Toward an inclusive evidence-based practice model:
Embracing a broader conception of professional knowledge in health care and health care higher education

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Abstract

Evidence-based practice (EBP) and the evidence-based practice model (EBPM) are currently taken for granted as a guide for teaching and learning 'best practice' in higher education health care programs. As health care educators and researchers, we argue for enhancement of the model by inclusion of a broader conception of professional knowledge, including ethical care. In this conceptual paper, we draw on hermeneutic inquiry to reflect on theoretical underpinnings informing earlier discussions of EBP and the EBPM. Also, we enhance our critical thinking by turning to Aristotle. Taken together our reflections bring to the fore an awareness of conflicting logics embedded in the EBPM. We contend that an Aristotelian understanding, however, allows professional knowledge to be reinvigorated by bolstering possibilities for pluralistic conceptions of knowledge. In conclusion, we propose an elaborated EBPM termed the inclusive EBPM. The model includes ethical care as a to guide to teaching and learning of 'best practice'.

Keywords: Aristotle, evidence-based practice, health care education, the inclusive evidence-based practice model, professional knowledge

Introduction

During the last few decades, the paradigm of evidence-based practice (EBP) has increasingly shaped health care and health care educational sectors. The integration of EBP has underpinned a transformation in conceptions of knowledge in health care practice and in educational programs at all levels. In a broad sense, the call to practice in an evidence-based manner is emphasized throughout professional educational programs, the evaluation of professional actions, and in political decisions, especially in Western societies (Kyvik and Vågan, 2014). Nonetheless, although evidence-based practice has gained increasing attention (in recent decades), it is also a contested construct as the intended meaning of 'evidence-based' varies and the concept itself has been criticized for its lack of clarity (Grimen, 2009; Heggen and Engebretsen, 2009; Hofmejier, 2014; Wieringa, et al., 2017, Wieringa, et al., 2018a, 2018b; Anjum,

et al., 2020). Currently, however, there is also a more or less tacit and taken for granted adaptation of the EBPM in higher education health care programs. That is, today few or no one questions that health care practices, including the content in health care education, are to be evidence-based. Our interpretation of this situation is that ongoing debates during the last decades have resulted in what is seemingly a kind of consensus regarding the integration of evidence-based perspectives in health care; this despite a lack of consensus regarding interpretations of what precisely EBP entails. Significantly, the framework of the EBPM in itself has not changed. In this paper however, we argue that the model should be revised towards a more inclusive evidence-based practice model. Our position of inclusiveness implies embracing pluralistic understanding of professional knowledge in health care and health care educational programs as well as ethics.

Framing this as a conceptual paper, we draw on hermeneutic inquiry (Gadamer, 1996a; 1996b; 1977; Kinsella, 2006). Hermeneutics is a philosophical approach, often defined as the art of interpretation (Gadamer, 1977). The aim of hermeneutic inquiry is to 'educe understanding, to bring forth the presuppositions in which we already live' (Jardine, 1992: 118). It is an approach with a long history in textual analysis and the interpretation of texts (Gadamer, 1996; Kinsella, 2006). Inquiry in hermeneutics involves a dialogue between texts and situated experience with the aim of advancing understanding 'one intends to understand the text itself. But this means the interpreter's own thought have too gone into re-awakening the texts' meaning' (Gadamer, 1996a: 388). This dialogic approach is the 'fundamental dimension of hermeneutics. Genuine speaking, which has something to say' (Gadamer, 1977: 17). In this interpretive study, we bring our situated experiences as scholars, theorists, and educators into conversation with key texts and trajectories of thought in EBP and the EBPM. As such our positions within the field are of relevance.

In different ways, all three authors have been engaged in and inspired by discussions about EBP and the EBPM and the implications for conceptions of professional knowledge. TDM is a scholar with interests in health care education and rehabilitation practices. Her work focuses on professional knowledge and praxis. She is an Associate Professor at The Institute of Physiotherapy, Faculty of Health Sciences at Oslo Metropolitan University and also holds a position as Associate Professor at the Faculty of Health at VID Specialized University, Norway. As a PhD-candidate (2010-2014), the first author was active in the milieu at the Centre of the Study of the Professions. She was especially inspired by the two Norwegian philosophers; Harald Grimen (1955-2011) and Nils Gilje (1947-) and their work on evidence-based practice and knowledge. EAK's scholarly work focuses on philosophical perspectives underpinning professional knowledge in health and social care, with a particular focus on epistemologies of practice, philosophy of reflection, and phronesis. She is currently Professor in the Institute of Health Sciences Education, Faculty of Medicine and Health Sciences, at McGill University in Montreal. She has been particularly influenced by Aristotle, Donald Schon, Hans-Georg Gadamer, Merleau-Ponty, John Dewey, Thomas Kuhn, and Maxine Green. In a similar vein, the KSG's scholarly work is inspired by humanistic perspectives, in particular Simone de Beauvoir's,

Merleau-Ponty and Leder's emphasis on body and lived experience. Conducting empirical research on rehabilitation and public health practices, her publications consider and question taken-for-granted assumptions in these areas. She is a Professor at The Institute of Physiotherapy, Faculty of Health Sciences at Oslo Metropolitan University and at the Faculty of Health at VID Specialized University, Norway.

Furthermore, in our positions as educators and researchers in the field of health care, we find there is a need for reflection and critical engagement concerning the theoretical underpinnings and interpretations of the EBPM. Put differently, our position is that although there is currently consensus in terms of the need to close the gap between different positions in the debates of evidence-based practice, still there is a need to rethink and clarify the different logics embedded in the evidence-based practice model. In this paper, we present, reflect on, interpret, and critically elaborate previous points from the literature regarding the theoretical underpinnings of the EBPM. We build on previous insights within the literature and suggest a revision inspired by Aristotle's view of knowledge.

