BMJ Open

Responding to Elder Abuse in GERiAtric care (REAGERA) educational intervention for healthcare providers: a non-randomised stepped wedge trial

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ABSTRACT

Introduction Elder abuse is prevalent and associated with different forms of ill health. Despite this, healthcare providers are often unaware of abusive experiences among older patients and many lack training about elder abuse. The overall aim of this study is to determine the effectiveness of an educational intervention on healthcare providers' propensity to ask older patients questions about abusive experiences.

Methods and analysis Healthcare providers at hospital clinics and primary healthcare centres in Sweden will undergo full-day education about elder abuse between the fall of 2021 and spring of 2023. The education consists of (1) theory and group discussions; (2) forum theatre, a form of interactive theatre in which participants are given the opportunity to practise how to manage difficult patient encounters; and (3) post-training reflection on changing practices.

The design is a non-randomised cluster, stepped wedge trial in which all participants (n=750) gradually transit from control group to intervention group with 6-month interval, starting fall 2021. Data are collected using the Responding to Elder Abuse in GERiAtric care–Provider questionnaire which was distributed to all clusters at baseline. All participants will also be asked to answer the questionnaire in conjunction with participating in the education as well as at 6-month and 12-month follow-up. Main outcome is changes in self-reported propensity to ask older patients questions about abuse post-intervention compared with pre-intervention. Linear mixed models including cluster as a random effect will be used to statistically evaluate the outcome.

Ethics and dissemination The study has been approved by the Swedish Ethical Review Authority. The results will be published in peer-reviewed journals and conference proceedings. If the intervention is successful, a manual of the course content will be published so that the education can be disseminated to other clinics.

Trial registration number NCT05065281.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This study includes a large cohort (n=750) of healthcare providers who will undergo education about how to detect and respond to elder abuse.
⇒ The education tested is brief (1 day), yet comprehensive, combining theory and group discussions about elder abuse with interactive practical skills training, that is, forum theatre.
⇒ The education tested will be included in the ordinary continued educational programmes at the clinics participating in the study and all staff members are anticipated to participate, providing a sample that is generalisable to healthcare providers in geriatrics, internal medicine and primary care.
⇒ One limitation of the study is that some important stakeholders are not included, for example, healthcare providers in surgical specialties and emergency medicine.
⇒ The stepped wedge design provides an opportunity to assess if factors on the cluster level, that is, clinical level, impact the results.

INTRODUCTION

Past year prevalence of elder abuse in community samples is reported to be around 10%–15% worldwide.[1] [2] Studies conducted among the most vulnerable older adults, for example, those residing in nursing homes or suffering from cognitive impairment, often report much higher prevalence rates, around 30%–50%.[2] [3] In this study, we use the WHO definition of elder abuse, including physical, psychological, sexual and economical abuse, as well as neglect occurring in any relationship where there is an expectation of trust, for example, abuse by relatives as well as health and social care staff.[4]

Elder abuse is associated with mental ill health, physical disability, an increased number of hospital admissions and an increased need for assisted living.[2] [5–7] Though many older adults who are exposed to abuse report that they need more help than they are currently receiving, they are also often found to be reluctant to seek help.[8] [9] Known barriers to help seeking include shame and not knowing where to turn for help.[10] [11]

Therefore, the healthcare system is important for identifying victims of elder abuse,[7 12] but many patients are never asked questions about abuse by healthcare professionals.[13] Also, healthcare providers are often reported to be insufficiently prepared to detect and manage cases of elder abuse.[7 14] Barriers towards identifying victims have been reported on a personal level among caregivers, for example, providers feeling unsure about what constitutes abuse, unsure about what their responsibility is or feeling uneasy about addressing the issue. Barriers at the organisational level are also prominent, for example, time restraints, lack of guidelines and concerns that support system may not be able to suffice the need of victims.[9 15–19]

