editorial

Psychosocial risks in the workplace

Bridging the gap among theory, practice and policy

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Work-related psychosocial risks concern aspects of the design and management work as well as the social and organizational context that have the potential to cause psychological or physical harm (Leka, Griffiths, & Cox, 2003). The issue of psychosocial risks has been studied extensively in the academic literature and the focus has recently shifted from the individual to the organizational level and management practices. Some of the most widely studied psychosocial risks include high jobs demands, time pressure, low job control, social relations with superiors and colleagues, job insecurity, effort-reward imbalance, discrimination, harassment, bullying and mobbing.

In terms of legislation, Europe has issued the Framework Directive 89/391/EEC for the improvement of the working environment to protect workers' health and safety". Also, the European Framework Agreement on Work-related Stress (Brussels, 2004) and the European Framework Agreement on Harassment and Violence at work (Brussels, 2007) have been steps forward in terms of addressing the issue. Policy level interventions in Europe have been wide ranging from introducing new policies, guidelines and best practice standards, issuing declarations, passing new legislation, signing agreements with and among stakeholders, conducting extensive surveys as well as implementing large scale campaigns aiming for awareness (see OSHA, ESENER, SLIC, healthy-workplaces.eu. etc.). However, despite these measures, a substantial gap between policy and practice and lack of awareness in issues related to psychosocial risks exists. One key obstacle is that the understanding and prioritization of these issues varies greatly among key stakeholders (Leka & Jain, 2010). For example, Ertel et al. (2010) reported on the views of 75 European OSH experts from three stakeholders groups as to whether they believed that the 1989 directive on health and safety had been effective for the management of psychosocial risks at work, revealing that only a low percentage of participants (17.3%) considered that the agreement has been implemented effectively. After analysing the implementation reports of the agreement on five key criteria (translation of agreement, awareness raising, further social dialogue initiatives, sectoral initiatives, development of new policy/legislation). Ertel et al. found that the main activities that followed the signing of the agreement were limited to its translation in national languages and its use as an awareness raising tool. Iavicoli et al. (2011) report that the main barriers to the effectiveness of the European Directive 89/391 were reported to be low prioritisation of psychosocial issues, the perception that psychosocial issues are too complex/difficult to deal with, lack of awareness and lack of consensus between social partners.

The need for more work in this area is obvious. There is a significant intention-implementation gap. The ongoing economic crisis has highlighted the way psychosocial risks can impact on psychological, physical and social functioning.

Overview of the special issue

This special review covers a range of experiences and geographic locations. In the first two, papers Costa et al. and Doulougeri & Georganta report on a European Commission funded programme to address psychological risks in SMEs in Portugal, Italy, Greece and Spain. Wilczek-Ruzyczka and Kalicinska report on the impact on burnout on Polish nurses, while Viseu, Rus & de Jesus provide important data in the relationship between injustice and psychosocial risks. When we consider psychosocial risks, musicians are the not necessarily the first group that come to mind. However, Mc Sharry, Doherty and Wilson present a compelling case as to why Irish traditional musicians are at particular risk. A unique sample, and an interesting example of how psychosocial risks can be important for individuals who are highly motivated in what they do. Next Kroon informs us of the important factors concerning older people and psychological risks. Finally, in terms of what can be done, Van Doorn, Kok & Ruiter introduce us to how intervention mapping can reduce the gap between policy and the organizational reality.

Contents of the issue

Costa et al. (2015) recently implemented the Participative Prevention of Psychosocial Emergent Risks in SME's project (PPPER) aiming to better understand psychosocial risks in small and medium sized companies in south European countries. Using mixed methods to approach the issue the team brought to light limited awareness of the topic both in terms of prevention and intervention strategies in small and medium companies. To tackle this issue, the project produced toolkits for SMEs to utilize when they need to evaluate their workplace in terms of psychosocial risks or need information, tools and practices that could be implemented to deal or prevent them.

Doulougeri and Georganta (2015) present the qualitative part of the PPPER project in Greece. The economic crisis affecting Greece during the last five years has contributed to the emergence of new psychosocial risks or has exacerbated the already existent risks. Job insecurity, unemployment, fewer opportunities in the market, working with insurance and with flexible contracts (part time, seasonal work) were identified as the most important risks shifting the source to factors that are not purely related to work design, but are dependent on management style.

In cases of chronic exposure to psychosocial risks in the workplace employees might suffer from job burnout. Wilczek-Ruzyczka and Kalicinska (2015) examining effort reward imbalance in Polish nurses, found evidence relating it to job burnout, specifically emotional exhaustion and depersonalization.

When talking about psychosocial risks injustice might surface as a key issue. As Viseu, Rus & de Jesus (2015) show perceptions of justice, adaptability and integration can be signs of a healthy organization. Specifically they found that teachers who perceived the context of their organizations as just and organizationally healthy reported more vigour, dedication, and absorption by capitalizing on the positive effects and by feeling satisfied with their job.

Mc Sharry, Doherty and Wilson (2015,) present the Safe Trad Initiative, which is an effort to reduce workplace risks for Irish traditional musicians. According to the authors, there is a growing concern over performance-related risks for traditional Irish musicians, lack of support, and an increasing numbers of them who are reporting playing-related musculoskeletal disorders. Using focus groups the initiative tried to understand the risks factors that the

musicians faced, with musculoskeletal problems, fear of acknowledging the problem and distrust of interventions from healthcare professionals being the most prevalent.

Aging in the workplace, especially in Southern Europe, will emerge as a significant psychosocial risk as we go forward. Kroon (2015) argues that we need better evidence based interventions and prevention strategies to address a key part of the psychosocial risks that older employees face in the workplace; being the victim of age driven discriminations. Kroon offers recommendations for interventions addressing the issue in the workplace, structured in four phases; diagnosis, development, implementation and evaluation.

Van Doorn, Kok & Ruiter (2015) describe an intervention mapping approach to address the gap between policy level initiatives on psychosocial risks and the reality of organizational interventions. According to the authors, in order to change unhealthy behaviours, a needs assessment is essential in identifying the change goals. Following this, the methods need to be theory-based and tailored to be effective. Insuring the aforementioned foundations can ensure appropriate implementation and evaluation processes follow.

Conclusions

The scope of psychosocial risks that can impact on the workplace represents a rich source of data for researchers and organizational practitioners. However, this scope can also be perceived as insurmountable to the stakeholders (e.g., employers and employees). Anecdotal evidence suggests that employers and managers are supportive of the ideals, but suspicious of the actual implementation. Thus, the first port of call for future researchers and practitioners is to demonstrate how 'small wins' can be achieved without the need to deconstruct completely the organizational culture and/or police employee behaviour.

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original article

Participative prevention of psychosocial emergent risks in small and medium enterprises
Overview of a collaborative project

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"Participative Prevention of Psychosocial Emergent Risks in SME's" (PPPSER) was a European Project, funded by the European Commission (agreement number VS/2014/0053), with the participation of four European countries -Portugal, Italy, Spain and Greece- and coordinated by BRU-IUL- Business Research Unit, ISCTE-IUL – Instituto Universitário de Lisboa, Lisbon, Portugal. The project, with the duration of one year, aimed at transferring knowledge on psychosocial risks prevention to a number of stakeholders with a specific emphasis on Small and Medium Enterprises (SMEs).

The present article presents an overview of the project's objectives, the description of the project's activities and main results, as an example of a good cooperation between academia and the practitioners with regard to the prevention of psychosocial risks. More information can be found at the project's website: http://risksinsmes.wix.com/risksinsmes

Background of the project

According to OSHA (2014), psychosocial risks "refers to the likelihood that certain aspects of work design and the organization and management of work, and their social contexts, may lead to negative physical, psychological and social outcomes" (OSHA, 2014, p. 10). Within these aspects, we find that psychosocial risks are related to the job content (e.g. type of task), workload and work pace (e.g. working at very high speed), work schedule (e.g. shifts), job control (e.g. level of autonomy), or interpersonal relationships at work (e.g. lack of social support).

Portugal, Spain, Italy, and Greece are facing the biggest consequences of the economic crisis and represent the appropriate countries to address with regard to psychosocial risks. Not surprisingly, psychosocial risks are exacerbated by the ongoing economic crisis in Europe, and

there is a need to support the SMEs that play an important role in the economy of these countries.

Overview of the project

The present project intended to contribute to the promotion of knowledge dissemination and to support the development of preventive actions. Social dialogue with different formal stakeholders was one of the touchstones of the project: workers' representatives and committees, health and safety personnel, unions, management or other organizational leaders. The project had four main objectives: (1) to summarize the existing scientific knowledge, policies about psychosocial emergent risks prevention, and mapping SMEs knowledge about these risks; (2) to characterize the best practices in emergent psychosocial risks management and to identify the difficulties/obstacles to implement good preventive practices in SMEs; (3) to organize a workshop with stakeholders to disseminate knowledge and define an action plan for helping SMEs in the prevention of psychosocial emergent risks, and (4) to present an informative toolkit with practices that can be implemented by SMEs to help them to prevent the emergent psychosocial risks.

The project included a first qualitative phase, where information was gathered from relevant stakeholders. Next, a survey was presented to health and safety technicians of SMEs, worker representatives and to organizations that provide external health and safety services. With this information, four workshops were organized (one in each country) and the structure and content of the toolkit was developed. In the next sections, we present a summary of these activities, as well as the main conclusions of each.

Qualitative study

We conducted individual semi-structured interviews and focus groups in all the countries involving different stakeholders. The interview guides were developed considering PRIMA-EF, ESNER and following Langenha, Leka, and Jain (2013) and Leka and colleagues (Leka, & Cox, 2008; Leka, & Jain, 2010) work. General guidelines were established for focus groups, covering its duration, composition and procedures. Data was analyzed through content analysis. Table 1 presents the number of interviews and focus groups conducted. In Spain, no focus groups were conducted due to the great difficulty of gathering participants.

Table 1
Number of participants per country

Country	Interviews	Focus groups
Greece	16	1 (n =3)
Portugal	12	3 (n = 10)
Italy	9	3 (n = 20)
Spain	30	0
Total	67	33

In Greece, participants reported that there was limited awareness with regard to psychosocial risks. They stressed the importance of written guidelines on prevention and intervention, as well as the necessity of adapting the law to include at least the obligation of psychosocial risks assessment as part of the established health and safety assessment. The Italian participants highlighted the gap between policies and practices, due to a lack of information and regulatory frameworks on the management of psychosocial risks. Education and training were recognized as a key tool to promote awareness of psychosocial risks, namely on the relationship between psychosocial risks and absenteeism. In Portugal, although almost interviewees

Table 2
Participants on survey 1 and 2

Number of participants	Greece	Portugal	Italy	Spain	Total
Survey 1	56	42	30	26	154
Survey 2	28	14	28	16	86
Total	84	56	58	32	240

recognized the relevance of this topic for individuals, companies and society, the assessment, management and prevention of psychosocial risks is still unusual, particularly in SMEs. In general, participants stressed the importance of disseminating concrete examples of good practices. Finally, Spanish participants considered that work intensification, the use of new technologies, the increased flexibility, competitiveness, and job insecurity, all affect worker health and welfare. They frequently mentioned the need for the social and psychological support of their co-workers for the mitigation of the negative effects of psychosocial risks on heath.

Survey

The main goal of the survey was to determine the SMEs' perspective about emergent psychosocial risks, difficulties and concerns related to its prevention. It also aimed to assess their knowledge and existing practices regarding psychosocial risks prevention.

The research team decided to develop two different but related surveys, one directed to SME safety and health technicians and workers representatives and another directed at organizations that provide services related to safety and health to SMEs. Both surveys were distributed in all the countries. To increase participation, the surveys were accessible either in an online format or as a paper copy.

The surveys were based on the EU-OSHA's European survey of enterprises on new and emerging risks (ESENER) and on the European Framework for psychosocial risk management (PRIMA). The use of validated instruments facilitates the comparison of results of this project with those produced in other studies and reports. We also introduced some questions that emerged from the analysis of the interviews and focus groups. Most of the items were measured with 7 points rating-scales (e.g. from not important (1) to extremely important (7), or from never (1) to always (7)).