Accordingly, the aim of our paper is to bring previous points of discussion about the EBPM, into dialogue with ideas from Aristotle's conception of knowledge. In doing so, we are rethinking/elaborating the model of EBP towards an inclusive EBPM that embraces a broader concept of professional knowledge in health care and health care higher education.

Given the genre of conceptual paper, our work is informed by an interpretive hermeneutic dialogue drawing on relevant theoretical literature, our position and focus in the field, and emergent analytic insights; as such it is not a systematic or comprehensive review but rather an interpretive one (Askanius and Østergaard, 2014). We take as our starting point the overall aim of higher education to provide students with capabilities for critical thinking. Furthermore, for higher education health care programs the aim is to enable students to offer professional services that improve the lives of *the Other* (the patient) (Grimen, 2008). Given this background we ask: How can points emerging from critical discussions of the theoretical underpinnings of EBP reinvigorate the EBPM? In what ways can such a reinvigoration of the EBPM elaborate/enhance the professional learning and teaching in higher education health care programs?

Guided by these questions our reading of the literature has inspired reflection and critical thinking. In our writing process we have used *provocations and possibilities* as sensitizing concepts – implying a direction for what to look for in the textual accounts (Blumer, 1954). These concepts served as a critical lens to guide our interpretations; we found the debates to be heated, but also yearning for a focus on the possibilities. Our reflections are presented in three sections: a) EBP and the EBPM: Roots and controversies b) An Aristotelian approach to professional knowledge, EBP and the EBPM, and c) Elaborating the EBPM.

EBP and the EBPM: Roots and controversies

Notably, evidence-based practice (EBP) emerged in the field of medicine, and soon spread to other health and social care professions, and later to professional educational programs. The evidence-based concept is relatively new, arising in the literature in the 1990s (Sackett, 1996;

Basing, 2000). The original point of EBP was to make the decision-making process in the daily practice of physicians more reliable and effective, given concerns that the treatments offered to patients were not necessarily effective, or even worse, caused more harm than good (Basing, 2000; Grimen, 2009). In other words, physicians' (and other healthcare professionals') decision-making relied on the clinical expertise and theoretical knowledge of the physician(s) rather than the knowledge generated from robust empirical evidence, a point we will return to later.

The marker for the evidence-based paradigm is often referred to as the well-known and often cited definition of evidence-based medicine (EBM) as put into words by Sackett and colleagues (1996: 7):

> Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.

This definition from the field of medicine was soon taken up by physiotherapy and nursing and many other professional fields, who pointed out that EBP combines evidence and clinical expertise. Notably, the original definition does not include patient/client preferences which is a striking shortfall of the early model (Dahl-Michelsen and Groven, 2018). Nevertheless, the definition of EBM originating with Sackett and colleagues formed the background for the development of the model of EBP. The evidence-based practice model (EBPM) includes three central concepts often referred to as: research, practitioner experience and patient's values and preferences. In the literature the concepts revolve around the same themes, however, vary slightly by different authors. For example, Fetters and Tilson (2012) use the concepts of: clinical expertise, scientific research and patient's values and circumstances, presented as three pillars of evidence supporting optimal outcomes for patients (Fetters and Tilson, 2012: 3). The concepts of: best external evidence, individual clinical expertise and patient's values & expectations are used by Physiopedia.

Evidence hierarchy or evidence equality? Conflicting logics embedded in the EBPM

In Norway the model from Kunnskapssenteret (Knowledge Centre) is extensively used, here the concepts are outlined as: research- based knowledge, experience-based knowledge and user knowledge and user involvement (Helsebiblioteket. no., n.d.). Of relevance to our paper is the point that what these different concepts include, and how they relate to one another, has been debated since the introduction of the model, not least in Norway where 'evidence-based' has been translated into 'knowledge-based'. Thus, in Norway EBP is known as knowledge-based practice (KBP) and the terms EBP and KBP are most often used synonymously. Accordingly, critical questions arise as to what counts as knowledge in the clinical health professions (Ekeland, 2009; Ekeli, 2001, 2002; Heggen and Engebretsen, 2009; Engebretsen, et al., 2015; Engebretsen, et al.,

