

Evidence-Based Practice in Occupational Health Psychology. Current Status and Further Developments

Laurențiu P. Maricuțoiu, Florin Alin Sava

West University of Timișoara, Romania

Received 30 March 2012; Accepted 10 April 2012
Available online 19 April 2012

The present paper discusses the status of evidence-based practice in Occupational Health Psychology (OHP). After several searches on large online databases, we have found that OHP papers that discuss interventions are less than 10% of the overall literature. Furthermore, quantitative reviews research that reports interventions on major OHP topics are generally absent. In the last part of the paper, we formulate some recommendations for increasing the number of papers relevant for evidence-based practice in OHP.

Keywords: evidence-based practice, randomized trial, meta-analysis, intervention, occupational health psychology.

Address of correspondence: lmaricutoiu@socio.uvt.ro

The background of Evidence-Based Practice

Two decades ago, the practice of Medicine was criticised by the editor of the *British Medical Journal* as being based too little on scientifically validated evidence (Smith, 1991). This short paper is currently considered the starting point of a new way of thinking about medical decisions, named Evidence-Based Practice (EBP). Since then, EBP became the desired way of taking decisions and educating future medical staff. For example, a simple search on any online book sellers provides more than 11.000 book titles for the keyword “evidence based medicine”, or more than 2400 book titles for the keyword “evidence based nursing”. In this time, the need for EBP was advocated by management professionals (Pfeffer & Sutton, 2006), and in educational sciences (Kratochwill & Shernoff, 2004).

In Psychology, the need for EBP was acknowledged by a Presidential Task Force of the American Psychological Association (APA), which defined EBP in Psychology as “the integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences” (APA, 2006, p.273), with the purpose “to promote effective psychological practice and enhance public health by applying empirically supported principles of psychological assessment, case formulation, therapeutic relationship, and intervention” (APA, 2006, p.280). After the publication of a formal definition of EBP (APA, 2006), psychologists focused on how their professional community reacted to EBP (Wilson, Armoutliev, Werth, & Yakunina, 2009), on the impact that EBP has on graduate

students and early career professionals (Levant & Hasan, 2008), and on how to find and use research useful for EBP (Falzon, Davidson, & Bruns, 2010).

This paper aims at: (a) analyzing the extent to which research on Occupational Health Psychology (OHP) can be used for supporting decisions based on valid scientific evidence and (b) providing some methodological suggestions to improve this status quo.

How much Evidence is in OHP Research?

EBP appeared as a reaction to decisions based on poorly validated practices, general wisdom, decisions which mimic advertised solutions or methods, or even unprofessional wisdom. Pfeffer and Sutton (2006) advocated the need for EBP in management decisions by stating that “if doctors practiced medicine like many companies practice management, there would be more unnecessarily sick or dead patients and many more doctors in jail, or suffering other penalties for malpractice” (p.64). We believe such comparisons are slightly exaggerated, but they enforce the idea that decision making should rely more on solid, validated findings. Although it is important to aim towards using more evidence-based approach in Psychology, this aim cannot be achieved without proper research background. In the case of OHP research, we are interested in finding to what extent the OHP research can provide causal evidence for EBP. Reaching this particular objective requires (a) clarification of the content of OHP (and its main research topics), (b) clarification of the difference between causal vs. non-causal evidence in the

psychological literature, and (c) evaluation of the availability of causal research in OHP.

Research Topics in OHP

Occupational Health Psychology (OHP) is a discipline which “aims to design, create and maintain healthy work environments [...] through analysis and intervention on three design dimensions: the work environment, the

individual, and the work-family interface” (Quick, 1999, p.124). In his Editorial of the first number of *Journal of Occupational Health Psychology*, Quick (1996) defined several research topics for each of the three dimensions (see Figure 1), and these topics will be used for evaluating the OHP readiness for EBP.

