Feasibility and impact of a short training course on frailty destined for primary health care professionals

KEY SUMMARY POINTS:

Aim: We aimed to evaluate the feasibility and efficacy of a short training course on frailty destined for primary health care (PHC) professionals

Findings: PHC professionals applied frailty screening strategies more frequently three months following the workshop compared to baseline and reported improvements in a) their familiarization with the frailty syndrome, b) self-perception of knowledge and skills to detect and manage frailty and c) the attitude that frailty is an inevitable consequence of ageing. Time restrictions was reported to be the main barrier to the application of frailty screening and management strategies.

Message: A short skill-oriented training course can significantly and sustainably improve PHC professionals' attitudes and practices regarding frailty.

KEY WORDS: frailty, primary health care, education, training, feasibility

ABSTRACT:

Background: There is an unmet need for training primary health care professionals on frailty, especially in countries where geriatrics is still emerging.

Purpose: We aimed to evaluate the feasibility and efficacy of a training course for primary health care professionals on the detection, assessment and management of frailty.

Methods: A single-day training course, developed and facilitated by three physicians trained in geriatrics abroad, was organized by the Aristotle University of Thessaloniki Primary Hearth Care Research Network. Primary health care professionals' attitudes, knowledge and everyday practices regarding frailty were assessed by self-administered anonymous questionnaires (using Likert-type scales) at three timepoints (before, upon completion of the training course, and three months afterwards).

Results: Out of 31 participants (17 physicians, 12 nurses, 2 health visitors; 87.1% women; mean age 46.4 years), 31(100%) filled in the first, 30(97%) the second, and 25(81%) the third questionnaire. Improvements were reported in familiarization with the frailty syndrome ($p=0.041$) and in self-perception of knowledge and skills to detect ($p<0.001$) and manage ($p<0.001$) frailty, that were also sustained three months afterwards ($p=0.001$ and $p=0.003$ respectively). Improvement was also observed in the attitude that frailty is an inevitable consequence of ageing ($p=0.007$) and in the frequency of application of screening (but not management) strategies, three months following the workshop compared to baseline ($p=0.014$). Participants reported less disagreement with the statement that systematic screening for frailty was unfeasible in their daily practice at three months compared to baseline ($p=0.006$), mainly due to time restrictions.

Conclusion: A short skill-oriented training course can significantly and sustainably improve primary health care professionals' attitudes and practices regarding frailty.

DECLARATIONS:

The authors declare no conflict of interest.

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Availability of data and material: Raw data may be available upon request

Ethics approval, consent to participate: see relevant paragraph in the METHODS section

INTRODUCTION:

As the share of the older population rises worldwide, concepts of Geriatric Medicine, such as geriatric syndromes and prevention of disability, have become increasingly relevant across the spectrum of clinical practice. Frailty constitutes a core concept in Geriatrics[1]. A systematic review of 21 studies and more than 61500 community-dwelling older adults reported a worldwide prevalence which ranges from 5.8% to 27.3% for frailty and from 34.6% to 50.9% for the prodromal stage of “pre-frailty”[2].

High prevalence, detrimental consequences and being a key determinant for older persons’ health, all place frailty as a high-priority health topic[3]. There is growing evidence that frailty can be attenuated, and its progression can be delayed or even reversed if appropriate interventions are promptly implemented, even though more research is still required[4-6]. Potential reversibility and the opportunity for effective management makes early recognition of frailty a major issue for general practice[7]. Indeed, there is evidence that frailty identification may improve clinical outcomes cost-effectively, and primary health care (PHC) users have been suggested to be the appropriate target population for wide-level screening programs[3].

In the Integrated Care for Older PEople (ICOPE) model[8], WHO provided guidelines on community-level interventions to manage declines in intrinsic capacity, which is the composite of all the physical and mental capacities of an individual, substantially the person’s reserves against frailty. There are examples of several other national programs[3,9-13] and expert recommendations[14] for screening older adults for frailty, e.g. the UK contract for General Practitioners (GPs) requires them to identify patients with moderate and severe frailty and deliver clinical interventions[15,16].

General practitioners (GPs) are ideally placed for the prevention and early identification of frailty and for the delivery of an integrated care plan. They are familiar

with a holistic approach (which is essential to manage frailty), sharing a longstanding relationship with their patients, and often use clinical judgement to adjust recommendations and make shared decisions with their patients regarding difficult topics such as anticipated benefit from complex interventions or end of life issues[17,18-21]. Despite this everyday pragmatic approach, frailty is still considered an emerging concept in PHC settings[7].

The present study aimed to evaluate the feasibility and efficacy of a short training course on frailty addressed to PHC providers in Greece, a country lacking formal geriatric education for medical doctors and dedicated clinical infrastructure specialized to geriatrics.

METHODS:

Study design

The Working group on Frailty of the Aristotle University of Thessaloniki Primary Health Care Research Network (AUTH.PHC.RN.) conducted a feasibility and efficacy study of a training course on the detection, first-line assessment and management of frailty by PHC providers, following a study protocol presented at the 15th International Congress of the European Geriatric Medicine Society (EuGMS)[21].

The course was held on the premises of the Aristotle University of Thessaloniki, as a one-day seminar. It comprised of a 10-minute introduction to frailty and the study protocol, a first part of two parallel focus groups, a second part of a training workshop and the administration of two questionnaires, one in the beginning and one at the end of the seminar. A third questionnaire was administered online 3 months afterwards.

The focus groups aimed at investigating the status of clinical practice, attitudes and educational needs of participants regarding frailty; results of which can be found in another publication[22].

The workshop content (Annex 1, supplementary data) aimed at providing an introduction to the frailty syndrome, including definitions and current theories, as well as demonstrating tools and evidence-based strategies for the detection, the assessment of its various domains and the management of frailty.

Training was completed by providing links to educational material in the form of key articles, tools, guidelines on frailty and Comprehensive Geriatric Assessment.

Tools

To assess the impact and feasibility of this one-day short training intervention, three questionnaires (Annex 2, supplementary data) were administered before, upon completion and three months' after the workshop.

Questionnaires included general and demographic information, a section dedicated to the assessment of the familiarization with the frailty concept and another one to the investigation of the attitudes and everyday practices. They also included several identical questions which were repeated at the three different time points, to assess changes in knowledge, skills, attitudes and clinical practice. The questionnaire administered upon the completion of the course day also included a brief evaluation of the workshop and its estimated impact on the participants.

Most of the questions required a Likert-like and some a multiple-choice type of answer.

Participants and recruitment

Participation in the study was on a voluntary basis. No remuneration was provided, and no fee was required for attending the workshop. The AUTH.PHC.RN emailed invitations to its contacts in PHC settings provided by three Health Directorates in Northern Greece. Eligible participants were medical doctors in PHC, specialized either in General and Family Medicine or in General Internal Medicine, nurses and health visitors. Other inclusion criteria were availability to attend the one-day workshop and to self-finance travel expenses, informed consent to participate in the workshop, and agreeing to fill in three questionnaires. Participants were encouraged to take part in pairs of physicians/nurses or physicians/health visitors to emphasize the importance of the interprofessional cooperation in the care of geriatric patients[23] and facilitate potential application of acquired knowledge and skills in this context. Priority was given to this type of applications.

For reasons of pertinence to focus groups' tasks, desired interaction within the workshop and availability of coordinators and trainers, the target sample size was predefined at 30 participants.

Ethics

The study protocol was approved by the Bioethics Committee of the Aristotle University of Thessaloniki (Registration number 5158) and by the relevant Regional Health Authorities (Registration number 78763).

All participants provided written informed consent to participate in the study. Participants who withheld their consent for the voice recording were excluded only from the focus groups but not from the workshop and questionnaire completion.

Questionnaires were anonymized using a unique identification number administered to each participant upon inclusion in the study.

Data analysis

The first two questionnaires were securely transferred to an electronic version of an Excel file and double-checked for data entry errors. Since no physical presence was required for the 3months' evaluation, the third questionnaire was administered in an online version and the relevant excel file was automatically generated. The Microsoft Excel software was used for initial descriptive statistics and generation of graphs.

