

Professional views on patient education in osteoporosis

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Abstract

Summary The aim of this study was to investigate patient education in osteoporosis, with a consensus-building Delphi survey. The results showed that the purposes of osteoporosis schools are to reduce the risk of falling, facilitate empowerment, increase levels of function and activity and teach participants to master or reduce pain.

Introduction According to the World Health Organization, osteoporosis is a major health problem. The morbidity is caused by fractures associated with pain and decreased physical function, social function and well-being. The aim of this study was to investigate and reach consensus about how so-called osteoporosis schools are run by professionals in Sweden with a focus on intervention and evaluation.

Method The study design was a consensus-building, three-round Delphi survey. Questionnaires were sent by web and post to an expert panel comprising 15 nurses, occupational therapists and physiotherapists. In round 1, they were asked to write descriptions within the frame of eight domains related to intervention and evaluation. In the second and third rounds, the Delphi panel was asked to mark on a Likert scale the importance of 40 statements within these domains.

Results The answers showed that the purposes of osteoporosis schools are to reduce the risk of falling, facilitate empowerment, increase levels of function and activity and

teach participants to master or reduce pain. The schools comprise theoretical elements as well as practical exercises. Patients with fractures related to osteoporosis are offered participation. There is a lack of a theoretical basis, as well as of evidence, for present treatment models. Evaluation ought to be done systematically, and for this purpose, different questionnaires are used. Experts assert that evaluations show that patients gain increased activity levels, function, knowledge about osteoporosis, empowerment and pain reduction.

Conclusions Consensus was reached in 29 of 40 items.

Keywords Cross-professional · Delphi technique · Fractures · Patient education

Introduction

According to the World Health Organization, osteoporosis is a major health problem that affects around 75 million people in Europe, Japan and the USA. It causes more than 2.3 million hip, spine and wrist fractures yearly in Europe and the USA alone. Osteoporosis is defined as a state of low bone mass and micro-architectural deterioration leading to enhanced bone fragility and, consequently, an increased fracture risk [1]. Low bone mass is a precursor to osteoporosis [2]. Common osteoporotic fractures are those of the vertebrae, hip, upper arm and distal radius [3–5] that occur after minimal trauma. The morbidity of osteoporosis is caused by fractures associated with pain and decreased physical function, social function and well-being [6–8]. Therefore, it is essential to identify and treat osteoporosis as early as possible, especially before fractures occur. Prevalent fractures substantially increase the risk of future fractures [2, 4]. Norway and Sweden have the highest

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incidence of osteoporotic fractures worldwide, and the total costs for the Swedish society (9 million inhabitants) in 2002 were calculated at 3.5 billion Swedish crowns (500 million US dollars) [4].

An osteoporosis school is a cross-professional group treatment for patients with osteoporotic-related fractures [9]. The aim of osteoporosis schools is to use theoretical as well as practical education to increase patients' knowledge of osteoporosis [9]. A randomised controlled study describes that increased knowledge of osteoporosis increases compliance with specific medication that reduces the incidence of fractures [9]. The International Classification of Functioning, Disability and Health (ICF) [10] describes the importance of participation. This refers to people's involvement in life situations, and participation restrictions are problems that a person can experience when engaging in different life situations [10]. When there is engagement, occupations are meaningful and actions are purposeful [11]. A randomised study of patients with hip fractures examined whether a group learning programme would influence the participants' perceived activity performance and ability to participate in social life [12]. The results of the study show a significantly better ability of patients with osteoporosis to participate in social life after the intervention [12]. As hip fractures are often related to osteoporosis, the study may indicate that group treatment for patients diagnosed with osteoporosis is a useful complement to medication and other kinds of treatment. For example, there is strong evidence given by type 2 diabetes education programmes, led by people with knowledge of the topic and pedagogic methods for groups of patients with diabetes mellitus type 2, that there is a significant decrease in glucose after 1 to 2 years [13]. Individual education for such patients does not have the same strong effect [13].