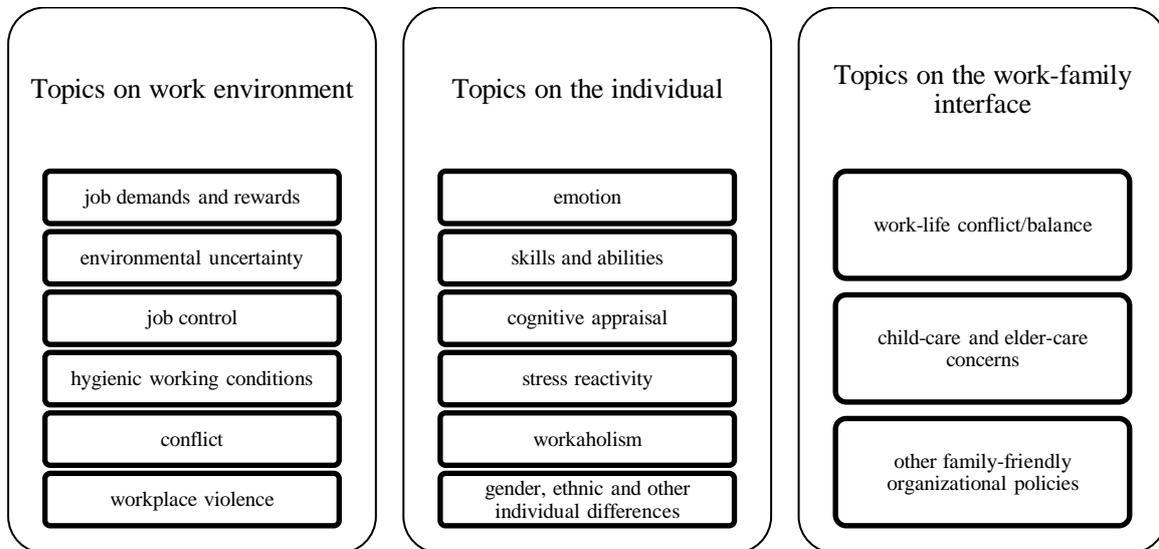


Figure 1. Research topics in OHP (as presented by Quick, 1996)

Table 1. Types of research designs and their explanatory potential.

<i>Type of study</i>	<i>Short description</i>	<i>Explanatory potential</i>
Meta-analysis of experimental studies	Quantitative, systematic reviews of data reported by experimental and quasi-experimental studies. Can provide useful insights on comparative effectiveness of various types of interventions.	Strong causal
Experimental studies	Studies that manipulate independent variables randomize the participants and control for external factors which may influence the outcome. Depending on the objective, such studies can provide evidence for the efficiency, the effectiveness, the cost-effectiveness of the intervention, or the mechanisms of change that are responsible for the results.	Strong causal
Quasi-experimental studies	Studies that manipulate independent variables, but do not randomize the participants.	Weak causal
Meta-analyses on longitudinal research	Quantitative, systematic reviews of results reported by several longitudinal studies.	Weak causal
Non-experimental longitudinal	Data are collected several times, from the same participants.	Weak causal
Meta-analyses on non-experimental research	Quantitative, systematic reviews of results reported by dozens or even hundreds of transversal studies.	Non causal
Non-experimental cross-sectional	All data are collected at once, with no intervention from the researcher.	Non causal
Case studies	The intensive analysis of a single organization (or workgroup), with the purpose of describing the impact of a theory on a particular situation.	Non causal
Expert opinions	Interviews with experts or successful professionals, who express their opinions on various topics.	Non causal

Levels of Causality Inferences and their Relation with Research Design

As consumers of scientific evidence, psychologists should be aware of the fact that not all research can be used as good evidence for decisions regarding their practice. As presented in Table 1, causal conclusions cannot be drawn from research which used non-experimental (correlational) designs. Therefore, such findings should have little importance when one has to decide about dealing with the causes and the effects of a particular psycho-social phenomenon. In this situation, psychologists should find research that presents results based on causal designs (longitudinal, quasi-experimental or experimental studies), in order to evaluate the effectiveness of various interventions.

Although major OHP journals (such as *Work and Stress* and *Journal of Occupational Health Psychology*) are inclined to reject papers with cross-sectional designs because of their conclusions are non causal, there are no minimum requirements at this moment in OHP to consider a specific intervention as scientifically validated. However, the APA standards in the clinical field requires proofs that a specific intervention can be considered as evidence-based if it is supported by at least two experimental studies ran by independent teams/researchers (Chambless & Ollendick, 2001).

Our Study

Procedure

In our investigation, we assessed 4 indices for the research topics indicated by Quick (1996) as being central to OHP. We conducted several searches on the following databases: *Business Source Elite*, *EconLit*, *ERIC*, *GreenFILE*, *Inspec*, *Library*, *Information Science & Technology Abstracts*, *Philosopher's Index*,

PsycARTICLES, *Psychology and Behavioral Sciences Collection*, *PsycINFO*. For each research topic, we recorded (a) the total number of papers indicated by a simple search using the topic as keyword; (b) the number of papers we found using the name of the topic and “meta-analysis” as keywords; (c) the number of papers we found using the name of the topic and “intervention” as keywords; and (d) the number of papers we found using the name of the topic, “intervention” and “meta-analysis” as keywords. For some topics (*interpersonal conflict and stress*), we used the search term “employee” along with the other keywords, in order to restrain the results to work settings. We excluded from our search topics such as *child-care concerns* or *elder-care concerns* because of their inclusion into the *work-life balance* topic.