Answers in the five items of the Likert-scale were coded as numbers according to an ordinal variable: correspondence of the number of the selected answer with a positive or negative nuance in terms of clinical interpretation depended on the content of each question (Tables S1,S2, S3; supplementary data and Table 2).

Qualitative variables were presented with frequencies and percentages, while quantitative variables with mean and standard deviation (SD) or medians and interquartile ranges (IQR), whenever not normally distributed. The comparison between different time points of identical variables was performed with Wilcoxon Signed Ranks test. All p-values were two-tailed with a significance level of 5%. Analyses were performed in IBM SPSS version 25.0[24].

RESULTS:

General characteristics of participants

Following the procedure of recruitment (Methods section) and using the convenience sampling method (prioritizing applications of interprofessional pairs), 31 participants were included in the study, 14 pairs and three persons participating individually. General characteristics of the study participants are presented in Table 1. They were

all PHC professionals: the majority of whom were physicians (54.8%, 14 GPs and 3 internists), then nurses (38.7%) and the minority health visitors (6.5%).

Years of professional experience widely varied and was quite uniformly distributed: among the classes of ≤10 years, 11-15 years and ≥16 years of professional experience. Median duration of professional experience in the current structure was nine years. Most of the participants (77.4%) reported the percentage of people aged ≥75 years they encounter in their everyday practice was above 50%.

Out of the 31 participants, 30 filled in the questionnaire right after the end of the workshop and 25 did so three months later.

Main findings

Table 2 shows the median values of the Likert-scales and the comparisons of the answers to the questions addressed at the three time-points of questionnaire administration, whereas Figure 1 depicts the percentages of those answers that were significantly modified throughout the time. Detailed answers to Likert-scales are provided for the questionnaires before, right after and in 3-months' time in supplementary Tables s1, s2 and s3.

Baseline familiarization with frailty concept, attitudes and everyday practice

Education and training received so far regarding the care of older people was self-reported as somewhat sufficient by one in five (20%) participants and this percentage was one in ten (10%) regarding training on frailty. Nobody estimated their prior education and training on older people's care and on frailty as very sufficient (Table s1).

Familiarization with the frailty syndrome varied: most (42%) reported being either somewhat or very much familiarized, while 29% reported a moderate and 25.9% either little or no familiarization (median 3.0/5). However, self-perception of knowledge and skills to recognise and manage frailty was reported to be mostly moderate to low before the workshop (median 3.0/5 for both perceptions) (Tables s1 and 2).

Before the workshop, participants tended to think that frailty is a natural consequence of ageing and thus an inevitable fatality of older age: 60% either somewhat or totally agreed (median 4.0/5). Nevertheless, only a minority (3.2%) agreed that there are no means to prevent and/or manage frailty, that screening for frailty is useless, or that it falls out of their duties (median 1.0/5 for all of the above) (Tables s1 and 2).

When asked before the workshop, the most important facilitating factors for frailty recognition and management in the daily practice of participants were thought to be interprofessional collaboration, mentioned 26 times out of 112 answers (23.2%) and good knowledge of the older person (25 times, 22.3%). Following came specialized knowledge and training with 17.9% of answers, knowledge of the patient's family background of the patient (14.3%) and the use of specialized tools (13.4%). Clinical experience and gut feeling received lower rating (8.0%) (Figure 2A).

On the other hand, the most important limitation factors for frailty recognition and management were thought to be the lack of specialized knowledge on frailty, mentioned 25 times out of 107 answers (23.4%), the lack of clinical skills and acquaintance with frailty (20.6%), and the lack of time (20.6%), followed by the lack of comprehensive knowledge of the person (15.9%) and the deficiencies in infrastructure (11.2%) (Figure 2B).

Interestingly nearly half (43.9%) of the reported limitations seem to correspond to factors potentially modifiable by education and training, such as the lack of specialized knowledge and training and of clinical skills and familiarization with the frailty concept.

Evaluation and impact of the workshop

The evaluation of the workshop in terms of its scientific quality and the skills of the trainers was very positive (median 4.0/5 and 5.0/5 respectively), with 90% of participants rating it either good or very good (Table s2, supplementary data).

Right after the workshop the majority of participants (80%) reported that their familiarization with the concept of frailty was improved either quite a lot or very much. Another 13.3% reported a moderate subjective amelioration (median 4.0/5) (Table s2, supplementary data).

Three quarters (76%) of participants continued 3 months later to consider the workshop useful or very useful for the enrichment of their knowledge on frailty and the remaining 24% evaluated it as moderately useful (median 5.0/5) (Table s3, supplementary data).

Comparing to before the workshop, significant improvement was observed in the self-perception of knowledge and skills to recognise and manage frailty immediately after (median 4.0/5 for recognition; $p<0.001$ and 3.0/5 for management; $p<0.001$), but also 3 months later (median 4.0/5 for recognition; $p=0.001$ and 3.0/5 for management; $p=0.003$) (Table 2, Figure 1).

Immediately after the workshop, over three quarters of participants (76.7%) reported a significant or large and the rest a moderate impact of the seminar on their attitudes

towards the frailty syndrome (median 5.0/5) (Table s2, supplementary data). Corresponding percentages were comparable at 3 months' time (median 4.0/5) (Table s3, supplementary data).

The concept of frailty as a natural consequence of ageing and thus an inevitable fatality of older age was predominant before (60% agreed, median 4.0/5), was slightly but not significantly modified right after the workshop (median 4.0/5; p=0.071) but changed significantly three months after the workshop (median 3.0/5; p=0.007) (Table s1, supplementary data and Table 2). Since the beginning, few people believed in the lack of means to prevent and/or manage frailty (only 3.2% agreed) and this finding remained so after the workshop as well (0% agreed) (median 1.0/5 for all three time points). Statements like "screening for frailty is useless" and "screening of frailty falls out of my duties" were mostly discarded by participants both before and after the workshop (median 1.0/5 for both statements for all three time points) (Tables s1, s2, s3, supplementary data and Table 2).

Right after the workshop, the percentage of an estimated high or very high usefulness in clinical practice was over three quarters (76.7%) (median 4.5/5). Seventy percent of professionals reported that they would be quite or very likely to proceed to modifications in their daily practice (median 4.0/5). However, three months later, only 32% did modify their everyday practice, and 36% did so only moderately (median 3.0/5) (Tables s2 and s3, supplementary data).

Moderate or high frequency of use of screening tools for frailty was reported by almost half of participants (48%) 3 months after the workshop compared to 29.1% before (median 2.0/5; p=0.014). The corresponding percentage of use of frailty management strategies was 52% for 3 months after vs 38.7% before workshop (not significant) (Tables s1 and s3, supplementary data and Table 2).

Thirteen out of 25 responders (52%) reported having used the tools for detection and assessment of frailty that have been demonstrated during the workshop. In these cases, the response from the older person's point of view regarding satisfaction of health care service was positive in 61.5% of cases, neutral in 15.4% and rather negative in 23.1% of cases. Tools most frequently used were the MMSE (76.9%), the START/STOPP criteria (53.8%), the Timed Up and Go test (38.5%), the Clinical Frailty Scale (30.8%) and the Geriatric Depression Scale (30.8%) (Figure 3A).

Ten out of 25 participants (40%) that responded 3 months after the workshop applied frailty management strategies, that were positively perceived, in terms of heath care services satisfaction, by the older person in 60% of cases and by the person's family in 90% of cases. One out of three older people showed a positive adherence to recommendations, another 30% a negative one and 40% a rather neutral response (Table s3, supplementary data). Out of 10 professionals that applied interventions, nutritional and physical activity advice and medication review were predominant, in 8 cases, followed by advice to family members in 7 cases and deprescribing in 6 cases (Figure 3B).

Overall, three months afterwards, half of the participants (52%) estimated that the whole educational experience contributed to the advancement of the health care they offered to older people (median 4.0/5) and 37.5% that it contributed positively to the quality of life of their older patients and/or their families (Table s3, supplementary data).

