European Prevention Workforce Competences and Training Needs: an Exploratory Study

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Abstract | The main goals of this study included the assessment of the level of key competences and training needs of the prevention workforce in European countries, and the examination of participants' characteristic differences in assessing the key competences necessary for prevention work. **METHOD:** Altogether, 154 respondents from 26 countries completed the online questionnaire. Survey participants were identified via the PubMed database and via the snowball technique. Invitations to complete the survey were transmitted to the participants electronically or by phone. Descriptive analyses and non-parametric tests (Wilcoxon signed-rank test and Kruskal-Wallis test) were used to analyze the survey data. **RESULTS:** The results indicated that basic knowledge of theoretical background and research findings showed the highest levels among the competences the prevention workforce currently possessed, while advocacy of quality prevention was the skill with the lowest perceived level among ten key competences. Comparison between the current levels of key competences and their desired levels suggested a significant gap between the knowledge/skills gained and those needed in all areas of prevention work, especially in advocacy and funding. The results also indicated that job characteristics, especially job seniority, have some effects on the survey results. **CONCLUSIONS:** The results of the SPAN survey support the need to invest in prevention education/training. Priority in investment should be given to training prevention workers in advocacy of quality prevention and funding. The results imply that there is a need for the modernization of education in the field of prevention science in Europe.

Keywords | Training needs – Prevention sciences – Prevention workforce – Key competences

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1 INTRODUCTION

The field of prevention science represents a multi-disciplinary endeavour to consider aetiology, epidemiology, intervention design, effectiveness, and implementation for the prevention of a variety of health and social problems (Gabrhelik, Foxcroft, Mifsud, Dimech, Pischke, Steenbock, et al., 2015). There are a number of areas where developments and improvements in prevention science could be useful for substantive EU concerns. These include, but are not limited to, nutrition and physical activity, drug and alcohol issues, non-communicable disease, sexual health and HIV, mental health, environmental health, crime, pollution prevention and control, health and safety at work, and road safety. These problems impose a major burden on society, and are often preventable through evidence-based early intervention and prevention programmes. That is the reason why prevention science is a subject of growing public concern in European countries.

In the last three decades, prevention science has become a well-established scientific discipline and many authors observe it within the framework of public health (Eddy, Reid, & Curry, 2002; Domitrovich, Bradshaw, Poduska, Hoagwood, Buckley, Olin, et al., 2010; Sloboda & Petras, 2014). Prevention science is largely based on evidence from a growing body of research that examines the risk and protective factors for engaging in risky behaviours, as well as the related consequences which jeopardize the healthy development of young people (Catalano, Fagan, Gavin, Greenberg, Irwin, Ross, et al., 2012; Cordova, Estrada, Malcom, Huang, Brown, Pantin, & Prado, 2014; Greenberg, Weissberg, O'Brien, Zins, Fredericks, Resnik, & Elias, 2003). Risk factors are "characteristics, variables, or hazards that, if present for a given individual, make it more likely that this individual, rather than someone selected at random from the general population, will develop a disorder" (Mrazek & Haggerty 1994, p. 127). On the other hand, protective factors enable individuals to maintain their emotional and social wellbeing and cope with life experiences and adversity (Commonwealth Department of Health and Aged Care, 2000). The relationship between risk and protective factors is complex. It is not simply the presence of risk and protective factors, but their interaction and the accumulation of factors over time that affects the development of mental, emotional, and behavioural problems and disorders.

In contemporary research, prevention science is presented through different "universal – selective – indicated" forms of prevention (Mrazek & Haggerty, 1994). These correspond to the level of risk in a targeted population. Universal prevention is aimed at a low-/no-risk population and selective prevention is focused on groups of individuals with a higher presence of risk factors, while indicated prevention refers to interventions with individuals or groups that are already in the course of developing problem behaviour but are not yet ready to be diagnosed as such. Alongside the different forms that prevention interventions can take, it is also worth considering the different functions of prevention, specified as environmental, developmental, and informational types (Foxcroft, 2014).

