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SCHWERPUNKT

Competence training in evidence-based medicine for patients, patient counsellors, consumer representatives and health care professionals in Austria: a feasibility study

EBM-Kompetenztraining für Patientinnen und Patienten, Verbraucherberaterinnen und Verbraucherberater und Angehörige der Gesundheitsfachberufe in Österreich – eine Pilotstudie

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KEYWORDS

consumer advocacy;
patient advocacy;
patient counsellors;
evidence-based
medicine;
health literacy;
critical appraisal
skills

Summary

Background: Informed and shared decision-making require competences for both partners – healthcare professionals and patients. There is a lack of training courses in evidence-based medicine for patients and counsellors.

Objective: We investigated feasibility, acceptability and the potential effects of a 2x2.5 days training course on critical health competences in patients, patient counsellors, consumer representatives and healthcare professionals in Austria.

Methods: We adapted a previously developed curriculum for patient and consumer representatives. The adaptation comprised the specific needs of our target group in Austria and was founded on Carl Rogers' theory of person-centred education. For the formative evaluation a questionnaire was applied to address the domains: 1) organisational conditions (time and duration of the course, location, and information given in advance, registration); 2) assistance outside the courses; 3) teaching methods (performance of lecturers, teaching materials, structure of modules and blocks) and 4) satisfaction; 5) subjective assessment of competences. Participants evaluated the course, using a 5-point Likert scale. Long-term implementation was assessed using semi-structured interviews three to six months after the course. To estimate the increase in critical health competences we used the validated Critical Health Competence Test (CHC test).

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SCHLÜSSELWÖRTER

Verbrauchervertreter;
Patientenvertreter;
Patientenberater;
Evidenz-basierte
Medizin;
Gesundheitsbildung;
kritische Bewer-
tungskompetenz

Results Eleven training courses were conducted including 142 participants: patients (n = 21); self-help group representatives (n = 17); professional counsellors (n = 29); healthcare professionals (n = 10); psychologists (n = 8); teachers (n = 10) and others (n = 29).

97 out of 142 (68 %) participants returned the questionnaire. On average, participants strongly agreed or agreed to 1) organisational conditions: 71 % / 23 %; 2) assistance outside the courses: 96 % / 10 %; 3) teaching methods: 60 % / 28 %; and 4) satisfaction: 78 % / 20 %, respectively. Interviews showed that the training course raised awareness, activated and empowered participants. Participants passed the CHC test with mean person parameters of 463 ± 111 (pre-test, n = 120) and 547 ± 135 (post-test, n = 91). For participants who returned both tests (n = 71) person parameters were comparable: pre-test 466 ± 121 versus post-test 574 ± 100 , $p < 0,001$.

Conclusion: Training in evidence-based medicine for patients, patient counsellors, consumer representatives and healthcare professionals is feasible. For a broad implementation, train-the-trainer courses and further research are needed.

Zusammenfassung

Hintergrund: Informierte Entscheidungen und Shared Decision Making setzen Kompetenzen bei beiden Partnern (Professionellen und Patienten) des Entscheidungsprozesses voraus. Trainingskurse für Patienten, Patientenberater, Verbrauchervertreter, Berater und Angehörige von Gesundheitsfachberufen zum Erwerb von Kompetenzen in Evidenz-basierter Medizin fehlen.

Ziel: Wir haben die Machbarkeit, Akzeptanz und potentiellen Effekte eines evidenz-basierten Trainingskurses von 2x2,5 Tagen auf die kritische Gesundheitskompetenz von Patienten, Patientenberater, Verbrauchervertreter und Angehörigen von Gesundheitsfachberufen in Österreich getestet.

