Emma O Billington, A Lynn Feasel, Jessica L VanDyke and Gregory A Kline

Group medical consultation for osteoporosis:

a prospective pilot study of patient experience in Canadian tertiary care

Abstract

Background
Delivery of patient-centred care is limited by physician time. Group medical consultations may save physician time without compromising patient experience.

Aim
To assess patient experience and specialist physician time commitment in a group consultation for osteoporosis.

Design and setting
Prospective pilot study at a tertiary osteoporosis centre in Canada between May 2016 and June 2019.

Method
The authors evaluated women referred for osteoporosis who chose a 2-hour group consultation instead of a one-to-one consultation. Group consultations were led by an osteoporosis nurse and specialist physician, and consisted of individualised fracture risk assessment and education regarding osteoporosis therapies, followed by a decision-making exercise to choose a treatment plan. Patients then followed up with their GPs to implement this plan. Patient experience was assessed via a questionnaire immediately and 3 months post-consultation, at which time GP satisfaction and patient treatment status were also surveyed.

Results
Of 560 referrals received, 18 patients declined osteoporosis specialist assessment, 54 could not be contacted, 303 attended a one-to-one consultation, and 185 attended a group consultation. Mean participant age was 62.8 years (standard deviation [SD] 5.8) and the Fracture Risk Assessment Tool (FRAX) 10-year osteoporotic fracture risk was 13.0 (SD 7.0)%. Immediately post-consultation, 104 (97.2%) patients were satisfied and 102 (95.3%) felt included in decision making. Satisfaction was reported by 95/99 (96.0%) patients and 27/36 (75.0%) GPs. Treatment plans had been enacted by 90 (90.1%) patients. For a matched number of individual consultations, each group session conferred a specialist physician time savings of 5.5 hours.

Conclusion
Group consultations represent a satisfactory and time-efficient alternative to one-to-one consultations for select patients with osteoporosis.

Keywords
family practice; osteoporosis; patient education; patient preference; primary health care.

INTRODUCTION

Access to care and shared decision making are considered integral components of patient-centred health care.[1,2] However, patients often face long waiting times for access to specialists[3–5] and experience shared decision making infrequently;[6,7] these issues are particularly problematic in the context of publicly funded healthcare systems. Delivery of timely care that is sensitive to patient values and preferences is resource dependent, and physician time is a rate-limiting step in both primary and specialty care environments.[8,9]

Chronic health conditions, such as osteoporosis, are highly prevalent and involve multiple preference-sensitive management decisions that demand a shared decision-making approach.[10] This is particularly susceptible to the physician time deficit. Guidelines recommend that all persons at risk of fragility fracture receive individualised assessment of fracture risk.[11,12] However, decisions to initiate osteoporosis treatment are nuanced and highly individualised, with at least six different pharmacotherapy approaches to be considered.[13] As such, bone-health consultation is time consuming, as it requires extensive education, personalised interpretation of fracture risk, and a patient-oriented overview of the available treatment options.

Globally, <20% of individuals at high risk of fracture are identified and treated,[14–16] and, of those who initiate treatment, more than half stop taking their medication within 2 years.[17–19] It has been shown that patients are more likely to adhere and persist with osteoporosis medication when they have been involved in a shared decision-making process.[20] The challenge, therefore, is in the delivery of shared decision making within the constraints of very large patient numbers but limited time, a predicament faced by GPs and specialists who manage patients with osteoporosis.

The authors' centre has developed and implemented a novel group consultation programme for osteoporosis, which provides patients with all the necessary components of a traditional, shared decision-making consultation, but in a group setting. The aim of this programme is to improve access to osteoporosis consultative services without compromising other aspects of patient-centred care, in particular shared decision making. The objectives of this study were to evaluate the experience of patients and their referring GPs with the group consultation model, and to estimate specialist physician time commitment in comparison with traditional one-to-one consultations

METHOD

This prospective pilot study was undertaken at the multidisciplinary Dr David Hanley

EO Billington (ORCID: 0000-0002-2556-588X), MD, clinical assistant professor; **GA Kline**, MD, clinical professor, Division of Endocrinology and Metabolism, Cumming School of Medicine, University of Calgary, Alberta; Dr David Hanley Osteoporosis Centre, Alberta Health Services, Alberta. **AL Feasel**, BN, nurse clinician, Dr David Hanley Osteoporosis Centre, Alberta Health Services, Alberta. **JL VanDyke**, BA, research assistant, Ward of the 21st Century, Cumming School of Medicine, University of Calgary, Alberta.