There have already been several efforts aimed at defining core competences for prevention scientists and practitioners, but until now, they have mostly come from the United States. One of the first authors to comment on prevention training and education is Price (1983), who described the required researcher and practitioner skills around four core domains of prevention science research: problem analysis, innovation design, field trials, and innovation diffusion. Price emphasized knowledge of epidemiology and intervention research coming from clinical or community psychology but at the same time stated that the education of prevention researchers and practitioners needs to be multidisciplinary (Price, 1983). Price's attitudes were further developed by the Institute of Medicine (IoM) workgroup, which described prevention science domains in the preventive intervention research cycle, where each element contains skills and expertise needed by the prevention workforce:

1. Identify problem or disorder(s)
↓
2. Review relevant information on risk and protective factors
↓
3. Design, conduct, and analyze pilot studies and confirmatory and replication trials of the prevention programme
↓
4. Design, conduct, and analyze large-scale trials of the prevention programme
↓
5. Facilitate large-scale implementation and ongoing evaluation of the preventive intervention programme in the community (Mrazek & Haggerty, 1994, p. 16).

Nevertheless, this IoM report clearly stated that support for training of investigators and practitioners in prevention is fragmented across many different university departments and often remains within traditional disciplines that were concerned with the diagnosis, assessment, and treatment of mental health issues. Mrazek and Haggerty also stated that training should start with individuals who have already acquired a degree and therefore strategy should cover high-quality postgraduate, doctoral, or postdoctoral training of individuals coming from areas such as social work, public health, medicine, epidemiology, or clinical, developmental, and community psychology (Mrazek & Haggerty, 1994).

Eddy, Smith, Brown, and Reid conducted a survey of 262 prevention researchers at different stages of their professional careers (38 were trainees, 182 stated they were in their early career, and 42 were already established researchers). They found 13 content areas identified by experts which could be classified as **traditional** (already within research domains seen in the prevention research cycle) including: basic research, prevention programme design, developmental timing of preventive interventions, design of preventive intervention trials, prevention programme evaluation, and community collaboration on prevention projects; **developing** (becoming more and more important): gender and cultural issues in prevention science, and economic analyses of the impact of prevention,

and **practical** (important in daily work with a prevention research programme): the history and context of preventive efforts, scientific collaboration on prevention projects, funding of prevention science, administrative and management skills, and ethics in prevention science (Eddy, Smith, Brown, & Reid, 2005, p. 64). According to them, already established prevention workers had a high degree of knowledge in traditional areas and were prepared to work within them. On the other hand, early career participants assessed themselves very low in these traditional skills. That finding suggested that prevention training occurs within practice settings and not during any formal education. An important part of professional expertise is the individual capacity to learn not only from a study programme but also from informal mentorship, workshops on specific themes, and conferences. Eddy, Smith, Brown, and Reid concluded that the informal development of professional expertise stems from the fact that there is no institution granting degrees specifically in the field of prevention science (Eddy, Smith, Brown, & Reid, 2005).

In a second IoM report that discussed the training of the prevention workforce, O'Connell, Boat, and Warner stressed new trends regarding translation research and the life-course framework, stating that prevention experts should have the knowledge base to research, implement, and disseminate interventions in diverse community contexts and cultures (O'Connell, Boat, & Warrner, 2009). It is also worth noting that the second IoM report advises additional training programmes for health, education, and social work professionals on mental, emotional, and behavioural disorders and the promotion of mental, emotional, and behavioural health. The same view is seen in the work of Richard F. Catalano and his colleagues, who emphasized that all education programmes for professionals that work with young people should include prevention science and evidence-based practice (Catalano, Fagan, Gavin, Greenberg, Irwin, Ross, et al., 2012).