Methoden: Wir haben ein bereits für Patienten und Verbrauchervertreter entwickeltes Curriculum adaptiert. Die Anpassung basiert auf dem personenzentrierten Ansatz Carl Rogers und umfasste die Einbeziehung der spezifischen Bedürfnisse der Zielgruppe in Österreich. Für die formative Evaluation wurde ein Fragebogen eingesetzt, der folgende Aspekte adressierte: 1) organisatorische Bedingungen (Zeit und Dauer des Kurses, Veranstaltungsort, vorab versandte Information und Anmeldeverfahren 2) Betreuung außerhalb des Kurses 3) Unterrichtsmethoden (Durchführung der Kurse, Unterrichtsmaterialien, Struktur der Module und Unterrichtsblöcke) und 4) Zufriedenheit; 5) subjektive Einschätzung der erworbenen Kompetenzen. Die Teilnehmer bewerteten den Kurs anhand einer 5-Punkte Likert Skala. Die Langzeitimplementierung wurde anhand von semi-strukturierten Interviews drei bis sechs Monate nach dem Kurs exploriert. Die Abschätzung des Zuwachses an kritischer Gesundheitskompetenz erfolgte anhand des validierten Critical Health Competence Tests (CHC Test).

Ergebnisse: Es wurden elf Trainingskurse mit insgesamt 142 Teilnehmerinnen und Teilnehmern durchgeführt: Patienten (n = 21); Vertreter von Selbsthilfegruppen (n = 17); Berater (n = 29); Angehörige von Gesundheitsfachberufen (n = 10); Psychologen (n = 8); Lehrer (n = 10) und Andere (n = 29).

97 von 142 (68 %) der Teilnehmer haben den Fragebogen ausgefüllt. Im Mittel stimmten die Teilnehmer jeweils vollständig zu / stimmten zu: 1) organisatorische Bedingungen: 71 % / 23 %; 2) Betreuung außerhalb des Kurses: 96 % / 10 %; 3) Unterrichtsmethoden: 60 % / 28 %; and 4) Zufriedenheit: 78 % / 20 %. Die Interviews zeigten, dass der Trainingskurs zur Bewusstseinsbildung beiträgt und die Teilnehmer sowohl aktiviert als auch gestärkt hat. Die Teilnehmer erreichten im CHC Test mittlere Personenparameter von 463 ± 111 (pre-test, n = 120) und 547 ± 135 (post-test, n = 91). Teilnehmer, die beide Testszenarien bearbeitet haben (n = 71) erreichten vergleichbare Personenparameter: pre-test 466 ± 121 versus post-test 574 ± 100 , $p < 0,001$.

Fazit: Trainingskurse für den Erwerb von Basiskompetenzen der Evidenz-basierten Medizin für ausgewählte Patienten, Verbrauchervertreter, Berater und Angehörige von Gesundheitsfachberufen sind machbar. Für eine breite Implementierung sind Train-the-trainer Kurse und weitere Forschung notwendig.

Background

The paradigm shift from paternalism to informed and shared decision making is supported by the introduction of evidence-based medicine (EBM). As part of the new paradigm, patients and health authorities claim active patient roles [1,2]. Patients and consumers are already represented on health care boards and ethical committees.

They are involved in the development of health technology assessment, patient information or guidelines, applying EBM methodology [3]. In addition, some patient groups provide health information.

Informed and shared decision making require competences for both partners – health care professionals and patients. One major barrier is the poor health literacy among health care professionals [4,5] and patients [5–7].

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For a long time ethical guidelines have demanded evidence-based, clear and unbiased patient information and counselling in regard to diagnostic, therapeutic or preventive decisions [8]; yet evidence-based sources of health information remain limited [9]. In addition, training courses in EBM that address health care professionals and patients have been developed [10–12]. However the course “Training of patient and consumer representatives in the basic competences in evidence-based medicine”, developed at the University of Hamburg remains the only generic training program [12]. An update of our literature search did not reveal any new programmes. In Germany, various training courses in EBM, including courses for patients and consumer representatives, are offered [13–18]. Evaluation data have not been published.

In Austria, there has yet been little support for patients and their representatives to actively participate in decision making in health care on a structural level [19]. Pioneers in this field are the Women’s Health Centers following the long tradition of the women’s health movement advocating the right for evidence-based independent information and self-determined decision-making [20].