Address for correspondence
Emma O Billington, Richmond Road Diagnostic and Treatment Centre, 1820 Richmond Road SW, Calgary T2T 5C7, Canada.
Email: emma.billington@albertahealthservices.ca

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How this fits in

Traditional medical consultations involve a one-to-one visit between doctor and patient, while group medical consultations permit a single doctor to provide care to multiple patients at once. The authors developed and implemented a group medical consultation programme for osteoporosis, in which patients received personalised fracture risk estimates and education regarding osteoporosis therapies from a nurse and an osteoporosis specialist before making a treatment decision. The experiences of a pilot cohort of 107 women who chose to attend a group consultation in place of a traditional one-to-one consultation were assessed. It was found that >95% of women were satisfied with this mode of consultation, and the group consultation was time saving for the specialist physician. For select patients, group medical consultations represent an alternative to traditional one-to-one consultations.

Osteoporosis Centre (DHOC) in Alberta, Canada, between May 2016 and June 2019.

Participants

Participants were women aged ≥45 years, referred for age-associated osteoporosis, who chose to attend a group medical visit in lieu of a one-to-one specialist consultation. Eligibility criteria included: having a GP in the community for follow-up, having capacity to make autonomous health decisions, and being able to understand and speak the English language. Patients were ineligible for the group consultation if: referred for questions about medication discontinuation/drug holiday, they had a fracture on therapy, had secondary osteoporosis or complex metabolic bone disease, had renal dysfunction, or were referred by a non-GP (specialist). Patients who had received previous osteoporosis pharmacotherapy were not excluded, provided that the reason for referral was consideration of therapy for age-associated osteoporosis. Participants did not require a prior dual-energy X-ray absorptiometry (DXA) bone density scan to be eligible for the programme. A structured telephone screening interview with an osteoporosis nurse confirmed programme suitability before attendance. All participants provided informed consent before enrolment.

Group consultation

The group consultation programme was developed and implemented by DHOC staff in 2016, in response to requests from patients and GPs to improve access to specialist osteoporosis care. Before attending the group visit, all patients attend a 2-hour didactic bone health class that focuses on non-pharmacological strategies for optimising skeletal health. The group consultation is a 2-hour shared medical experience serving up to 10 patients, co-led by an osteoporosis nurse and salaried specialist physician (see programme details in Supplementary Appendix S1). Participants are provided with classroom education about consequences of fragility fracture, fracture risk factors, and a detailed discussion of potential benefits and risks of various pharmacological treatments. Each patient generates their 10-year estimated risk of fracture using the Fracture Risk Assessment Tool (FRAX) calculator (https://www.shef.ac.uk/FRAX), calculates their absolute reduction in fracture risk should therapy be initiated (assuming a 40% relative risk reduction from baseline),[21] is guided through some personal reflection exercises on perception of risk, and is then encouraged to make an autonomous decision regarding whether to initiate pharmacotherapy. Fracture risk factors, estimated fracture risk (with and without therapy), and treatment decisions are recorded by participants using a pre-printed 'fill-in-the-blank' consultation-style worksheet (see Supplementary Appendix S2 for the 'Consult Letter Template'). Following the group consultation, a copy of the attendee's completed consultation letter is sent to their GP, with whom patients are encouraged to follow up for review and potential enactment of their chosen plan. Telephone support from the osteoporosis centre is offered to the GP in the consultation letter.