Another barrier to detecting abuse is the difficulty that lies in identifying symptoms of abuse. This difficulty particularly applies to older adults whose medical conditions may mask signs of abuse, for example, an increased tendency to bruise and an increased risk of falling as well as sustaining injuries after a fall. Thus, there is an obvious risk of caregivers not interpreting injuries as a sign of abuse, as well as suspecting that the patient's injuries are due to abuse even when they are not.[9 20] In addition, physical signs of abuse are often absent, and staff need to be attentive to other signs, for example, psychological symptoms or social problems. However, such symptoms might also be absent or difficult to detect. Considering the complexity of the issue, staff need education about elder abuse; but in Sweden, as in many other countries, a large proportion of healthcare providers have never received any training about elder abuse.[19]

This study protocol describes the evaluation of an educational model aiming at increasing participants' propensity to ask older patients questions about abuse, by helping participants to overcome personal and organisational barriers for doing so. The specific learning objectives of the education are therefore to (a) increase providers' awareness about elder abuse and sense of responsibility to care for victims; (b) increase providers' perceived ability to ask questions about abuse; (c) increase providers perceived preparedness to manage cases of elder abuse and (d) increase organisational preparedness to care for older adults subjected to abuse.

The pedagogical framework underlying the educational model is inspired by constructive alignment theory, stating that learning objectives, learning activities and evaluation should be clearly aligned.[21] Since the education is directed at professionals rather than students, no examination of the acquired competence will be conducted, instead the evaluation constitutes the outcome measures chosen to measure effectiveness of the model. As illustrated in figure 1, learning activities, that is, a mix of theoretical lectures, group discussions and forum theatre, were chosen to match the previously stated learning objectives. Forum theatre is used as practical skills training and is a form of interactive theatre where participants—together with drama pedagogues—practise dealing with difficult situations and finding alternative ways of acting. Using interactive learning activities, including practical

training with simulated patients, has previously been recommended when educating about elder abuse.[22–24] The forum theatre is expected to increase participants' confidence in managing difficult situations which in turn is expected to have a facilitating effect on asking questions about abuse in future encounters. In both group discussions and forum theatre, participants are encouraged to exchange ideas and share previous experiences, to make the education relevant to their everyday practice. This is in line with constructive alignment theory, which stipulates that learners actively construct their own knowledge based on, for example, previous experiences, motives, assumptions and intentions.[21] Also, to facilitate transferral of acquired knowledge to practice, we will give examples on how to formulate questions about abuse and provide contact information to local support organisations. Previously, it has been highlighted that training should be adapted to local conditions so that the education can easily be translated into everyday practice.[25] A pilot study evaluating the proposed educational model has been carried out previously and the results of that study will be published separately.[26]

Aim

The overall aim of the project is to determine the effectiveness of an educational intervention on healthcare providers' propensity to ask older patients questions about abusive experiences. More specifically, we will:

1. Investigate whether the education increases propensity to ask questions about abuse.
2. Investigate whether the education affects participants' perceived barriers to asking questions, that is, (a) awareness and sense of responsibility to care for victims of abuse; (b) perceived ability to ask questions about abuse; (c) perceived preparedness to manage cases of elder abuse and (d) perceived preparedness at the clinic to care for older adults subjected to abuse.