The number of respondents was modest in all four countries for both surveys (Table 2). It is likely that SMEs are not used to participating in research projects, and probably even less concerning health and safety issues. In this paper, we present the results from survey 1.

Only in Spain the majority of SMEs (57.7%) reported having specific policies, management systems, or action plans on psychosocial risks, with all countries mentioning that health and safety issues are rarely raised in senior management meetings. In Greece, Portugal and Spain one third of the SMEs reported having psychosocial risks assessment; while it is noteworthy that in Italy all the SMEs are already conducting psychosocial risks assessments. The lack of awareness about the importance of psychosocial risks is one of the main reason for the lack of assessment in Portugal (M = 4.33), Greece (M = 4.31) and Spain (M = 4.39). For Italy, the main obstacles to risk assessment are the fact that they are too time consuming or expensive (M = 4.87) and the unavailability of financial resources (M = 4.93). The fulfillment of the legal obligations is the main reason for Portugal (M = 5.58), Italy (M = 5.20) and Spain (M = 5.73) to

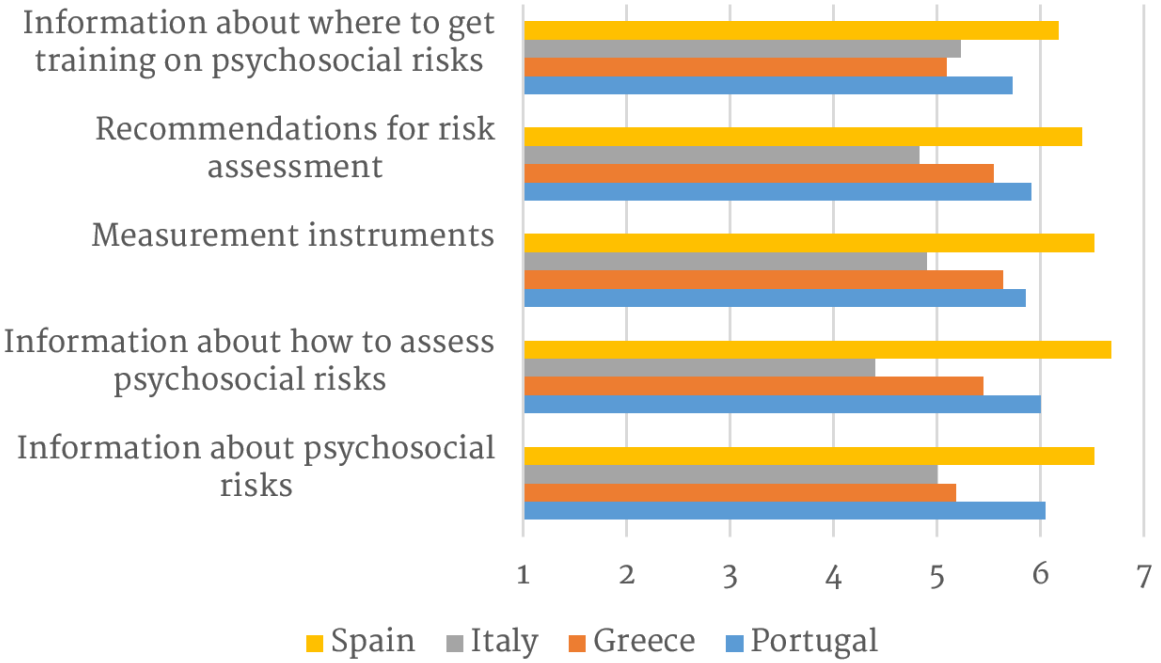

Figure 1. Useful aspects for the toolkit

tackle psychological risks. For Greece the main reasons are economic or performance related (M = 5.31), requirements from clients or concern about the organization's reputation (M = 5.15). The number of measures implemented to deal with psychosocial risks is still low in every country. Spain is the country with more formal ways to deal with psychosocial risks with 1/3 of the SME indicating that they have at least one procedure.

In general, participants agree that they need more information to promote risk assessment. With the exception of Italy, contracted health and safety experts were the main source of information, closely followed by the labor inspectorate and in-house health and safety services.

Organizational culture and top management commitment to health and safety risks issues has been recognized as a key factor in the literature (Pidgeon, 1991; Hale, 2000; Silva, 2008; Reader et al., 2015). While health and safety is already an integral part of the management philosophy in most SME's (% of agreement: Portugal = 60.8; Greece = 72.8; Italy = 76.7; Spain = 60.0), the introduction of preventive actions beyond legal requirements still need improvement.

One of the main goals of the project was to build a toolkit to help SMEs in preventing and managing psychosocial risks. We asked participants to indicate what should be part of the toolkit (Figure 1).

Workshops

Four workshops were organized (Table 3). All of the workshops had a first part consisting of a discussion on psychosocial issues and a second one, for discussing the proposed toolkit,

Table 3
Workshop participants per country

	Greece	Portugal	Italy	Spain
Participants	30	51	53	130

developed by the project's team after the two first project phases (qualitative study and survey).

In Greece, the toolkit was evaluated positively. The participants commented on its clear structure and non academic writing, and the variety and amount of the topics presented. Most participants asked for more good practices to be included in the toolkit. In Italy, the evaluation was also constructive. Participants positively commented on its clear structure and non-specialist language, and the clear division of information for employers, employees and consultants. In Portugal, the overall assessment of the project and toolkit was very good. Participants stressed the need to promote psychosocial risks assessment and to offer training for all hierarchical levels and target groups; the need to give information about good practices and the need to develop several actions that support prevention, ideally offering resources without "costs". Spanish participants expressed the relevance and timeliness of results and the need for further research on these issues in order to realize further prevention strategies and intervention on psychosocial risks in SMEs. They were thankful for the assessment tools and intervention of psychosocial risks.

Toolkit

The final toolkit comprised information about psychosocial risks and identified tools and practices that can be implemented. More specifically, it has information about the risks (i.e., causes and consequences, risk management), available resources (i.e., reliable sites, institutions, training, etc.), prevention benefits, risk assessment instruments and procedures. The toolkits are now available in the project website, in the language of the countries involved in the project as well as in English.

Conclusions

The project revealed a low level of awareness about psychosocial risks, the almost inexistence of risk assessment practices and a lack of resources for investing in its prevention. To facilitate the change in the prevention practices it is critical to develop resources that organizations could easily use at a low cost.

The project has two main contributions: the project website and toolkits that will be still available in the next years; and the dialogue and partnerships developed, involving the universities and stakeholders, that resulted in a solid network that will give an impetus to develop new actions and projects (both national and European) .

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original article

Exploring psychosocial risks in Greek SMEs - A qualitative study

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Psychosocial risks concern aspects of the design and management of work and its social and organizational contexts (Leka, Griffiths, & Cox, 2003). Psychosocial risks are linked to stress, workplace violence and harassment, and they are associated with negative impacts on health and safety outcomes as well as performance and organizational aspects of work (Cox, 1993; McDaid, 2008; Leka, Jain, Cox, & Kortum, 2011).

The societal and economic crisis that burst out in Europe in 2008 and still continues poses an even more important reason for the urgent need to addressing psychosocial risks in the workplace in more broad and deep ways. Small and medium enterprises (SMEs), the backbone of the European economy, face even more difficulties than larger enterprises in terms of tackling these issues (and not only), and should therefore, be considered for priority actions. Small and medium-sized enterprises (SMEs) dominate the Greek business economy, accounting for 72% of added value and 86% of employment (European Commission, 2014).

The aim of the study was to explore emergent psychosocial risks in Greek SMEs as well as the opinion of participants regarding obstacles in addressing the psychosocial risks and potential solutions.

Method

Participants and procedure

A purposive sample of participants was recruited from SMEs in the area of Thessaloniki, Greece. Three professional sections were chosen to be included in the study, namely, transportation, private education and tourism. In addition, representatives of working units, consultants and health and safety inspectors related to SMEs in the same professional categories were included. Participants were contacted by phone and an interview or focus groups was scheduled on a time and place convenient for them. Participation in the study was anonymous and voluntary.

All discussions were conducted using a protocol template consisting of questions generated from a literature review on psychosocial risks.

Data analysis

Data were transcribed and analyzed using thematic analysis. The analysis involved detailed readings of interview transcripts and initial coding was produced. Then, all relevant codes were collated into themes.

Results

Sixteen individual interviews and one focus group were conducted. In the individual interviews 8 women and 8 men participated.

Three people participated in the focus group. The participants of the focus group were all working in the same SME (restaurant). The age of participants ranged from 25 to 73 years.

The following people participated: a health and safety inspector, one representative of the Hellenic Institute of Health and Safety at work, two consultants, three union representatives (private education, tourism, taxi owners), one representative of association of directors of private foreign language schools, one kindergarten teacher, one kindergarten owner and director, one kindergarten psychologist, one bus driver-owner, one owner and director of cargo transportation company, two waiters, and one hotel executive.

Reported psychosocial risks in SMEs

The most frequently reported psychosocial risks included: job insecurity, employability, changes in contract agreements, excessive job demands/ long working hours/ excessive workload, and work-family conflicts.

Other psychosocial risks mentioned included effort reward imbalance, high competitiveness between employees or between SMEs of the same sector that results in excessive pressure in employees for higher performance and a negative working environment.

Participants' major concern was employability due to the financial instability in the country.

> The managers, directors go to the employees and say: "look, some must eventually go." (The employee) has collapsed - not only psychologically, he cannot sleep at night. When you know that tomorrow you are at risk of losing your job, when you know that you cannot get another job, when you are forced to work for 400 or 300 or 500 euros per month, working 10-12 hours per day. These are inhuman job offers... I don't know how others see this...that's the truth (union representative, tourism)

Second, participants reported that recent laws have brought new employment relations and new types of contracts as well as changes in the working conditions. For example unpaid overtime is common and together with exploitation in employment relationships under the premise that "the employee cannot easily leave a job and the employers exploit this situation" cause excessive strain.

Seasonality represents an added risk for private education and tourism employees causing job insecurity and negative employee employer relationships. For example, in private schools it is common that the contracts of the teachers are terminated at the end of the school year (mostly June) leaving them unpaid during the summer and with an insecurity in terms of contract renewal. Equally, in the tourism industry employers are more likely to ignore psychosocial risks and "exploit" the employees given the short time that they hire staff.

On the other hand, employees working in seasonal jobs can also be reluctant in reporting and actively challenge negative working conditions. In the focus groups conducted with employees in a restaurant, they stated that:

> For most of the employees that is a temporary job - they don't invest at work.

This attitude creates a cycle of negative behaviors.

The role of SME owner/ director

The director or owner of the SME was reported as a key person in the prevention or creation of psychosocial hazards at work.

> If the mentality of the employer is rigid, it is very hard to change/ in the best case employers treat employees like rubbish - and they are only thinking of money" (union representative, teachers in private education)

Participants reported that directors/owners could either engender a positive working environment or adopt a focus limited to profit.

> The employer translates many things into money (director of a transportation company)

> They (the owners) don't care about employees because anyway the clients will choose the place regardless the bad service or the bad behavior from the waiters. Only if the owners see that the income is reduced, then they will be interested to look for the causes and for solutions (waiter)

Pressure and negative behavior by the immediate supervisor was reported, especially for the employees of the lower level in hierarchy as an important psychosocial risks.

Legislation regarding psychosocial risks at work and existing inspection bodies

Participants reported the need for strict laws regarding prevention and management of psychosocial risks as the only way to force employers to pay attention in these issues.

> If there was a law that obliges companies to address psychosocial risks, the employers would realize the benefits of preventing these risks and they would be more sensitive (waiter)

According to Greek law, enterprises with more than 50 employees should have an occupational physician. However, the occupational physician tends to spend only few hours per month in each enterprise and as a result psychosocial risks are rarely part of their remit.

Inspection authorities rarely include in their inspection the evaluation of psychosocial risks. Participants viewed the existing laws regarding health and safety as inadequate to prevent and manage psychosocial risks.