Traditional consultation

All patients attend a 2-hour didactic bone health class that focuses on non-pharmacological strategies for optimising skeletal health before attending a traditional consultation. The traditional consultation model involves a one-to-one interaction between patient and physician. At DHOC, the usual time slot for an initial one-to-one consultation is 45 minutes. Consultations for age-associated osteoporosis involve assessment of fracture risk factors, calculation of 10-year risk of fracture using FRAX, a discussion of potential harms and benefits of treatment, and a review of pharmacological treatment options. A shared decision-making approach is emphasised, and patients are encouraged

Table 1. Baseline characteristics of women attending group consult programme for osteoporosis, *N* = 107

Characteristic	Mean (SD)[a,b]
Age, years	62.8 (6.0)
Height, cm	162.8 (6.4)
Weight, kg	64.9 (10.2)
BMI, kg/m^2	24.5 (4.0)
Prior osteoporosis therapy, *n* (%)	33 (31.0)
Clinical fracture risk factors, *n* (%)	
Prior fragility fracture	37 (35.0)
Parental hip fracture	19 (18.0)
Glucocorticoid use	2 (2.0)
Smoking	1 (1.0)
Rheumatoid arthritis	0 (0)
Secondary osteoporosis	0 (0)
Alcohol use (≥3 drinks/day)	2 (2.0)
Bone mineral density	
Lumbar spine T-score	–2.5 (1.0)
Femoral neck T-score	–2.1 (1.0)
Total hip T-score	–1.8 (1.0)
Risk scores	
FRAX 10-year MOF risk (%)	13.0 (7.0)
FRAX 10-year hip fracture risk (%)	2.8 (3.0)

[a]Unless otherwise stated. [b]Percentages and SD rounded to whole numbers. BMI = body mass index. FRAX = Fracture Risk Assessment Tool. MOF = major osteoporotic fracture. SD = standard deviation.

to make an informed decision regarding treatment initiation at the end of the consultation. The osteoporosis specialist generates a consultation letter outlining the patient's treatment decision for the referring GP. In most cases, the patient is encouraged to follow up with their GP to enact the treatment plan, although the specialist physician does provide an initial prescription for osteoporosis medication in some cases.

Data collection

A Harpenden stadiometer and electronic scale were used to measure height and weight respectively at the group consultation. Clinical risk factors in the FRAX calculator were self-reported by participants; a nurse clinician and osteoporosis specialist provided guidance and clarification as needed, to ensure that the risk factors entered by each participant were in keeping with FRAX guidelines. Bone mineral density T-scores at the lumbar spine and femoral neck were obtained from each participant's most recent (within 24 months) DXA scan. If no DXA scan was available within the preceding 24 months, bone density results were not included in FRAX calculations.

Participants completed a written questionnaire immediately following the group consultation, recording their decision regarding pharmacological osteoporosis treatment (see Supplementary Appendix S3 for post-consultation questionnaire), as well as their perception of fracture risk and anticipated benefit of therapy. The questionnaire included modified versions of the validated Client Satisfaction Tool[22] and the validated Osteoporosis Knowledge Assessment Tool (OKAT).[23] Participants were asked to respond to some open-ended questions, such as 'What did you like best about the consultation? Is there anything that you would change about the consultation?', and space was provided for free-text comments. Given the novelty of the group encounter, qualitative information was sought from participants to allow for discovery of possible unanticipated findings.

The osteoporosis nurse contacted and interviewed participants 3 months after the consultation about GP follow-up, treatment plan initiation, and the participant's level of confidence with their original treatment plan. At the same time, each participant's GP was sent a survey asking whether the group consultation programme met their consultation needs, whether the consultation was provided in a timely manner, whether adequate documentation was provided, and whether the treatment plan had been easy to implement. GPs were also asked if they had seen their patient within 3 months of the consultation and if the treatment plan had been enacted. Survey non-responders were offered the option of a telephone-based interview.

Data analysis

Quantitative survey data were examined using descriptive statistics. Means and standard deviations (SDs) were calculated for continuous data and percentages for categorical data. Beliefs about fracture risk and decisions to initiate treatment were compared between individuals with 10-year major osteoporotic fracture risk, <20%, and ≥20% using Fisher's exact and χ^2 tests. Qualitative data obtained from the open-ended portion of the questionnaire were analysed: participants' responses were coded into conceptual categories to facilitate the emergence of larger themes. Data were reviewed and coded on two separate occasions:[24] the first to condense participants' responses into categories, and the second to identify central themes.[25] These themes were then discussed between two independent researchers to ensure constancy in how they were understood. Quantitative data analysis was carried out using SAS (version 9.4), and the threshold for statistical significance was set at $P<0.05$. NVivo (version 12 Plus) was used for qualitative analyses.