We adapted and piloted a 5-day training course in evidence-based medicine for counsellors, health care professionals and members of self-help groups named “Knowledge makes you strong and healthy” – A competence training to enhance critical health literacy”. The project was conducted by the Women’s Health Center, Graz, Austria in cooperation with the University of Hamburg. We investigated feasibility, acceptability and the potential effects on critical health competences. We applied the validated Critical Health Competence Test (CHC-Test) that operationalizes critical health literacy [21].

Methods

Our study covered two pre-defined phases: 1) adaptation of the curriculum 2) evaluation of the curriculum in a pre-post design.

Adaptation of the curriculum

The curriculum was based on the “Training of patient and consumer representatives in the basic competences in evidence-based medicine” held at the University of Hamburg [13]. The adaptation of the curriculum considered the specific needs of our target group in Austria. In order to develop a person centred curriculum, we founded the programme on Carl Rogers’ person centred education [22]. Therefore, we added modules on counselling and shared decision making. According to the principles of the Women’s Health Center, Graz we selected primarily female-specific topics of controversy in medicine and health care as examples to teach the general principles of the method of EBM: Hormone therapy in (post-) menopausal women, pap smear screening for cervical cancer, vaccination against human papillomavirus, mammography screening but also prostate specific antigen (PSA) screening for prostate cancer as a topics of interest for male participants. Table 1 displays an overview of the final structure, specific objectives, topics, materials, and methods of the EBM training courses (Tab. 1). Further

details of the programme have been published elsewhere [23].

Evaluation of the curriculum

Sample

The target group consisted of professional counsellors, members of self-help groups, health care professionals who in any way work in the field of patient participation and also patients and consumers who were interested in the competence training in Austria. Recruitment strategies comprised announcements on the website of Women’s Health Center, Graz, press releases, articles and flyers. Information on the training was sent to self-help groups, organisations in the field of health care and social work as well as educational and research institutions. In addition, participants promoted the course within their institutions, which resulted in a snowball system. Participation was free of charge and members of self-help groups could be refunded for travelling expenses. Two courses were exclusively offered to employees of two health insurance funds (Steirischen Gebietskrankenkasse (STGKK) and Versicherungsanstalt für Eisenbahnen und Bergbau (VAEB)) in Austria.

Design and procedure

We applied a pre-post design and offered 11 competence trainings. The courses took place in different parts of Austria: Courses comprised two blocks of 2.5 days, each preferentially from Thursday to Saturday. Time between the blocks (4–8 weeks) was provided to allow for practising and consolidation of knowledge.

Measurements

We combined qualitative and quantitative methods.

Study characteristics: Characteristics of study participants included age, sex, education degree, profession, and present professional activity. The questionnaire was part of the course registration.

Feasibility: Formative evaluation was used to improve programme performance. Evaluation sheets on teaching quality and content of the course modules were distributed after each course. We adapted the Women’s Health Centers’ questionnaire that has been developed to evaluate all courses offered. We addressed the domains: 1) organizational conditions (time and duration of the course, location, and information given in advance and registration); 2) assistance outside the courses; 3) teaching methods (performance of lecturers, teaching materials, structure of modules and blocks) and 4) contentedness. Participants evaluated each block of the course, using a 5-point Likert scale (1=strongly agree; 4=completely disagree; no answer). Finally, participants were asked to give suggestions for improvements.

In addition, expert interviews were conducted after the last course was finished to mainly explore the status of the continuous revision of the course and also the needs for further revisions. Experts were either experts in the field of development and provision of trainings and workshops for multipliers, offered by the Women’s Health Centre, Graz or experts in the field of evidence based medicine.

Table 1 Structure, objectives, topics, materials, and methods of the evidence-based competencies training.*