Studies have shown positive results in patient education to improve the use of non-pharmacologic preventive measures for osteoporosis [9, 14]. People are 'occupational beings,' which means that individuals have a need for activities with meaning, and 'occupation' concerns everything people want or need to do [15]. Furthermore, people strive for 'doing,' 'being' and 'becoming' when engaging in activities. This engagement in certain kinds of activities is important, in order to prevent osteoporosis and falls with fractures as a consequence [16]. Physical inactivity and the risk of falling increase the risk of fractures related to osteoporosis [4, 17]. Activity promotes health and prevents illness to a great extent. An osteoporosis school is an example of a group intervention that aims to prevent falls and fractures and to keep or fortify people's activity abilities, which in turn leads to better health [15]. In the ICF [10], 'activity' is defined as a person's accomplishment of a task or an action and 'participation' as engagement in a

life situation. A restriction in activity and participation causes difficulties in activity performance and leads to problems in engaging in life situations [11]. Since there are only a few studies published on this specific topic, the present study aimed to investigate and reach consensus about how so-called osteoporosis schools are run by professionals in Sweden with a focus on intervention and evaluation.

Methods

Methodological approach

This study has a descriptive design. A consensus-building, three-round survey was conducted, and questionnaires were sent by web and post to professional experts using the Delphi technique [18].

The Delphi technique is a structured communication process with four key characteristics: anonymity, iteration with controlled feedback, statistical group response and expert input [19–21]. The Delphi technique is an important method for achieving consensus where it has not existed before. It allows the anonymous inclusion of a large number of individuals across diverse locations and expertise and avoids the situation in which a specific expert may dominate the consensus process. This method involves the presentation of a questionnaire to a panel of informed individuals in a specific field to seek their own opinions. After the questionnaires are returned, the data are summarised, and a new questionnaire is designed, based on the responses from the previous round. Participants are asked to reconsider their responses in light of the results of the overall group response and the participants' own responses [18]. The Delphi technique requires a continuous commitment from the participants, as they are questioned about the same topic over and over again, although with slightly modified questionnaires [22].

Selection of experts

This study is based on 15 enrolled professionals who either work with an osteoporosis school or with recent such experience from the past 3 years [22–24]. The sample size was set at 17 experts with two external dropouts, one nurse and one occupational therapist, whose contribution to the study did not provide sufficient data for both categorical and quantitative analyses. Most of the experts had long professional experience, range 16–20 years, and their experience from osteoporosis schools was between 6 and 10 years. The professionals, five nurses, five occupational therapists and seven physiotherapists, were found in a Google search, as they were connected to an osteoporosis

school at the hospital where they worked. Additionally, contacts were made with already known hospital osteoporosis units in order to find more experts, although without success. Osteoporosis schools are not common in Sweden, and 20 representatives within hospital care have been contacted. Primary care was excluded as there were no such osteoporosis schools found in the Google search and the author thus thought it would be less common than in hospitals. The experts were spread nationally and were initially contacted by phone. When they had given informed consent to participate in the Delphi panel of experts, they were also contacted by e-mail so that they could receive written information about the study. If the sample has an understanding of the study aims and the process, it enables the building of a research relationship [23, 25].

Data collection procedures

Round 1: The first questionnaire was tested in a pilot study by a colleague who did not participate in the main study to ensure that the questions were understandable. The questionnaire withheld open-ended questions in eight domains in which the experts were asked to describe causes of contact, interventions, assessments, treatment models, goals and critical attitudes towards the osteoporosis school where they worked or had been working, facilitating participation and evaluation. **Rounds 2 and 3:** The following questionnaires were constructed from the answers given in the previous round, and the experts were asked to mark how important the statements were on a five-point Likert scale [26]. In order to make it possible to give feedback, the questionnaires were sent by post. Questionnaires 2 and 3 were identical, but in round 3, they also received feedback on how the experts had answered in round 2, in order to decide whether they wanted to stand by their opinions or change them. In round 1, 88% ($n=15$) answered; in round 2, 82% ($n=14$) answered; and in round 3, 88% ($n=15$) answered. There were two dropouts in round 1, three in round 2 and two in round 3.