Right after the workshop, nine in ten (90%) of participants reported that they would recommend it to their colleagues. Three months afterwards, most of them (84%) had already discussed it with their colleagues and collaborators, and 92% would still recommend the workshop to them.

Pragmatic challenges

Even though before and right after the workshop screening for frailty in daily practice seemed quite feasible (only 6.7% denied feasibility), three months after the workshop 20% of participants stated that it was unfeasible for them (median 2.0/5 vs 1.0/5 before and 1.0/5 right after; p=0.006 and <0.001 respectively).

Barriers for frailty recognition, identified at the three months' follow up, were predominantly the lack of time identified by 88% of the participants, followed by lack of infrastructure (52%) (Figure 4A). The main practical limitation for implementing frailty management strategies, reported three months following the workshop, was time restriction, suggested by 24 out of the 25 responders (96%). The rest of the identified barriers were more evenly distributed (Figure 4B).

The belief that interprofessional collaboration (both among physicians of various specialties and among other health care professionals) for the comprehensive care of older people functions smoothly in clinical practice, tended to be less powerful 3 months after the workshop (32% of participants agreeing) in comparison to the time before (51.7%) (median 3.0/5 vs 4.0/5, not significant). (Tables s1 and s3, supplementary data and Table 2).

DISCUSSION:

In this study, aiming at evaluating the feasibility and efficacy of a short training course on frailty, we investigated PHC professionals' prior attitudes on frailty, the modification of attitudes and practices due to the training experience and barriers, facilitators and the sustainability of strategies to detect, assess and manage frailty in PHC settings.

Previous education on frailty and special medical issues regarding older patients was considered inadequate by most participants, despite the large share of people over 75 years old encountered in their clinical practice. This is not surprising considering that Greece, as many other countries in the Balkan region, lack a formal undergraduate curriculum in geriatrics, as well as the recognition of GM as a formal medical subspecialty[25]. However, this gap seems to be relevant to some extent, also in countries with developed GM, where still the familiarization of PHC providers with complex geriatric concepts seems to be low[7,17,18,26].

Participants in our study reported only moderate knowledge and skills in recognising and managing frailty in their daily practice prior to the intervention. Interestingly, they rarely used their gestalt feeling in detecting frailty, in contrast to other published studies[18,27,28]. The relevance of training initiatives on frailty is also highlighted by the fact that two major barriers to frailty recognition and management, identified at the pre-course questionnaire, were the lack of specialized knowledge and training on frailty and the lack of clinical skills and familiarization with this concept; factors that are potentially modifiable by the promotion of education and training programs. PHC professionals neither considered frailty as a fatality nor its screening pointless or beyond their duties. This perception implies the unmet need of PHC professionals for education and training in dealing with frailty, which was also pointed out in the qualitative part of the present study[22] and in another qualitative study from Italy[29].

The positive impact of the course on the participants' familiarization with the frailty concept, the enrichment of their knowledge and the improvement of their skills to recognise and manage frailty was estimated rather important, and significant improvements persisted at the 3-months' follow up. This is in accordance with the findings of Lally et al., who reported increased confidence and knowledge in goals of care and basic geriatric assessment of participants trained in principles of geriatrics,

including frailty assessment, and palliative care[30]. Similarly, two other one-day interactive training programs on geriatrics for the primary care setting, tailored to family medicine and internal medicine trainees' needs, were evaluated as effective in engagement, value, and knowledge acquisition and improved self-efficacy and knowledge of tools of the trainees in the care of older adults[31-32].

Perhaps most importantly, attitudes towards the frailty syndrome were significantly modified right after the course, but also in 3-months' time, after the professionals had returned to their daily routine and possibly had the opportunity to practise with discussed principles. Similarly, the belief that frailty is an inevitable fatality of ageing significantly changed at the 3-month's follow up, even though it did not significantly change upon completion of the workshop. We suggest that clinical encounters with older people under the prism of increased awareness through education have contributed to changes in attitudes 3 months after the intervention.

On the other hand, and despite the estimation of the majority of professionals (70%) that it was quite likely to proceed to modifications in their daily practice, actual modifications were applied during the three following months only by one third of the participants. Thirty two percent of participants applied the acquired knowledge to their everyday practice and another 36% did so only moderately. Thus we reach a quite decent 68% of knowledge application to daily practice following a short training intervention. Application of acquired knowledge, which mostly consisted of using tools for screening and assessment of frailty, significantly increased three months following the workshop (48% vs 29.1% of participants frequently applied geriatric evaluation tools). On the other hand, frequency of utilization of learnt strategies to manage frailty was not significantly modified. However, in cases where those management strategies were applied, respondents believed that they were well-perceived by both the older patient and, even more frequently, by their families. This

may also imply an unmet need of older people and their caregivers for a more individualized model of care.

Several barriers in the application of frailty detection and management strategies were reported. These limitations were anticipated but turned out to be even more significant in practice: screening for frailty was considered feasible by most of the participants at the beginning but only one in five of them confirmed feasibility at the 3-month follow up.

Predominant barriers both for assessing and for managing frailty, at the follow up time-spot, was by far the lack of time, while limiting factors related to inadequate knowledge and skills were rated far lower. Time constraints along with lack of communication skills training and unavailability of validated frailty measures were also identified in a relevant scoping review of 37 studies[33]. Reported barriers such as lack of infrastructure in PHC and community medicine and absence of a specialist referral pathway are not surprising in the current context of a country with almost inexistent geriatric background, very few geriatricians and scarcity in specialised geriatric health and community services[25]. Interestingly, in our study, financial restrictions as a barrier to implement frailty management strategies were reported by 20% of participants, with the economic crisis still pending in the everyday life of Greeks. Nevertheless, health care and social protection of older people, as a vulnerable population, may be considered even more relevant in a crisis context.

The literature on facilitators and barriers to dealing with frailty in PHC is limited, and the protocol of a systematic review aiming at addressing these issues has been recently published[20]. Available studies report time restrictions, busy schedules, lack of a multidisciplinary team and lack of adequate knowledge and skills to identify and manage complex geriatric syndromes as barriers to the implementation of frailty

screening and management strategies in PHC[20,22], in accordance with our findings. Lee et al. also refer to the lack of a feasible and universally acceptable frailty marker, as a barrier to frailty identification in busy primary care practice[34]. Another qualitative study in Australian GPs found a varied support for screening for frailty by GPs, largely dependent on its intended purpose[18].

The above issues impact on the ability of PHC professionals to respond to the needs of the aged population, thus making education and training in frailty even more relevant. Even in countries with established geriatric infrastructure, frailty assessment and management cannot be reserved for geriatricians, and the role of PHC remains pivotal[17,35]. There is a need of research and training in frailty in primary settings and of additional support of PHC with the right teams, tools, processes and systems to facilitate screening of frailty in the community[18].

A recent systematic review in European countries participating in the ADVANTAGE Joint Action (JA) revealed the lack of programs for screening, monitoring and surveillance of frailty at a population level in these countries[3]. It is suggested that short screening tools should be used for population identification of frailty and subsequently, people screened positive should be addressed for a second phase of Comprehensive Geriatric Assessment[3,12]. Tools to manage frailty should also be provided to PHC providers[3,12]. Even though evidence on the added value of frailty recognition strategies in PHC is scarce, there is a consensus that older people's care can be improved if health care providers are aware of the frailty status of their older patients and take it under consideration for clinical decisions[17]. In our study, half of the participants estimated that the educational experience positively contributed to the quality of care they provided to their older patients and their families.

WHO underlines the crucial role of training and continuing education of sufficient personnel to meet older people's needs[36]. There are some reservations by geriatricians' expert groups about delegating the management of complex geriatric syndromes in non-geriatricians, even though it is admitted that in some cases of lack of resources this is inevitable[35]. In any case if non-geriatricians are about to deal with complicated problems of older patients (and this is already the case in most settings), it is far better to have trained and skillful health care providers. It is suggested that engendering core GM competences amongst non-geriatricians could improve older people's care throughout all care settings and across Europe[37,38].