Results

Results presented in Table 2 indicate that most researches on OHP topics are focused on theory development and refinement, and not on interventions. Taken together, we have found 38415 general results and only 3093 results when we added “intervention” as keyword for our query, which indicates a ratio below 10:1. Moreover, the results obtained by adding “intervention” as keyword are quasi-experimental studies at best, which are of little importance for the EBP because they can support weak causal conclusions. In the OHP major journals, researches where participants are randomized into control or experimental groups are rare (for example, only two such researches were ever published by *Work and Stress*, and we found only 8 papers in *Journal of Occupational Psychology*), but their presence indicates that designs relevant for the EBP paradigm are not impossible for OHP researchers and practitioners.

Table 2. The number and type of papers on each OHP topic.

<i>Keywords used in queries</i>	<i>Total no. of papers</i>	<i>Meta-analyses</i>	<i>Interventions</i>	<i>Meta-analyses on interventions</i>
“job demands”	1364	5	76	0
“job rewards”	89	6	2	0
“environmental uncertainty”	548	2	0	0
“job control”	696	2	42	0
“working conditions”	16936	25	1378	12
“interpersonal conflict” AND “employee”	148	3	4	0
“workplace violence”	1104	1	129	0
“workplace emotion”	640	0	30	0
“stress” AND “employee”	7410	44	671	6
“workaholism”	252	1	11	0
“burnout”	6205	39	633	0
“work-life” AND “employee”	3023	27	117	0

Regarding the quantitative reviews, most research topics had at least one meta-analysis (except for *workplace emotion*, although it is possible that other meta-analyses took into account positive and negative affect). However, we found meta-analyses on interventions only on two research topics: (1) *working conditions* and (2) *stress and employee*. Although these two topics cumulate 60% of the papers which discussed interventions in OHP, there are still research topics (for example: *burnout*, *work-life and employee* and *workplace violence*) where a large body of literature on psychological interventions is not reviewed using quantitative, meta-analytical procedures.

Suggestions for Improving the Current Situation

The results presented in the previous section suggested that OHP domain has some interest in presenting evidence of thoroughly tested psychological interventions. Furthermore, papers which used randomized trials, although extremely rare, have showed that such methodological approaches are not impossible for OHP. Therefore, we believe that OHP research domain can provide more papers which are valuable from an EBP perspective through: (a) editorial statements of explicit interest towards EBP relevant papers; (b) a change of publishing policy, with greater emphasis on papers that

present interventions on randomized groups of participants; and (c) taking into account small, but important aspects when designing an intervention in OHP.

First, we believe that the present situation can be improved through statements of EBP importance by the major journals of the OHP domains. For example, before the editors of *Health Psychology* stated their interest in the publication of evidence-based treatment reviews (Davidson, Kimberlee, & Smith, 2006), only 99 papers using randomized clinical trials were ever published in this journal (between 1984 and 2006). Since this statement was published, another 91 papers using randomized clinical trials were published by this journal alone (since 2007 until the present year). The case of *Health Psychology* suggests that a research domain can be focused toward EBP relevant researches, through editorial statements of its major journals.

Second, we believe that more needs to be done regarding the major journals' policies regarding desirable papers on OHP. As we stated previously, *Work and Stress* (2012) already encourages submissions that can lead to causal conclusions, and has high standards for considering cross-sectional papers as being suitable for publication. This restrictive editorial policy represents a good starting point towards publishing papers relevant for EBP, but we believe that a clearer message is needed.

Third, small aspects that are considered when planning an intervention should lead to an increase in relevance for EBP (see Table 3 for an overview). For example,

randomization of employees (or of their workgroups) is scarce in the actual practice of OHP. Instead, most studies rely on validating their interventions based on quasi-experimental design, with pretest equivalence tested for the primary outcomes. This practice can be improved in at least two ways: by extending the number of variables tested at pretest level, in order to test not only the dependent variables pretest equivalence, but also by testing the most significant antecedents equivalence (i.e., risk factors) that would affect the primary dependent variable, as confounding factors. An even better solution is to introduce cluster randomized control trials. While the individual random assignment is difficult to introduce in work contexts where natural groups exist (teams, departments), it would be much easier to design randomized trials if we allocate clusters instead of individuals, in a randomized manner (see details in Torgerson & Torgerson, 2008). Such a measure should lead to a significant increase in study relevance for the EBP paradigm. Also, standardization of implementation procedures or conducting a follow-up assessment of the intervention should further increase the quality of a study that reports an intervention. Similarly, other methodological choices described in table 3 are meant to improve the quality of evidence provided by studies in the field of OHP, while these adjustments have little impact (resistance) from the client's perspective.