2016; Nortvedt, et al., 2011; Wieringa, et al., 2017; Wieringa, et al., 2018a, 2018b). The three concepts in the KBP/EBP Model, research-based knowledge, experience-based knowledge and user knowledge and user involvement, are most often presented through circles as demonstrated in Figure 1.
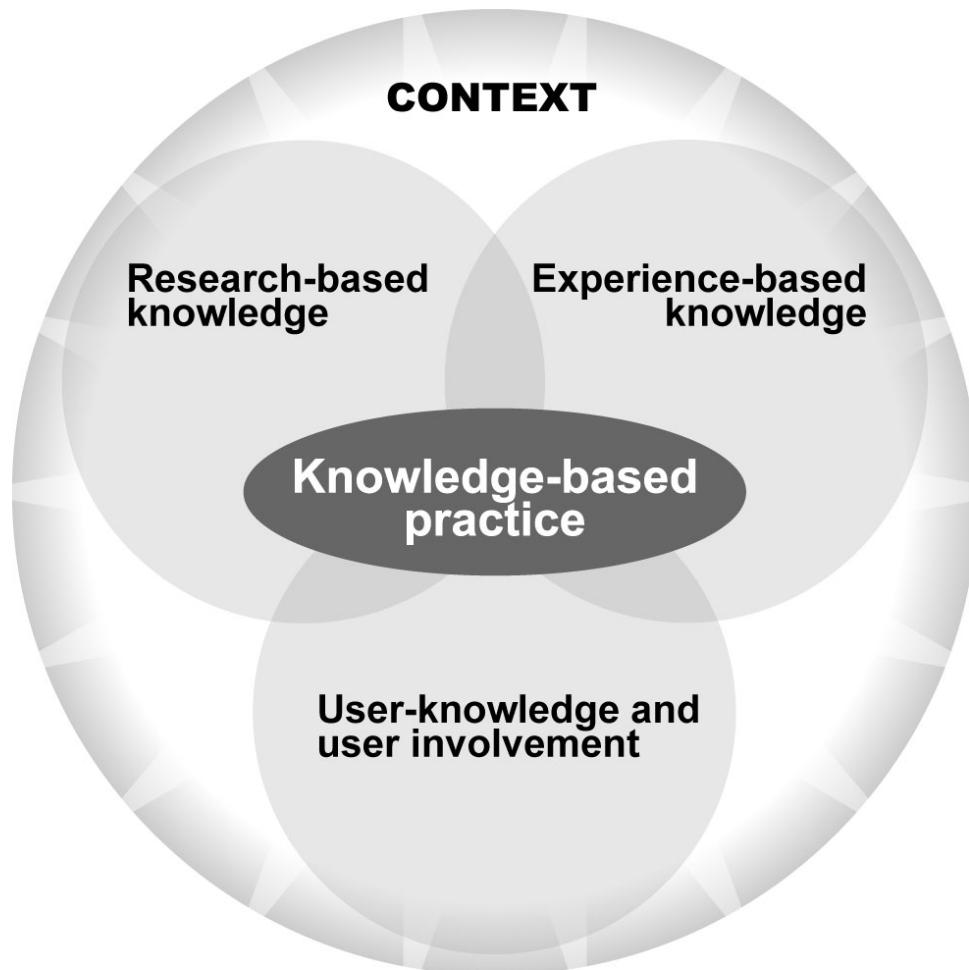

Figure 1: The KBP/EBP model: The model of Knowledge-based practice/Evidence-based practice as presented by Helsebiblioteket. no. (authors translation).

The debate concerning the EBPM involves, briefly, two main questions. The first question centers around what is included in the three concepts, and the second asks how the three concepts are related to one another within the model. Starting with the concept of research-based knowledge, what does it involve? According to Sackett and colleagues' (1996: 7) definition, research is regarded as the 'best available external clinical evidence from systematic research', whereby systematic research is based on a hierarchy of evidence with systematic reviews at the top of the hierarchy. But, what then of qualitative research? One is tempted to ask, is there no room for qualitative research in such a conception? Or is it included only at the bottom of the research hierarchy? Or is qualitative research seen as part of experience-based knowledge?

(Grimen, 2009). Further, what does the concept of 'experience' involve – is that clinical experience or also patient's experience? Or is patient's experience (and expertise) part of the concept of patient's values and preferences? And what about clinical expertise; is that part of the concept of experience-based knowledge, if yes, what is the difference between the clinical expertise, placed at the bottom of the evidence hierarchy and the expertise valued as part of experience? (Grimen, 2009). Moreover, and perhaps most importantly, how are these concepts related to one another? The answer depends on whether the understanding of the EBPM is based on the logic of the evidence *hierarchy* or alternatively, based on the logic of a *circular* model (Dahl-Michelsen and Groven, 2018; Grimen, 2009). Notably, as pinpointed by the Norwegian philosopher Harald Grimen, these two conflicting logics are often mixed in confusing ways (Grimen, 2009: 212). Indeed, Sackett and colleagues (1996) definition offers a hierarchical understanding of research where evidence from systematic reviews is ranked highest and where the most reasonable interpretation seems to be that such research is more important than clinical expertise (however in this definition research is said to be integrated with clinical expertise).

Notably, in the circular - also called the harmonic - model, the three different concepts are of equal size indicating that they are of equal importance. However, Grimen (2009) questions whether research (judged according to the hierarchy of evidence), is nonetheless given a disproportionate amount of weight among the three concepts. He also raises questions about whether evidence according to a hierarchy, and external to clinical practice, continues to be the preferred research design. If the answers to these questions are yes, then the circular model is bound to confuse (Grimen, 2009). Furthermore, equality amongst different types of research and professional knowledge is hard to accomplish as long as one continues to operate within the knowledge hierarchy.

Person-centered vs evidence-centered

Although, care of the individual patient was considered important in Sackett's and colleagues' definition of EBM, debates to follow concerned whether *evidence* or the *patient* were at the center of healthcare practice. According to Bensing (2000), the two paradigms 'evidence-based medicine' and 'patient-centered medicine' focus on different aspects of medical care and have, in fact, little in common. He argues that EBM is rooted in an empirical biomedical focus that offers clinicians the best available evidence about the most adequate treatment for their patients and considers medicine as a primarily cognitive – rational enterprise (Bensing, 2000). Accordingly, with this focus, patients' needs and preferences, including emotions, run the risk of not being a primary consideration in practitioner decision-making. Patient-centered medicine, on the other hand, can be said to embrace a humanistic, biopsychosocial perspective that includes ethical values, care ethics and theories of shared decision-making. Patient participation is core and medical care is oriented toward patients' needs and preferences. Notably, in this perspective the ideological base is more developed than its evidence base (Bensing, 2000: 17). This argument has attracted renewed attention e.g. most recently it has been elaborated by Greenhalgh and colleagues (2014: 3) who argue that EBM needs to be person-centered, an

approach they call 'real evidence-based medicine'. In addition, Greenhalgh and colleagues have called for more attention and value to be focused on clinicians' and patients' experience-based knowledge (a point we will return to later). Indeed, these debates concern *provocations* and *possibilities* and illuminate tensions in centering evidence versus centering patients, bringing us back to the question of how and why evidence-based perspectives emerged in the first place. Others have taken this point further arguing that shared decision making (SDM) with patients is a matter of epistemic justice (Thomas, et al., 2020). Thomas and colleagues (2020: 2) argue that SDM is complicated due to 'tensions between individual claims to knowledge and the historical, structural forces that determine the legitimacy of various forms of knowledge'. Accordingly, 'shared' decision making within health care is not so easily attained. To achieve patient centeredness, hierarchies need to break down, shared perspectives need to be promoted, and epistemic justice encouraged (Thomas, et al., 2020). Indeed, health professions education needs to change; implying a change in curriculum content toward a greater focus on social sciences, teaching methods that focus on dialogue, and recognition of moments of dissonance as opportunities to learn. These changes imply that the teacher's role is to promote epistemic justice, and importantly that patients need to be included as partners. Notably, such changes are not concurrent with current understanding of EBM. In the words of the authors:

> Although these [changes] may appear radical and incongruent with current discourses in EBM and competency-based curricula, without a major transformation in what, how, and with whom we teach, our future clinicians may be unprepared to enact SDM in a manner that does justice to the patient voice. (Thomas, et al., 2020: 8)

Truth in the EBPM: Reliable knowledge and effective treatment

In terms of the background concerning why EBM and EBP have gained such an emphasis in health care and higher education, an important reminder is that EBM developed in response to a situation whereby physicians and other health care professionals made their decisions based on clinical expertise and theoretical knowledge. The problem was that these decisions were based on coincidence, rather than evidence from empirically robust sources (which is considered as truth). In short, the main challenge with experience-based knowledge is that it cannot contribute definitive knowledge regarding cause and effect (Jamtvedt, et al., 2015). Thus, it has been regarded as an unreliable approach to ensuring that patients are offered reliable and effective treatment.

With regard to effective treatment, randomized clinical trials (RCTs) are the preferred method and RCTs have had incredible relevance to the treatment offered in health care today, and to the advice given by health care professionals (for example that babies are not to sleep on their stomachs) (Jamtvedt, et al., 2015). In the RCT design, characteristics are distributed (by statistical methods) evenly among experimental and control groups so that we know that the observed effects are related to the treatment. RCT is considered the gold standard in EBM in terms of finding evidence for the most acceptable treatments in healthcare. Or even more

precisely, meta-analyses of review studies of only the best randomized trials are the preferred method (Bensing, 2000). Thus, we are instructed to always start by looking for evidence at the top of the pyramid of evidence (Jamtvedt, et al., 2015).

Possibilities of RCTs

Indeed, RCTs provide tremendous scientific development. The strength of evidence is based on cases where the variables can be controlled - for example in testing of medication - where the study is blinded implying different variables are controlled (i.e. one does not know if the medication is real or placebo), or in study designs where one tests phenomenon such as exercise versus non-exercise. In such cases we obtain reliable knowledge, that is knowledge about how statistically likely the medication (or other intervention) is to work in a particular population. It may well be that someone (patient) in the group would be cured without the medication (or exercise), and there may be patients who do not respond to the medication (or exercise) but who would also not be cured without. The knowledge we gain concerns how statistically likely it is that the medication/intervention are causing the effect. Such evidence is very important because it provides knowledge about which treatment is likely to work best (have effect) and provides the utmost opportunity for successful treatment (Dahl-Michelsen, et al., 2018).

Provocations of RCTs

However, the design also comes with a drawback in terms of care for the individual patient. That is, RCTs are not patient-centered because strictly defined diagnostic and population-based inclusion criteria (formulated by the researcher), set out the parameters of who will be included in RCTs (Bensing, 2000). Characteristics from the clinical encounter, which provide extra and important information, are considered as annoyances which might disturb the results of the study (Bensing, 2000). Similar points have been raised by Greenhalgh and colleagues (2014) who ask whether results from clinical trials can inform decisions about real patients, whose complexity seldom fits textbook descriptions of disease (Greenhalgh, et al., 2014). In a broader sense these issues highlight the relationship between the use of evidence and practitioner discretion. Whereas the starting point for the call for evidence-based practice was to inform professional discretion (professional judgment), the success of the EBP movement has led to the ironic situation whereby it overshadows or eliminates attention to professional discretion or judgement in practice (Grimen, 2009; Hofmeijer, 2014). We consider this point to illuminate provocations of RCTs.

Along similar lines, Wieringa and colleagues (2017) have argued that the divide between (natural) science ('given') and culture ('man made'), has been reproduced in the positions articulated by Sackett and followers. This reproduction occurs as response to the insistence that evidence is developed outside of the clinical encounter, and then 'translated' or 'implemented' into practice through integration with practitioner expertise and patient preferences (Wieringa, et al., 2017).

Rethinking truth

Currently there is a change in discourses of evidence such that researchers, guideline developers, and clinicians are realising that medical 'facts' are constructed and situated and shaped by different agendas and human practices, and thus not as objective as they may seem (Wieringa, et al., 2017). Though, nature and culture are still separated through categorisation, nature and culture are on more equal footing than previously recognised (Wieringa, et al. 2017). Moreover, the evidence-based health care (EBHC) discourse has started to recognise the standpoint of real patients in real encounters (as compared to the decontextualised perspectives represented in clinical trials). Accordingly, the division into objective nature and subjective culture is not so clearly separated (Wieringa, et al., 2017; Harding, 1991). Furthermore, Wieringa and colleagues suggest EBHC should incorporate a more pluralistic understanding of truth —and of bias (Wieringa, et al., 2018a). EBM and EBHC, and in our case the EBPM, have been very focused on research methodology, and clinical application bias has been focused on the cost of truth, which, according to Wieringa and colleagues, has wrongly come to normalise truth as given and unproblematic. In particular there is a belief that overcoming biases represents the path to the right decision, which is problematic in terms of the loss of focus on the clinical encounter in clinical decision making (Wieringa, et al., 2018a: 931). Indeed, the truth concept in EBHC, and in our case the EBPM, while suitable for large groups and regular events, does not fit the individual patient because in such a singular case one needs to overcome the philosophical problem that one cannot control all of the contextual variables, or predict the future. The concept of truth appears to be both conceptually and empirically insufficient for reasoning in the clinical encounter. Accordingly, Wieringa and colleagues call for an extended understanding of bias that includes a consideration of a range of theories of truth based on different philosophical positions (Wieringa, et al., 2018a). Certainly, noting that philosophers have contemplated theories of truth for millennia, and that different philosophical positions invoke different perspectives, is relevant for our understanding. For instance:

> Correspondence theories of truth hold that what is true should somehow represent how reality actually is. Coherence theories see truth as what coheres with a whole set of beliefs. Pragmatist theories of truth refer to what works in practice. Constructivist theories of truth are concerned with how scientists interpret the world and how particular interpretations come to shape research traditions and empirical choices. Deflationist theories attribute limited significance to the concept of truth and question what it actually means to say something is true. (Wieringa, et al., 2018a: 931)

In addition, post-modern philosophers' question whether grand theories and covering laws are possible and discuss ways in which truth is situated and contested (Lyotard, 1979). Further philosophers like Kuhn (1977), Harding (1991), and Nussbaum (2001) have shown how values, human judgement, and even emotion shape the practice of science in ways that complicate taken

for granted notions of value free science. Drawing on these philosophers of science (as well as others), Wieringa and colleagues (2018a) suggest we move forward by discussing, teaching and extending theories of truth and the relationship to conceptions of bias in EBP.

In short, they find two different positions toward bias to be revealed. The traditional view of bias in EBHC is that bias is negative and unproductive and that it distorts comparison between the research groups. Biases are to be eliminated by use of technical procedures and checklists. However, bias can also be understood as quite the opposite, that is as a value driven approach that inevitably shapes decisions, human judgement and the practices of science (Kuhn, 1977), and that rather than being eliminated should be reflexively examined, acknowledged and recognized as shaping scientific and professional practice (Harding, 1991). Indeed, philosopher of science, Sandra Harding (1991) refers to objectivity that takes account of values, human judgement, and human situatedness as 'strong objectivity'. Notably, this kind of 'bias' (or what some refer to as situatedness) is unavoidable and cannot be eliminated (Wieringa, et al., 2018a).

In addition, Wieringa and colleagues have argued for the appraisal of different kinds of knowledge within guidelines to be used in clinical practice. In short, they argue that both explicit and nonexplicit components of knowledge need to be included. In their own words: 'Validity of knowledge appears not to be based on criteria of consensus, coherence, or correspondence, but on a more polyphonic understanding of truth' (Wieringa, et al., 2018b: 1).

The arguments put forward by Wieringa and Greenhalgh and their respective research milieus are also part of the position promoted by Anjum and colleagues in their recent book: *Rethinking Causality, Complexity and Evidence for the Unique Patient* (Anjum, et al., 2020). They argue that a change towards person-centred care is needed within the health care professions and in medicine, however such a change implies an equivalent change in the ontology and the methods upon which the practice is based, also it includes a focus on the norms (which often are tacitly embedded in the practice). The reason that practitioners in medicine and health care need to engage in discussions about EBM, EBP, and the EBPM is that the foundations for these practices are based on implicit philosophical assumptions shaping and defining the professions (Anjum et al., 2020). As pointed out by the authors they are not questioning the idea that medicine and healthcare should be evidence based, rather, in line with previous debates, they are challenging the definition of 'evidence'. Moreover, they challenge the position and meaning of 'causal evidence'. Taking their starting point in a dispositionalist perspective, they argue that what count as evidence is much broader than what is suggested by the current framework of EBM and EBP. Accordingly, they call for a new paradigm to arise. In this paradigm the meaning of evidence-based health care decisions are re-defined. In the words of the authors:

> Healthcare decisions are not seen as 'evidence based' until they include *all* the causally relevant evidence. This means that we need to consider, not only evidence from general knowledge and research on populations, but crucially also qualitative and phenomenological evidence from the particular encounter with the patient. Downgrading

the latter as 'less scientific', 'less reliable', 'anecdotal' or 'secondary', implies an unspoken commitment to a very specific philosophical bias about causation, as we have seen. When translated into clinical practice, those philosophical biases carry an inherent risk of delivering a poorer, de-humanised, fragmented and at times counter-productive healthcare. (Anjum, et al., 2020: 241)

The premise of this new paradigm of EBPM is based upon the following seven core points:

- *Assume medical uniqueness, because there is no normal, standard or statistically average patient*
- *Treatment should be adapted rather than standardised, because no two patients are causally equal*
- *Value qualitative approaches, because causal evidence is much more than evidence from RCTs.*
- *Consider mechanistic and theoretical knowledge, because we need to understand hows and whys.*
- *Accept clinical uncertainty, because precise quantitative estimates do not reflect reality.*
- *Consider individual propensities, because they affect the risk and safety of treatment.*
- *Know your patient, because most of the causally relevant evidence will come from there.* (Anjum, et al., 2020: 239-240)

Summing up the conflicting logics embedded in the EBPM we are reminded that its three core concepts include: research-based knowledge, experience-based knowledge and user knowledge and user involvement. These concepts are interpreted differently as to what they include – and how they relate to one another within the EBPM understood as a hierarchical or circular/harmonical understanding. Further, different philosophical understandings of truth and bias are embedded in the conflicting logics of the EBPM and in discussions about evidence-based and patient-centered approaches. Nonetheless, during recent decades we have seen an increased awareness, and calls to include focus on *both* evidence-based and patient-centered approaches. In the next section, we will contextualise our exploration of provocations and possibilities concerning evidence and personalising/patient-centeredness, by turning to Aristotle. In doing so, past and present understandings of professional knowledge are reinvestigated and pave the ground for rethinking the EBPM.