> There is awareness regarding the issues, but there is no real interest. There are committees, there are unions, there are occupational physicians in the companies but there are no laws, or the laws that exist are vague. (Health and Safety inspector)

Participants viewed the importance of stricter laws but also penalties in cases of poorly managed psychosocial risks

> More inspections that will last for days so that the inspectors can understand the real situation and there should be fines instead of lawsuits (union representative, tourism)

Obstacles in dealing with psychosocial risks

All participants reported that dealing with psychosocial risks given the current financial situation seems like a luxury for most SMEs.

> Nowadays it seems like a luxury. There are so many financial issues that preventing psychological problems, even though it is essential, seems to be secondary. (director of a kindergarten).

In addition, the failure to link prevention and interventions regarding those issues with a financial benefit makes those issues less attractive for the managers of SMEs. There seems to be fear to speak out, especially among younger employees who are afraid that reporting any negative behaviors exhibited by their employer would create problems in finding a job in the same sector.

As a teacher in private education stated:

> I would not report it (a bad behavior exhibited by the director). I would prefer to leave the job, I wouldn't like to expose them because afterwards I might be on a black list for a future job in another school. (teacher in private

education sector)

Participants reported that the problem of psychosocial risks is compounded by employees feeling that the consequences of risks represent a personal failing and not an organizational or sectorial issue. Another obstacle in seeking help is that mental health issues can be a taboo.

> Psychosocial risks are still a taboo in our society - it's hard to go to a psychologist to talk about your problems/ the existing public services are not very good (long waiting lists), they are not able to accept and help everybody. (union representative, teachers in private education).

Suggestions for the future

Interestingly, participants were not aware of the European campaigns regarding awareness of psychosocial hazards at work. This shows that campaigns rarely reach the end users. Participants identified the importance of information and awareness campaigns, however they stressed the importance of them being periodical, on a regular basis and involve all interested parties.

In addition the need for an interdisciplinary collaboration was reported

> Collaboration with external professionals - a third person outside of the school can be more objective about the problems, causes and solutions. (director of a kindergarten)

A participant suggested the establishment of a bonus or reward system for companies that actively take steps to deal with psychosocial risks at work.

> Some ideas could be: advertise that other companies do similar things, rewards, recognition for dealing with these issues with something similar to ISO or Great Place to Work badge. (director of a transportation company)

Participants expressed the need to make a clear link between prevention of psychosocial risks at work and well-being/performance.

One size fits all solution to prevent psychosocial risks did not seem to be suitable for any type of SME and an emphasis was given to adapting a prevention or intervention program to the specific characteristics and needs of every SME.

Discussion

The results of the qualitative study showed a high degree of agreement between the examined sectors with regard to the existence of psychosocial risks, their impact on employees and the suggested solutions.

The current financial situation exacerbated the occurrence of psychosocial risks in Greek SMEs. Job insecurity, unemployment, fewer opportunities in the market, working with insurance and with flexible contracts (part time, seasonal work) was mentioned from all participants.

The focus by many employers on profit and not creating a healthy working environment, as well as the limited number of inspections by the responsible bodies were mentioned as important obstacles in recognizing and addressing psychosocial risks in SMEs.

Among the suggested solutions, information and increasing awareness about psychosocial risks was regarded important but not sufficient. Changes in legislation and highlighting the link between profit and employees' wellness for the employers were considered crucial by the participants of this study for successful psychosocial risk prevention.

European studies (e.g. the ESENER study, or PRIMA-EF) have shown that the fulfillment of

legal obligations is one of the most important drivers for occupational safety and psychosocial risk management (European Agency for Safety and Health at Work, 2002; 2007; 2012; Leka et al., 2011).

The results of this study are in agreement with research that indicates that the active participation of all interested stakeholders such as employees, union representatives and public bodies are important for a sustainable outcome (Nielsen, Randall, Holten, & Rial González, 2010)

Further targeting of interventions requires taking into consideration the cultural and legislative context, specificity, and other organizational characteristics (Leka, Jain, Zwetsloot, & Cox, 2010).

Note

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original article

Occupational stress and burnout among polish psychiatric nurses

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Occupational stress is a major factor related to burnout among medical staff (Escriba-Aguir, Martin-Baena, & Perez-Hoyos, 2006). Studies of occupational stress have been based on various theoretical approaches, such as the Job Demand-Control model (Theorell & Karasek, 1996), and the Effort-Reward Imbalance (ERI) model (Siegrist, Li, & Monteno, 2004). The ERI model emphasizes the non-reciprocal social exchange between costs and gains at work and over-commitment which may lead to emotional distress and its health consequences. According to this model, the effort at work is a part of social exchange in which rewards are represented by money, esteem career opportunities and job security (Siegrist et al., 2014).

Previous studies have shown that the burnout of medical personnel is a result of the interaction of personality- and work-related factors (e.g. work overload, task complexity and ambiguity) (Castledine, 1998; Chapman, 1998; McVicar, 2003; Chopra, Sotile, & Sotile, 2004; Piko, 2006; Garrosa, Moreno-Jimenez, Liang, & Gonzalez, 2008; Maccacaro et al., 2011). Furthermore, occupational stress has been identified as the major factor associated with burnout (Karasek & Theorell, 1990; Escriba-Aguir, Escriba-Aguir, Martin-Baena, & Perez-Hoyos, 2006; Selmanovic et al., 2011).

Burnout Among Nursing Staff

Professional burnout is defined as a psychological response to chronic work stress (Maslach & Jackson, 1982). According to Maslach (2000, 2003), burnout is the sequence of three dimensions: (1) emotional exhaustion, (2) depersonalization, and (3) reduced personal accomplishment. The types of demands experienced by nurses are related to the specific work settings and may vary according to the nursing specialty. Therefore, findings concerning nurses in general need to be validated according to the specific work setting of nurses.

Burnout and Effort Rewards Imbalance Model Among Psychiatric Nurses

Burnout and negative effort-reward imbalance (ERI) have been associated with high absenteeism and turnover (van Vegchel, de Jonge, Meijer, & Hamers, 2001; Hasselhorn, Müller, & Tackenberg, 2005). However, there is still little known about ERI and burnout among nurses employed in different settings and working conditions. To the best of our knowledge, no previous studies have compared burnout and the effort-reward profiles of Polish mental health care nurses. One potential reason why burnout among psychiatric nurses represents an understudied area may be the fact that this professional group is relatively small. Moreover, previous studies dealing with burnout-related issues seemed to center around the nurses exposed to more acute stress; namely surgical nurses and nurses employed at intensive care units (ICU). Nevertheless, the working conditions of psychiatric wards are related to high levels of stress and work strain (Messenzehl

et al., 2006; Schulz et al., 2009).

The aim of this study was to investigate the levels of effort-rewards imbalance and burnout, as well as the relationship between ERI and burnout among Polish psychiatric nurses. We hypothesized that psychiatric nurses present intermediate to high levels of burnout and effort-rewards imbalance ratio (H1); nurses working on 12-hour shifts will show higher levels of burnout and ERI ratio than their peers working on 8-hour shifts (H2); the burnout of psychiatric nurses is associated with their level of efforts and rewards at work (H3); and gender, marital status, having children, educational level, working time and working practice moderate the relationship between the burnout and ERI presented by psychiatric nurses (H4).

Methods

The cross-sectional questionnaire survey conducted in 2012 included 380 psychiatric nurses from Southern Poland, who are working in psychiatric hospitals, which have agreed to take part in research. The response rate was 92% (342 female nurses and 8 male nurses).

Because of disproportion between male and female nurses in our sample, final analyses were prepared only on female nurses (N=342). The study followed the ethical guidelines of the Polish Psychological Association. Permission to distribute the questionnaires for the study was obtained from hospital authorities. Participation in the study was voluntary and anonymous.

The level of burnout was assessed using the Polish version of the Maslach Burnout Inventory (MBI) (Pasikowski, 2000).

In our study the Cronbach's alpha for the subscale of Emotional Exhaustion was 0.88, for Depersonalization $\alpha = 0.69$ and for Personal Accomplishment $\alpha = 0.79$. The level of effort-reward imbalance at work was measured with the Polish version of the ERI questionnaire (Pająk, 2002) and calculated according to the formula: e/(r X c) where 'e' is the sum score of the effort scale, 'r' is the sum score of the reward scale and 'c' defines a correction factor for different numbers of items in the nominator and denominator. The correction factor is 0.454545. A value close to zero indicates a relatively low effort and high reward, values beyond 1.0 indicate a high amount of effort and low rewards received. The reliability of the subscales were satisfactory (reward scale $\alpha = 0.78$; effort scale $\alpha = 0.75$)

Prior to the analyses, all the variables were screened for normality. The relations between dichotomous variables were tested using chi-square test, and associations between interval and quantitative variables with the Kruskal-Wallis and Mann-Whitney U-test, respectively. Correlations between pairs of variables was tested using Eta indicator for categorical data and Spearman test for continuous data. In order to analyze the role of the effort-rewards imbalance as a predictor of the burnout, a series of multiple regression analyses were conducted.

Results

Psychiatric nurses included in this study presented low to moderate levels of burnout. 44.7% presented low levels of Emotional Exhaustion, 33.3% average levels, and 22.0% high levels. In the case of Depersonalization 53.5% showed low levels, 30.7% average and only 15.8% high level of this dimension of burnout. Low levels of Personal Accomplishment was reported by 96.5% of nurses. These data only partially support our Hypothesis 1. Contrary to our predictions, psychiatric nurses did not report high levels of burnout but nearly a half of them were characterized by high levels of ERI (48.2%).

Table 1
Emotional Exhaustion, Depersonalization, ERI and Marital Status (N=342)

Model	Emotional Exhaustion			Depersonalization		
	β	Δ R^2	ΔF	β	Δ R^2	ΔF
Step 1		.05	16.77***		.05	16.77***
ERI	.27***			.22***		
Step 2		.00	.048		.00	.05
ERI	.27***			.22***		
Marital Status	.08			.01		
Step 3		.02	6.99**		.02	6.99**
ERI	.47			.42		
Marital Status	.087			.02		
ERI x Marital Status	−.256**			−.23**		

Intergroup Comparisons

The chi-square revealed only one significant difference in the levels of Depersonalization presented by psychiatric nurses working 8 hours and 12 hours per shift (χ^2 = 7.66; p < 0.05). Therefore, the Hypothesis 2 was not confirmed. We did not find significant differences in the levels of burnout, effort, rewards and effort-rewards imbalance with regard to age and working experience.

We observed several significant correlations between MBI scores and ERI scores. Emotional Exhaustion is related to Efforts (r_s = 0.54, p < 0.001) and Rewards (r_s = -0.27, p < 0.001), similarly as Depersonalization (respectively r_s = 0.30, p < 0.001; r_s = -0.29, p < 0.001). Personal Accomplishment was correlated only with level of Efforts (r_s = 0.18, p< 0.01), therefore Hypothesis 3 was only partly confirmed.

Multiple Regression Analysis

The results of multiple regression analyses only partially supported Hypothesis 4. The level of effort-rewards imbalance was a significant predictor of Emotional Exhaustion and Depersonalization (Tables 1 – 3). We did not find a significant association between ERI and Personal Accomplishment scores. Only working time and educational level were associated with Depersonalization. However, inclusion of these variables did not improve the determination coefficients of the respective regression models.

Although Emotional Exhaustion and Depersonalization were moderated by interactions between ERI, Marital status, Family situation and Educational level, these interactions did not improve the determination coefficients the regression models. Similarly, although the interactions between ERI and Working time or Age turned out to be the predictors of Emotional Exhaustion, inclusion of the interaction effects did not improve the goodness of fit of the regression model. The level of Depersonalization was not predicted by any demographic and working conditions-related variables or their interactions with ERI. Therefore, the findings of this study only partially supported Hypothesis 4.