Even though currently several educational programs on frailty are running in various countries, a systematic review by the ADVANTAGE JA in 2018 failed to detect any studies evaluating the efficacy and sustainability of these interventions[23]. Our study tried to address this question and is, to the best of our knowledge, the first study on a training course in frailty in Greece.

The relatively small sample size could be considered as the main limitation of this study, along with the voluntary principle of participation and the inclusion of members of the AUTH.PHC.RN, who are possibly more open to new training experiences and application of acquired knowledge, compared to the average PHC professional. However, representation from both urban and rural regions was achieved, and the participation of both medical doctors and allied staff offers an added value to the completeness of results obtained. Convenience sampling and small sample sizes seem to be common when evaluating training courses which aim at small groups in order to be more interactive and engaging[31,32].

Exploring the effectiveness and the feasibility of education and training programs on frailty for PHC professionals is an essential and under-researched topic. Our findings

suggest that such a comprehensive, although short, training experience can have a significant and sustainable impact on the attitudes and the daily practice of PHC providers, mostly with regards to frailty screening and perceptions. However, more research is required, especially larger studies comprising a more diverse sample of participants, exploring different models of training of PHC practitioners and possibly adapted to each health system's context and specificities. Prior investigation of educational needs of stakeholders could enhance the effectiveness of such training programs.

Implementation of frailty management strategies needs to be supported by more comprehensive interventions, including dealing with lack of infrastructure and organizational issues.

Effectiveness of small scale and feasible interventions such as the presented training course is extremely relevant facing the current growing health needs of the ageing population and educational needs of health professionals, especially in the context of the absence of official geriatric education and care in countries where GM is still emerging. Additionally to its value for training PHC providers, the present study also contributed to the collection of pertinent information about PHC professionals' attitudes, needs and daily practices.

This study gives insight to and could be the starting point for scaling up training programs on topics related to geriatric medicine and PHC.

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Table 1. General characteristics of participants (N=31)

Sex	Female	27 (87.1%)
	Male	4 (12.9%)
Age (years)	Mean (SD)	46.4 (8.8)
Qualification	Family Medicine (General Practitioner-GP)	14 (45.2%)
	General Internal Medicine specialist (GIM)	3 (9.7%)
	Nurse	12 (38.7%)
	Health visitor	2 (6.5%)
Practice location /type	Rural Primary Health Center	18 (58.1%)
	Rural Consultation Practice	6 (19.4%)
	Urban Primary Health Care Centre	6 (19.4%)
	Home service	1 (3.2%)
Professional experience (years)	<5	4 (12.9%)
	5-10	7 (22.6%)
	11-15	8 (25.8%)
	16-20	6 (19.4%)
	>20	6 (19.4%)
Median Years of experience in the current practice (IQR)		9.0 (1.5, 15.0)
Percentage of people ≥75 years old in daily professional practice	0-25%	1 (3.2%)
	26-50%	6 (19.4%)
	51-75%	19 (61.3%)
	76-100%	5 (16.1%)

SD: Standard deviation; IQR: Interquartile range

Table 2. Answers to Likert-scales and the comparisons of the answers to the questions addressed at the three time-points of questionnaires' administration*

	Q 1: Before (N=31)	Q 2: Upon completion (N=30)	Q 3: Three months later (N=25)	Difference Q2 – Q1	Difference Q3 – Q2	Difference Q3 – Q1
Familiarization with the concept of frailty						
How comfortable/familiar do you feel with the frailty syndrome in older people? $	3.0 (2.0, 4.0)		4.0 (3.0, 4.0)			0 (0, 1.0) P=0.041 n=24
To what extent do you feel that you have appropriate knowledge and clinical skills in order to recognise an older person with frailty? $	3.0 (2.0, 3.0)	4.0 (3.0, 4.3)	4.0 (3.0, 4.0)	1.0 (0.5, 2.0) P<0.001 n=29	0 (-1.0, 0.8) P=0.400 n=24	1.0 (0, 2.0) P=0.001 n=24
To what extent do you feel that you have appropriate knowledge and clinical skills in order to manage an older person with frailty? $	3.0 (2.0, 3.0)	3.0 (3.0, 4.0)	3.0 (3.0, 4.0)	1.0 (0.0, 2.0) P<0.001 n=27	0 (-1.0, 0.8) P=0.782 n=24	0 (0, 2.0) P=0.003 n=23
Attitudes and practices						
Frailty syndrome is an essential part of ageing and so it is an inevitable consequence of older age #	4.0 (3.0, 5.0)	4.0 (2.0, 4.3)	3.0 (2.0, 4.0)	0 (-1.0, 0.0) P=0.071 n=29	0 (-1.0, 0) P=0.115 n=24	-1.0 (-1.0, 0) P=0.007 n=24
There is nothing that we can do to prevent frailty in older people #	1.0 (1.0, 2.0)	1.0 (1.0, 2.0)	1.0 (1.0, 2.0)	0 (-0.3, 0.0) P=0.714 n=30	0 (-1.0, 0) P=0.083 n=24	0 (-0.5, 0) P=0.107 n=25
There is nothing that we can do to tackle frailty in older people #	1.0 (1.0, 2.0)	1.0 (1.0, 2.0)	1.0 (1.0, 2.0)	0 (-1.0, 0.0) P=0.134 n=29	0 (0, 0) P=1.000	0 (-1.0, 0) P=0.130 n=24
Systematic screening of frailty in older people is useless #	1.0 (1.0, 2.0)	1.0 (1.0, 2.0)	1.0 (1.0, 1.0)	0 (0, 0) P=0.959 n=30	0 (-0.8, 0) P=0.132 n=24	0 (0, 0) P=0.558 n=25
Systematic screening of frailty is out of my duties #	1.0 (1.0, 1.0)	1.0 (1.0, 1.0)	1.0 (1.0, 1.8)	0 (0, 0) P=0.527 n=30	0 (0, 0) P=0.059 n=23	0 (0, 0) P=0.334 n=24
Systematic screening of frailty is unfeasible in my daily practice #	1.0 (1.0, 2.0)	1.0 (1.0, 2.0)	2.0 (1.5, 3.0)	0 (0, 0) P=0.483 n=25	1.0 (0, 1.0) P<0.001 n=23	1.0 (0, 2.0) P=0.006 n=23
Interprofessional collaboration for the comprehensive care for older people is functional and smooth in daily practice $	4.0 (2.0, 5.0)		3.0 (2.0, 4.0)			-1.0 (-2.0, 0.5) P=0.097 n=25
How often do you use frailty detection tools in your daily practice? $	2.0 (2.0, 3.0)		2.0 (2.0, 3.0)			1.0 (0, 1.0) P=0.014 n=23
How often do you use frailty management tools in your daily practice? $	2.0 (2.0, 3.0)		3.0 (1.0, 3.0)			0 (0, 1.0) P=0.374 n=22

Values depicted are median values with interquartile range (IQR) of answers to Likert-scales
** (excluding answer: "I do not know")*
Q: Questionnaire
$ answers closer to 5 are considered better/ a positive difference implies improvement
 # answers closer to 1 are considered better/ a negative difference implies improvement

Table S1. Answers to the first questionnaire administered before the training course (N=31)	
How comfortable/familiar do you feel with frailty syndrome in older people?	n (%)
1. Not at all	2(6.5)
2. A little	6(19.4)
3. Moderately	9(29)
4. Somewhat	11(35.5)
5. Very much	2(6.5)
6. I do not know/do not answer/not applicable	1(3.2)
To what extent do you feel that you have appropriate knowledge and clinical skills in order to recognise an older person with frailty?	n (%)
1. Not at all	3(10)
2. A little	9(30)
3. Moderately	12(40)
4. Somewhat	6(20)
5. Very much	0(0)
6. I do not know/do not answer/not applicable	0(0)
To what extent do you feel that you have appropriate knowledge and clinical skills in order to manage an older person with frailty?	n (%)
1. Not at all	3(10.3)
2. A little	9(31)
3. Moderately	11(37.9)
4. Somewhat	5(17.2)
5. Very much	0(0)
6. I do not know/do not answer/not applicable	1(3.4)
How do you rate competency of previous education that you have received concerning taking care of older people from 1 to 5?	n (%)
1. Poor	6(20)