An Aristotelian approach to professional knowledge, EBP and the EBPM
Episteme, techne and phronesis
EBP is part of the professional practice of today's health care professionals. Indeed, contemporary professional practice presumes that professionals act upon research-based knowledge, have solid technical-practical skills and that they are capable of judging complex situations in an ethically sound manner (Gilje, 2017; Sullivan and Benner, 2005). Briefly, this

trisection between scientific knowledge, technical-practical (skill) knowledge and practical-moral knowledge corresponds to the Aristotelian divide between episteme, techne and phronesis (Aristotle, 2013; Gilje, 2017), illustrated in figure 2 below.
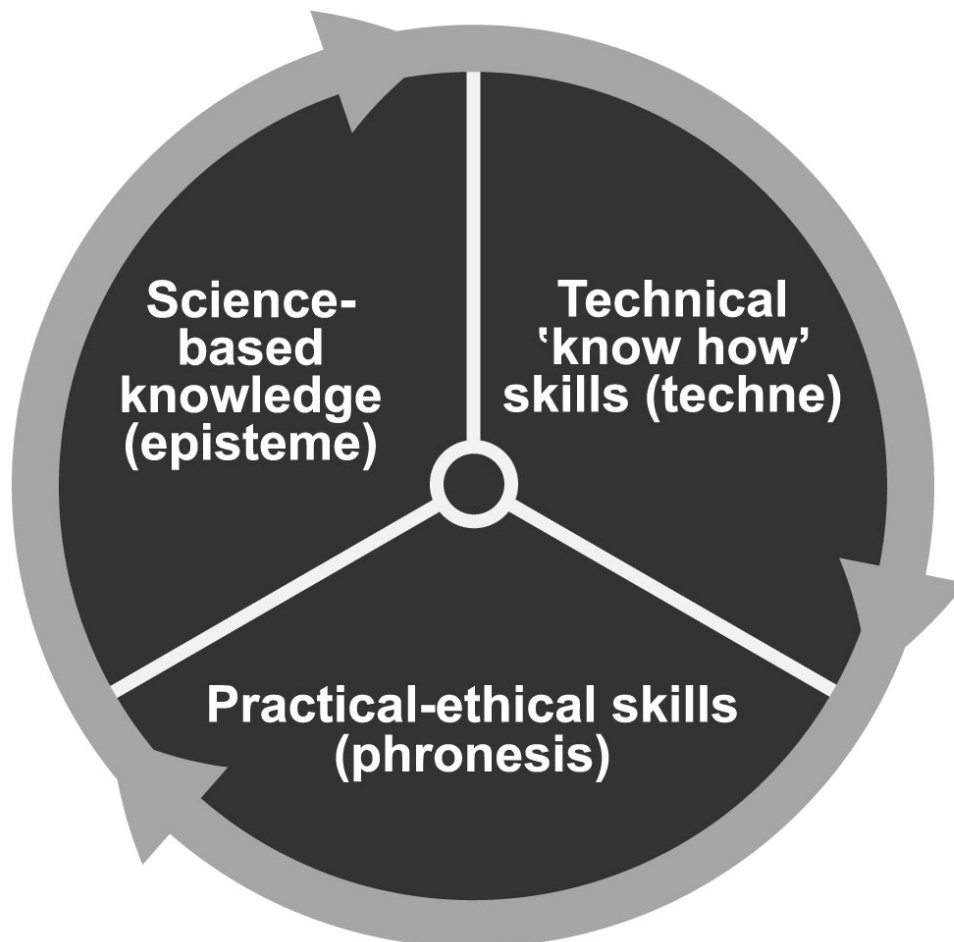

Figure 2: Professional knowledge: The trisection of science-based knowledge, technical knowledge - 'know how' (practical skills) and practical-moral knowledge corresponds to the Aristotelian divide between episteme, techne and phronesis (Aristotle, 2013; Gilje, 2017).

As argued by Gilje (2017), building on the work of Grimen (2008), different kinds of knowledge are integrated and synthesized in the professions in accordance with the demands that professional practice requires. Accordingly, episteme, techne and phronesis, comprehended in Aristotle's terms, offer a useful conception for the practical synthesis of professional knowledge (Gilje, 2017). In the words of Kinsella and Pitman (2012a: 170): 'professions are grounded in practice, the application of knowledge for a good purpose. The idea of situated application of one's knowledge is intrinsic to the idea of a profession'. Furthermore, they suggest episteme, techne and phronesis as three forms of knowledge required for professional

practice. At the same time, they are concerned that episteme and techne are privileged at the cost of phronesis (Kinsella and Pitman, 2012b).

Notably, there are many different aspects concerning episteme, techne and phronesis that inform parts of professional knowledge. For example, drawing on an Aristotelian perspective, practical knowledge can be regarded as an action-based synthesis of techne and phronesis, that is, as a coordination of technical proficiency and practical-moral knowledge. Accordingly, these types of knowledge, together with relevant forms of disciplinary knowledge, constitute the basic forms of professional knowledge. Recent discussions, however, have shown that practical knowledge also has dimensions not captured by the Aristotelian distinction between techne and phronesis. In particular, analysis of 'knowing how' (Ryle [1949], 2009), 'knowing why' and 'knowing when' (Sullivan, 2010) as well as tacit knowledge (Polanyi [1967], 2009) have proven to be fruitful approaches to understanding the nature of practical knowledge in various forms of professional practice (Gilje, 2017). Notably, in the Greek tradition not only poesis and art, but also care and interpretation were included as forms of techne and phronesis.