Table 3. Overview of improvements to OHP practice

<i>Standards in clinical research</i>	<i>Usual practice in OHP</i>	<i>Can it be improved?</i>
Experiments (Randomized trials)	Quasi-experiments (with pretest equivalence tested for primary outcomes)	Likely: (a) quasi-experiments with pretest equivalence tested both for primary outcomes and for risk factors; (b) (even better) cluster randomized controlled trials
Homogenous participants (efficacy studies)	Heterogeneous participants	Less likely, some adjustments: (a) extension of variables included in pretest equivalence; (b) increasing the sample size in order to reduce the impact of error variance)
Standard intervention Ingredients: manual, experience, adherence	Mostly non-standardized (particularly if related to team or organizational level)	Likely: adopting a standard implementation when possible, measuring intervention adherence and intervention fidelity / integrity
Follow up assessment is compulsory Active control group: Placebo or alternative treatment	Fuzzy distinction between post-test and follow up Passive control group: "usual care"	Likely: differentiating between post-test and follow up assessment Possible, but less likely: establishing gold standard interventions as comparisons groups
Meta-analysis based on efficacy studies	Almost absent (when possible, based on effectiveness studies)	Possible: if more cluster randomized trials will be available

Conclusions

The objectives of the present paper were (a) to evaluate to what extent the OHP research is suited for providing strong causal evidence for interventions and (b) to provide some suggestions for improving the status-quo.

Our findings suggest that most OHP research is focused on theory development and refinement, and less than 10% of OHP papers are focused on intervention practices. Furthermore, extremely few OHP papers report

studies using randomized trials. We believe that these researches show that OHP research topics can be investigated using more rigorous designs (specific for clinical studies), and that they represent good examples for achieving EBP standards.

References

- APA Presidential Task Force on Evidence-Based Practice (2006). Evidence-based practice in psychology. *American Psychologist*, *61*, 271-285.
- Chambless, D. L., & Ollendick, T. H. (2001). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology*, *52*, 685-716.
- Davidson, K.W., Trudeau, K.J., & Smith, T.W. (2006). Introducing the new Healthy Psychology series "Evidence-based treatment reviews": Progress not perfection. *Health Psychology*, *25*, 1-2.
- Falzon, L., Davidson, K.W., & Bruns, D. (2010). Evidence searching for evidence-based psychology practice. *Professional Psychology: Research and Practice*, *41*, 550-557.
- Kratochwill, T.R., & Shernoff, E.S. (2004). Evidence-based practice: promoting evidence-based interventions in school psychology. *School Psychology Review*, *33*, 34-48.
- Levant, R.F., & Hasan, N.T. (2008). Evidence-based practice in Psychology. *Professional Psychology: Research and Practice*, *39*, 658-662.
- Pfeffer, J., & Sutton R.I. (2006). Evidence-based management. *Harvard Business Review*, *84*, 62-74.
- Quick, J.C. (1996). Editorial. *Journal of Occupational Health Psychology*, *1*, 3-5.
- Quick, J.C. (1999). Occupational health psychology: The convergence of health and clinical psychology with public health and preventive medicine in an organizational context. *Professional Psychology: Research and Practice*, *30*, 123-128.
- Smith, R. (1991). Where is the wisdom . . .? The poverty of medical evidence. *British Medical Journal*, *303*, 798-799.
- Wilson, J.L., Armoutliev, E., Werth Jr., J.L., & Yakunina, E. (2009). Practicing psychologists' reflections on evidence-based practice in Psychology. *Professional Psychology: Research and Practice*, *40*, 403-409.
- Torgerson, D.J., & Torgerson, C.J. (2008). *Designing Randomized Trials in Health, Education, and the Social Sciences*. New York: Palgrave Macmillan.
- Work and Stress (2012, April 2). Guidance on whether your paper is likely to be appropriate for submission to *Work & Stress*. Retrieved from http://www.tandf.co.uk/journals/authors/TWST_suitability_guide.pdf