2. Limited	10(33.3)
3. Moderate	8(26.7)
4. Sufficient	6(20.0)
5. Very good	0(0)
6. I do not know/do not answer/not applicable	0(0)
How do you rate competency of previous education that you have received concerning frailty syndrome in older people?	n (%)
1. Poor	6(20)
2. Limited	12(40)
3. Moderate	6(20)
4. Sufficient	3(10)
5. Very good	0(0)
6. I do not know/do not answer/not applicable	3(10)
Frailty syndrome is essential part of ageing and so it is an inevitable consequence of older age	n (%)
1. Totally disagree	1(3.3)
2. Disagree	3(10)
3. Neither agree/nor disagree	8(26.7)
4. Agree	6(20)
5. Totally agree	12(40)
6. I do not know/do not answer/not applicable	0(0)
There is nothing that we can do to prevent frailty in older people.	n (%)
1. Totally disagree	19(61.3)
2. Disagree	6(19.4)
3. Neither agree/nor disagree	5(16.1)
4. Agree	1(3.2)
5. Totally agree	0(0)
6. I do not know/do not answer/not applicable	0(0)

There is nothing that we can do to tackle frailty in older people.	n (%)
1. Totally disagree	18(58.1)
2. Disagree	8(25.8)
3. Neither agree/nor disagree	3(9.7)
4. Agree	1(3.2)
5. Totally agree	0(0)
6. I do not know/do not answer/not applicable	1(3.2)
Systematic screening of frailty in older people is useless	n (%)
1. Totally disagree	23(74.2)
2. Disagree	4(12.9)
3. Neither agree/nor disagree	2(6.5)
4. Agree	1(3.2)
5. Totally agree	0(0)
6. I do not know/do not answer/not applicable	1(3.2)
Systematic screening of frailty is out of my duties	n (%)
1. Totally disagree	25(80.6)
2. Disagree	4(12.9)
3. Neither agree/nor disagree	1(3.2)
4. Agree	1(3.2)
5. Totally agree	0(0)
6. I do not know/do not answer/not applicable	0(0)
Systematic screening of frailty is unfeasible in my daily practice	n (%)
1. Totally disagree	16(53.3)
2. Disagree	9(30)
3. Neither agree/nor disagree	1(3.3)
4. Agree	2(6.7)
5. Totally agree	0(0)

6. I do not know/do not answer/not applicable	2(6.7)
Interprofessional collaboration (between different medical specialties and/or between medical doctors and other health care professionals) in order to provide comprehensive care for older people is functional and smooth in daily practice	n (%)
1. Totally disagree	3(9.7)
2. Disagree	9(29)
3. Neither agree/nor disagree	3(9.7)
4. Agree	6(19.4)
5. Totally agree	10(32.3)
6. I do not know/do not answer/not applicable	0(0)
How often do you use frailty detection tools in your daily practice?	n (%)
1. Never	5(16.1)
2. Seldom	15(48.4)
3. Sometimes	7(22.6)
4. Often	2(6.5)
5. Systematically	0(0)
6. I do not know/do not answer/not applicable	2(6.5)
How often do you use frailty management tools in your daily practice?	n (%)
1. Never	5(16.1)
2. Seldom	11(35.5)
3. Sometimes	8(25.8)
4. Often	4(12.9)
5. Systematically	0(0)
6. I do not know/do not answer/not applicable	3(9.7)
The "I do not know" answers were excluded from the analysis	

Table S2. Answers to the second questionnaire upon completion of the training course (N=30)	
How much do you think that the training course improved your sense of familiarization with frailty?	n (%)
1. Not at all	0(0)
2. A little	1(3.3)
3. Moderately	4(13.3)
4. Somewhat	10(33.3)
5. Very much	14(46.7)
6. I do not know/do not answer/ not applicable	1(3.3)
How much do you think that the training course provided you with appropriate knowledge and clinical skills to recognise an older person with frailty?	n (%)
1. Not at all	0(0)
2. A little	2(6.70)
3. Moderately	8(26.7)
4. Somewhat	13(43.3)
5. Very much	7(23.3)
6. I do not know/do not answer/ not applicable	0(0)
How much do you think that the training course provided you with appropriate knowledge and clinical skills to manage an older person with frailty?	n (%)
1. Not at all	0(0)
2. A little	3(10)
3. Moderately	14(46.7)
4. Somewhat	9(30)
5. Very much	4(13.3)
6. I do not know/do not answer/ not applicable	0(0)
Frailty syndrome is an essential part of ageing and so it is an inevitable consequence of older age	n (%)
1. Totally disagree	1(3.3)
2. Disagree	7(23.3)

3. Neither agree/nor disagree	5(16.7)
4. Agree	10(33.3)
5. Totally agree	7(23.3)
6. I do not know/do not answer/ not applicable	(0)
There is nothing that we can do to prevent frailty in older people	n (%)
1. Totally disagree	18(60)
2. Disagree	9(30)
3. Neither agree/nor disagree	3(10)
4. Agree	0(0)
5. Totally agree	0(0)
6. I do not know/do not answer/ not applicable	0(0)
There is nothing that we can do to tackle frailty in older people.	n (%)
1. Totally disagree	20(66.7)
2. Disagree	10(33.3)
3. Neither agree/nor disagree	0(0)
4. Agree	0(0)
5. Totally agree	0(0)
6. I do not know/do not answer/ not applicable	0(0)
Systematic screening of frailty in older people is useless	n (%)
1. Totally disagree	21(70)
2. Disagree	6(20)
3. Neither agree/nor disagree	2(6.7)
4. Agree	1(3.3)
5. Totally agree	0(0)
6. I do not know/do not answer/ not applicable	0(0)
Systematic screening of frailty is out of my duties	n (%)
1. Totally disagree	26(86.7)

2. Disagree	4(13.3)
3. Neither agree/nor disagree	0(0)
4. Agree	0(0)
5. Totally agree	0(0)
6. I do not know/do not answer/ not applicable	0(0)
Systematic screening of frailty is unfeasible in my daily practice	n (%)
1. Totally disagree	16(53.3)
2. Disagree	8(26.7)
3. Neither agree/nor disagree	2(6.7)
4. Agree	2(6.7)
5. Totally agree	0(0)
6. I do not know/do not answer/ not applicable	2(6.7)
How possible do you think is to change your daily routine after attending the training course?	n (%)
1. Not at all	0(0)
2. A little	1(3.3)
3. Moderately	8(26.7)
4. Somewhat	15(50)
5. Very much	6(20)
How do you evaluate training course regarding its scientific content?	n (%)
1. Not good	0(0)
2. Rather insufficient	1(3.3)
3. Moderate	2(6.7)
4. Good enough	14(46.7)
5. Very good	13(43.3)
How do you evaluate the content of the course regarding the trainers' skills?	n (%)
1. Not good	0(0)
2. Rather insufficient	2(6.7)

3. Moderate	1(3.3)
4. Good enough	11(36.7)
5. Very good	16(53.3)
How do you evaluate the content of the course regarding the usefulness in your daily practice?	n (%)
1. Not at all useful	0(0)
2. A little useful	1(3.3)
3. Moderately useful	6(20)
4. Somewhat useful	8(26.7)
5. Very useful	15(50)
How do you evaluate the content of the course regarding the change of your attitudes and mentality towards older people the frailty syndrome?	n (%)
1. No impact at all	0(0)
2. Small impact	0(0)
3. Moderate impact	7(23.3)
4. Considerable impact	7(23.3)
5. Large impact	16(53.3)
Would you recommend this course to one of your colleagues?	n (%)
1. Definitely not	0(0)
2. Probably not	1(3.3)
3. I am not sure	2(6.7)
4. Probably yes	4(13.3)
5. Definitely yes	23(76.7)