Also, a reinvigoration of phronesis through attention to a continuum of reflection and practitioner judgment in professional practice has been suggested by Kinsella (2012). Kinsella points to how dominant conceptions of professional knowledge largely fail to include Aristotle's conception of phronesis in considerations of what it means to know in professional life. Taking as her starting point the inspiring work of Schön, she reinvigorates phronesis as a continuum of reflection and practitioner judgment in professional practice. Accordingly, reflection implies intention, embodiment, receptivity, and critical reflexivity. Indeed, conceptualising reflection as a continuum and making explicit the criteria practitioners might use in phronetic judgment, offers a framework where development of professional knowledge implicates the reflection and judgment characterised as phronesis (Kinsella, 2012).

In some philosophical milieus there has been considerable controversy as to whether practical knowledge - especially 'skills' - can be said to be knowledge in the strict sense. Indeed, Plato argued that all knowledge must be formulated in the form of statements. In other words, knowledge is always linguistically asserted knowledge. If this is correct, it is problematic to talk about, for example, 'know how' and tacit knowledge as genuine and legitimate forms of knowledge (Gilje, 2017). However, implicit and taken for granted knowledge can often be articulated verbally, as implicit knowledge is transformed into explicit knowledge; tacit knowledge on the other hand is more difficult to verbalize, it is revealed for example in intelligent action or in skills such as swimming or cycling, nonetheless one can demonstrate tacit knowledge, i.e. that one has these skills (Gilje, 2017; Grimen, 2008; Kinsella, 2007).

Most notably and of specific relevance for our discussion on professional knowledge and the EBPM is the hierarchical notion of knowledge inherited from Greek philosophy. In the words of Gilje (2017):

> In Greek philosophy, the highest form of knowledge was episteme, that is, knowledge of eternal and unchanging forms and structures. Built into the notion of episteme there is an

assumption that still dominates our notion of knowledge, namely the idea that knowledge is a picture or representation of reality… the Greek notion of episteme has had major implications for our understanding of knowledge more generally. In the Greek tradition, all knowledge appears to be hierarchical, and episteme is placed at the top of the hierarchy. (Gilje, 2017: 24 – authors' translations)

Notably, this framing of knowledge often dominates the understanding of knowledge within evidence-based practice (Gilje, 2017; Grimen, 2008). A point that illuminates how implicit understandings of truth and knowledge are often embedded in past and present understandings of professional knowledge and EBP/the EBPM.

Epistemological theorising- pluralism

Gilje (2017) suggests an alternative to the hierarchical understanding of (professional) knowledge inherited from the Greek tradition. Indeed, he argues for pluralistic conceptions of knowledge and for pluralistic approaches to epistemological-theorising, that find a middle way between extremes on either side:

There is reason to criticize a traditional epistemological-theoretical conservatism which claims that professional knowledge can be reduced to theoretical or research-based knowledge. At the same time, there is reason to criticize an epistemological-theorist radicalism that reduces professional knowledge to something that can primarily be learned in practice. This can be considered as an argument for epistemological-theorizing pluralism. (Gilje, 2017: 22 – authors' translation)

As already noted, Wieringa and colleagues argue in favour of a more 'polyphonic' understanding of truth, in which multiple perspectives and contexts come together in dialogue as opposed to one unequivocal perspective dominating (Wieringa, et al., 2018b). Accordingly, they argue for pluralistic conceptions of knowledge and theorizing related to the circle of research-based knowledge in the EBPM. However, there is still an unsolved ambivalence surrounding evidence, put into words by Wieringa and colleagues (2017: 968) as follows:

On the one hand, EBHC (at least as it has developed) depends on mediation, translation, or a "cultural supplement". On the other hand, it still relies on the purification of science to be separated from, and more objective than, real-world messiness. The very concept of "best evidence" hinges upon such a divide. If not, it risks becoming "unscientific".

Accordingly, EBHC and in our case the EBPM, must move toward a hybrid position within the nature/cultural divide without rejecting the very concept of evidence and the central claims of this concept. The suggestion put forward by Wieringa and colleagues (2017: 968) is that:

>...the EBHC movement must coexist within it and "muddle through" ... we must accept that research evidence cannot be placed on a pedestal apart from other evidence in this way, as well as accepting that research evidence will always be developed outside the relationship-based care for patient and based on a logic, which is different from the relational logic inherent in a clinical encounter.

Concerns about bridging the seemingly separate worlds of evidence and individual patients are also discussed by Bensing (2000), who argues that in modern medicine (and health care practices) both the paradigms of evidence-based practice and patient-centred practice are highly relevant, yet they seem to belong to different worlds. Accordingly, the future challenge is to bring these separate worlds together (Bensing, 2000). Notably, as pointed out by Gilje (2017), contemporary professional practice presumes an integration of research-based knowledge, solid technical-practical skills and ethical soundness. Following from this position, we now return to the approach known as 'real evidence-based medicine' articulated by Greenhalgh and colleagues (2014). Drawing on this position, we suggest an elaborated EBPM – one that embraces pluralistic understandings of professional knowledge in health care.

Elaborating the EBPM

As introduced earlier Greenhalgh and colleagues (2014: 3) argue in favour of 'real evidence-based medicine' - an approach emphasising EBM as person-centred. They contend that real EBM 'makes the ethical care of the patient its top priority, demands individualised evidence in the format that clinicians and patients can understand and is characterised by expert judgment rather than mechanical rule following' (Greenhalgh, et al., 2014: 4). We find these three characteristics in the approach to 'real evidence-based medicine' to be crucially important. A point also promoted by Anjum and colleagues (Anjum, et al., 2020). However, these considerations are not yet part of the EBPM, or if they are assumed to be tacitly present, they are not clearly articulated. Thus, we suggest a clarified version of the EBPM, taking recent developments in EBP into account, and explicitly integrating these considerations into the model.