METHOD AND ANALYSIS
Design

The design is a non-randomised, stepped wedge trial, a type of controlled cluster cohort study in which the participants gradually move from control group to intervention group.[27 28] In this study, a cluster entails a whole clinic or a unit at a clinic; and at the end of the study, all clusters will have completed the intervention, that is, participated in the education. Data will be collected for all participants both pre-intervention and post-intervention (see figure 2 for a schematic overview of the study design and times points for data collection). The stepped wedge design is recommended when, for practical and logistic reasons, it is difficult to implement an intervention for all participants simultaneously. A strength of the cluster design is that it allows all healthcare providers at the respective cluster to participate in the education together. This is likely to increase the collective preparedness to care for victims of elder abuse at each workplace, while simultaneously
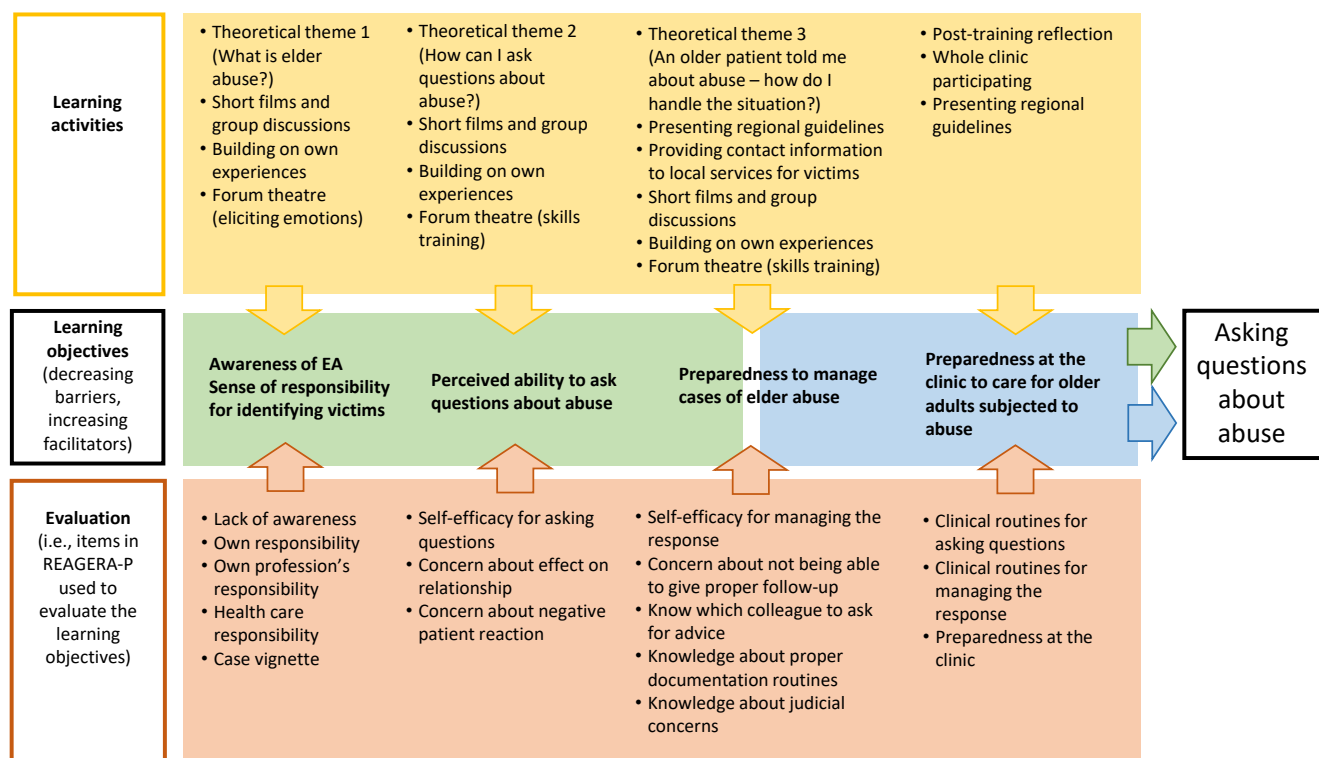
Figure 1 Theoretical model. An illustration of the alignment between learning activities (yellow), learning objective, that is, barriers and facilitators on a personal (green) and organisational (blue) level as well as evaluation (red). EA, elder abuse; REAGERA-P, Responding to Elder Abuse in GERiAtric care–Provider questionnaire.
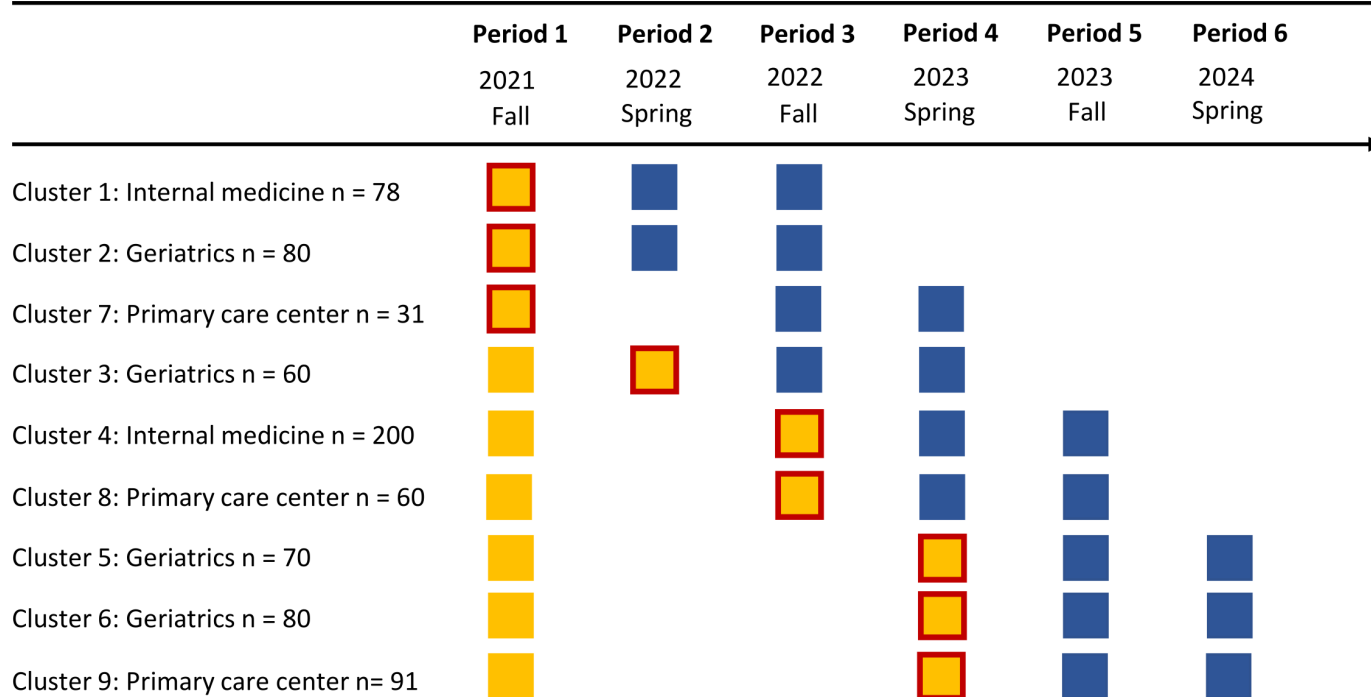
keeping the risk of contamination between different clusters at a minimum.