Table S3. Answers to the third questionnaire administered three months following the training course	
How comfortable/familiar do you feel with the frailty syndrome in older people?	N=25 (%)
1. Not at all	0(0)
2. A little	3(12)
3. Moderately	9(36)
4. Somewhat	13(52)
5. Very much	0(0)
6. I do not know/do not answer/not applicable	0(0)
To what extent do you feel that you have appropriate knowledge and clinical skills in order to recognize an older person with frailty?	N=25 (%)
1. Not at all	0(0)
2. A little	2(8)
3. Moderately	7(28)
4. Somewhat	16(64)
5. Very much	0(0)
6. I do not know/do not answer/not applicable	0(0)
To what extent do you feel that you have appropriate knowledge and clinical skills in order to manage an older person with frailty?	N=25 (%)
1. Not at all	0(0)
2. A little	3(12)
3. Moderately	12(48)
4. Somewhat	10(40)
5. Very much	0(0)
6. I do not know/do not answer/not applicable	0(0)
Frailty syndrome is essential part of ageing and so it is an inevitable consequence of older age.	N=25 (%)

1. Totally disagree	5(20)
2. Disagree	6(24)
3. Neither agree/nor disagree	3(12)
4. Agree	9(36)
5. Totally agree	2(8)
6. I do not know/do not answer/not applicable	0(0)
There is nothing that we can do to prevent frailty in older people	N=25 (%)
1. Totally disagree	18(72)
2. Disagree	7(28)
3. Neither agree/nor disagree	0(0)
4. Agree	0(0)
5. Totally agree	0(0)
6. I do not know/do not answer/not applicable	0(0)
There is nothing that we can do to tackle frailty in older people.	N=25 (%)
1. Totally disagree	17(68)
2. Disagree	7(28)
3. Neither agree/nor disagree	1(4)
4. Agree	0,0%
5. Totally agree	0,0%
6. I do not know/do not answer/not applicable	0(0)
Systematic screening of frailty in older people is useless.	N=25 (%)
1. Totally disagree	20(80)
2. Disagree	4(16)
3. Neither agree/nor disagree	1(4)
4. Agree	0(0)
5. Totally agree	0(0)
6. I do not know/do not answer/not applicable	0(0)

Systematic screening of frailty is out of my duties.	N=24 (%)
1. Totally disagree	18(75)
2. Disagree	3(12.5)
3. Neither agree/nor disagree	3(12.5)
4. Agree	0(0)
5. Totally agree	0(0)
6. I do not know/do not answer/not applicable	0(0)
Systematic screening of frailty is unfeasible in my daily practice.	N=25 (%)
1. Totally disagree	6(24)
2. Disagree	10(40)
3. Neither agree/nor disagree	4(16)
4. Agree	4(16)
5. Totally agree	1(4)
6. I do not know/do not answer/not applicable	0(0)
Interprofessional collaboration (between different medical specialties and/or between medical doctors and other health care professionals) in order to provide comprehensive care for older people is functional and smooth in daily practice.	N=25 (%)
1. Totally disagree	3(12)
2. Disagree	7(28)
3. Neither agree/nor disagree	7(28)
4. Agree	5(20)
5. Totally agree	3(12)
6. I do not know/do not answer/not applicable	0(0)
How often do you use frailty screening tools in your daily practice?	N=25 (%)
1. Never	5(20)
2. Seldom	8(32)
3. Sometimes	7(28)

4. Often	4(16)
5. Systematically	1(4)
6. I do not know/do not answer/not applicable	0(0)
How often you use frailty management methods in your daily practice?	N=25 (%)
1. Never	7(28)
2. Seldom	5(20)
3. Sometimes	9(36)
4. Often	4(16)
5. Systematically	0(0)
6. I do not know/do not answer/not applicable	0(0)
How do you evaluate the usefulness of the training program in enriching your knowledge of frailty?	N=25 (%)
1. Not useful at all	(0)
2. A little useful	(0)
3. Moderately useful	6(24)
4. Somewhat useful	6(24)
5. Very useful	13(52)
6. I do not know/do not answer/not applicable	0(0)
During the period following the training intervention how much have you changed your daily practice towards frailty syndrome?	N=25 (%)
1. Not at all	4(16)
2. A little	4(16)
3. Moderately	9(36)
4. Somewhat	5(20)
5. Very much	3(12)
6. I do not know/do not answer/not applicable	0(0)

During the period following the training intervention how much have you changed your attitude and your mentality towards the frailty syndrome?	N=25 (%)
1. Not at all	0(0)
2. A little	0(0)
3. Moderately	3(12)
4. Somewhat	13(52)
5. Very much	9(36)
6. I do not know/do not answer/not applicable	0(0)
During the period following the training intervention how much do you feel that your skills of detecting frailty have improved?	N=25 (%)
1. Not at all	0(0)
2. A little	3(12)
3. Moderately	10(40)
4. Somewhat	8(32)
5. Very much	4(16)
6. I do not know/do not answer/not applicable	0(0)
During the period following the training intervention how much do you feel that your skills of managing frailty have improved?	N=25 (%)
1. Not at all	1(4)
2. A little	2(8)
3. Moderately	13(52)
4. Somewhat	6(24)
5. Very much	3(12)
6. I do not know/do not answer/not applicable	0(0)
During the period following the training intervention have you used any tools to screen for frailty?	N=25 (%)
No	13(52)
Yes	12(48)
If yes, how was the response of the older person in terms of satisfaction from the health care service provided?	N=13 (%)

1. Very negative	0(0)
2. Rather negative	3(23.1)
3. Neither positive/nor negative	2(15.4)
4. Rather positive	4(30.8)
5. Very positive	4(30.8)
6. I do not know/do not answer/not applicable	0(0)
During the period following the training intervention have you used any techniques to manage frailty?	N=25 (%)
No	15(60)
Yes	10(40)
If Yes, how was the respondence of the older person in terms of satisfaction with the health care service provided?	N=10 (%)
1. Very negative	0(0)
2. Rather negative	1(10)
3. Neither positive/nor negative	3(30)
4. Rather positive	2(20)
5. Very positive	4(40)
6. I do not know/do not answer/not applicable	0(0)
If Yes, how was the response of the older person's family in terms of satisfaction with the health care service provided?	N=10 (%)
1. Very negative	0(0)
2. Rather negative	1(10)
3. Neither positive/nor negative	0(0)
4. Rather positive	5(50)
5. Very positive	4(40)
6. I do not know/do not answer/not applicable	0(0)
If Yes, how was the response of the older person in terms of compliance?	N=10 (%)
1. Very negative	2(20)
2. Rather negative	1(10)

3. Neither positive/nor negative	4(40)
4. Rather positive	3(30)
5. Very positive	0(0)
6. I do not know/do not answer/not applicable	0
In your point of view did the experience of your participation in the training course contributed to the improvement of care provided to older people?	N=25 (%)
1. Definitely not	0(0)
2. Probably not	2(8)
3. I am not sure	10(40)
4. Probably yes	7(28)
5. Definitely yes	6(24)
6. I do not know/do not answer/not applicable	0(0)
In your point of view did the experience of your participation in the training course contributed to the improvement of the quality of life of older people you are taking care and /or of their families?	N=24 (%)
1. Definitely not	1(4.2)
2. Probably not	5(20.8)
3. I am not sure	9(37.5)
4. Probably yes	5(20.8)
5. Definitely yes	4(16.7)
6. I do not know/do not answer/not applicable	0(0)
The period following the training intervention did you happen to discuss its content with your colleagues?	N=25 (%)
No	4(16)
Yes	21(84)
Would you recommend this course to one of your colleagues?	N=25 (%)
1. Definitely not	0(0)
2. Probably not	0(0)
3. I am not sure	2(8)