Another source of momentum for researching the training background and needs of prevention professionals comes from the relatively new focus on implementation research. Since implementation science looks into support systems for programme delivery, the training of programme implementers is one of its important aspects. This kind of training should be comprehensive and prepare practitioners to implement a prevention programme (Greenberg, Weissberg, O'Brien, Zins, Fredericks, Resnik, & Elias, 2003; Fixsen, Blase, Naoom, & Wallace, 2009). These authors emphasized that with core implementation components in place, practitioner behaviour can be routinely changed and improved to assure competent performance with evidence-based practices and programmes.

The gap in knowledge about training needs in prevention sciences is widely recognized. J. Mark Eddy and his associates suggested that it is due to a number of factors, including the diffusion of prevention science education across numerous academic disciplines and the diffusion of prevention researchers across numerous professional organizations (Eddy, Smith, Brown, & Reid, 2005). It calls for information sharing and other forms of cooperation among different professionals dealing with training in prevention science. This notion has recently been supported by a study that mapped and described university study programmes in the addictions field in Europe (Pavlovská, Miovský, Babor, & Gabrhelik, 2017). Although the gap in knowledge about training needs was addressed in several surveys in the United States, it has been insufficiently studied in Europe. To our knowledge, our exploratory study is one of the first studies examining prevention workforce training needs in Europe.

It was conducted through the initiative of the Science for Prevention Academic Network (SPAN), a European project aimed at improving Prevention Science education.
The objectives of this study were:

1. to assess the current level of key competences (knowledge and skills) among the prevention workforce in European countries,
2. to assess training needs related to these key competences among prevention workforces in European countries,
3. to examine participant differences in assessing key competences necessary for prevention work.

2 METHOD

2.1 Sample

The initial sample consisted of prevention scientists from 31 European countries identified via the PubMed database. Further participants were recruited within each country via a snowball technique. Altogether, 353 invitations to complete the survey were transmitted electronically or by phone; 154 respondents from 26 countries completed and returned the questionnaire, with the top five being from Croatia (13.6%), Italy (11%), Spain (7.8%), Finland (6.5%), and Poland (6.5%). This was a response rate of 44% (participants) and 84% (countries) based on the initial sampling plan; a good response rate for a web-based survey. *Table 1* shows the sample distribution across 26 countries.

The final sample consisted of 52% females and 48% males. Most of them (almost 90%) confirmed that they worked in the area of interest of the survey (prevention or/and public health). The largest group of respondents (about 44%) worked for universities or other research institutions, 30% of the study participants were affiliated with institutions focused on education and training in the prevention area, 18% represented practically oriented providers of prevention programmes/activity, and 8% policymaking institutions. The study participants represented the disciplines of psychology (35%) and other social sciences (20%), public health and health promotion (23%), medicine (12%), and epidemiology (10%). About 30% of the respondents had worked in the prevention field for less than 10 years (early career prevention professionals), 39% between 11 and 20 years (mid-career professionals), and 31% 21 years or more (senior-career professionals). Their level of education ranged from BS/BA level (1%) through MA/MSc level

Country	Frequency	%
Belgium	8	5.2
Croatia	21	13.6
Cyprus	1	0.6
Czech Republic	6	3.9
Denmark	2	1.3
Finland	10	6.5
France	1	0.6
Germany	8	5.2
Greece	5	3.2
Hungary	3	1.9
Ireland	1	0.6
Italy	17	11.0
Lithuania	7	4.5
Luxembourg	1	0.6
Malta	6	3.9
Netherlands	3	1.9
Norway	2	1.3
Poland	10	6.5
Portugal	1	0.6
Romania	3	1.9
Slovakia	3	1.9
Slovenia	5	3.2
Spain	12	7.8
Sweden	6	3.9
Switzerland	3	1.9
United Kingdom	9	5.8
Total	**154**	**100**

Table 1 | European prevention workforce competencies and training needs: an exploratory study. The sample distribution across 26 countries

(19%) to PhD/MD level (80%). A majority of the participants (58%) described themselves as a science professional, 23% described themselves as teaching professionals, and 18% were managers or other professionals.