Discussion

The results of this study only partially supported Hypothesis 1. 47% of nurses presented

Table 2
Emotional Exhaustion, Depersonalization, ERI and Family Situation (N=342)

Model	Emotional Exhaustion			Depersonalization		
	β	Δ R^2	ΔF	β	Δ R^2	ΔF
		.07				
Step 1			26.11***		.05	16.83***
ERI	.265***			.22***		
		.003				
Step 2			1.18		.00	1.39
ERI	.266***			.22***		
Family situation	.056			−.06		
Step 3		.011	4.09*		.03	11.54**
ERI	.426***			.47***		
Family situation	.06			−.06		
ERI x Family Situation	−.19*			−.32**		

with effort to rewards imbalance ratio >1 pointing to their likely exposure to high levels of occupational stress. Further analyzes confirmed a relationship between occupational stress and burnout (Hypothesis 2). Greater occupational stress was associated with higher levels of Emotional Exhaustion, Depersonalization and Personal Accomplishment, and the effort-reward imbalance ratio was a significant predictor of the burnout level. In contrast, similar to previous studies (Halbesleben & Demerouti, 2005), we did not find a relationship between the level of occupational stress and Personal Accomplishment.

Work overload is one of the most common occupational stressor of nurses (McVicar, 2003; Garrosa et al., 2008), and burnout and job dissatisfaction are more prevalent in hospitals with higher patient-to-nurse ratios (Aiken, Clarke, Sloane, Sochalski, Silber, 2002). Nurses working on 8- and 12-hour shifts did not differ in terms of their occupational stress and burnout levels, except from Depersonalization, which was higher among nurses working on 12-hour shifts. This suggests that working stress and burnout are determined by other factors than the working

Table 3
Emotional Exhaustion, Depersonalization, ERI and Educational Level (N=342)

Model	Emotional Exhaustion			Depersonalization		
	β	Δ R^2	ΔF	β	Δ R^2	ΔF
Step 1		.07	26.16***		.046	16.88***
ERI	.27***			.22***		
		.007				
Step 2			2.49		.011	4.10*
ERI	0.26***			.22***		
Education	−.082			0.11*		
Step 3		.043	16.87***		.042	16.12***
ERI	.533***			.49***		
Education	−.066			.12*		
ERI x Education	.34***			.33***		

time.

Demographic characteristics are postulated to be important determinants of burnout among nurses (Chopra et al., 2004; Maccacaro et al., 2011). However, aside from a few exceptions, demographic variables, working conditions and their interactions with ERI, did not predict burnout in our nurses. Therefore, the findings of this study only partially supported our Hypothesis 4.

Limitations

The study was cross-sectional, which does not allow one to conclude on a direction of the analyzed relationships. Secondly, only the self-reported measures were analyzed which might result in a common method bias. Finally, the study was based on the convenience sample and therefore both its results and conclusions may be limited.

Conclusion

Our findings suggest that the level of burnout presented by Polish psychiatric nurses is not moderated by their demographic characteristics and working conditions. The level of effort-rewards imbalance was associated with Emotional Exhaustion and Depersonalization. Therefore, the subjective non-reciprocal social exchange between costs and gains at work and over-commitment is more important for the evolution of working stress leading to burnout than the objective factors associated with living and/or working conditions. This suggests that the subjective experience of work plays an important role in the exchange between expected efforts and given rewards for nurses.

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original article

How do organizational justice and health influence teachers' work engagement?

The mediating role of positive psychological capital and job satisfaction

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Organizational justice has emerged as a vital construct in organizations (Cropanzano & Ambrose, 2015). Low organizational justice perceptions have long been considered an occupational health risk (Robbins, Ford, & Tetrick, 2012). This concept refers to people's "perceptions of fairness in organizations along with their associated behavioral, cognitive, and emotional reactions" (Greenberg, 2011, p. 271). Although there are definitions of overall organizational justice (Fortin, 2008), this concept is often considered as multidimensional including distributive, procedural, interpersonal, and informational justice (Adams, 1965; Bies & Moag, 1986; Greenberg, 1993; Leventhal, 1980).

Considerable research has focused on organizational justice benefits for organizations and employees (Cropanzano, Bowen, & Gilliland, 2007). One of the individual-level outcomes that has recently drawn researchers' attention is positive psychological capital (PsyCap) which results from the combination of self-efficacy, optimism, hope, and resilience (Luthans, Youssef, & Avolio, 2007). Strong perceptions of organizational justice communicate that employees are valued as members of the organization and they have control over their jobs, and these, in turn, increase employees' flexible optimism, positive expectations of success, and resilience under job challenges (Hur, Rhee, & Ahn, 2015; Rego & Pinha e Cunha, 2008). PsyCap can mediate the influence of organizational justice (mainly distributive and procedural justice) on job-related outcomes, such as job satisfaction (Totawar & Nambudiri, 2014). Although PsyCap has been linked to several employees' behavioral, attitudinal, affective, and health outcomes (Avey, Reichard, Luthans, & Mhatre, 2011; Rus & Jesus, 2010), some authors have suggested the need to expand the range of these variables by including work engagement (Sweetman & Luthans, 2010). Work engagement is a positive psychological state characterized by the association of vigor, dedication, and absorption (Bakker, Schaufeli, Leiter, & Taris, 2008). Employees competently able to accomplish their job tasks, that have expectations of positive outcomes, willpower and pathways to achieve their tasks, and are able to bounce back and beyond in face of job challenges can become absorbed, perseverant, and have more energy available to devote to their work (Sweetman & Luthans, 2010).

Another benefit of organizational justice is job satisfaction (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). It consists in employees' evaluation of their work context and profession (Lease, 1998). Satisfied employees report high PsyCap (Avey et al., 2011) and work engagement (Yalabik, Popaitoon, Chowne, & Rayton, 2013).

In terms of factors that shape perceptions of fairness in organizations, various authors have called for an exhaustive exploration of the organizational level-related factors (James, 2015). One of these factors is organizational health (Bennis, 2002). Gomide-Júnior and Fernandes (2008) proposed that organizational health refers to the organizational integration of individuals

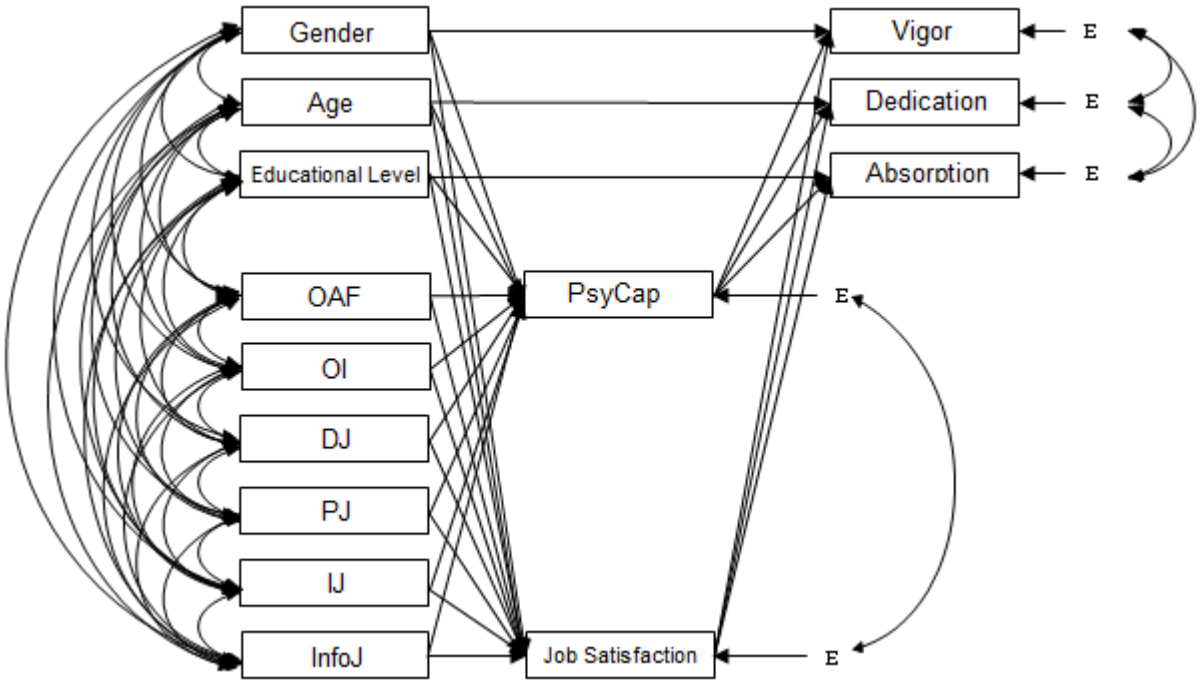

Figure 1. Tested model in EQS v.6.1 using maximum the likelihood estimation method. OAF = organizational adaptation and flexibility; OI = organizational integration of individuals and groups; DJ = distributive justice; PJ = procedural justice; IJ = interpersonal justice; InfoJ = informational justice.

and groups (internal dimension) and the organization adaptability/flexibility to external demands (external dimension). Perceptions of organizational health were positively correlated with job satisfaction (Koh & Boo, 2001). Also, these perceptions can increase employees' confidence in their abilities, their expectations of positive outcomes, willpower, pathways to achieve goals, and their ability to bounce back and beyond in face of job demands and obstacles.

The present study investigates the mediator role of psychological capital and job satisfaction in the relationship between organizational justice and health facets, and work engagement. We expect that:

H1: PsyCap will mediate the relationship between organizational health and organizational justice dimensions, and work engagement

H2: Job satisfaction will mediate the relationship between organizational health and organizational justice dimensions, and work engagement

Method

Participants

The paper-and-pencil format of the questionnaire was distributed to 1129 public school teachers. The response rate was 50.84%. The final sample included 574 Portuguese teachers (74.39% females; 95.82% held at least a bachelor's degree). Almost half of the participants (47.74%) were aged less than 45 years old.

Table 1
Means, standard deviations, and correlations among variables (N = 574)

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Organizational flexibility	2.97	.81	(.92)										
2. Organizational integration	3.13	.79	.85***	(.96)									
3. Distributive justice	2.34	1.10	.39***	.42***	(.83)								
4. Procedural justice	3.07	1.17	.72***	.67***	.52***	(.78)							
5. Interpersonal justice	4.05	1.43	.76***	.72***	.43***	.78***	(.93)						
6. Informational justice	3.43	1.44	.77***	.72***	.47***	.80***	.88***	(.93)					
7. PsyCap	4.16	.80	.46***	.45***	.42***	.46***	.49***	.48***	(.86)				
8. Job satisfaction	3.63	1.11	.74***	.76***	.57***	.67***	.73***	.72***	.61***	(.83)			
9. Vigor	4.98	1.10	.39***	.38***	.37***	.35***	.36***	.36***	.57***	.54***	(.78)		
10. Dedication	5.32	1.49	.43***	.45***	.41***	.38***	.42***	.41***	.64***	.64***	.81***	(.94)	
11. Absorption	5.60	1.13	.32***	.33***	.29***	.28***	.28***	.29***	.50***	.45***	.73***	.77***	(.82)

Note. *** p < .001

Instruments

The Organizational Justice Scale (Colquitt, 2001) measured organizational distributive (5 items), procedural (4 items), informational (4 items), and interpersonal (4 items) justice. The Organizational Health Perception Scale (Gomide-Júnior & Fernandes, 2008) measured organizational integration of individuals and groups (18 items) and adaptability/flexibility to external demands (8 items). PsyCap was measured using the Psychological Capital Questionnaire–12 (Luthans et al., 2007). Job satisfaction was measured with seven items from the Job Satisfaction Scale (Lima, Vala, & Monteiro, 1994). Work engagement dimensions were measured with the Utrecht Work Engagement Scale for Teachers (Marques-Pinto, 2008): dedication (8 items), absorption (7 items), and vigor (9 items).

Procedure

The research protocol was approved by the Portuguese General Directorate of Education. Subsequently, schools were contacted to explain the research objectives and to inform teachers about this study. All the teachers signed an informed consent statement and voluntarily participated in this study.