Days	Objectives: Participants ...	Topics	Material and methods
Day 1	<ul style="list-style-type: none"> • are familiar with patient rights and the status of patient participation in Austria and Germany • reflect their experiences regarding patient participation • develop perspectives for Austria • differentiate between expert-based and evidence-based information • know examples of fallacies of medical / health issues • reflect their attitude towards experts • understand which evidence is needed to draw conclusions about efficacy and safety of an intervention • know different study designs 	<p>Levels of patient participation: micro-, meso-, and macro level</p> <p>Training laypersons in EBM methodology and skills</p> <p>Fallacies of observational research</p> <p>HPV vaccination</p>	<p>Patient participation (Power-Point slides)</p> <p>Where and how would I like to participate? (small group discussion, flip-chart)</p> <p>Examples of expert-based treatment fallacies (Power-Point slides)</p> <p>EBM methods (Power-Point slides)</p> <p>Scenario HPV vaccination</p> <p>Examples of different study designs (Power-Point slides)</p>
Day 2	<ul style="list-style-type: none"> • define questions relevant to patients and consumers • draft a research question • know relevant sources of information • know sources of guidelines • are able to perform a PubMed database search (http://www.pubmed.gov) • apply operators (AND, OR, NOT, NEAR) • apply limits, truncations, thesaurus and free text • access or order an original study • read abstracts of different study designs • calculate event rates (EER, CER, absolute and relative risk reduction (ARR, RRR) and number needed to treat / to harm (NNT, NNH) • know the Cochrane Collaboration as producer of systematic reviews on various topics in health care • understand methods and aims of systematic reviews • know about Cochrane consumer information • read and critically appraise a systematic review 	<p>Developing a question, which could be answered by systematic literature search</p> <p>Introduction to sources of information especially databases, systematic literature search</p> <p>Menopausal hormone replacement therapy</p> <p>Critical appraisal of RCT</p> <p>HPV vaccination</p>	<p>Computers with internet access: relevant websites and PubMed (handout, individual work at computers), sections from two video-taped TV features on hormone replacement therapy (worksheet with key questions; plenary discussion)</p> <p>Abstract and tables of the Nurses' Health Study and the WHI study with additional tables (English-German vocabulary list and critical appraisal sheet; group work, plenary discussion, 2x2 table, Metaplan, calculators)</p> <p>Homework: WHI study (critical appraisal of the publication)</p> <p>Introduction to the Cochrane Collaboration (Power-Point slides)</p> <p>Systematic review on HPV vaccination or summary of the HTA report HPV vaccination in German language and a German translation of the INAHTA checklist</p>
Day 3	<ul style="list-style-type: none"> • reflect on mammography and PSA screening • understand possible test results (positive / false positive, negative / false negative) • calculate sensitivity, specificity, positive and negative predictive values • know the ethical implications of screening interventions • know benefit and lack of benefit and harm of screening • know framing of data in information on diagnostic tests 	<p>Diagnostic tests and screening interventions</p> <p>Ethical guidelines of screening information</p> <p>Summary and repetition</p>	<p>Diagnostic tests – introduction (Power-Point slides) and video</p> <p>Calculation of diagnostic measures (worksheets, work in groups of two, plenary session)</p> <p>Ethical Guidelines (worksheet)</p> <p>Game "study designs" cards A to E</p>

Table 1 (Continued)

Days	Objectives: Participants ...	Topics	Material and methods
Day 4	<ul style="list-style-type: none"> reflect on changes in interests since the first block reflect on doctors' roles of benevolent paternalism reflect their own handling of uncertainties consolidate calculations of EER, CER, ARR, RRR, NNT, NNH know basic procedures of drug approval and the relevance of institutional review boards know institutions that collect information on harm caused by medical treatments 	Uncertainty in medical decision making Event rates, ARR, RRR, NNT, NNH From clinical testing of new drugs to drug approval	Uncertainty (Mindmapping) Discussion of the homework WHI study (2x2 table, calculator) Reading and discussion of the publication on criteria for evidence-based patient information Overview about drug approval (Power-Point slides, plenary discussion)
Day 5	<ul style="list-style-type: none"> develop evidence-based patient information on breast cancer present study results using criteria of evidence-based patient information critically appraise patient information reflect on advantages and limits of DISCERN know the concept of Shared Decision Making know the difference between evidence-based patient information and decision aids develop selected parts of patient information and present their results 	Criteria for evidence-based patient information Instruments to assess patient information (DISCERN/EBPI) The concept of "Shared decision Making" (SDM)	Example breast cancer (group puzzle (risk communication, benefit, lack of benefit, harm; ARR, RRR; sensitivity, specificity, PPV, NPV), worksheets, papers, calculators) Various patient information on various topics DISCERN Checklist for evidence-based information Computers to access IQWiG website (www.gesundheitsinformation.de) or website of the health insurance fund AOK (www.aok.de) for decision aids on hormone replacement therapy or PSA screening, IPDAS Checklist
Day 6	<ul style="list-style-type: none"> clarify their information needs and preferences regarding decision making reflect any decision they made regarding medical subjects in the past prepare relevant steps for counselling sessions for informed decision making practise counselling watch and critically appraise counselling sessions redefine their goals regarding patient participation on either level (micro-, meso-, macro level) 	Informed decision making Counselling and informed decision making Enhancing patient orientation	Decisional conflict scale (worksheets) in English and German language, individual work, presentation and plenary discussion of selected results Counselling (role play using personal experiences or scenarios, additional information) Option scale (worksheet, work in small groups (micro-, meso-, macro level), plenary discussion)