4. Probably yes	6(24)
5. Definitely yes	17(68)
6. I do not know/do not answer/not applicable	0(0)

ANNEX 1: The workshop's program

Training course on Frailty of the Aristotle University of Thessaloniki Primary Health Care Research (AUTH.PHC.RN): Thursday 21st November 2019 **Recognition and management of frailty in Primary Health Care**		
9:00-9:30	Registration, welcome, completion of baseline questionnaire #1	
09:30-09:45	Workshop Opening – Introduction	Smyrnakis E.
09:45-11:00	Work in focus groups Investigation of the status of clinical practice, attitudes and educational needs of participants regarding frailty	Avgerinou C. Andreou M. Kotsani M. Roka V. Soulis G. Papageorgiou D.I.
11:00-11:15	Break	
11:15-11:35	Introduction to frailty syndrome and current theories - What is frailty? - The models of Fried and Rockwood	Soulis G.
11:35-12:00	Frailty screening tools (Interactive demonstration) - The PRISMA-7 tool - The FRAIL scale - The Clinical Frailty Scale - WHO ICOPE (Integrated Care for Older People) screening tool - Gait speed test	Kotsani M.
12:00-13:15	Frailty initial assessment tools (interactive demonstration)	
	Introduction to Comprehensive Geriatric Assessment in Primary Healthcare - Relevance and objectives of the CGA in PHC - Step by step approach	Soulis G.
	Cognitive and mood disorders assessment tools - National (Greek) guidelines for the diagnosis and management of Alzheimer's disease and related disorders - Mini Mental State Examination, Montreal Cognitive Assessment, mini-Cog - 15-items Geriatric Depression Scale	Kotsani M.
	Functional, sensorimotor and nutrition assessment tools - Katz Index of independence in Activities of Daily Living - Modified Barthel Index - The Lawton Instrumental Activities of Daily Living scale - Interview for the evaluation of social needs - Whisper test and Amsler grid - Global Leadership Initiative on Malnutrition criteria - Criteria for Sarcopenia (revised European consensus) - Mini Nutritional Assessment and Malnutrition Universal Screening Tools	Avgerinou C.

	Physical health and pain assessment tools and special considerations in the clinical examination of the older patient - Timed Up and Go test - Berg balance test - Short Physical Performance Battery - Visual analogue, Numerical rating and Faces Pain scales - Doloplus 2 scale - The importance of checking for visual deficits, orthostatic hypotension, foot and oral health problems in older patients	Soulis G.
13:15-14:15	Lunch Break	
14:15-15:30	Strategies for the management of frailty - Presentation of the WHO project “Integrated Care for Older People: Guidelines of community-level interventions to manage declines in intrinsic capacity”	
	Nutrition - ESPEN guideline on clinical nutrition and hydration in geriatrics Presentation of material available by the BAPEN association (https://www.bapen.org.uk/) - National (Greek) Nutritional Guide for people of 65 years and older	Avgerinou C.
	Physical activity - Presentation of the Late Life Training (Greek translation) and ViviFrail material - NHS Physical activity guidelines for older adults	Avgerinou C.
	Falls prevention - Occupational therapy interventions in the home environment and the use of walking aids - Tools and technics to compensate for cognitive difficulties	Kotsani M.
	Managing polypharmacy - STOPP-START medication review tool - Fall-Risk-Increasing Drugs (FRIDs) - AGS Beers criteria	Soulis G.
15:30-15:45	Coffee Break	
15:45-16:45	Discussion-Conclusions	
16:45-17:00	Closure	Smyrnakis E.

Annex 2: The questionnaires

A. Questionnaire no 1 (before the training course)

Participant Code: _____

1. GENERAL INFORMATION/DEMOGRAPHICS

1.1. Age:

1.2. Sex:

□ Male
□ Female

1.3. Professional status:

□ Medical doctor
□ Nurse
□ Health Visitor

1.4. If medical doctor, what is your specialty?

□ Family Medicine
□ Internal Medicine
□ Other: _____

1.5. Type of practice you are working in

□ Health Care Center
□ Small Practice
□ Local Health Unit
□ Help at Home
□ Private practice
□ Other private organization

Other: .....

1.6. How long you have been working with your current professional status?

□ < 5
□ 5-10
□ 11-15
□ 16-20
□ > 20

1.7. How long have you been working in this practice? __

1.8. Approximately what is the percentage of people over 75 of the people you are taking care of? between

□ 0-25%
□ 26-50%
□ 51-75%
□ 76-100%

2. FAMILIARIZATION WITH THE CONCEPT OF FRAILTY

2.1. How comfortable/familiar do you feel with frailty syndrome in older people? Please choose one of the following:

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

2.2. To what extent do you feel that you have appropriate knowledge and clinical skills in order to recognise an older person with frailty? Please choose one of the following:

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.3. To what extent do you feel that you have appropriate knowledge and clinical skills in order to manage an older person with frailty? Please choose one of the following:

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.4 How do you rate competency of previous education that you have received concerning taking care of older people from 1 to 5? Please choose one of the following:

Poor	Limited	Moderate	Sufficient	Very good
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.5 How do you rate competency of previous education that you have received concerning frailty syndrome in older people? Please choose one of the following:

Poor	Limited	Moderate	Sufficient	Very good
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

3 ATTITUDES AND PRACTICES

To what extent do you agree with the following from 1 to 5 (1= not at all, 5 = very much)? Please choose one of the following:

3.1. Frailty syndrome is essential part of ageing and so it is an inevitable consequence of older age

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Do not know/Do not answer /Not applicable ☐

3.2. There is nothing that we can do to prevent frailty in older people.

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Do not know/Do not answer /Not applicable ☐

3.3. There is nothing that we can do to tackle frailty in older people.

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Do not know/Do not answer /Not applicable ☐

3.4. Systematic screening of frailty in older people is useless

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Do not know/Do not answer /Not applicable ☐

3.5. Systematic screening of frailty is out of my duties

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Do not know/Do not answer /Not applicable ☐

3.6. Systematic screening of frailty is unfeasible in my daily practice

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Do not know/Do not answer /Not applicable ☐

3.7. Interprofessional collaboration (between different medical specialties and/or between medical doctors and other health care professionals) in order to provide comprehensive care for older people is functional and smooth in daily practice

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

3.8. How often do you use frailty detection tools in your daily practice?

Never	Seldom	Sometimes	Often	Systematically
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

3.9. How often do you use frailty management tools in your daily practice?

Never	Seldom	Sometimes	Often	Systematically
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

In the next questions please feel free to choose the answers that suits best for you (more than one answer is possible)

3.10. Factors that act as facilitators in detecting and managing frailty syndrome in your daily practice are:

□ Specialized knowledge/training that I have in the field
□ Utilization of specialized detection tools
□ The fact that I know the person very well and I can understand when something is wrong
□ The fact that I have important clinical experience and I trust my “clinical intuition”
□ The fact that I know the older person’s family
□ The fact that I collaborate with other health care professionals and we exchange information concerning the older person that are useful
□ Other .....

3.11. Factors that act as barriers in detecting and managing frailty syndrome in your daily practice are:

□ Lack of time
□ Lack of comprehensive knowledge of the person I am taking care of (thorough medical history, knowledge about social surrounding etc)
□ Lack of specialized knowledge in the field of frailty
□ Lack of clinical skills and acquaintance with frailty
□ Lack of material and infrastructure
□ Detection of frailty is useless since there is no cure for it
□ Detection of frailty is useless since I do not know where to refer the person if I detect something
□ The older person is not interested/does not consent to evaluate his frailty status
□ The older person suffers from other pathological conditions that are more important in my opinion
□ Other .....

B. Questionnaire no 2 (upon completion of the training course)

Participant Code: _____

1. FAMILIARIZATION WITH THE CONCEPT OF FRAILTY

1.1. How much do you think that the training course improved your sense of familiarization with frailty?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

1.2. How much do you think that the training course provided you with appropriate knowledge and clinical skills to recognise an older person with frailty?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

1.3. How much do you think that the training course provided you with appropriate knowledge and clinical skills to manage an older person with frailty?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

2. ATTITUDES AND PRACTICES

To what extent do you agree with the following from 1 to 5 (1= not at all, 5 = very much)? Please choose one of the following:

2.1 Frailty syndrome is an essential part of ageing and so it is an inevitable consequence of older age

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.2 There is nothing that we can do to prevent frailty in older people

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.3 There is nothing that we can do to tackle frailty in older people.