Data analysis

In round 1, 40 statements were constructed by the author from the experts' descriptions in relation to the eight domains. Collected data from rounds 1 and 2 were put together by descriptive statistics in a computer programme, comprising the basis of the next round questionnaire (rounds 2 and 3). The first statement was as follows:

- Cause of contact for participants in osteoporosis school is distal radial fracture. The participants were asked to mark on a Likert-type scale whether they 'totally

agreed,' 'partly agreed,' 'barely agreed,' 'did not agree at all' or 'did not know.'

The experts received the statistics as feedback before a new decision on each statement was to be made. Each statement was analysed in a formula for percentage agreement (PA). The following formula was used to calculate percentage agreement [27, 28]:

$$PA = \frac{\text{Totally agree and partly agree}}{\text{Totally agree and partly agree} + \text{partly disagree and disagree}}$$

The PA values were integrated with the descriptions of agreement from rounds 2 and 3. The level of consensus was set to $\geq 70\%$ in round 3, which seems reasonable in the aspect that there were different professions on the panel [29, 30].

Ethical considerations

Informed consent was obtained after the process in which oral and written information was given to the experts, including guaranteed confidentiality. The study did not aim to influence the experts but to map their opinions. Throughout the study, no one but the author had access to the experts' personal information, and the written material was treated with strict confidentiality [31].

Results

Round 1: mapping how osteoporosis schools were managed and evaluated

Causes of contact and management

Causes of contact with the school were osteoporosis diagnosis, fractures, falls and being an in-patient at a geriatric or an orthopaedic unit. Other patients were out-patients at an osteoporosis unit. Some patients had a need for more empowerment and knowledge about their diagnosis. The aim of a few of the schools was to educate these patients at an early stage. Usually, the patients had undergone a bone scan after the first probable osteoporosis fracture.

The frequency of classes differed from one to ten meetings, 1 to 2 h each session. If there was more extensive content in the meetings, the occasions were more frequent as there were more professions involved, for example, giving lectures and practical exercise. If only one profession was involved, it was often a nurse who held a single lecture. When there were two professions, they were most commonly a nurse and a physiotherapist. When there were more than two professions, they were often occupational

therapists, doctors, dieticians, social workers and certified orthotists.

Interventions

There was great variation in the interventions within the school, regarding lectures on what causes the disease, medical treatment, anatomy, ergonomics, clothes, facilitating activity, pain relief, fall prevention at home, patient association, diet and the process of changing one's lifestyle. There were also practical exercises offering recommendations about different kinds of physical exercise, intensity, duration and movements to avoid. Furthermore, there were practical exercises in balance, relaxation, ergonomics, testing technical devices, cooking suitable food, facilitating personal care, home life and leisure, and enjoyable activities like dance and qigong.

Assessments

In connection with the school, the experts undertook different kinds of assessments. Nine of the 15 respondents said that they assessed patients in connection with the school, while six did not. Some examples were the use of questionnaires to chart risk factors for osteoporosis, physical balance tests, muscular strength and gait speed, anamnesis, personal habits, level of activity, pain measured using the visual analogue scale, ability to transfer and need of technical devices.

Treatment models

Only two examples of treatment models were identified: assessment of 'stages of change' and 'motivational interviewing.' Eleven experts answered that they do not use any specific treatment models. Three gave general examples, such as exercises to prevent falls, lighter physiotherapeutic exercise programmes and exercises to improve balance, gait ability, pain and function. One expert answered 'do not know,' but commented this with 'own arrangement.'

Goals

The goals of the patient education were to increase consciousness about one's own ability, empowerment, to prevent or reduce falls, to inspire the participants to become more physically active, not to let the disease limit the patients, to make the participants feel more secure at home and to make them aware that osteoporosis is a stage and that there is effective prevention available. Also, there were goals such as helping the patients to be well informed and gain knowledge about quality improvement in order to reduce falls and fractures, increase their level of activity,

muscle strength and balance, learn to master or reduce pain, facilitate daily activities, home life and leisure, and increase the awareness of the patient and his or her relatives about the possibilities to live an active life.