* adapted from Berger et al. [11].

Long-term implementation: We assessed the long-term implementation of critical health competences using semi-structured interviews. The sample comprised ¼ of the participants of each of the first four courses. After further funding was secured, the strategy changed and we included 4 participants of each course. The sample was drawn from the three clusters describing the way of distributing information: counsellors, teachers, and patients. We asked participants to comment on areas of successful implementation into their professional and private context and also barriers to implementation. In addition, motivation

to participate was explored. The interviews were carried out as telephone interviews between three to six months after the course and lasted between 15 and 30 minutes. Due to the project time, the last 2 courses were interviewed two to three months after the course. Interviews were audio taped and transcribed. KE analysed the interviews, using qualitative content analysis methods [24].

Critical health competences: To estimate the increase in critical health competences we used the validated CHC test [21]. It is the first test to operationalize the construct critical health literacy. Reliability of the instrument is good

(0.91). Competences can be surveyed by applying only one of the four scenarios, which is time saving and avoiding cognitive overload of retested persons. Furthermore, the scenarios can be selected by difficulties, starting with the simpler ones. Thus the instrument allows tailored testing. Details of the development and validation of the instrument have been published elsewhere [21]. Measurements were taken right before the training started and directly after the course. We applied different scenarios of the CHC test for every measurement to avoid learning effects. Calculators were permitted. The participants were assured that data survey and processing would be performed pseudonymised.

In addition, the adapted Women's Health Center's questionnaire surveyed participants' subjective assessment of competences after each course using a 5-point Likert scale (1=strongly agree; 4=strongly disagree; no answer) [25]. In addition, competences were explored in semi-structured interviews.

Data analysis

Questionnaires were analysed by calculating frequencies. Open ended questions and interviews were analysed using qualitative content analysis methods [24].

The CHC test was coded by (AS) according to coding instructions and data entry was rechecked by a second person not involved in the study (SKM). Person parameters were calculated from the CHC Test and differences of means \pm SD of person parameters were compared by calculating unpaired t-test with SPSS 16.0.

Results

Participants

We conducted 11 courses between April 2008 and January 2011. The courses were held in Styria (n=6), Burgenland (n=1), Carinthia (n=1), Upper Austria (n=1), State of Vorarlberg (n=1), and Salzburg (n=1) and comprised 142 participants. Baseline characteristics are shown in table 2.

Feasibility of training courses

97 out of 142 (68%) participants returned the questionnaire. Results are shown in table 3. In addition, expert interviews (n=3) revealed that the curriculum was continuously revised according to the participants' feedback and lecturers' observations. The revisions mainly referred to language (less scientific language and fewer English texts), course schedule (inclusion of more examples, internal differentiation), and provision of additional material.

Long-term implementation

We interviewed 38 participants. Due to lack of availability via telephone, 2 participants returned their answers by emails.

The semi-structured interviews revealed 3 categories: awareness raising, activation, and empowerment.

Table 2 Characteristics of participants.