RESULTS

Of 560 referrals received, 72 patients either declined osteoporosis specialist assessment or could not be contacted, 97 were not eligible for group consultation, and 206 declined group consultation. A total of 303 women attended a one-to-one consultation, and 185 women attended one of 32 group consultation sessions (an average of six participants per session) between May 2016 and June 2019. Of these, two patients failed to attend their scheduled session and needed to be rescheduled.

A total of 107 consented to participate in this study. The flow of participants through the study is shown in Figure 1 and cohort characteristics are shown in Table 1. Mean participant age was 62.8 (SD 6.0) years. All participants had recent (within 24 months) DXA results, and mean 10-year fracture risk estimates, calculated using bone density results, were 13.0 (SD 7.0)% for major osteoporotic fracture and 2.8 (SD 3.0)% for hip fracture. A total of 19 (18.0%) participants had 10-year major osteoporotic fracture risk ≥20% (Table 2), and 33 (31.0%) had received osteoporosis

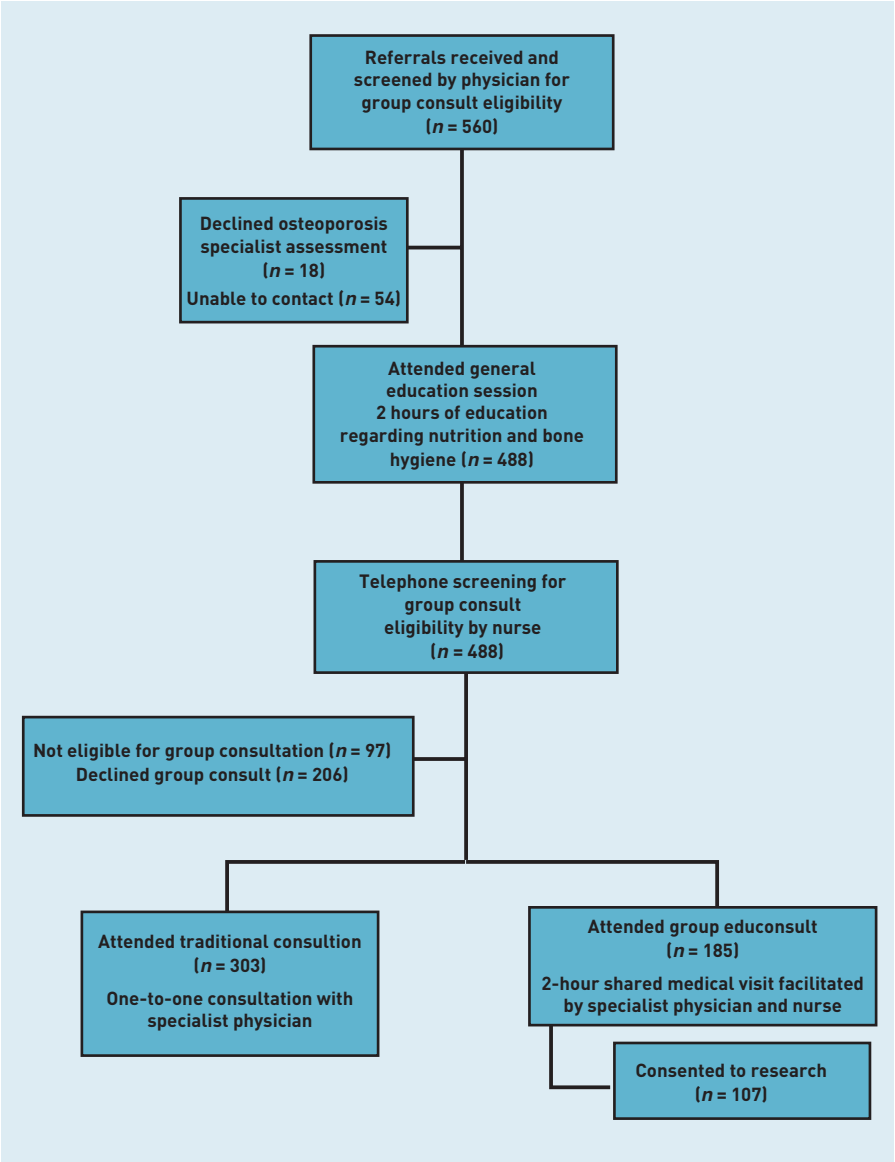

Figure 1. Flow of referred patients through the group consult programme for osteoporosis between May 2016 and June 2019.

therapy in the past, most for a duration of <2 years (Table 1).