The intervention will be rolled out during four periods between September 2021 and spring 2023 (figure 2). A complete stepped wedge design would therefore entail at least five measurement points, which was deemed to be a too heavy response burden. Therefore, an incomplete design was chosen, that is, six periods are used, but every cluster is only included at four measurement points: at baseline, in conjunction with the education, at 6-month follow-up and at 12-month follow-up. The time of data collection is illustrated in figure 1. Similar incomplete designs have been described previously.[28 29] For practical reasons, the primary care centres included in the first study period had to be included later than the hospital clinics, that is, in December 2021. To avoid a data collection period during the summer vacation, their first follow-up will be in late August, that is, 8 months post-intervention. Thereafter, they will fall into the same pattern of data collection at a 6-month interval as the other clinics. The 6-month interval was chosen because it provides an intermediate (6 months) and long-term (12 months) follow-up that allows for a reasonable evaluation of the effect of the education. Ideally, in a stepped wedge

trial, the included clusters are randomised to when they will make the transition from control group to intervention group. However, considering that all staff members at each participating clinic or unit will undergo a full-day training session, this requires a lot of planning on the part of the participating clinics. It was therefore not possible to carry out randomisation, but instead the clinics were slotted into the schedule in the stages that were best suited to the schedules of their own organisations.

Participants

Staff at six inpatient care units within internal medicine and geriatrics at four of the six hospitals in two regions (Region Östergötland and Region Jönköpings Län) in Sweden, as well as 3 of the 45 primary care centres in Region Östergötland, will be invited to participate in full-day education concerning elder abuse. The education is included in the clinics continuing education programme; and as far as possible (considering clinical responsibilities), all staff members, for example, nurses, assistant nurses, physicians, occupational and physical therapists, will be scheduled to take part in the education. All staff members participating will be asked for inclusion in the study but agreeing is not a prerequisite to partake

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	Period 1 2021 Fall	Period 2 2022 Spring	Period 3 2022 Fall	Period 4 2023 Spring	Period 5 2023 Fall	Period 6 2024 Spring
Cluster 1: Internal medicine n = 78	�	▪	▪			
Cluster 2: Geriatrics n = 80	▦	▪	▪			
Cluster 7: Primary care center n = 31	▦		▪	▪		
Cluster 3: Geriatrics n = 60	▦	▦	▪	▪		
Cluster 4: Internal medicine n = 200	▦		▦	▪	▪	
Cluster 8: Primary care center n = 60	▦		▦	▪	▪	
Cluster 5: Geriatrics n = 70	▦			▦	▪	▪
Cluster 6: Geriatrics n = 80	▦			▦	▪	▪
Cluster 9: Primary care center n= 91	▦			▦	▪	▪

Note: All health care providers participating in the education are eligible to participate in the study, e.g., a person belonging to cluster 4 that do not respond to the baseline (period 1) survey but later partake in the education (period 3) will be asked for inclusion. Meanwhile, a respondent belonging to the same cluster, that participate in the data collection at baseline, but do not attend the education will be excluded. The total anticipated number of participants is around 750

Figure 2 Design of the study and data collection points. An incomplete stepped wedge trial is planned. All clusters are measured pre-intervention (yellow squares=baseline and in conjunction with the educational day) and post-intervention (blue squares=at 6–8 months and 12–14 months of follow-up). Time of intervention is denoted by the red contour.

in the education. Staff members who are not engaged in clinical work with older patients (age 65 years and older) will be excluded from the study but welcome to participate in the education. Approximately 750 healthcare providers will be asked to participate. The number is estimated based on the known number of participants in the education during the first period of data collection (fall 2021) and the anticipated number of participants in the forthcoming education, as provided by management at the participating clinics (figure 2).

The sample of units was based on convenience, that is, the clinics were recruited with the help of personal connections members of the research team had. The researchers are however not generally known to the healthcare providers participating in the study, with two notable exceptions: (1) two of the researchers (JS and ML)—who are also responsible for delivering the education—are employed at the clinic that first underwent the education; (2) one other researcher (BW) is employed at one of the other geriatric clinics included. He does however not have an active role in delivering the education.

Learning activities: content of the educational intervention

The different learning activities used during the education and their alignment with the learning objectives and evaluation are illustrated in figure 1.

Theoretical training (lectures and group discussions)

During the first part of the educational day, two members of the research group (JS and ML) give lectures interspersed with group discussions. Three themes are covered:

1. What is elder abuse? The education starts by showing a short film portraying a woman subjected to abuse by her partner. The film is shown to illustrate the complexity of elder abuse and to elicit emotions. In the associated lecture, the definition of elder abuse, prevalence, risk factors and health consequences of elder abuse are presented. Group discussions focus on what constitutes elder abuse as well as participants' own experiences of meeting patients subjected to abuse.

