important to consider tailoring these interventions and making them suitable for educational organizations in order to gain sustainable results.

Intervention studies should highlight the implementation strategies used and aim to prevent implementation obstacles in daily working life (Flottorp et al., 2013). Time spent in developing workplace well-being is beneficial to organizations as regards for budgets and an investment for the workers (Baicker, Cutler, & Song, 2010; ILO, 2016). The workplace of educators is not always a classroom or the school environment. Remote teaching increased dramatically during the year 2020, mostly due to COVID-19 (Schleicher, 2020). Self-conductive interventions implemented during working hours possesses the potential to meet the demands of OW promotion in these different working surroundings. However, digital interventions need further study as they can possibly provide effective, safe and personalized ways of promoting individual OW in different working surroundings (Murray et al., 2016).

4.2. Strengths and limitations

The strengths of this study include following good ethical conduct principles (Masic, 2012; TENK, 2012) and involving independent screening and quality assessment. This systematic review followed the PRISMA guidelines to improve the transparency and accuracy of documentation of the review (Moher et al., 2012). The systematic literature search was carried out with an information specialist (i.e. professional librarian) and no unnecessary limitations were used in the databases so as to reach as many relevant studies as possible; the screening covered 2732 records. This review considered educators working in all level of education, gaining perspective on the interventions used in different educational organizations (mainly on primary education). The review included studies from different countries and considered very widely the concept of individual OW by covering many concepts and measurements used among educators.

There are also limitations to be considered. First, the wide range of terminology and conceptual heterogeneity, made the definition of search terms difficult to address and restricted the quantitative synthesis (meta-analysis) and generalizability of the results. Previous systematic reviews of organizational level interventions in education found only low-quality evidence leading to improvements in educators' well-being; the findings included four studies in which the generalizability of the review's outcomes were limited (Naghieh et al., 2015). The generalization of this review was also limited by the fact that there were not many studies (n = 13) thus setting its limitations along with the complexity of the contents and outcome measures of these interventions. The interpretation of the achieved

individual OW outcomes based on using the test of statistical significance as an indicator can be considered suggestive in nature limiting the assessment of magnitude of the interventions effectiveness (Crocetti, 2016).

Secondly, the language selection criteria was limited to articles written in English, therefore some important studies might not have been identified. Thirdly, the quality of the selected studies had limits due to different interpretations when conducting the quality appraisal; therefore, a thorough discussion was conducted on the matter to reach a rigorous quality appraisal of the selected studies. Finally, the nature of narrative synthesis has a risk of bias due to adopting a textual approach to the process of synthesis of the findings (Popay et al., 2006). Though, textual interoperations were used (e.g. voice health included different voice parameters), this systematic review used detailed tables to increase the reliability of this analysis. The ethical issues that were also considered in this narrative synthesis were interested only in achieved outcomes; thus, results of the interventions that were not statistically significant and aimed at promoting individual OW were excluded.

5. Conclusions

This review provides insight into self-conductive interventions aiming to promote educators' individual OW. Self-conducted interventions implemented during working hours indicated positive results. The findings of this study identified several self-conducted exercises aiming to promote individual OW (e.g. self-reflection, moderate exercise, and deep breathing). To identify the potential of these exercises is a step towards promoting an evidence-based well-being culture at work suitable for different working surroundings/ environments.

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Declaration of Competing Interest

The authors report no declarations of interest.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.ijer.2021. 101755.

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