Patient outcomes

Following the group consult, mean OKAT score was 7.9 (SD 1.1) out of a possible score of 10 (data not shown). Participant perceptions regarding fracture risk and decisions regarding pharmacotherapy initiation are shown in Table 2. There were 59 (55.1%) women who indicated that they felt they were at low risk of fracture; this group had mean 10-year major osteoporotic fracture risk of 10.3 (5.0)% (data not shown).

Proportions of responses to the questionnaire items pertaining to patient experience are shown in Figure 2. It was found that >95.0% of participants chose favourable responses (agree or strongly agree) to questions addressing the quality and experience of the consultation and assessing patient perspectives on whether shared decision making was utilised. Specifically, 104 (97.2%) patients reported overall satisfaction with the consultation and 102 (95.3%) felt included in decision making (Figure 2).

Three main themes emerged from qualitative assessment of participant experiences with the group consultation: self-directed decision making, efficiency, and shared care. These themes are captured narratively in Supplementary Box S1. Participants indicated that their values and preferences for treatment were prioritised during the consultation, suggesting that they felt seen as individuals despite opting for a group consultation. In addition, participants spoke of the importance of timely and efficient care; they felt that healthcare resources were utilised appropriately without sacrificing the quality of their care. Most noteworthy was participants' appreciation of sharing their experiences with other women. Within the context of a shared consult, learning occurred collectively: knowledge created rather than disseminated.

A total of 99/107 (92.5%) participants were reached for follow-up 3 months after the group consultation. Of these, 90 (91.0%) had enacted the treatment plan specified at the time of consultation. A total of 22/99 (22.2%) were taking pharmacological therapy, 95 (96.0%) remained satisfied with the consultation experience, and 85 (85.9%) remained confident about the treatment decision they had selected (data not shown).

GP experience

A total of 36/107 (33.6%) primary care providers completed surveys pertaining to their experience with the consultation process 3 months after the group consultation. It was found that 26 (72.2%) confirmed they had seen their patient since the time of the consultation, and 28 (77.8%) confirmed that the plan outlined in the consultation letter had been enacted. Overall, 27 (75.0%) GPs indicated a positive experience with the group consultation, as summarised in Figure 3.

Healthcare resource utilisation

The group consultation model accommodates up to 10 participants per 2-hour session, equivalent to the number of new consultations seen at DHOC in 3 half-day osteoporosis clinics. Expressed in terms of physician time, this equates to approximately 12 minutes of physician time per patient in the group model. The

Table 2. Participant perceptions about fracture risk and decisions to initiate osteoporosis pharmacotherapy immediately following attendance at group consult programme for osteoporosis

Comments	All participants, *n* (%) (*N* = 107)	10-year MOF risk of <20%, *n* (%) (*N* = 88)	10-year MOF risk of ≥20%, *n* (%) (*N* = 19)	*P*-value[a]
Fracture risk perceptions				
Felt to be at low risk of fracture	59 (55.1)	56 (63.6)	3 (15.8)	0.002
Worried about risk of fracture	44 (41.1)	33 (37.5)	11 (57.9)	0.13
Feel likely to benefit from medication	28 (26.2)	19 (21.6)	9 (47.4)	0.04
Pharmacotherapy decisions				
Plan to initiate	29 (27.1)	20 (22.7)	9 (47.4)	0.003
Undecided	29 (27.1)	21 (23.9)	8 (42.1)	
Decline to initiate	49 (45.8)	47 (53.4)	2 (10.5)	

[a]*P-values indicate differences in proportions between those with 10-year MOF risk of <20% and those with risk of ≥20%. MOF = major osteoporotic fracture, calculated using the Fracture Risk Assessment Tool (FRAX).*

usual time allotment for a traditional one-to-one consultation at the DHOC is 45 minutes; therefore, the group model has the potential to save 33 minutes per patient when sessions are booked at capacity. With 18 sessions per year (2019), 180 patients could be seen in 36 hours of physician time. This corresponds to a physician time saving of 105 hours, permitting an additional 145 patients to attend a traditional one-to-one consultation. The nursing time commitment for each session ranges from 5–7 hours, depending on the number of participants. Therefore, the group model has the potential to save 33 minutes per patient or 5.5 hours per session when sessions are booked at capacity (data not shown).