Critical attitudes

The experts were asked about their critical attitudes towards the school where they practise or had been practising recently. Among the things they felt should be changed, the experts mentioned younger patients who would retain information more easily and that they would prefer more time for each patient, to have classes more often and to be able to offer participation to more patients. Another idea was to separate the patients into two groups (with and without fractures) since their needs are different. A few of the experts wished that the patients would be actualized by an admission note from a doctor. They would like to make home visits, focus more on the processes within change in health and risk behaviour and make a short version of the osteoporosis school contents more available to patients with cognitive deficits. Time to spend on searching scientific evidence for different parts of the school and evaluating it with some kind of follow-up were other suggestions for improvements. There were also suggestions to run the school within primary care so that it would be more accessible to the patients.

Facilitating participation

The Delphi experts suggest inviting relatives to the school so that they can help prevent falls at home, and that to have well-informed patients and participating staff, the group should be homogenous with the same physical conditions that facilitate patient participation. An open and welcoming climate is positive with a dialogue that invites people to express their expectations before school starts. This would facilitate for patients who need help with their travel or if patients who manage to travel independently need the possibility of individual treatment. Therefore, there cannot be too many participants in the school if one is to have a dialogue with everyone. Also, they need to speak Swedish and be prepared to participate on every occasion. It was also suggested from the experts that the patient should have a referral from a general practitioner as well as the space and time to fit the schedule.

Evaluation

The experts were asked in what way they evaluated their osteoporosis school. The frequency of evaluations at the schools varied, from zero to more than one occasion. Most common was to hand out some sort of questionnaire at the

last session. Tests were also conducted before and after interventions, and questionnaires were distributed in connection with the school or at follow-ups after 6 months and 2 years. One expert described regular team meetings twice a year to develop the school. There was also an example of a qualitative study with interviews and an evaluation with a focus on effects.

The results of the evaluations gave the professionals feedback about the school. Additionally, they gained greater knowledge about women's motivational processes towards health behaviour in osteoporosis. Generally, the evaluations were positive, and the patients had estimated an increased activity level, function, knowledge of osteoporosis, empowerment and pain reduction. In fact, the physical activity levels had often increased, and the patients had changed their routines and diets. Knowledge of 'quality improvement' methods was not mentioned among the experts. The patients also appreciated cross-professional lectures and meeting other people with the same problems as they ascribed themselves. It is possible that they learned to think positively about their situation and wanted to be able to continue exercising together as well as to have a follow-up meeting further on.

There were other comments from the Delphi experts. Some felt that the osteoporosis school was a positive activity that in a simple and informative manner could increase knowledge and empowerment for the patients. Sometimes, there was a problem prioritising the school as work task since the professionals also had other responsibilities. The patients' relatives were valued as a group to invite to the school. There was also a wish that osteoporosis schools were more widespread since there is great societal cost associated with fractures, which is why preventive work is essential.

Consensus and disagreement from rounds 2 and 3

The eight domains are presented as six domains; due to text layout, assessment and treatment models as well as goals and facilitating participation have been combined. The consensus and disagreement in round 3 are presented in PA values from round 3; see [Appendix](#).

Causes of contact

Patients who were offered participation in osteoporosis schools were diagnosed with osteoporosis but did not always have a former fracture related to osteoporosis. According to SBU, there is evidence that previous fractures in both men and women indicate a risk for new fractures, which is why the patients were offered participation in an osteoporosis school. The Delphi experts did not agree about cause of contact. As a result, there was no agreement on an increasing number of patients for osteoporosis schools.

Interventions

According to the experts, a suitable group size for an osteoporosis school is ten participants. There was total consensus that participants are mainly female as it is mainly a female phenomenon and that the overall aim is to prevent falls. The school should consist of both theoretical elements and practical exercises and should be run by a cross-professional team. The experts were also asked whether technical devices for personal care or home life were prescribed in connection with the school, but this was quite uncommon. However, devices for personal care were slightly more frequent than technical devices for facilitating home life. Follow-up meetings and opportunities for continuous exercise are something the patients generally ask for.