2. How can I ask questions about abuse? Regulations from the Swedish National Board of Health and Welfare stating that healthcare providers should ask questions about abuse whenever there are signs or symptoms that may indicate abuse are presented.[30] Symptoms that may be associated with abuse are discussed but it is emphasised that there are no pathognomonic

signs and that questions often need to be asked regardless of indicators of abuse. The self-administered questionnaire REAGERA-S (Responding to Elder Abuse in GERiAtric care)[31] is introduced as a tool for asking older adults about experiences of abuse. Associated group discussions focus on how to ask questions about abuse, and some time to practise using the REAGERA-S.

3. An older patient told me about abuse, how do I handle the situation? There is no evidence-based practice on how to best manage cases of elder abuse.[32 33] Instead, interventions against elder abuse must be individually tailored to match the unique needs and preferences of the older adult.[34] Trauma-informed care is introduced as a concept, meaning, for example, being aware of trauma symptoms, working to prevent re-traumatisation in healthcare and emphasising survivors' voice and empowerment in the care provided.[35 36] Local resources for victims and regional guidelines about managing cases of elder abuse are also presented. Group discussions focus on how to handle the situation when an older patient discloses abusive experiences.

Short films that show patient–provider encounters are used to introduce group discussions during themes 2 and 3. Two versions of each patient–provider encounter have been filmed to show that the encounter develops differently depending on how staff act. One pair of films is about asking questions about abuse (theme 2) and one set of films is about responding when a patient discloses abusive experiences (theme 3). After viewing each film, the content is discussed in small groups: what went well in the encounter, what went less well and how can it been done differently?

Forum theatre

The second part of the educational day is devoted to forum theatre, a form of interactive theatre[37] led by three drama pedagogues. Before starting, the participants form small groups to work out case descriptions of care situations pertaining to elder abuse that they themselves have perceived as challenging to deal with. Two pre-prepared and rehearsed patient cases based on research and clinical experience of difficult encounters with victims of elder abuse are also used. The forum theatre starts with the drama pedagogues acting out a provider–patient encounter where something went wrong or was difficult to manage. The scene is then acted out a second time, but this time the participants are invited to intervene in the encounter by saying 'stop' when the sequence of events is heading in a dysfunctional direction. The participant saying stop then takes over the role of the drama pedagogue acting as the healthcare provider and tries another way of managing the situation played out in the scene. Alternatively, the participant instructs the drama pedagogue how to act differently. Thus, the participants and the drama pedagogues together explore how their ways of acting can influence and improve a difficult encounter. While working with the scene, participants and drama pedagogues also engage in discussions about what is happening, the difficulties encountered and potential solutions. After each scene has been worked through, a brief remark is given by JS or ML regarding how to provide help in the specific case. This provides participants with some model cases that they can later relate to when faced with similar situations. Previously, forum theatre has been described as an innovative training model that stimulates reflection and learning within the healthcare system.[38]

Post-training reflection on changing practices

To facilitate transferral of the newly gained knowledge to participants' everyday practice, the educational day ends with a discussion on how to move forward. How can the training and the tools provided during the education be incorporated into clinical routines? This is first discussed in small groups and then further elaborated on with all participants, with the intention to stimulate thoughts and plans about how preparedness to care for victims can be improved at the clinic.

Material and analysis

► Data will be collected with the REAGERA-P (Responding to Elder Abuse in GERiAtric care–Provider questionnaire). It is a validated instrument[39] that can be used to measure healthcare providers' preparedness to ask older patients questions about abuse and manage the response. The items of relevance for this study are presented in table 1 and the complete REAGERA-P as online supplemental file 1.