Following the group consultation, four participants (3.7%) required a traditional one-to-one consultation, usually for implementation of the patient's choice to start anabolic therapy; given that many primary care physicians have little experience with anabolic osteoporosis drugs, in-person osteoporosis clinic follow-up was offered to any such patient as part of the programme. A physician-to-physician conversation with the referring GP was required for two participants (2.0%) (data not shown).

DISCUSSION

Summary

This study developed and evaluated a group medical consultation programme for osteoporosis as a potential solution to the physician time deficit. Among women with age-associated osteoporosis who chose to attend a group consultation instead

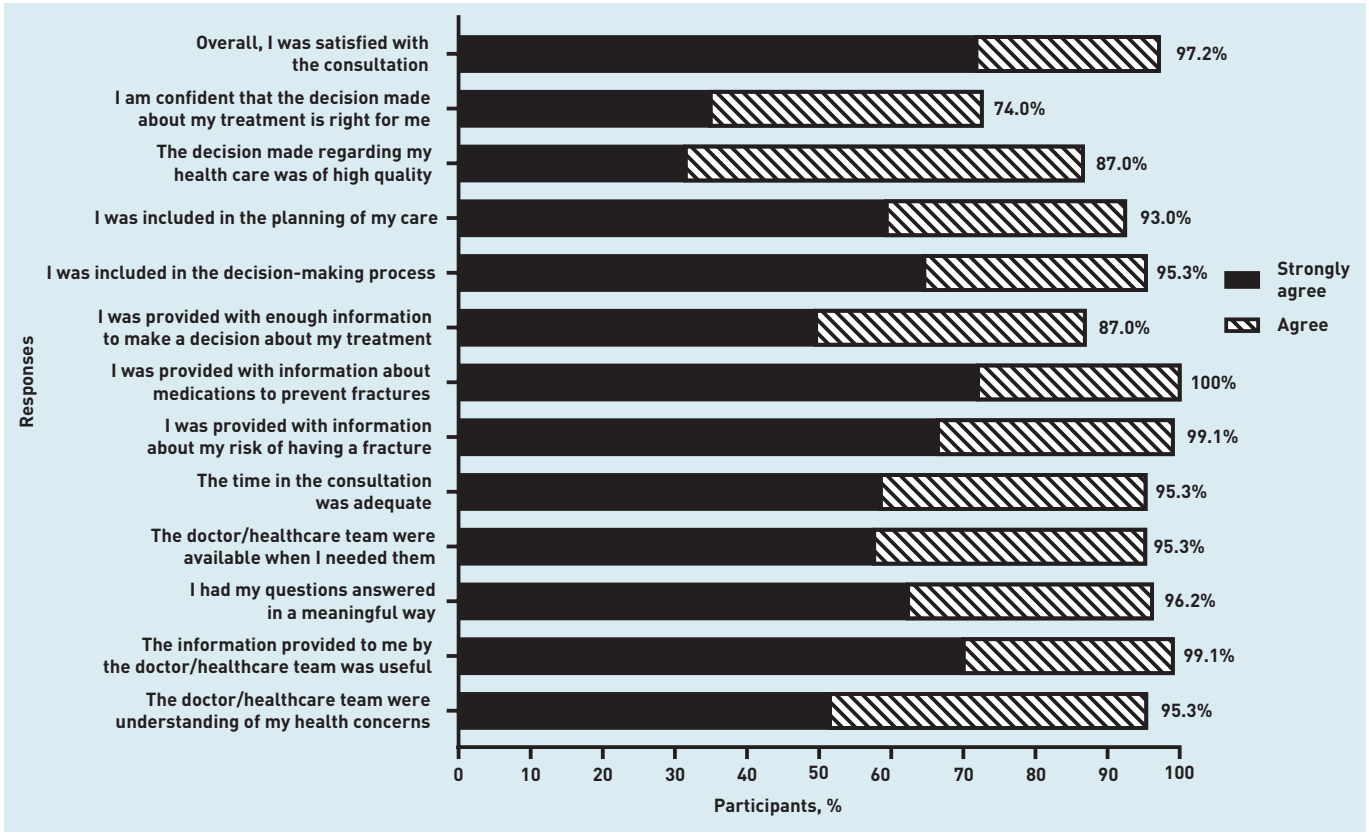

Figure 2. Participant responses to a self-administered experience questionnaire immediately following attendance at group consult programme for osteoporosis. Percentages listed to the right of bars indicate the proportion of participants who 'Strongly agreed' or 'Agreed' with each statement,* N *= 107.

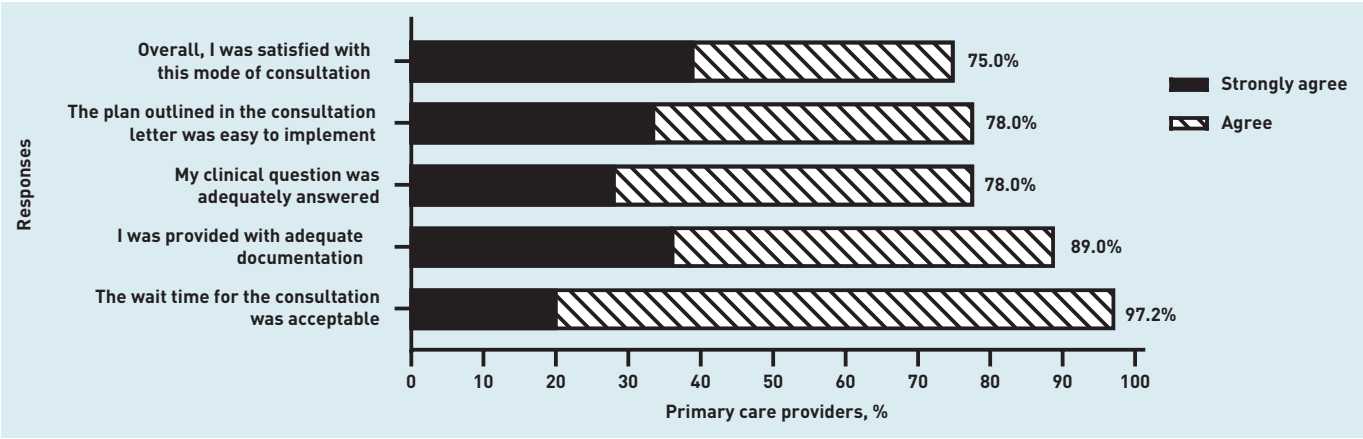

Figure 3. Referring primary care provider (GP) responses to a survey administered 3 months after their patient attended the group educonsult programme for osteoporosis. Percentages listed to the right of bars indicate the proportion of providers who 'Strongly agreed' or 'Agreed' with each statement,* N *= 36.

of a traditional one-to-one specialist consultation, >95.0% were satisfied with this mode of consultation. The majority of referring GPs who could be reached 3 months after their patient attended a group consultation were supportive of this programme. In addition, the group consultation model resulted in considerable savings of high-cost specialist physician time.

Strengths and limitations

Clinicians and other stakeholders should consider the following limitations and caveats when interpreting the presented results and before deciding on whether to adopt a group consultation model within their practice. First, this study included women with age-associated osteoporosis; therefore, the findings may not be generalisable to males and are not applicable to individuals with severe or complicated disease. Further, all included patients chose to attend the group consultation in lieu of traditional one-to-one consultation. Therefore, the results reflect a self-selected group of patients who expressed a desire to take an active role in their care decisions. The authors' experience indicates that approximately half of patients who are medically eligible for group consultation display a preference for a traditional one-to-one consultation; thus, like most healthcare innovations, the group consultation is unlikely to be a one-size-fits-all solution.