Assessments and treatment models

There is evidence that for diagnosing osteoporosis, a DXA bone densitometry of the hip and lumbar spine is recommended. The Delphi experts stated that in some cases, osteoporosis is diagnosed on other bases, such as a bone scan on the heel or the forearm. It does not seem to be obligatory to do an assessment of level of activity and functional ability. There is no strategy for assessing ability of activity initially to get a basis for evaluation. There is also a lack of treatment models suitable for osteoporosis schools and a shortage of theoretical framework as well as evidence for occurring treatment models. Discussions for motivating the patients are a frequently used treatment model.

Critical attitude

The experts had different suggestions about future change and improvement of the osteoporosis schools. Preferably, it should take place within primary care and not in hospitals, as is most common. More research about osteoporosis schools as a treatment method is required, and the method needs to be based on theory, for example motivational interviewing. Osteoporosis schools need to focus on the processes for changing health and risk behaviour. Knowledge of quality improvement methods could be applicable within osteoporosis schools. There was consensus from six experts, and the remaining experts chose the do not know alternative.

Goals and facilitating participation

Regarding goal setting, the experts reached total consensus. Osteoporosis schools aim to prevent the risk of falling, to fortify the participants' own power and to increase

consciousness of their own abilities. It is also important to mediate the patients to dare to move, in order to fortify and maintain their skills of activity and functioning and, consequently, reduce their risk of falling.

Other things that facilitate patient participation in the osteoporosis schools are having physical qualifications similar to those of the other participants as well as participating and supportive relatives. Also, being able to travel to and from the osteoporosis school in a flexible way facilitates participation.

Evaluation methods and results

Evaluations of the osteoporosis schools should be done systematically. There was consensus from 12 of the experts that evaluation ought to be done with a questionnaire, although three respondents did not agree on this. There are also examples of the treatment being evaluated with a phone call, but these lack consensus.

From the statements about the evaluation results, there was consensus within all four, but two experts answered do not know to three of the statements and five answered do not know to the fourth statement. Results from evaluations by different osteoporosis schools have shown increased physical activity in participating patients and that they have changed their performance in certain activities. The patients experience better disease control once they have taken part in an osteoporosis school. There was consensus that patients with vertebrae fractures experience greater benefits from participating in osteoporosis schools than do patients with other osteoporosis fractures.

Discussion

Total consensus was reached in the following domains: treatment models, goals, critical attitude, facilitating participation and evaluation results. There was consensus about lack of treatment models. Each profession has their own specific models that may be applicable to osteoporosis schools; for occupational therapists, one example is the occupational therapy intervention process model [11]. Its perspective on function has a focus on occupation, and it describes a problem-solving process to assess the client and to plan and undertake therapeutic activities, in order to increase the client's engagement and satisfaction with his or her activities. Perhaps the professionals are not used to discussing treatment models and therefore do not find them notable. The experts reached consensus that the goals of the osteoporosis schools are to prevent falls and to fortify the participants' own power. The patients take part in restorative occupation, actively participating in graded occupation in order to treat, for example, impairments of balance or lack of endurance when

performing certain tasks, and it may serve as an intervention when the therapists work directly with the patient or an indirect intervention when the practitioner teaches someone else, for example a relative of the patient [10, 11].

Also, consensus was reached in six of eight statements about interventions and in two of three statements about evaluation methods. The patients experienced increased empowerment through participating in the school. It is important to encourage older people to do what they can and want to do instead of telling them what they cannot do [15]. This may be one of the causes of the patients' positive experiences of the osteoporosis schools.

There was no consensus in the domains of causes of contact and assessments. The experts only agreed on the fact that there is evidence that previous osteoporosis-related fractures in both men and women comprise a risk factor for new fractures and that it is therefore they are offered participation in osteoporosis schools [4, 5]. When there are deficits in the components of one's body structures, such as the structure of the trunk lower extremity, this will lead to problems with body functions, such as neuromusculoskeletal and movement-related functions [10].

In terms of assessments, there was no consensus that when diagnosing osteoporosis, a DXA bone densitometry of hip and lumbar spine is recommended. There is evidence that DXA measurements can predict the risk of osteoporotic fractures, especially in elderly women. The DXA measurement on the hip is the best way to predict the risk of hip fracture, and a DXA on the lumbar spine predicts the risk of a vertebral fracture. However, there is no exact method or specific part of bone to measure to predict the risk of a fracture in all skeletal parts [4].