Results

The full mediation of PsyCap and job satisfaction between organizational justice and health facets, and work engagement dimensions (dedication, vigor, and absorption) was tested using path analysis (Figure 1). The influence of age, gender, and educational level on mediators and outcomes was controlled.

Furthermore, a competing path model was

Table 2
Fit indices of the tested models using path analysis (N = 574)

Model	χ^2	df	CFI	SRMR	RMSEA	90% CI RMSEA
Model 1	25.799	18	.999	.016	.027	[.000; .050]
Model 2	520.199***	12	.910	.107	.272	[.252; .292]

Note. χ2 = Chi-square statistics; df = Degrees of freedom; CFI = Comparative Fit Index; SRMR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error of Approximation; 90% CI RMSEA = Root Mean Square Error of Approximation with a 90 percent confidence interval. *** p < .001, ** p < .01, * p < .05

tested (Model 2). The mediators were the three dimensions of work engagement and the outcome variables were PsyCap and job satisfaction. The rest of the model was similar to Model 1.

The means, standard deviations, and the correlations among variables are presented in Table 1.

The fit indices of the tested models are presented in Table 2.

Model 1 presented a good fit, $\chi^2(18)=25.799$, $p > .05$, RMSEA = .027, 90%CI RMSEA [.000; .050], SRMR = .016, CFI = .999. PsyCap was positively predicted by educational level, organizational

Table 3
Standardized regression estimates from path analysis for Model 1 (N = 574)

Variables	PsyCap	Job satisfaction	Vigor	Dedication	Absorption
1. Gender (0 = male, 1 = female)	.00	.01	.09**	.13***	.16***
2. Age	-.02	.03	.03	-.01	.02
3. Level of education	.14***	.02	-.01	.00	-.03
4. Organizational flexibility	.13***	.13**			
5. Organizational integration	.06	.35**			
6. Distributive justice	.23***	.25***			
7. Procedural justice	.02	.00			
8. Interpersonal justice	.25**	.24***			
9. Informational justice	.02	.04			
10. PsyCap			.40***	.36***	.36***
11. Job satisfaction			.29***	.41***	.23***

Note. *** p < .001, ** p < .01.

Table 4
Standardized correlation estimates among outcome variables results from path analysis (N = 574)

Variables	1	2	3
1. Vigor	1		
2. Dedication	.67***	1	
3. Absorption	.59***	.65***	1

Note. *** p < .001, ** p < .01.

integration, distributive, and interpersonal justice (Table 3).

The two dimensions of organizational health, distributive, and interpersonal justice positively predicted job satisfaction. PsyCap positively correlated with job satisfaction (r = .36, p < .001). Both positively predicted work engagement dimensions. High correlations between the three dimensions of work engagement were identified (Table 4).

Organizational health and justice facets positively correlated (Table 5). As the educational level increased, participants perceived low levels of organizational health and justice dimensions.

Path analysis revealed that PsyCap and job satisfaction did not mediate the influence of all organizational health and justice facets on work engagement dimensions, when controlling for the abovementioned demographics. However, PsyCap did mediate the influence of distributive and interpersonal justice on work engagement dimensions. Job satisfaction mediated the influence of both organizational health dimensions, distributive, and interpersonal justice on work engagement dimensions. Thus, our hypotheses received partial empirical support.

Table 5
Standardized correlation estimates among independent variables results from path analysis (N = 574)

Variables	1	2	3	4	5	6	7	8	9
1. Gender (0 = male, 1 = female)	1								
2. Age	−.05	1							
3. Level of education	−.01	−.10**	1						
4. Organizational flexibility	−.02	.05	−.12**	1					
5. Organizational integration	−.02	.06	−.13**	.85***	1				
6. Distributive justice	−.03	.11	−.09*	.39***	.42***	1			
7. Procedural justice	−.02	.06	−.13**	.72***	.67***	.52***	1		
8. Interpersonal justice	−.05	.03	−.16***	.76***	.72***	.43***	.78***	1	
9. Informational justice	−.04	.03	−.14***	.77***	.72***	.47***	.80***	.88***	1

Note. *** p < .001

Discussion

These findings advance knowledge on the role of social risk factors, such as organizational justice and health, on teachers' PsyCap and job attitudes (job satisfaction, work engagement). PsyCap and job satisfaction were identified as intervening variables between organizational context-related variables and work engagement. Although a number of studies have explored the PsyCap construct, little has been empirically tested regarding the antecedents of PsyCap (Luthans, Youssef-Morgan, & Avolio, 2015) and the impact it may have on work engagement (Sweetman & Luthans, 2010). This research takes a step forward by showing that that PsyCap and job satisfaction were positively associated with vigor, dedication, and absorption. These results are similar to others existing in the literature (Christian, Garza, & Slaughter, 2011; Hur et al., 2015; Penger & Cerne, 2014).

In this study, PsyCap and job satisfaction were linked to organizational health and justice facets. Teachers' perceptions of distributive and interpersonal justice facilitate their PsyCap and job satisfaction. These results represent an important addition to the literature on organizational justice and its relationship with PsyCap (Hur et al., 2015; Totawar & Nambudiri, 2014). We also included the interpersonal and informational justice dimensions. As shown by our results, teachers' perceptions of interpersonal justice can be a key resource to facilitate PsyCap in schools.

In terms of the relationships between organizational justice facets and satisfaction, our findings confirm past results (e.g., Colquitt et al., 2013). We found that distributive and interpersonal justice were related with job satisfaction (Loi, Yang, & Diefendorff, 2009; Martin & Bennett, 1996). Moreover, job satisfaction was positively related to the organizational health dimensions. Employees' positive perceptions on how the organization deals with external demands generates satisfaction, since the adaptability to new circumstances will allow them to effectively perform their tasks (Shoaf, Genaidy, Karwowski, & Huang, 2003). Integration of individuals and groups generates positive work environments in which employees can experience high job satisfaction (DeJoy & Wilson, 2003).

By underlining the role of distributive and interpersonal justice in generating high levels of work engagement through PsyCap and job satisfaction, this study suggests that educational systems must pay attention to the fair amount of compensation, pay raises, promotions, and support offered to employees (Silva & Caetano, 2014). Organizational programs can be implemented to train leaders and managers on how to treat well employees.

This study has limitations. Data collected at a single time point limits the inference of causal relationships. The high correlations between independent variables (multicollinearity) might indicate the presence of the common method bias. Future research might attempt to avoid this problem by collecting data from different sources or by using longitudinal designs. These findings are relevant for Portuguese public schools, since they are embedded in a national system governed by political, economic, social, technological, and legal factors that may differ from country to country.

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original article

Psychosocial risks in a unique workplace environment: Safe Trad and traditional Irish musicians

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Work-related psychosocial hazards have been broadly defined as aspects of work, including the social and organisational context, with the potential to cause psychological or physical harm (Cox & Griffiths, 2005). Psychosocial hazards include job content, sense of control, workload, work schedule, environment, and organisational culture and relationships (Leka & Jain, 2010). Just as workplaces can vary widely, so too can the potential risks, with workers in some occupations reporting worse than average physical health, psychological well-being and job satisfaction (Johnson et al., 2005).

One occupation with unique psychosocial risks is that of the professional musician. For musicians, irregular work schedules, unregulated environments and financial insecurity can result in high levels of stress (Foxman & Burgel, 2006). Playing-related musculoskeletal disorders (PRMDs), or the problems with muscles, tendons, ligaments and joints related to playing a musical instrument, are also commonly experienced by musicians. Problems reported can include pain, weakness, numbness, and other symptoms that interfere with the musicians' ability to play an instrument to their usual standard (Zaza, 1998). The prevalance of PRMDs in adult musicians varies by population, instrument, music type and individual, and ranges from 39 - 87% in classical musicians (Zaza, 1998) and 26 to 93% in pianists (Bragge, Bialocerkowski, & McMeeken, 2006).

In Ireland, much musical performance takes the form of traditional Irish music. For traditional musicians, the workplace environment typically consists of night time music performances or "sessions" in a pub or bar where music is played for several hours (Wilson, Doherty, & McKeown, 2013). Although professional musicians are paid for performing, there is often an informal atmosphere where other musicians are encouraged to take part (Wilson et al., 2013). The playing environment raises a number of challenges, most notably, that venues are typically inadequately designed for performance and health and safety is rarely addressed. Traditional musicians often chose to perform "in weird positions and in weird chairs", for example stooped over a table in a bar or sitting on an upturned equipment box, while "crammed into a corner of a pub" to maximise the number of contributing musicians or to hear each other in a noisy environment (Wilson et al., 2013, p. 684). These potential risks are intensified by musicians' reluctance to interrupt a session to ask for more space or adequate seating. Systematic review evidence indicates that these types of physical and psychological stressors, combined with lack of preventative behaviours, are occupational risk factors for the development of musculoskeletal disorders (Wu, 2007).

Reducing workplace risks for Irish traditional musicians- The Safe Trad Initiative

Growing concern over performance-related risks for traditional Irish musicians, the lack of

available support, and the increasing numbers of musicians reporting PRMDs led to the development of the Safe Trad Initiative at Ulster University in Northern Ireland. The over-arching aim of Safe Trad was to encourage traditional musicians to become more aware of their playing habits and to develop strategies for preventing injuries occurring. A major initial barrier was the deficit of existing research on workplace risks in this population. Although musculoskeletal problems are a widely acknowledged problem in musicians, much of the focus to date has been on the classical musician (Zaza, 1998), with the experience of the traditional Irish musician remaining under-explored.

Accordingly, the first step was to conduct qualitative work with Irish traditional musicians to explore the psychosocial risk factors specific to their performance context. Twenty two traditional musicians participated in focus groups to explore perceptions, attitudes and experiences of PRMDs (Doherty, Wilson, & McKeown, 2013; Wilson et al., 2013). The participants included men and women, students, teachers and performers, and participants who held both performance and teaching roles. Many participants were also engaged in additional employment to supplement their income. The over-arching theme identified was the perception of PRMDs as an integral part of being an Irish traditional musician. The music experience was prioritised over health with musicians playing through discomfort as "the love of the sessions take over, and they just sit for another five hours" (Wilson et al., 2013, p. 682). Sub-themes included fear, and the associated avoidance of acknowledging the problem, and distrust of intervention from healthcare professionals. This distrust arose from participants' beliefs that health professionals had little understanding of the unique requirements of the tradtitional musician, could do more harm than good, and would most likely advise musicians to stop playing. These perceptions sometimes developed from first-hand experience but were often based on anecdotal evidence spread within the traditional music community. A second sub-theme described the physical (playing environment, posture, instrument played, music type) and psychological stressors (nerves, anxiety, stress, finacial worries) believed to contribute to PRMDs.

Across the focus groups, participants described a sense of belonging to the traditional music community and emphasised the differences in playing style, teaching and environment from classical musicians. Comparison with classical music was not a particular focus of the qualitative work, but arose naturally during participants' discussions as a means to establish their unique identity. The social aspect of the performance environment was seen as integral to traditional music. Participants also acknowledged a lack of open discussion of playing related problems for fear of having to stop playing, loss of income, and loss of identity. This culture of silence combined with the unique identity of Irish traditional musicians and distrust of healthcare professionals leaves musicians unlikely to readily embrace outside intervention.

The Safe Trad Think Tank Day

To address these challenges, the Safe Trad team recognised a need to engage the Irish traditional music community and key stakeholders in the development of interventions. Initial stakeholder engagement took the form of the Safe Trad Think Day in May 2015 hosted by Dr Iseult Wilson and Dr Liz Doherty from Ulster University. The purpose of the event was to initiate a dialogue among a range of experts (physiotherapists, traditional musicians, and health care professionals) on

methods to reduce workplace risk and PRMDs in traditional musicians.