Second, a number of definitions of shared decision making exist, and no single 'gold standard' tool exists for measuring the effectiveness of shared decision-making interventions.[26] Though a validated questionnaire was used that addressed several integral components of shared decision making to evaluate patient experience, it is possible that using a different questionnaire might have elicited different results. Third, although GP responses to the group consultation were favourable, the response rate was low, with only one-third of GPs completing the survey. Fourth, though the group consultation model is time saving for specialists, the GP time commitment associated with this mode of consultation was not evaluated in the present study. Also, the success of this group consultation programme is dependent on multidisciplinary staff. The specialist physician time savings achieved with implementation of this model must be balanced against the time spent by allied healthcare providers, and also by GPs who follow up with each patient to enact their preferred care plan.

Comparison with existing literature

There is consensus that clinical encounters regarding preference-sensitive conditions, that is, those with >1 appropriate management strategies, should involve shared decision making.[10] Despite this, shared decision making is not easily embedded in most forms of clinical practice. An online survey of >1000 Canadians facing healthcare decisions demonstrated that the majority of patients perceive their clinical encounters as not including shared decision making; only 43% reported being told that they had a choice of treatment or care plan, 45% reported that risks and benefits were usually presented, and 40% reported being asked about their preferences.[6] In the present study, questionnaire responses from patients who attended a group consultation for osteoporosis indicated not only an extremely high level of satisfaction (>95%) with this visit model, but also suggested effective integration of shared decision making, with 95.3% of participants indicating that they felt included in their care decision. Adoption of group consultation

models therefore has the potential to improve integration of shared decision making into clinical practice. However, even after >4 hours of education (a 2-hour didactic bone health session and a group consultation), more than one-quarter of participants remained undecided regarding whether to initiate pharmacological therapy. This finding confirms that extensive time is required for shared decision making in the context of bone health, and indicates that some individuals may require additional time for reflection and(or) multiple office visits before coming to a decision regarding whether to start pharmacological therapy.[13]

In surveys of clinicians, time constraints are the most frequently reported barriers to implementing shared decision making and related components of patient-centred care, such as communication, education, and emotional support.[8,9,27] Because it is delivered in a group setting, this model actually saves physician time while providing individual patients with a longer window of opportunity to interact with the physician than they would have in a traditional one-to-one consultation. A single session (2 hours of physician time) can accommodate the same number of new patients as 3 half-day clinics under the traditional model.

The authors' osteoporosis group consultation model shares some characteristics with other types of group medical visits, which have been implemented in chronic disease programmes, but are typically focused on psychosocial care, lifestyle interventions, self-care, and coping skills.[28] However, the present programme is unique in that it not only provides education but also completely replaces all aspects of the traditional medical specialist consultation. Careful pre-visit screening of potential participants ensures that unique complexities are detected and directed to standard clinic visits. Full documentation conveyed to GPs ensures that patients' final decisions can be checked by the provider who knows them best. To the authors' knowledge, this is the first study to report patient experience with this type of consultation model.

Implications for research and practice

The call has been raised to improve access to health care and to integrate shared decision making into clinical practice.[3,8,10] Although there is no question that major systems-level reforms are required to improve the provision of patient-centred care,[8] the authors propose the group medical consultation as a novel solution that can be implemented quickly and with relative ease at the grassroots level. In the context of osteoporosis management, the presented study shows that this model is accepted by patients and GPs, as well as being time saving for specialist physicians. The group consultation model is scalable and may be adaptable to a number of other chronic diseases, such as obesity, diabetes, cardiovascular disease, and osteoarthritis; and practice settings, that is, rural environments, and general practice. Specifically, for GPs who see a large number of patients for consideration of pharmacological osteoporosis therapy, embedding a group consultation programme within the primary care clinic is expected to save physician time while creating space for shared decision making. Such programmes that are accepted and appreciated by patients while also resulting in health system efficiencies have the potential to revolutionise patient-centred care and merit further study.

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Ethical approval

This study was approved by the Conjoint Health Research Ethics Board at the University of Calgary, Alberta, Canada (study reference number: REB16-0390).

Provenance

Freely submitted; externally peer reviewed.

Competing interests

A Lynn Feasel, Jessica L VanDyke, and Gregory A Kline have declared no competing interests. Emma O Billington has received honoraria from Amgen and Eli Lilly, and funding from Amgen for investigator-initiated research outside the submitted work.

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