2.2 Instrument and measures

2.2.1 Instrument

The online questionnaire consisted of 55 questions arranged into four sections. In this study two sections (25 questions) were utilized: 1. a "personal information" section that included the respondents' name, country, affiliation, area of work, discipline, highest degree, years of experience in the prevention field, and 2. a "prevention science workforce" section that covered selected parameters about the respondent's institution (type, size) and questions on their co-workers' current competences and qualifications, as well as their perceptions of the importance of these competences/qualifications in the future. The respondents were informed by written instructions that a "prevention science workforce" is understood as workers who use prevention science knowledge, skills and competences in their everyday work. This includes prevention scientists, researchers, educators, teachers, prevention policymakers, and prevention practitioners who are leading or implementing prevention programmes, or are involved in supporting prevention research. A team of European experts developed the instrument using their previous experience. During this process, several revisions were made, and the instrument was verified for readability and adequacy with a Working Group. The questionnaire used various forms, including yes/no, multiple-choice, and open-ended questions.

2.2.2 Sampling Plan

For the sampling plan, a list of European prevention scientists was identified from PubMed publication records. The use of PubMed records allowed us to identify active prevention researchers in the last five years and to collate the email addresses of these prevention scientists. A sampling plan, with weighting for country population size (2013 estimates) and number of PubMed records, was used to target the recruitment of participants and achieve a balanced and representative response across countries. The sample size for each country was calculated with the following sampling rules: 1. Up to five records: all five are to be sampled; 2. >5 and <15 records: 10% of records plus further records calculated by population size weighting (5 + (population size proportion * total number of records)); 3. 15+ records: 5% of records plus further records calculated by population size weighting (5 + (population size proportion * total number of records)). The population size proportion was based on the countries that were sampled, and the sample size was rounded up to the nearest whole number. For example, there were five records identified for Bulgaria, so all five prevention scientists were included in the sample plan; there were 21 records identified for Austria and using the sampling rules seven randomly selected prevention scientists were included in the sampling plan; there were 252 records identified for the UK, so 49 randomly selected prevention scientists were included in the sampling plan on the basis of the sampling rules. The purpose of the sampling plan was to ensure a balanced and representative response across countries. SPAN partners were tasked with encouraging and facilitating questionnaire completion and return for the target sample in their country and area. The following approach was used: 1. the SPAN questionnaire was sent to all the targets specified in the sampling plan; 2. if the SPAN partner's institution was specified in the sampling plan, then an additional record was randomly added to the sample plan; 3. if a target record did not have an associated email address and if a Google search failed to find an email record for that person then that record was "put on hold" and an additional record sampled; 4. SPAN partners followed up the sample for their country with routine and repeated enquiries to see if any assistance was needed to complete the questionnaire; 5. each SPAN partner also completed the questionnaire for their own institution.

2.2.3 Measures

Our measures of interest consisted of ten key competences in prevention work. They included both traditional areas of competences and some practical skills:

1. knowledge of theoretical background and basic research (e.g. human development, aetiology, epidemiology, behavioural science, developmental psychology, health psychology)
2. problem analysis and needs/resources assessment
3. development of a prevention programme logic model
4. programme implementation quality (fidelity of implementation, programme adaptation, quality of programme delivery, contextual support, training for programme delivery)
5. programme evaluation (research/methodology skills)
6. advocacy of prevention (lobbying for support, influence on policy development, community collaboration)
7. funding (knowing about opportunities for funding (on the state, local, and EU level) and the development of project proposals for funding/grants)
8. ethics in prevention (gender issues, culture issues, research issues)
9. management skills (building and maintaining a team, positioning people, motivating people)
10. soft skills (communication, teamwork, collaboration, networking)

Each participant answered two questions: 1. *How adequately do you feel that people in your organization are currently prepared for work in prevention regarding these areas?* 2. *How important should the following knowledge/skills be for prevention workers in your organization in the future?* A Likert-type scale was used where Not at all = 1, Slightly = 2, Moderate = 3, and Very = 4.