In addition, the Safe Trad Think Tank day provided an opportunity to learn from best practice examples of professionals working in settings relevant to the Irish musician context. Dr Orfhlaith NíBhriain, a lecturer in Irish Dance with a background in performance,and Dr Chris Bleakley, a specialist physiotherapist in sports injuries, presented on how methods used to develop interventions for dance and sports professionals respectively, might be applicable to the context of Irish traditional musicians. Finally, Dr Jenny Mc Sharry, a health psychologist working in health behaviour change, presented on the Behaviour Change Wheel, a potential approach to the design of Safe Trad interventions (Michie, Atkins, & West, 2014). The first step in the Behaviour Change Wheel process is the selection and specification of a target behaviour related to the problem (Michie et al., 2014). During the the Safe Trad Think Tank, a list of potential target behaviours to address the problem of playing-related issues were brainstormed by stakeholders. Potential target behaviours identified included taking breaks,

Picture 1. Participants at the Safe Trad Think Tank

L to R: Back row: Maggie Maguire (fiddle), Dr Jenny McSharry (NUI Galway), Dr Ronan Kavanagh (Rheumatologist, Galway), Dr Johnson McEvoy (physiotherapist), Enda Scahill (banjo), Patrice Berque (musician and physiotherapist, Glasgow), Mark Porter (PhD student, Ulster University)
Middle row: Eithne Vallely (Armagh Pipers Club), Dr Christine Hunter (medical advisor to Ulster Orchestra), Maria McAlister (Arts Council), Roisin McGrory (fiddle), Martin Clenaghan (physiotherapist), Rab Cherry (fiddle maker)
Front row: Dr Chris Bleakley (Ulster University), Dr Liz Doherty (Ulster University), Dr Iseult Wilson (Ulster University), Martin McGinley (fiddle and facilitator), Tomás Hardiman (fiddle and Alexander Technique teacher), Dr Orfhlaith NíBhriain (Univerity of Limerick)

practicing breathing techniques, and seeking information and help when pain was first experienced.

Safe Trad - Moving forward

The Safe Trad Think Tank resulted in a plan of action developed by physiotherapists, traditional musicians, and health care professionals. Participants agreed on the need to apply for funding in order to carry out the following initiatives:

(i) Develop a surveillance tool of the traditional music community, as it is essential to identify the extent of the problem and times of increased risk for injury in order to create a targeted injury-management programme.

(ii) Identify well-known and highly regarded traditional musicians who have suffered from and dealt with injury as ambassadors for Safe Trad.

(iii) Raise awareness of the issue in order to bring the conversation out in the open, banish stigmas and enable musicians to be pro-active in seeking help for injury.

(iv) Develop short and long-term interventions to manage and/or reduce injury.

As part of the Behaviour Change Wheel process, the next step will be to conduct a behavioural analysis to assess potential candidate behaviours in terms of the potential impact, likelihood of change, potential spillover effect to other behaviours and ease of measurement (Michie et al., 2014). Based on these assessments, the most promising behaviours will be selected. A Capability Opportunity Motivation (COM-B) approach will then be taken to explore why target behaviours are not currently being carried by musicians (Michie, van Stralen, & West, 2011).

The occupational health literature more broadly may also provide guidance for future research to develop interventions for traditional Irish musicians. Many work stress theories (e.g., the Job Demand-Control Model) suggest that high levels of engagement can be protective against stress and buffer well-being (Karasek & Theorell, 1990). Within the traditional music community however, high engagement appears to lead to resistance to change current practices and the prioritisation of the musical experience over health and well-being. The concept of workaholism is also worthy of consideration; the practice of traditional Irish music is a very reinforcing experience, with a unique addictive energy, resulting in limited prioritisation of the avoidance of psychosocial risks (Spence & Robbins, 1992). Future research is required to explore how the engagement and commitment evident in the traditional music community can best be integrated into the development of interventions.

Traditional Irish musicians represent an unconventional target population for the development of interventions to reduce work-related psychosocial risks. Many traditional Irish musicians play music in a less formal capacity, and the word ‘professional’ in the strict sense applies to only to a sub-set of the traditional music community. The strong social element inherent in playing traditional music and the distrust of outside intervention also add to the complexity in working with this population. By engaging with key stakeholders, and making use of systematic methods of intervention development, the Safe Trad initiative hopes to overcome these barriers and to develop well-specified and acceptable interventions in an under-researched area.

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original article

Age for change: Tackling ageism in the workplace

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In recent years, several European governments have introduced policies to improve older employees' employability and ban age discrimination from the workplace. Notwithstanding these efforts, ageism continues to be a black spot on Europe's labor market (Abrams, Russell, Vauclair, & Swift, 2011). As workforces worldwide grow older, the number of older employees that are susceptible to the psychosocial stressors of age stereotypes (AS) and discrimination will increase significantly. Despite this, few systematic attempts have been made to combat AS in the workplace (e.g., Paluck & Green, 2009; Posthuma & Campion, 2009). This paper argues that there is a clear need for theory- and evidence-based strategies to design, implement and evaluate interventions aimed at reducing AS in the workplace. Taking a step in that direction, recommendations for AS reduction interventions in the workplace are presented.

AS in the workplace: Content and Psychosocial Consequences

Stereotypes about older employees comprise a combination of negative and positive dimensions (Bal, Reiss, Rudolph, & Baltes, 2011; Posthuma & Campion, 2009). In diverse cultural and organizational settings, older employees are perceived as less flexible, creative and adaptable to change, but also as more reliable and trustworthy compared to younger employees (e.g., Chiu, Chan, Snape, & Redman, 2001; Van Dalen, Henkens, & Schippers, 2010). Despite their prevalence, dominant stereotypes about older employees are often erroneous (Ng & Feldman, 2013). In fact, there is a business case for hiring and retaining older employees, as they engage slightly more in organizational citizenship behavior (Nauta, Bruin, & Cremer, 2004), have lower rates of absenteeism, and are generally more committed (Brosi & Kleiner, 1999).

Outcomes of AS are commonly recognized as age discrimination (Posthuma & Campion, 2009). In Europe and abroad, older employees face considerable barriers to re-enter employment (OECD, 2006; Wood, Wilkinson, & Harcourt, 2008). As a result of AS in the workplace, older employees may be more severely sanctioned for mistakes they make (Rupp, Vodanovich, & Credé, 2006), more frequently laid off (Posthuma & Campion, 2009), receive fewer training and promotion opportunities (Taylor & Walker, 1998) and poorer performance evaluations (Posthuma & Campion, 2009). Coping with these and other forms of discrimination has been shown to be a significant stressor in the lives of older employees, with several psychosocial consequences. Perceived everyday age discrimination in the workplace negatively effects job satisfaction (Taylor, Mcloughlin, Meyer, & Brooke, 2012), commitment, perceived power and job prestige (Redman & Snape, 2006) and may lead to lowered self-efficacy (Maurer, 2001). In order to cope with the threat of being part of a stigmatized group, some older employees decide to leave their employer (Johnson & Neumark, 1997) or retire early

(Desmette & Gaillard, 2008).

Despite the importance of the topic, surprisingly few systematic attempts have been made to reduce AS in the workplace (Kulik, Perry, & Bourhis, 2000; Paluck & Green, 2009). As a consequence, both scholars and practitioners are left largely in the dark as to what distinguishing factors can diminish AS. To facilitate and motivate future research, in the following recommendations for AS reduction interventions in the workplace are presented.

Recommendations for AS reduction interventions

Drawing from literature in the field of health promotion, we recommend that AS reduction interventions are designed and implemented in a structured fashion, in four major phases: diagnosis, development, implementation and evaluation (Green & Kreuter, 1999). Comparable phases have been used to effectively promote (psychosocial) health in the workplace (Goldhar, LaMontagne, Heaney, & Landsbergis, 2001). Furthermore, to be most effective, primary AS reduction interventions should be directed at managers. First, managers' behaviors may be seen as exemplars by other organizational members (Carmeli, 2008). Second, and most importantly, managers' AS significantly affect perceived age-discrimination climates (Kunze, Boehm, & Bruch, 2013).

The central aim of the diagnosis phase is to conduct a needs assessment to identify the critical beliefs about older employees among managers in the target organization where the intervention will take place. The prominence of AS differs per organizational context (Posthuma & Campion, 2009), making it necessary to identify the specific AS beliefs among managers. The subtle nature of AS warrants caution when relying on self-reports, especially because stereotypes about older employees operate – in part – on an unconscious and implicit level (e.g,. Malinen & Johnston, 2013).

Acknowledging the subtle nature of AS in the workplace, alternative methods to measure AS are therefore recommended (e.g., Paluck & Green, 2009). Potentially, actual behavior can be observed by, for example, measuring the relative number of older and younger employees that are assigned to training activities or received promotions (Taylor et al., 2012). Additionally, it is suggested to complement explicit questionnaires with implicit measures, such as the Implicit Association Test (Greenwald, Mcghee, & Schwartz, 1998).

Secondly, in the development phase, the objectives of the intervention should be defined on the basis of the needs assessment results. The specific stereotypical beliefs that will be targeted and associated outcome measures should be formulated. Theory- and evidence-based insights should be used to design an optimal intervention that may accomplish desired change in AS. Three possible strategies are suggested that are worth investigating further: awareness and concerns, motivation to avoid AS and practical recommendations. Because there is an urgent need for AS reduction interventions in the workplace, it is suggested to combine these strategies in an attractive and effective web-based environment, tailored to the needs assessment of specific organizations, while easily adaptable and implementable elsewhere. Close collaboration with managers that will take part in the program is vital in this phase, to warrant actual adoption (see Bos, Schaalma, & Pryor, 2008).

Before people become motivated to avoid stereotyping, they firstly must be aware of their biases, and secondly concerned about consequences of prejudice (Plant & Devine, 2009). Providing managers with feedback about

their implicit level of AS, as measured in the first phase, might be an effective manner to make them aware of their unconscious AS. Additionally, dominant AS found in phase 1 should be discussed, and it should be clarified that these beliefs result from a lack of accurate information on the productivity characteristics of older employees. To target concerns, managers should be informed about the possible consequences of their AS across diverse workplace situations. Here, the goal is to increase managers' insights into the negative effects that AS may have on the psychosocial health of individual employees and, consequently, the sustainable profitability of their organization. Similar approaches have been shown to successfully increase awareness of bias and concerns about its effects, ultimately leading to long-term reduction of implicit prejudice (Devine, Forscher, Austin, & Cox, 2012).

A second strategy in the development phase is to target managers' motivation to avoid AS. People who are motivated to avoid stereotyping are less likely to activate and apply stereotypes (Kunda & Spencer, 2003). The motivation to avoid stereotyping may be intensified by a desire to comply with egalitarian social norms (Plant & Devine, 1998). In an organizational setting, this motivation can, for example, be reinforced with organizational non-discrimination disclaimers and visible statements which communicate that AS is not tolerated.

Last, AS reduction interventions should enhance managers' self-efficacy to address workforce aging, by offering practical recommendations on how they can reap the benefits of organizational demographic changes, while avoiding its challenges. An important part of this guideline should be an example of diversity-friendly HR policies, because the endorsement of these policies has been shown to negatively influence perceived age-discrimination climates (Kunze et al., 2013).

In the third phase, an implementation strategy should be designed. Again, it is vital to closely collaborate with the program participants. Both the practical implementation as well as the maintenance of the program should be planned

Table 1
Recommendations for AS reduction interventions in the workplace

Phase	1. Diagnosis	2. Development	3. Implementation	4. Evaluation
Recommendations	Conduct a needs assessments to identify critical AS among managers in target organization. Use observational data and a combination of explicit and implicit measures.	Formulate outcome measures based on phase 1. Collaborate with target group. Use theory- and evidence-based strategies to design the AS reduction intervention: Awareness and concerns Motivation to avoid AS Practical recommendations	Collaborate with target group. Encourage and plan program maintenance.	Measure effectiveness in RCT. Track possible side-effects.

and discussed. The flexibility of using a web-based intervention is likely to prove its benefits during this phase, allowing managers to follow the training when they do not have other formal obligations.

In the fourth phase, the effectiveness of the intervention should be determined. Systematic and rigorous evaluations of workplace interventions targeting AS are necessary to draw conclusions about effectiveness, both in terms of the process and outcomes, preferably using a randomized controlled trial (Paluck & Green, 2009). Also possible negative side-effects should be monitored, such as resistance to the intervention. Table 1 provides a summary of the recommendations.