There was no consensus about the statement that it is obligatory to assess the patients' functional and activity abilities at osteoporosis schools, or that assessment of activity ability should be made initially in order to build up a basis for evaluation.

The method ought to be used as a means for structuring group discussions and raising issues for debate [23, 32]. The definition of expert ranges from 'informed individual' to 'specialist in the field' to 'someone who has knowledge about a specific subject' [26, 32–35]. Thus, the simple fact that someone has certain knowledge in the field does not necessarily mean he or she is an expert. However, there are only a few professionals with knowledge of osteoporosis schools in this country, which is why they are regarded as experts in this study. These schools are established not only in some of the largest hospitals but also in county units. Perhaps it could be argued that the value of the experts' clinical expertise is the strength in uncovering ideas and information in an area with an incomplete state of knowledge [36]. The expert panel showed great involvement in the study, even though it was most certainly time consuming for

them. The frequency of the response rate was high, which is why it is likely that the experts found the subject important. The question about methodology within quality improvement knowledge had a great dropout. Possibly, it is not a very well-known concept. There is some evidence that points to the fact that a consumer-led training programme enables quality improvement-based practice [37].

There are many variants of the classical Delphi method [38]. It may be difficult to vouch for the reliability of the Delphi method since we do not know for sure if the same results would be obtained if the same information were given to two or more panels. The method itself has a built-in reliability, as it is repeated. The validity of results is affected by the response rates, as the Delphi technique is based on the assumption of safety in numbers [23]. We decided that three rounds would be appropriate, as this is representative of a Delphi study; commonly, two or three rounds are undertaken [39]. We might have achieved consensus on more statements if we had done one or two more rounds, but there is also a risk of sample fatigue [22]. In this study, consensus was declared when at least 70% agreed; consensus levels may fluctuate between 51% and 80% [23]. It seemed appropriate not to seek the highest level of consensus; as the panel of experts represented different professions, their opinions thus would probably differ. Consensus was reached in 29 of 40 statements.

Limitations

The results show that there was consensus that the school ought to be run within primary care, possibly since primary care is more accessible to patients and works with preventive care. Staff from osteoporosis schools in primary care was excluded since those schools are rarer than those run in hospitals and could not be easily found in the Google search. The author also assumed that it would be even more difficult to gain consensus with experts from different organisations. There is a possibility that excluding primary care in this study has given a smaller and more homogeneous group of experts.

When using the computer evaluation programme, it was not possible to identify each expert in round 2, and therefore, the author could not get in touch with the experts who did not answer.

Conflict of interest There is no conflict of interest in this original article.

Appendix

Tables 1 and 2.

Table 1 Excerpt from the osteoporosis school specific questionnaire, 'Delphi round 3'

Cause of contact						
Nr	Declarative sentences	Totally agree	Partially agree	Barely agree	Do not agree at all	Do not know
1	Patients with an osteoporosis diagnosis were invited to participate in osteoporosis schools	10	1	3	0	0

Table 2 Statements about the evaluation results

Nr	Statements	Totally agree	Partly agree	Barely agree	Do not agree at all	Do not know	Percentage agreement	PA value
Causes of contact								
1	Patients offered to participate in osteoporosis schools are diagnosed with osteoporosis	11	2	2	0	0	87	0.87
2	Patients offered to participate in osteoporosis schools have at least one osteoporotic fracture	4	6	3	2	0	67	0.67
3	Cause of contact for participants in osteoporosis school is distal radial fracture	2	3	2	8	0	33	0.33
4	There is evidence that previous osteoporotic-related fracture in both men and women is a risk factor for a new fracture, and therefore, patients are offered to participate in an osteoporosis school	10	5	0	0	0	100	1
5	Cause of contact for participants in osteoporosis schools is one or several vertebral fractures	0	5	4	6	0	33	0.33

Table 2 (continued)