2.2.4 Plan of analysis

Descriptive analyses were used to determine the current levels of competences of prevention workers across the European Union. Additionally, a Wilcoxon signed-rank test was used to test the distance between the desired level of competences/skills in the future and their current levels. Each of three job variables (job seniority, discipline, and position) was divided into three subcategories. Job seniority was divided into: 1. early-career (0 to 10 years), 2. mid-career (11 to 20 years), and 3. senior-career participants (21 or more years). The participants' disciplines were divided into: 1. Psychology and other social sciences, 2. Medicine and epidemiology, and 3. Public health and health promotion. The participants' positions in their organizations were divided into: 1. Science professionals, 2. Teaching professionals, and 3. Managers, and other. These subcategories were used to conduct Kruskal-Wallis non-parametric analyses to test the differences the participants' job seniority, discipline, and position made to their assessment of their co-workers' current key competences for prevention work. As these were exploratory analyses we retained the conventional p-value threshold of 0.05. As a result of missing values, the number of participants included into these analyses varied from 99 to 112.

3 RESULTS

3.1 Prevention workforce's current level of competences and training needs

The distribution of the answers to the survey question on the current level of prevention-related competences among co-workers is presented in *Table 2*. The results indicated that the theoretical background and research findings were currently the competences possessed on the highest level by the prevention workforce. Almost 87% of SPAN survey respondents perceived their co-workers in their organization as being very or moderately prepared for work in prevention in this prevention-related area. Fewer survey respondents (64% to 75%) were of the opinion that their co-workers were well prepared with regard to problem analysis and needs assessment, programme implementation quality and evaluation, ethics in prevention, management, and soft skills.

Key Competencies	How adequately do you feel that people in your organization are currently prepared for work in prevention regarding these areas?			
	Not at all (%)	Slightly (%)	Moderately (%)	Very (%)
Theoretical background and research findings	0.9	12.4	41.6	45.1
Problem analysis and needs/resources assessment	2.7	24.8	48.7	23.9
Development of prevention programme logic model	5.3	38.9	34.5	21.2
Programme implementation quality	1.8	29.2	42.5	26.5
Programme evaluation	1.8	23	36.3	38.9
Advocacy of prevention	11.5	41.6	33.5	13.3
Funding	8.9	33.9	42.0	15.2
Ethics in prevention	1.8	27.4	43.4	27.4
Management skills	2.7	33.6	46.0	17.7
Soft skills	2.7	22.5	49.5	25.2

Table 2 | Assessment of current knowledge/skills of survey participants' organizations prevention workers (N=112)

However, in the areas of prevention programme logic model development, funding, and advocacy only about 50% (47% to 57%) of the survey respondents perceived their co-workers as being very or moderately prepared. Advocacy of quality prevention was the skill with the lowest perceived level among those ten key competences. In this area about 53% of the survey respondents estimated that their colleagues were slightly or not at all prepared for this kind of activity.
More than 80% of the SPAN survey respondents answered that all ten areas of prevention-related knowledge/ skills were very or moderately important for the prevention workforce in their institutions or organizations. In order to compare the current level of key competences with the needed level Wilcoxon signed-rank tests were conducted to compare the mean values of the knowledge/skills gained and those needed. It was assumed that the mean values of perceived importance were the measure of the hypothetical needed level of prevention-related knowledge/skills across the institutions'/organizations' employees involved in this survey. The results are presented in *Table 3*. As expected, significant differences were found in all ten areas of prevention work. This suggested a significant gap between the knowledge/skills gained and those needed in all areas of prevention work. But the z-test values for two areas (advocacy and funding) indicated bigger differences than for the remaining eight areas. These results suggest priority training needs in two specific skills concerning advocacy and funding.