Conclusion

Although the number of employees at risk of AS will increase due to workforce aging, only few systematic attempts have been made to combat AS in the workplace. To facilitate and motivate future research on this topic, challenges and opportunities for AS reduction interventions are discussed, and recommendations formulated. These recommendations contribute to insights into how AS can be combatted in the workplace, and herewith help to prevent significant psychosocial stressors in the working life of the rapidly growing group of older employees, while simultaneously improving their actual employability. In age-tolerant organizations, older workers will experience more formal and informal employability opportunities, such as equal access to professional training and career development, which will contribute to both the psychosocial wellbeing and sustainable employability of older workers.

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original article

Promoting psychosocial risk management in organizations

Using Intervention Mapping to close the policy-practice gap

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Within the European Union legislation, mutual agreements and good intentions have often failed to support the implementation of psychosocial risk management in their organizations (Ertel et al., 2010). This is still the case after two decades during which the European Commission and the World Health Organization have made publically available a number of research-based documents to inform local policy makers and employers on the need for psychosocial risk management in their organizations (Ertel, et al., 2010; Leka, Jain, Widerszal-Bazyl, Żołnierczyk-Zreda, & Zwetsloot, 2011). The recent Publically Available Specification 1010 (PAS 1010: Leka, et al., 2011) describes the potential psychosocial health problems in organizations related to harassment and aggression (e.g., bullying), and job stress. The document outlines the need for risk management and targets influential stakeholders including employers, employee representatives and labor inspectorates. The document informs these stakeholders on the human and economic consequences of these problems and how to tackle them. But information provision in combination with European legislation and good intentions has not resulted in the use of systematic and effective use of risk management interventions in many organizations.

One important reason is that this information provision does not turn decision makers into experts on the knowledge and tools to identify potential risks and to accept, implement and maintain the necessary organizational interventions to manage psychosocial risks (Leka, Van Wassenhove, & Jain, 2015). We currently reason that a fine-tuned translation of the PAS 1010 contents into a working risk management system will be most effective via a well-planned intervention that is under the supervision of experienced interventionists. A promising protocol to develop interventions for effective risk management is Intervention Mapping (IM: Bartholomew, Parcel, Kok, Gottlieb, & Fernández, 2011).

The proposed IM approach is suited to develop and maintain risk management in organizations, because it proactively accounts for a number of important barriers that weaken the effectiveness of interventions in organizations (Biron, Gatrell, & Cooper, 2010; Nielsen, 2013). Organizational interventions often lack theoretical foundation and intervention methods are frequently chosen on the basis of intuition and popularity and may therefore be based on incorrect assumptions about causal relationships between methods of change and the required outcome (Briner & Reynolds, 1999). The intervention should instead match the organization's need for risk management and this may require changes on several levels within an organization. The intervention program must therefore aim for the full support and commitment of the target group, influential stakeholders, and implementers (Durlak, 1998). The participatory intervention process should be documented in detail, and account for what will be changed and how it will be accomplished

(Schaalma & Kok, 2009). Finally, the evaluation plan must comprise both the process of how the intervention was developed and designed, and the intended effect of the intervention (Biron, et al., 2010) .

It is shown that IM accounts for these barriers as the intervention development process is instigated and supervised by expert interventionists who are required to pursue a systematic, theory- and evidence-based protocol to develop, implement, evaluate and maintain a risk management system that is tailored to the needs of the organization's context (Bartholomew, et al., 2011).

Develop Fitting Risk Management via Intervention Mapping (IM)

IM maintains a problem-driven viewpoint to develop tailored behavior change programs. During the development process choices must be made, and theories are viewed as tools to make better choices (Bartholomew, et al., 2011). Interventionists should collect essential evidence from the PAS 1010 (Leka, et al., 2011) and from other studies on psychosocial risks in organizations (Leka, Griffiths, & Cox, 2003; Leka, et al., 2015), but program planners must also value opinions on potential solutions by the organization management, policy makers or community members as important bases of evidence (Kok, Gurabardhi, Gottlieb, & Zijlstra, 2015).

Effective behavior change interventions must ensure that individuals with a potential psychosocial health risk will adopt healthy practices and attitudes as they interact with the environment in which they live and work (Bartholomew, et al., 2011; Schaalma & Kok, 2009). Interventionists must change the behavioral intentions of employees or other influential individuals for healthy behaviors to occur (Fishbein & Ajzen, 2010). IM propagates an ecological view and perceives individuals that require health promotion as embedded in a number of levels. Changing behavior at the individual level may be facilitated or hampered by individuals on higher levels. It is the task of the interventionists to identify the individuals on these alternate levels, termed environmental 'agents'. For example, a change in job structures or procedures to enhance social support or promote employee autonomy requires the commitment and possibly altered skill sets of individuals on more than one level. Decision and policy makers must first endorse these organization changes, but also line-managers and employees must be informed to accept and possibly be trained to work in the changed context. Individuals on higher levels may thus be activated as facilitators or must first be targeted to stimulate their commitment and/or to improve their skills as facilitators (Kok, Gottlieb, Commers, & Smerecnik, 2008; Leka, et al., 2011). Higher influential levels may also be located outside the organization in the form of labor inspectorates or other institutes that propagate heath improvement. See Figure 1 for a schematic representation of the ecological view.

IM's ecological approach also prescribes to first gather a multidisciplinary design team comprising interventionists, managers and other policy and decision makers, but also representatives from the primary group at risk (Bartholomew, et al., 2011). The composition of the design team and the commitment of its members should account for the political boundaries and barriers of the intervention design and implementation.

IM Interventionists accomplish a change program via a rigorous, step-wise development process that prescribes specific written products for each required step (Kok, 2014). Table 2 provides an excerpt of a written and often

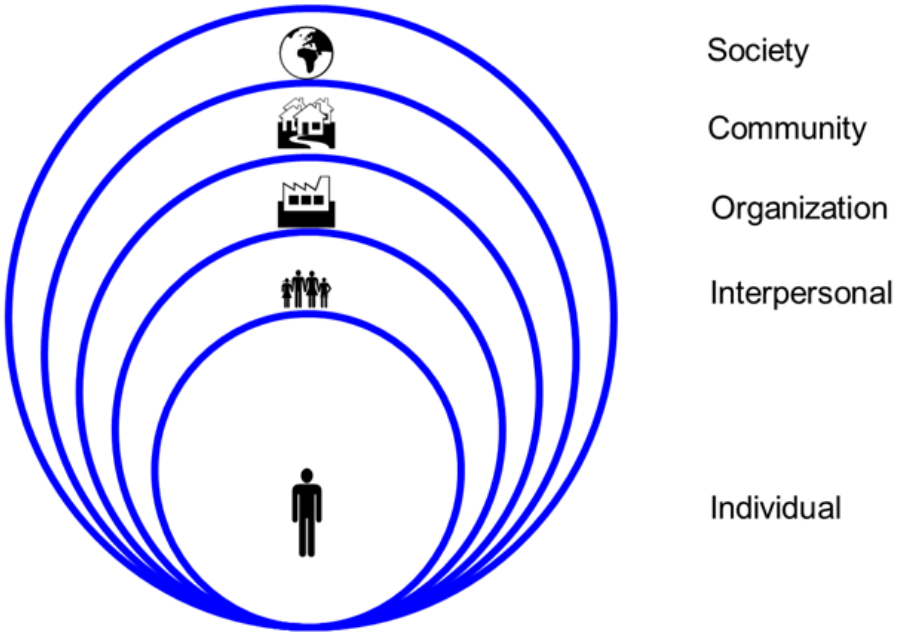

Figure 1. Schematic representation of the ecological view (Adapted from Kok, et al., 2008). The individual employee may be viewed as embedded in an environment with a number of organizational levels and levels that extend beyond the organization.

tabulated product. In this case the product represents decisions that are somewhat further along the development process. It also shows that behavioral changes are often targeted at several levels of the environment.

An initial development step requires a needs assessment that is based on literature study and data gathering in the organization and fully describes the identified health risks, the individuals and organizational levels involved and the available resources for intervention development and implementation. The needs assessment may specify context-specific risk reduction objectives to develop sensitive and responsive psychosocial risk management via employee and management education and may also conclude that work redesign is an immediate and realistic change objective (Leka, et al., 2003). The first step's intervention objectives are still formulated in general terms and subsequent steps translate these objectives into more specific performance and change objectives, which is in turn followed by the design of theory-based change applications that are sufficiently concrete and tailored to the context to be effective. See Table 1 for an overview of all development steps.

IM Interventionists identify the behavioral determinants that must be targeted to reach the specific performance objectives. Examples of determinants are attitudes, outcome expectations, self-efficacy, motivation and skills, but determinants may also be environmental and pertain to job resources or social norms (Michie, Johnston, Francis, Hardeman, & Eccles, 2008). These determinants are described in social cognitive theories and it is essential that interventionists understand the theoretical background of how these determinants can be changed (see Table 2).

Interventionists subsequently identify theoretical methods to change determinants per organizational level (Kok, et al., 2008) and transform these theoretical change methods into

Table 1.
Intervention Mapping steps in terms of required activities and products . The arrows signify the linear and iterative nature of the design process.

	Title	Activities	Products
1	Needs assessment	Establish the planning group. Identify health problem, target population(s) and resources.	Formulate intervention Goals for health and quality of life per identified ecological level.
2	Matrices with objectives	Specify outcomes for behavioral and environmental change. Determine per level outcomes, performance objectives and change objectives	Overview per level of determinants, their theoretical background and their estimated potential change effect. Matrices that combine per outcome (and level) the performance objectives, and the determinants to specify the change objectives.
3	Theoretical change methods and practical applications	Per determinant select theoretical change methods. Identify parameters to translate method into application.	Lists per level and change objective, the determinants, methods, their parameters and concrete applications.
4	Intervention program design	Specify and consult all individuals involved in the implementation. Create and review design documents that include themes scope and sequence and available materials. Draft, pretest and produce materials and protocols.	Initial and final plan of the time path, materials and protocols, and all the individuals involved.
5	Adoption and implementation plan	Identify and train or support implementers and review and re-evaluate all products of the previous steps and adopt the program.	Have all adopted materials, scheduled, and committed and prepared individuals (planning team, implementers, target groups) positioned to implement the program.
6	Evaluation plan	Review the program logic and identify criteria for process and effect evaluation. Translate criteria into measurable questions. Operationalize these questions and develop a research design and concrete measures.	Per evaluation type a detailed written plan is produced, including questions, design and measures.

Evaluation

Implementation

Table 2
Intervention Mapping procedure and required ingredients to translate change objectives into theory-based and tailored and effective change applications . The ingredient contents depend on the level and on the context.

Change objectives	Determinants	Theoretical Change Method	Facilitating or hampering conditions (parameters)	Change application
Upper management is informed about and will endorse the need for a risk management system and that its implementation and management can be done effectively and has benefits in the long run.	Beliefs, Outcome expectations	Persuasive communication (Elaboration Likelihood Model)	Central processing of arguments about health statistics and causal theories on organization benefits. Messages need to be relevant and not too discrepant from the beliefs of the manager.	Presentation by interventionists and health promotion organizations with information on the importance of risk management and the advantage of the IM protocol to implement and maintain it effectively. Show, explain and discuss past and potential IM success.
Line managers are being convinced that feedback provision helps employees to form and maintain confidence in asking for support.	Beliefs	Belief selection (Theory of Planned Behavior)	Requires investigation of the current beliefs of the line managers. Resulting action plans must have reachable goals and time schedules and must be tailored to the target group.	Managers discuss under supervision how feedback can be given. The goal is to come to a concrete action plan to: Train feedback provision, implement, and evaluate.
Employees (are stimulated to) express confidence in asking their colleagues for support.	Self-efficacy	Modeling (Social cognitive theory)	The employee must be able and is reinforced to apply the portrayed behavior effectively in her personal job context.	Employees watch a video in which model employees ask for support and are adequately helped by a co-worker or supervisor. The portrayed situation must contain recognizable individuals and situations and emphasize the commitment of the upper management.