Participants	142
Female	129
Age, years	
range	20-69
Professional education	
University degree	69
Health care professionals	26
Other professions	47
Status of occupation	
Employed	116
Postgraduate professional education	11
Retired	8
Unemployed or suspended	7
Profession (clustered)*	
Patients	21
Self help group representatives	17
Professional counsellors	29
Health care professionals	10
Psychologists	8
Teachers	10
Others	29

* data based on 79 returned questionnaires, multiple answers were allowed.

Awareness raising: Participants became more critical in handling information. They expressed their needs for unbiased and comprehensive information in print / web information and also in doctor-patient communication. The necessity to weigh benefits and harms was expressed and conflicts of interest were considered.

I would say that I am more critical now and I also feel more confident. I do not get worried by those articles any more. I wasn't hysterical before for example regarding the flu vaccination. But I feel that I was encouraged not to get hysterical.

I become more critical about data, information, trials and so on and also about womens' health issues in general. Just citing any references –not any longer.

Activation: Participants searched databases and the web for and critically appraised health information. They applied their competences and began or increased their participation in the health care system. In addition, they encouraged others to participate.

Since I took part in the training I am better prepared and informed when I work with my clients. And whenever questions are raised that I cannot answer right away, my searches are now more extensive, more thoughtful.

Previously, I only used Google. Suddenly I dared to open PubMed and others. That was because I just participated in the training, that's why I dared to do that.

Empowerment: Participants felt more confident regarding their participation in health care.

Based on the material and my impressions, I tried to conduct a training for my colleagues considering their relevant topics. That means I worked up the knowledge I

Table 3 Formative evaluation.

Categories	number of participants (n = 97) (%) strongly agreed / agreed*
Organizational conditions: satisfaction with...	
length of the 2 x 2.5 days structure	49 (51) / 34 (35)
timeframe of the course	65 (67) / 22 (23)
location of the course	75 (77) / 17 (18)
material sent in advance	72 (74) / 23 (24)
handling of the application	82 (85) / 15 (15)
Assistance outside the courses: participants were...	
taken care of by the project coordinator	86-95† (87-98) / 8 (8)
individually looked after outside the course	89-97† (92-100) / 2 (2)
Teaching methods	
information on aims, content and course schedule was sufficient	52 (54) / 38 (39)
modules were well prepared	76 (78) / 20 (21)
interactive teaching methods were helpful	76 (78) / 20 (21)
exercises were helpful	75 (77) / 21 (22)
time for group work was sufficient	52 (54) / 38 (39)
time between the blocks was beneficial	48 (50) / 25 (26)
work assignments between the blocks were adequate	43 (44) / 35 (36)
time between the blocks allowed to delve into the material	30 (31) / 28 (29)
lectures considered participants' questions and interests	58-90† (60-93) / 6-24 (6-25)
satisfaction with the lecturers	36-80† (37-82) / 16-39 (17-40)
Satisfaction: participants...	
were satisfied with the course	64 (66) / 29 (30)
felt comfortable during the course	76 (78) / 21 (22)
would recommend the course	89 (92) / 2 (2)
wish to be offered further courses	74 (76) / 26 (27)

* (5-point Likert scale (1 = strongly agree; 4 = completely disagree; no answer).

† range due to different project coordinators and lectures.

gained in the course and told them about certain methods and instruments that they could apply to their work.

I feel empowered to ask questions. Whenever someone says "You have to do the test." I ask for information on sensitivity and specificity of the test. And also with screening, the information that is not usually provided. If I get the information, I can surely make a better decision.

Critical health competences

Overall, 130 participants filled in at least one scenario of the CHC test (120 (pre-test) and 91 (post-test)). 71 participants returned pre and post test scenarios. Participants passed the CHC test with mean person parameters of 463 ± 111 (pre-test, $n = 120$) and 547 ± 135 (post-test, $n = 91$). For participants who returned both tests ($n = 71$) person parameters were comparable: pre-test 466 ± 121 versus post-test 574 ± 100 , $p < 0,001$ (Fig. 1).

Results of subjective assessment of competences are based on 97 out of 142 (68%) questionnaires. 77 out of 97 strongly agreed / agreed that they could broaden their knowledge in at least one area; 60 / 35 out of 97 strongly agreed / agreed that the relevant competences were achieved and all participants strongly agreed that they had an individual benefit in at least one area.