3.2 Participants' differences in assessing prevention-related competences

It was found that in three areas (programme evaluation, management skills, and soft skills) the assessment of co-workers' competences differs significantly according to the survey participants' job seniority (three subgroups: early career N=33; mid-career N=41; senior-career N=36). These differences were determined by the Kruskal-Wallis test results: programme evaluation χ^2 (2) = 6.776, p<0.034; management skills χ^2 (2) = 11.675, p<0.003; and soft skills χ^2 (2) = 10.282, p<0.006. Post-hoc analysis indicated that senior-career survey participants perceived higher levels of programme evaluation skills (p<0.011), management skills (p<0.031), and soft skills (p<0.017) among their co-workers than early-career survey participants; senior-career survey participants also perceived higher levels of management skills (p<0.001) and soft skills (p<0.002) among their co-workers than mid-career survey participants did.

The survey participants' position in the institution/organization (three subgroups: science professionals N=64; teaching professionals N=26; managers/others N=20) made significant differences in terms of their assessment of their co-workers' prevention-related competences in one area (advocacy of prevention). This difference was determined by the Kruskal-Wallis test result: advocacy of prevention χ^2 (2) = 6.561, p<0.038. Post-hoc analyses indicated that participants who were managers perceived higher levels of advocacy skills among their co-workers than science professionals did (p<0.011).

We did not find any significant differences according to the participants' disciplines (three subgroups: Psychology and other Social Sciences N=55, Medicine/Epidemiology N=21, Public Health and Health Promotion N=23) in assessing co-workers' current levels of prevention-related competences.

4 DISCUSSION

4.1 Key workforce competences

Our results indicate that most of the study participants found their colleagues to be moderately or very well prepared for four important areas of prevention work: theoretical background and research findings, programme evaluation, problem analysis and needs/resources assessment, and ethics in prevention. In addition, their levels of soft skills, including communication, teamwork, collaboration, and networking, were assessed as being high. These results suggest that

Key Competencies	Knowledge/ skills needed Mean	Knowledge/ skills gained Mean	Wilcoxon signed-rank test Z
Theoretical background and research findings	3.79	3.31	-5.718*
Problem analysis and needs/resources assessment	3.51	2.94	-6.258*
Development of prevention programme logic model	3.42	2.72	-6.022*
Programme implementation quality	3.49	2.94	-5.432*
Programme evaluation	3.66	3.12	-5.373*
Advocacy of prevention	3.31	2.49	-7.201*
Funding	3.50	2.63	-6.773*
Ethics in prevention	3.52	2.96	-5.556*
Management skills	3.43	2.79	-6.281*
Soft skills	3.49	2.97	-5.457*

* p<0.001

Table 3 | A comparison of the respondents' assessment of the importance of knowledge/skills for prevention workers in the future with the respondents' assessment of current knowledge/skills, (N=112)

prevention workers across Europe are quite well prepared in traditional, science-based areas of competence such as background knowledge, problem and needs assessment, and evaluation. Ethics issues probably belong among these competences which are nurtured by both the scientific community and the community of prevention experts/leaders.

The lowest perceived levels of knowledge/skills of the prevention workers in the participants' organizations related to advocacy of prevention, funding, and management skills. The development of prevention programme logic models was assessed as being moderate but it should be noted that a large group (about 44%) of participants found their colleagues to be not at all prepared or only slightly prepared in this specific competence. These results show important gaps in workforce training and education. In particular, perceived low levels of skills in advocacy of prevention and funding might hamper the development and advancement of environmental prevention approaches at the local community level, and also impede the setting up of community coalitions that are necessary to create effective prevention (implementation) systems. It is important to address these specific competences in training programmes for European prevention workers and leaders.

Respondents' job characteristics, especially job seniority, have some effects on workforce competence assessment. Senior-career prevention specialists were more likely to perceive a higher level of their colleagues' competences than younger specialists. These results are consistent with other research conducted among prevention researchers at different stages of their professional career (Eddy, Smith, Brown, & Reid, 2005), and indicate that prevention competences are mainly a result of everyday prevention practice and to a lesser extent from formal education. Another possible explanation is a tendency to look at other people's competences through the lens of one's own professional experiences. Indeed, science professionals assessed their colleagues' competences in project evaluation more highly than teaching professionals or managers did. Moreover, managers' assessment of their co-workers' advocacy skills was higher than the assessments of those by science or teaching professionals.