Note. Change objectives often comprise more than one performance objective. For clarity, the first column of the table mentions one objective per organizational level. To effectively tailor a change application to the specific context, the intervention team must identify both potential facilitators and barriers (parameters in IM terms), and must exclude those conditions that may hinder application effectiveness. If these parameters are not identified and positioned, even a powerful theory-based change technique that represents a strong cause-effect relationship, may translate into an ineffective change application. This again emphasizes that interventionists must be experts versed in selecting and translating suited theoretical change methods into practical and tailored applications . The prescribed subsequent steps are meant to develop knowledge from general goals to concrete change applications. But IM interventionists also work iteratively and often return to earlier steps to consult documentation and decisions. It is not uncommon that incremental knowledge urges interventionists to re-evaluate or even alter earlier decisions and update the documentation. This means that IM prescribes an inherent evaluation of the intervention development process.

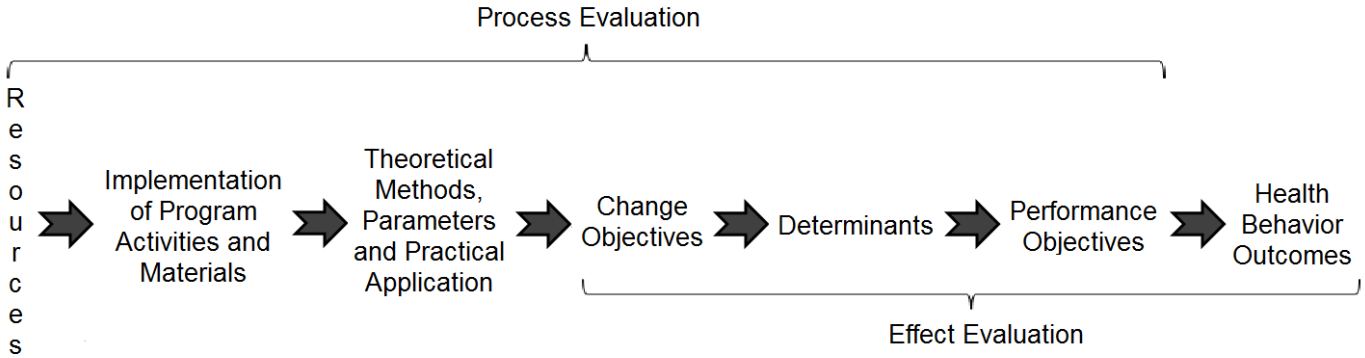

Figure 2. The Intervention Logic Model (Adapted from Bartholomew, et al., 2011). Note that the development along the required steps of the change program by the intervention team evolves from right to left. The products of the subsequent development steps are linked and provide criteria for process and effect evaluation. The model also shows the logic from left to right for a developed change program that is directly targeted at the health risk group of employees.

concrete and tailored applications for behavioral change in the local context (Kok, et al., 2015).

The fully documented development process results in two plans. The first is a change program plan that specifies all objectives, methods, applications, resources and individuals involved and the second pertains to a plan for program implementation and process and effect evaluation. The development process's written documentation provides the criteria for process and effect evaluation (see figure 2).

Concluding Remarks

The ecological approach makes IM suited for evidence- and theory-based (Briner & Reynolds, 1999) development and implementation of a risk management system in an organization's context (Bartholomew, et al., 2011; Kok, 2014; Kok, et al., 2008). This approach ensures that experienced interventionists view the group at risk in its wider influential environment that may even extend to outside the organization (See figure 1; Bartholomew, et al., 2011). Incremental knowledge gathering during the prescribed subsequent steps guide the development process and should lead to fitting, concrete, tailored and effective change applications that should adhere to both the recommendations of the European Union and the World Health Organization (Leka, et al., 2011; Leka, et al., 2015) and to the identified local need and potential for risk management in the organization.

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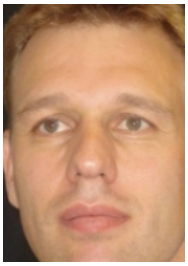

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report

mHealth Research Group NUI Galway: Using mobile technologies for effective health behaviour change

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mHealth (mobile health) is the practice of medicine, public health and allied healthcare or self-care supported by mobile devices (e.g. smartphones, tablet computers, wearable activity monitors). Among the world's population of 7 billion there are over 5 billion mobile devices and over 90% of users have their mobile device near them 24 hours a day (European Commission, 2014). Mobile health apps have captured the public imagination allowing for unobtrusive self-monitoring and the dawn of the 'quantified self' movement as a potentially major aspect of health improvement (Commission for Communications Regulation, 2014).

The development of these apps provides a unique opportunity for researchers in population health to track real-time, continuous, accurate and objective measures of health indices and related behaviour. Mobile devices provide a potentially very powerful platform for delivering behavioural interventions and providing health relevant feedback to users. Well-designed mHealth interventions may effectively change patient health-related behaviour, improve patient knowledge and support for active involvement in self-management and lifestyle change leading to better health outcomes (EU Green Paper on mHealth, 2014). However, it is critical that mHealth app developers work closely with behavioural scientists to ensure that interventions are informed by relevant behavioural theory. Health psychologists are leading the development of scientific methods for studying behaviour change, with the potential to significantly enhance public health research through employing theory-linked, evidence-based behaviour change techniques.

The mHealth Research Group was recently launched in NUI Galway in response to this rapidly growing, multidisciplinary niche area of research activity. The group secured funding from the Irish Research Council, Enterprise Ireland and the Irish College of General Practitioners to conduct research that harnesses new digital technologies for health behaviour change. NUI Galway is ideally placed to lead in this exciting interdisciplinary area of applied science with internationally recognised research strengths in the area of health psychology, medicine, information technology, health economics and engineering.

The mHealth Research Group hosted the inaugural mHealth Conference in NUI Galway on 9th June 2015 (supported by the Irish Research Council and the Whitaker Institute, NUI Galway). This conference attracted a lot of interest with presenters and delegates from Ireland, the UK, Europe and the U.S.A. representing a broad range of stakeholders from industry, health services and academia.

Chair of the conference, Dr. Jane Walsh called for a more multidisciplinary approach to integrate mobile technologies into effective behaviour chance interventions. The first keynote, Dr. Liam Glynn spoke of the potential of mHealth apps to modify patient behaviour and to help in the management of chronic conditions. He presented the findings of the "SMARTMOVE"

Picture 1. Eighty delegates attended the Inaugural mHealth Conference held at National University of Ireland, Galway on June 9th

trial (2014). Dr. Glynn noted that the potential of mobile devices for health is linked to the responsiveness it generates in us. One participant reportedly referred to the walking app used in the trial as a "little boss in their pocket." Dr. Glynn's talk posed challenging questions about how can we close the gap between the speed of technology innovation and speed of gathering evidence. He highlighted how technology may serve as a conversation starter about healthy lifestyle with primary care patients, with apps providing an opportunity to engage with difficult topics like obesity.

Professor Chris Nugent from University of Ulster spoke about research from the Smart Environments Research Group (SERG). He discussed the evolution of technology over the years. The SERG group have been impressively working on medication adherence solutions since 2001. Professor Nugent emphasised the lessons he has learned, including the importance of user-centred design, interdisciplinary collaboration, and the development of easy-to-use, non-complex tools. He urged researchers to avoid discarding data on non-adherent individuals but rather, use it to gain insight into those who discontinue studies.

Dr. Sherry Pagoto from the University of Massachusetts Medical School focused on using social media to promote a healthy lifestyle. She noted that health habits are shared in social circles. Dr. Pagoto discussed research into people who "tweet it off"- those who share their weight-loss journeys on Twitter. Anonymity, common goals, less stigma, and control over relationships appears to make Twitter an

attractive forum for weight loss support. Interventions that incorporate social media are delivered in a different way to traditional approaches. Short digestible content is important for "microcounselling" that mirrors how people are used to using these websites (i.e. an asynchronous, fluid, conversational approach). Dr. Pagoto encouraged researchers to re-imagine pre-existing tools to engage participants in novel ways.

Professor Jeremy Wyatt of the University of Leeds presented data highlighting the relationship between app price and quality. The research indicates that the cost of an app is not related to the evidence based content. He also spoke about concerns around privacy issues with health apps and addressed the possibility of using quality approval processes to improve mHealth devices. Considering the criteria for mHealth apps, he noted that innovation alone does not lead to behavior change. Professor Wyatt warned of the pitfalls of relying on apps that were not evidence-based in practice or in research. He concluded by stating that "We've got a bad dose of apptimism." This "apptimism" must be challenged and the quality of the app content should be thoroughly evaluated before use.

Stephen O' Reilly of Enterprise Ireland advised on funding innovative mHealth research. He highlighted funding streams such as the H2020, and once again noted the importance of interdisciplinary research and collaboration. During lunch, delegates were given the opportunity to look at posters relating to mHealth research. The best poster was judged by Prof Marie Johnson, University of Aberdeen and the prize was awarded to Eimear Morrissey of NUI, Galway for her poster on a content analysis of behaviour change techniques used in apps.

After lunch, a series of ten minute talks gave a

Picture 2. Delegates enjoyed the opportunity to meet and share ideas with others from various multidisciplinary backgrounds.

Picture 3. Keynotes and Conference organising committee of the conference.

From left to right:
Fourth row: Professor Chris Nugent - University of Ulster (keynote), Professor Jeremy - Wyatt Leeds University (keynote), Ryan Hoey (organising committee);
Third row: Dr. Brian Slattery (organising committee), Dr. Gerry Molloy (organising committee), Stephen O'Reilly - Enterprise Ireland (keynote);
Second row: Emma Carr (organising committee), Lisa Hynes (organising committee), Dr. Liam Glynn - NUIG (keynote);
Front row: Eimear Morrissey (organising committee), Dr. Sherry Pagoto - University of Massachusetts (keynote), Dr. Jane Walsh (conference Chair), Teresa Corbett (organising committee), Dr. Brian McGuire (organising committee).

flavour of work in the area. Chartered Physiotherapist Avril Copeland spoke about the pervasiveness of mobile technology and an app named TickerFit which aims to empower health professionals by enabling them to provide personalised lifestyle interventions for each patient, based on their current health status. Dr. Brian Slattery of the Centre for Pain Research at NUI, Galway discussed the use of e-health and mHealth technologies to help individuals to manage chronic pain. Dr. Jim Duggan spoke about public health informatics research at NUI, Galway. Eimear Morrissey from the mHealth Research Group in Galway described her research into apps for medication adherence. Her work involved coding apps using the Behaviour Change Technique (BCT) taxonomy. She identified which BCTs were most commonly used, highlighting a very clear opportunity for Health Psychologists to contribute to app design. Eamonn Costello presented on the development of an app to promote medication adherence for transplant patients named "Patient Buddy". Occupational Therapist Marie Tierney discussed the use of mobile devices to explore energy expenditure in rheumatoid arthritis patients. She emphasised how wearables can be used to obtain high quality objective data from patients. Finally, Marta Marques from the University of Lisbon spoke about her work on a Horizon 2020 project on

weight loss. The NoHoW Toolkit will explore how technology can be best used to successfully support weight-loss management.

It was a busy day, filled with innovative ideas and conversation. The Q&A session at the end of the day synthesised the main points emphasised by the keynotes. Prof Jeremy Wyatt highlighted the importance of remembering that "ultimately it is humans using the technology"- and therefore psychologists have a role to play in app design. Dr. Sherry Pagoto concluded that mHealth needs to lose novelty factor and become more integrated into the healthcare system.

Feedback from the day was wholly positive, with delegates enjoying the opportunity for multidisciplinary conversation, networking and sharing of ideas. And of course, the fact that it was set in Galway in the beautiful West of Ireland was also appreciated!

mHealth has enormous potential to enhance healthcare delivery in terms of efficacy and cost efficiency. However, it is critical that quality research provides the evidence base required for this to occur. The mHealth research group is leading high quality multidisciplinary research in this area. For further information contact Jane.walsh@nuigalway.ie

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