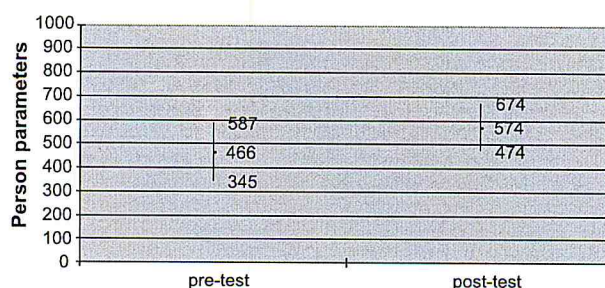


Figure 1 Person parameters of participants ($n = 71$). Values are means \pm SD ($P < 0,001$).

Discussion

Training critical health competences for professional counsellors, members of self-help groups and health care professionals is feasible and may enhance counselling and patients' participation in health care. The 5 day training course was associated with increased critical health literacy. The difference of approximately 110 person parameters may be considered relevant. For comparison, in "The Programme for International Student Assessment" (PISA) about 70 person parameters are needed to achieve a higher competence level.

Self-reported activation and empowerment of participants revealed a diversity of implementation. Comparable results have been reported for other programmes for health professionals [12,26,27]. Furthermore, a survey addressing long term implementation within three years after training of critical appraisal skills has shown that 40% of participants sometimes use knowledge from research journals [28].

Horsley et al. studied the effectiveness of educational interventions, teaching critical appraisal to health professionals [29]. Three studies were included in this Cochrane review. Results showed significant improvements in critical appraisal skills; patient outcomes were not evaluated. Since risk of bias was unclear, the authors raised some doubts about the results. In addition, Horsley et al. demand improvements to research, in particular randomised controlled trials [29].

Steckelberg et al. tested a train-the-trainer (TTT) curriculum with bachelor students of nursing science [30,31]. The curriculum was developed to support the implementation of the ebm@school curriculum for secondary school students [32]. In a pilot study, trained secondary school students achieved significantly higher person parameters (\pm SD) than the control group: 597 (\pm 79) versus 483 (\pm 94), $p < 0.01$. The TTT seminar was spread over one semester and was carried out applying the self-directed learning method. Critical health competences were surveyed before and after the seminar. The students achieved higher person parameters in the post test: 493 (\pm 62) versus 577 (\pm 84). These data do not allow statements on efficacy, but are helpful in estimating the expected effects in further prospective controlled studies. A feasibility study with a small sample of 12 teachers of secondary schools showed comparable person parameters: 535 \pm 93 [33].

Barriers to implementation such as difficulties in reading publications in English [12,26,27] or insufficient time at work to implement changes [28] have been reported for comparable trainings.

Our study has some strengths. Few programmes offer generic EBM skills training to professional counsellors, members of self-help groups and health care professionals. In addition we included health care employees, a target group that had not been addressed before. We succeeded in training a very heterogeneous group regarding their preconditions. It is the first programme including shared decision making into EBM training courses.

Our study has several limitations. We tested feasibility in a pre-post test design without a control group. Questionnaire response rates were incomplete due to various reasons: illness and early departure of study participants. Some participants completed just one module because release from work was no longer granted. Study participants had higher educational backgrounds. In addition, the majority of participants had prior knowledge of medical topics. Offering such programmes to target groups without such educational backgrounds, would need further didactic reduction of the material. The long-term evaluation of the study is only descriptive and assessors were not blinded. In addition, further courses should include qualitative subgroup analyses to explore differences between the groups, especially regarding long term implementation.

Conclusions

Further research is needed to evaluate the curriculum in a randomised controlled trial. In addition, Train-the-Trainer courses that also include teachers as a target group would be necessary for broad implementation of EBM competence trainings. Furthermore, structural development is needed to disseminate these courses. These efforts might hopefully enable women and men, no matter whether they are patients or members of health insurances, to become the third power of the health care system, in line with the slogan: "Physicians down from the pedestal, patients up from their knees" [34].

Conflict of Interest

The authors declare that no conflicts of interest exist.

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