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.4 Systematic screening of frailty in older people is useless

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.5 Systematic screening of frailty is out of my duties

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.6 Systematic screening for frailty is unfeasible in my daily practice

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

3 EVALUATION OF THE TRAINING COURSE

3.1 How possible do you think is to change your daily routine after attending the training course?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

3.2 How do you evaluate the training course regarding its scientific content?

Not good	Rather insufficient	Moderate	Good enough	Very good
1	2	3	4	5
☐	☐	☐	☐	☐

3.3 How do you evaluate the content of the course regarding the trainers' skills?

Not good	Rather insufficient	Moderate	Good enough	Very good
1	2	3	4	5
☐	☐	☐	☐	☐

3.4 How do you evaluate the content of the course regarding the usefulness in your daily practice?

Not at all useful	A little useful	Moderately useful	Somewhat useful	Very useful
1	2	3	4	5
☐	☐	☐	☐	☐

3.5 How do you evaluate the content of the course regarding the change of your attitudes and mentality towards older people the frailty syndrome?

No impact at all	Small impact	Moderate impact	Considerable impact	Large impact
1	2	3	4	5
☐	☐	☐	☐	☐

3.6 Would you recommend this course to one of your colleagues?

Definitely not	Probably not	I am not sure	Probably yes	Definitely yes
1	2	3	4	5
☐	☐	☐	☐	☐

C. Questionnaire no 3 (3 months following the training course)

(filled in electronically 12-14 weeks following training)

Participant Code: ___

1. FAMILIARIZATION WITH THE CONCEPT OF FRAILTY

1.1. How comfortable/familiar do you feel with the frailty syndrome in older people? Please choose one of the following:

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

1.2. To what extent do you feel that you have appropriate knowledge and clinical skills in order to recognize an older person with frailty? Please choose one of the following:

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

1.3. To what extent do you feel that you have appropriate knowledge and clinical skills in order to manage an older person with frailty? Please choose one of the following:

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

2. ATTITUDES AND PRACTICES

To what extent do you agree with the following from 1 to 5 (1= not at all, 5 = very much)? Please choose one of the following:

2.1. Frailty syndrome is essential part of ageing and so it is an inevitable consequence of older age

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.2. There is nothing that we can do to prevent frailty in older people

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.3. There is nothing that we can do to tackle frailty in older people

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.4. Systematic screening of frailty in older people is useless

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.5. Systematic screening of frailty is out of my duties

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.6 Systematic screening of frailty is unfeasible in my daily practice

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

2.7 Interprofessional collaboration (between different medical specialties and/or between medical doctors and other health care professionals) in order to provide comprehensive care for older people is functional and smooth in daily practice

Totally disagree	Disagree	Neither agree/nor disagree	Agree	Totally agree
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

3. DAILY PRACTICE AND PROGRAM IMPACT

3.1. How often do you use frailty screening tools in your daily practice?

Never	Seldom	Sometimes	Often	Systematically
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

3.2. How often do you use frailty management methods in your daily practice?

Never	Seldom	Sometimes	Often	Systematically
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer /Not applicable ☐

3.3. How do you evaluate the usefulness of the training course in enriching your knowledge of frailty?

Not useful at all	A little useful	Moderately useful	Somewhat useful	Very useful
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.4. During the period following the training intervention how much have you changed your daily practice towards the frailty syndrome?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.5. During the period following the training intervention how much have you changed your attitude and your mentality towards the frailty syndrome?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.6. During the period following the training intervention how much do you feel that your skills of detecting frailty have improved?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.7. During the period following the training intervention how much do you feel that your skills of managing frailty have improved?

Not at all	A little	Moderately	Somewhat	Very much
1	2	3	4	5

☐ ☐ ☐ ☐ ☐

Do not know/Do not answer ☐

3.8. During the period following the training intervention have you used any tools to screen for frailty?

□ No
□ Yes

If No you can skip to question 3.11

3.9. If Yes, which ones:

□ Prisma 7
□ FRAIL
□ Clinical Frailty Scale
□ MMSE
□ MoCA
□ GDS
□ SPPB
□ Gait speed test
□ Timed Up and Go test
□ BADL
□ IADL
□ MNA
□ NRS και VAS to evaluate for pain
□ START/STOPP criteria
□ DICTIAS acronym

3.10. If you used any of the aforementioned tools, how was the response of the older person in terms of satisfaction from the health care service provided:

Very negative	Rather negative	Neither positive/nor negative	Rather positive	Very positive
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.11. Which are the actual barriers in recognizing the frailty syndrome (answer according to the barriers you faced in practice and not the potential and theoretical ones)

□ Lack of time
□ Lack of comprehensive knowledge of the person I am taking care of (thorough medical history, knowledge about social surrounding etc)
□ Lack of specialized knowledge in the field of frailty
□ Lack of clinical skills and acquaintance with frailty
□ Lack of material
□ Detection of frailty is useless since there is no cure for it
□ Detection of frailty is useless since I do not know where to refer the person if I detect something
□ The older person is not interested/does not consent to evaluate his frailty status
□ The older person suffers from other pathological conditions that are more important in my opinion

□ Random reasons (e.g. acute illness)
□ Other____

3.12. During the period following the training intervention have you used any techniques to manage frailty?

□ No
□ Yes

If No skip to question 3.17

3.13. If yes check which one (more than one answers possible):

□ Further investigation in the frame of your health care structure
□ Referral to a specialist secondary health care structure
□ Dietetic consultation
□ Physical exercise consultation
□ Home environment intervention consultation
□ Consultation with family members
□ Consultation/suggestions designated to your collaborators – Mobilization of local structures
□ Consultation to use assistive equipment to facilitate autonomy and safety
□ Revision of medical treatment aiming to deprescribing
□ Revision of medical treatment aiming to prescribing new drugs
□ Revision of medical treatment with no modifications

3.14. If Yes, how was the respondence of the older person in terms of satisfaction with the health care service provided:

Very negative	Rather negative	Neither positive/nor negative	Rather positive	Very positive
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.15. If Yes, how was the response of the older person's family in terms of satisfaction with the health care service provided:

Very negative	Rather negative	Neither positive/nor negative	Rather positive	Very positive
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.16. If Yes, how was the response of the older person in terms of compliance:

Very negative	Rather negative	Neither positive/nor negative	Rather positive	Very positive
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.17. Which are the actual barriers in using techniques to manage the frailty syndrome (answer according to the barriers you faced in practice and not the potential and theoretical ones)

□ Lack of time
□ Lack of comprehensive knowledge of the person I am taking care of (thorough medical history, knowledge about social surrounding etc)
□ Lack of specialized knowledge in the field of frailty
□ Lack of clinical skills and acquaintance with frailty
□ Lack of effective ways to treat frailty
□ Lack of specialized structure to refer frail older people
□ Lack of infrastructures that use frail management techniques within the community
□ Lack of effective interprofessional collaboration
□ Lack of supportive human environment
□ Lack of financial resources
□ Lack of motivation or compliance from the older person.
□ Random reasons (eg acute illness etc)
□ Other____

3.18. In your point of view did the experience of your participation in the training course contributed to the improvement of care provided to older people?

Definitely not	Probably not	I am not sure	Probably yes	Definitely yes
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.19. In your point of view did the experience of your participation in the training course contributed to the improvement of the quality of life of older people you are taking care and/or of their families?

Definitely not	Probably not	I am not sure	Probably yes	Definitely yes
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐

3.20. The period following the training intervention did you happen to discuss its content with your colleagues?

☐Yes
☐No

3.21. Would you recommend this training course to one of your colleagues?

Definitely not	Probably not	I am not sure	Probably yes	Definitely yes
1	2	3	4	5
☐	☐	☐	☐	☐

Do not know/Do not answer ☐