Nr	Statements	Totally agree	Partly agree	Barely agree	Do not agree at all	Do not know	Percentage agreement	PA value
6	Cause of contact for participants in osteoporosis schools is hip fracture	0	4	5	6	0	27	0.27
7	The amount of patients offered to participate in osteoporosis school is increasing	2	1	8	3	1	21	0.21
Interventions								
8	A suitable group for an osteoporosis school consists of ten patients	4	8	1	2	0	80	0.8
9	The participants in osteoporosis schools are mainly women	15	0	0	0	0	100	1
10	Osteoporosis school consists of theoretical as well as practical exercises	14	1	0	0	0	100	1
11	Osteoporosis school aims to prevent falls	11	4	0	0	0	100	1
12	Technical devices for personal care are prescribed at osteoporosis schools	0	9	2	4	0	60	0.6
13	Technical devices to facilitate patients life at home are prescribed at osteoporosis schools	0	6	4	5	0	40	0.4
14	Osteoporosis school is run by a cross-professional team	13	2	0	0	0	100	1
15	Follow-up meetings and possibilities to continuous exercise are wishes from the participants in osteoporosis school	6	8	1	0	0	93	0.93
Assessments								
16	To diagnose osteoporosis a DXA bone densitometry of hip and lumbar spine is recommended	9	0	5	0	1	60	0.64
17	It is obligatory to assess the patients functional and activity ability at the osteoporosis school	2	1	9	3	0	20	0.2
18	Assessment of activity ability is made initially to build a basis of evaluation	1	3	9	2	0	27	0.27
Treatment models								
19	There is a lack of treatment models suitable for osteoporosis schools	2	12	1	0	0	93	0.93
20	Motivational interviewing is used as a treatment model at osteoporosis schools	0	12	3	0	0	80	0.8
21	There is a lack of theoretical base for osteoporosis schools	0	12	3	0	0	80	0.8
22	There is a lack of evidence for the treatment models used at osteoporosis schools	5	9	0	0	1	93	1
Goals								
23	One goal of osteoporosis schools is to reduce risk of falls	15	0	0	0	0	100	1
24	One goal of osteoporosis schools is to strengthen the empowerment of the participants and increase their knowledge of own ability	15	0	0	0	0	100	1
25	It is important to mediate the importance of daring to move to strengthen and keep ability of function and activity and then reduce risk of falls	15	0	0	0	0	100	1
Critical attitude								
26	Osteoporosis schools should be run within primary care	2	10	3	0	0	80	0.8
27	More research is needed on osteoporosis schools as a treatment method	12	3	0	0	0	100	1
28	Osteoporosis schools need attachment to theory	12	3	0	0	0	100	1
29	Osteoporosis schools need to focus on processes within health and risk behaviour	6	9	0	0	0	100	1
30	Methods within knowledge of quality improvement could be used within osteoporosis schools	1	5	0	0	9	40	1
Facilitating participation								
31	Comfortable travel arrangements for commuting to osteoporosis schools enable participation	15	0	0	0	0	100	1
32	Osteoporosis schools benefit from equal physical prerequisites in patients	2	11	2	0	0	87	0.87

Table 2 (continued)

Nr	Statements	Totally agree	Partly agree	Barely agree	Do not agree at all	Do not know	Percentage agreement	PA value
33	If relatives are involved in osteoporosis schools, patient participation is facilitated	2	12	1	0	0	93	0.93
Evaluation methods								
34	Evaluation of osteoporosis schools should be done in a systematic way	14	1	0	0	0	100	1
35	Osteoporosis schools are evaluated by use of a questionnaire	10	2	0	3	0	80	0.8
36	Osteoporosis schools are followed up by a telephone call	0	2	8	5	0	13	0.13
Evaluation results								
37	When evaluating osteoporosis schools, physical activity has increased among the participants	4	9	0	0	2	87	1
38	When evaluating osteoporosis schools, participants have changed performance of certain activities	4	9	0	0	2	87	1
39	Participants experience an increased self-control over their disease when having participated in osteoporosis schools	5	8	0	0	2	87	1
40	Patients with vertebral fractures gain more from osteoporosis schools than other osteoporotic patients	1	7	2	0	5	53	0.8
							29/40=72%	

Round 3 percentage agreement

$$\text{PA value} = \frac{\text{Totally agree and partly agree}}{\text{Totally agree and partly agree} + \text{partly disagree and disagree}}$$

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