4.2 Training needs

The picture of prevention workforce training needs is created by the differences found between the competences gained in prevention work and those that are needed. The results show that there are significant differences in all ten key competences, but especially in areas in which the participants perceived the lowest level of knowledge/skills. That is why priority investment should be given to training prevention people in advocacy of quality prevention and funding. In particular, the development of advocacy is a challenging skill that requires more attention and care from educational and training institutions. These results should be taken into consideration in the process of curriculum development for prevention practitioners' education. Generally, the results of the SPAN survey support the need to invest in prevention education/training in all the basic areas of prevention-related knowledge/skills. It contributed to expanding knowledge on the prevention sector in Europe and facilitated the development of innovative practices in Prevention Science education and training (Gabrhelik, Foxcroft, Mifsud, Dimech, Pischke, Steenbock, et al., 2015; SPAN Policy Brief, 2016).

Abraham Wandersman and his associates suggest that the training and education of prevention practitioners has faced a situation in which knowledge about the effective prevention of public health issues was widely available, but that knowledge was not broadly applied in the field. There was also an early recognition that the gap was bidirectional and should include practitioner perspectives on the best ways to bring research and practice together. Therefore, one of the proposed paths of improvement in prevention practice is empowering and professionalizing the prevention workforce (Wandersman, Duffy, Flaspohler, Noonan, Lubell, Stillman, et al. 2008; Roche & Nicholas, 2017).

A high-quality trained workforce will promote and support the adoption and adaptation of recently developed prevention tools. The conclusions of the SPAN survey regarding training needs are in line with several initiatives aimed at improving the knowledge and skills of the prevention workforce, e.g. the European drug prevention quality standards (Brotherhood & Sumnall, 2011) and the International Standards on Drug Use Prevention (United Nations Office for Drugs and Crime Vienna, 2015). It is worth mentioning two initiatives: Training for Prevention, a Croatian intervention that was developed within the project "Preffi – Quality Assurance in the County of Istria", where organization managers and programme deliverers received 32 hours of training on prevention effectiveness, logic modelling, and prevention advocacy (Mihic, 2013; Mihić, Novak, Hosman, & Domitrovich, 2015; Novak, 2013), and Czech experiences with the national quality standards and a national certification system for school-based prevention (Miovsky, 2013). These initiatives pave the way for setting up accreditation and training systems, but this requires the political will to implement these standards into practice that challenges current prevention systems and traditional approaches (Burkhart, 2015).

As an example, the Universal Prevention Curriculum (UPC) was designed to meet the current demand for a comprehensive training package in the field of drug use prevention, based on evidence-based principles (Sloboda, 2015). The UPC is delivered at two different levels – the operational level for Prevention Implementers and the advanced level for Prevention Coordinators. The basis of this curriculum is the previously mentioned International Standards on Drug Use Prevention (United Nations Office for Drugs and Crime Vienna, 2015). The primary thrust of the curriculum is on sharing evidence-based interventions and policies, and quality and sustainability of implementation.

Another example, in this context, is a specific PhD programme in prevention science at the Faculty of Education and Rehabilitation Sciences, University of Zagreb, Croatia, established in 2008. The Mental and Behavioural Disorders Prevention and Mental Health Promotion module of the

"Prevention Science and Disability Studies"[1] doctoral programme is based on the modern interdisciplinary scientific understanding of health promotion, prevention of mental and behavioural disorders, crime, addiction, violence, and other risk behaviours in children and young people. The study programme has been designed to train scientists and policymakers to take a leading role in improving and integrating prevention science knowledge into theoretical research and professional practice (Bašić, 2011).