As introduced earlier, EBP is part of today's professional practice in health care and health care higher education. Health care professionals and students alike are expected to make their decisions based on evidence and knowledge from research, have solid technical-practical skills and to judge complex situations in an ethically sound manner (Gilje, 2017; Sullivan and Benner, 2005). Notably, we argue that research-based knowledge includes research based on both quantitative and qualitative methodologies, an argument also pinpointed by Anjum and colleagues (Anjum, et al., 2020). For questions about effects, the RCT design is the preferable method, paving the ground for meta synthesis. However, other questions concerning professional practice need to be answered by other methodological designs, and we want to underscore that qualitative research also needs to be part of the research-based knowledge that informs professional practice and is considered in the EBPM. Most notably, the mission/goal of

professional practice lies outside the professions themselves; that is, professional practice is based on the call to meet the needs of the patient (Grimen, 2008). In essence, this makes ethical care the basic foundation for professional practice, which has been put forward by Greenhalgh and colleagues in calls to make ethical care the top priority of EBM (Greenhalgh, et al., 2014) – or in our case EBP. Although ethical care is likely considered to be part of earlier versions of KBP/EBP, we suggest making it an explicit part of today's EBPM. We also want to point out that clinical expertise is a crucial part of experience-based knowledge. We suggest that the construct labelled as 'user knowledge' and 'user involvement' in the model from Kunnskapssenteret - presented by the Norwegian Electronic Health Library (Helsebiblioteket.no, n.d.) - be re-labelled as 'patient's own knowledge' and 'user involvement'. The latter is today considered as an important part of clinical decision- making, and it has also become an important part of research, implying that most countries today demand research proposals to explicitly explain how user involvement is taken into account within the proposed project. In addition, the more recent focus on user involvement in research points to how concepts in the EBPM are related to one another, and how intersecting concepts overlap. In health care the concepts of patient and user are often used synonymously. However, we suggest explicit integration of the term 'patient' into the circle concerning user knowledge and user involvement. By attending to 'patient's own knowledge' and 'user involvement' we want to highlight that patient's knowledge concerns their own understanding of their health issue and situation; or to be more precise we propose greater attention to, and increased emphasis on, the patient's own experiences and understandings of their health issue in an anthropological- phenomenological sense. In other words, the understanding of professional knowledge, and the consequent direction for professional practices, needs to incorporate the patient's interpretation of their own life situation, experiences and conceptual world. Accordingly, we suggest an elaborated version of the EBPM as illustrated in figure 3. In this version we propose a more pluralistic understanding of professional knowledge, that represents a broader concept of knowledge, that is currently being discussed in scholarly literature on EBM/EBP, however which have not yet been integrated into the EBPM. In the centre of our model is professional *praxis*; we view praxis as the balanced coming together of reflection and action, or put differently the balanced coming together of theory and practice. Our understanding is based on the definition of praxis presented by Kemmis and Smith (2008: 4):

> Praxis is a particular kind of action. It is action that is morally-committed, and oriented and informed by traditions in a field. It is the kind of action people are engaged in when they think about what their action will mean for the world. Praxis is what people do when they take into account all the circumstances and exigencies that confront them at a particular moment and then, taking the broadest view they can of what it is best to do, they act.

Figure 3: The Inclusive Evidence Based Practice Model

The circles in the Inclusive EBPM include: a) Research-based knowledge b) Ethical care and experience-based knowledge and c) Patient' s own knowledge and user involvement. Further, the different knowledge circles are stippled to illustrate that they are dynamic and that their size will vary from encounter to encounter – intersecting with each other and with the larger circle of context. Professional praxis emerges from this process of intersection between the pluralistic forms of knowledge.

The inclusive EBPM: Embracing pluralistic understandings of professional knowledge in health care practices

In this paper we have unwrapped conflicting logics within the hierarchical and circular/harmonical understandings embedded in the EBPM. We have pointed out how different understandings of truth and bias are implicitly embedded in different understandings of professional knowledge within the EBPM. Framing our exploration within an Aristotelian approach to professional knowledge, we have pinpointed conflicting logics (rooted in the model) with links to the past and to a hierarchical notion of knowledge inherited from Greek philosophy. Also, drawing on an

Aristotelian approach to professional knowledge, we have proposed an expansion to established understandings of the EBPM, arguing in favour of the integration of pluralistic conceptions of knowledge as a way forward. Furthermore, we have suggested an elaborated version of the EBPM taking into account recent discussions on EBM and EBP. Our inclusive version of the EBPM highlights that the concept of research-based knowledge includes both quantitative and qualitative methodologies and designs. Further, the elaborated circle of experience-based knowledge includes ethical care and clinical expertise. Whereas the elaborated circle of patient's own knowledge and user involvement, includes user involvement in terms of patient's values and preferences, and patient's own understanding and interpretation of her/his health issues and situation. Further, in our elaborated model we have used stippled lines to illustrate that the circles are not fixed and stable. Indeed, the circles are fluid - always in the making, implying that the size and significance of each of the circles in the EBPM will vary from encounter to encounter. In sum, by elaborating the EBPM and suggesting an inclusive version of the EBPM, pluralistic understandings of professional knowledge in health care are embraced. The overall aim of higher education is to develop students' capabilities for critical thinking. As the EBPM is used as a framework in health care higher education we argue it is of crucial importance to critical engage with the theoretical underpinnings of the model. As noted by Grimen, health care higher education should strive to enable students to provide professional services that improve the lives of *the Other* (the patient), that is to provide ethical care (Grimen, 2008). Accordingly, we propose the 'Inclusive Evidence-Based Practice Model' as a framework with potential to improve professional teaching and learning in higher health care educational programs. Future research is needed to examine how the concepts and the model in the established EBPM are enacted in practice by professionals and not least to see how different health care educational programs teach the model to students. Finally, further investigations and scholarly conversations about how the Inclusive Evidence-Based Practice Model might shape the education and practice health care professionals are proposed.

Acknowledgments

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