Although there are some specific educational programmes for prevention practitioners/researchers in Europe, a question remains about who is going to educate or train all prevention professionals (on all levels of education) and whether this training is going to incorporate all the relevant knowledge and skills in quality prevention into existing study programmes (such as psychology, social work, social pedagogy, etc.). Moreover, should we start thinking about establishing a joint European Master's or PhD study programme on prevention and adapt it to particular target groups of professionals (e.g. scientists, researchers, or practitioners)? These are open questions that should be addressed in the near future.

4.3 Study limitations and strengths

There were several limitations in this exploratory survey which have to be taken into consideration. They include the problem of data based on the perception of others' skills/ knowledge. This kind of data may not be as accurate as data based upon the perception of one's own skills and knowledge and therefore could be subject to personal bias and the participants' ability to assess other people's skills/knowledge. A competency test in evaluating other people's skills/knowledge could help to determine the existence and extent of such personal bias. On the other hand, most of the study participants were specialists trained in assessing other people's competences, especially those who worked at universities or other research institutions and education/training institutions.

Another limitation of this study was the relatively small sample of prevention experts and moderate response rate. It affects the generalization of the results to all European countries. It is possible that the knowledge and skills needs would even be higher if there were an appropriate proportion of prevention practitioners and policymakers among the survey respondents (especially those who implement or co-fund prevention interventions which are classified as ineffective or harmful).

Although this study is exploratory and descriptive and therefore one could argue that scientific rigour is missing, it was necessary to confirm the common knowledge, experience, and impressions of individuals coming from the European prevention workforce. First, it offers the state of the art and accents the need for investment in the European context, helping to provide an understanding of the needs of current employers of prevention workers across Europe (including prevention scientists, researchers, policymakers, and practitioners), and expands our understanding of the needs of the prevention workforce in Europe. Second, to date, little or no research work has been undertaken on that issue in Europe. Most research on workforce needs has been focused on U.S. samples (Catalano, Fagan, Gavin, Greenberg, Irwin, Ross, et al., 2012).

5 CONCLUSIONS

1. Investment in the prevention workforce may help to deal with behavioural and health problems in Europe. The unequal distribution of health across Europe poses a challenge to the EU's fundamental objective of solidarity and cohesion (SPAN Policy Brief, 2016). The education and training of the prevention workforce is very important from at least three perspectives:
a) prevention is a multidisciplinary area of work and it demands extensive knowledge and skills;
b) the target groups of prevention work are often people at risk (vulnerable groups) and professionalism (e.g. trained staff) should be a key guideline and standard in our work:
c) prevention is not a harmless activity by default, so a well-trained prevention workforce is needed to avoid possible harmful side-effects.

2. Since collaboration among prevention scientists in Europe is already quite strong and professional coalitions are already in place across borders, it is plausible to conclude that the prevention workforce recognizes the shared responsibility for European mental, behavioural, and emotional health that stems from partnership and alliance. It seems that it would be more effective, in the long-term, for the European institutions (e.g. EMCDDA and the European Commission) to develop a joint concept/model for the education and training of the prevention workforce, establish a network of national centres for this particular task, and train and empower the staff of those centres to conduct further training events and dissemination and exploitation of knowledge and skills at a national level. Opportunities to improve training/education for the prevention workforce may increase as Prevention Science in Europe continues to develop. The target group for recommended life-long learning education and training could consist of practitioners with a human health and development or social science educational background and/or practitioners who deal with the general population and at-risk groups in order to invest in prevention efforts and influence their positive and healthy development.

3. Finally, there is a need to further explore prevention practitioner/researcher/scientist needs across Europe. More comprehensive research would provide more accurate insights into educational needs but also into existing educational or training resources. Moreover, cultural, structural, and organizational contexts and the different types of workplaces within institutions should be seriously considered in the provision of training that might be, and eventually will be, developed in the future. This would provide an opportunity for the efficient use of developed resources across European countries with the same goal – standardized, high-quality education in the prevention science field.

1 | http://www.erf.unizg.hr/en/study-programme/phd-prevention-science-disability

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