Construct and convergent validity of the REAGERA-P was previously tested in a sample of 154 healthcare providers by using factor analysis, test of internal consistency and by investigating associations between relevant variables.[39] Based on lessons learnt in that data collection, the instrument was further improved and has later been used to evaluate a pilot study of the current educational intervention.[26] In the pilot study, a possible ceiling effect was found for two items about sense of responsibility and therefore the response categories were modified for the current study, that is, changed from a 4-point ordinal scale to a 6-point ordinal scale. Also, to better capture change in frequency of asking questions about abuse, response categories for the main outcome measure about self-reported propensity to ask questions were changed from a 4-point ordinal scale (never, once, 2–4 times, 5 times or more) to an 11-point scale (0–10 or more).

The concepts used to evaluate the respective learning objectives are described in figure 1 and the corresponding items in REAGERA-P can be found in table 1. REAGERA-P will be distributed as an online survey and all items are measured at each data collection point, except the case vignette. Because we anticipate a learning effect if the case vignette is used many times, it will only be included at baseline (autumn 2021) and at the measurement 1 year later (autumn 2022). Consequently, for some clusters, it will be measured twice pre-intervention but for others it will be measured at the 6-month or 12-month follow-up. Also, the data collection point that occurs in conjunction

Table 1 Items in REAGERA-P used to evaluate the intervention

Barrier/faciliator	Item used to evaluate	Response categories
Main outcome		
Propensity to ask questions	▸ How many times have you asked older patients questions about abuse in the past 6 months?	Ordinal 0–10 or more, do not remember
Awareness of elder abuse and sense of responsibility to care for victims		
Lack of awareness	To what extent do you think that the following factors prevent you at your workplace from asking older patients questions about abuse? ▸ Insufficient awareness of the problem	▸ Not at all ▸ To a small extent ▸ To a rather small extent ▸ To a rather large extent ▸ To a large extent ▸ To a very large extent
Responsibility	▸ How much responsibility do you think that (a) the healthcare services and (b) you, in your professional role, have for identifying older patients who currently are, or have previously been, subjected to abuse? ▸ Participants are also asked to rate how much responsibility different healthcare professionals have for asking questions about abuse.	▸ None ▸ Little ▸ Fairly little ▸ Quite a lot ▸ A lot ▸ Very much
Case vignette	A case vignette is used to measure awareness of elder abuse and tendency to ask older patients questions about abuse. More and more indicators and symptoms of abuse are added in subsequent steps of the case vignette and respondents are asked repeatedly how likely it is, considering what is known at each point, that they would ask the patient questions about abuse. Reporting asking questions early on in the vignette is interpreted as high awareness and a high propensity for asking questions.	▸ Not at all likely ▸ Not particularly likely ▸ Somewhat likely ▸ Very likely
Perceived ability to ask questions about abuse		
Self-efficacy for asking questions about abuse	▸ At present, how would you manage to do the following things in your work? A sum-scale consisting of three items, for example, asking question about abuse to an older patient who has no clear indications of now being or having previously been subjected to abuse. (Cronbach's alpha in validation study=0.75)	▸ Ordinal scale for each item ranging from 0=would manage it very poorly to 10=would manage it very well
Cause for concern	How concerned are you about the following things when it comes to asking older patients questions about abuse? ▸ That the patient reacts negatively if I ask questions ▸ That the patient–care provider relationship will be negatively impacted if I ask questions	▸ Not at all concerned ▸ A little concerned ▸ Somewhat concerned ▸ Very concerned
Preparedness to manage cases of elder abuse		
Self-efficacy for managing the response	▸ At present, how would you manage to do the following things in your work? A sum-scale consisting of five items, for example, helping an older patient subjected to abuse to make a report to the police or social services. (Cronbach's alpha in validation study=0.87)	Ordinal scale for each item ranging from 0=would manage it very poorly to 10=would manage it very well
Cause for concern	How concerned are you about the following things when it comes to asking older patients questions about abuse? ▸ That I will not be able to offer the patient a good follow-up	▸ Not at all concerned ▸ A little concerned ▸ Somewhat concerned ▸ Very concerned
Collegial support	▸ If you would like help to handle the situation when an older patient tells you about abuse, do you know who at your workplace you could turn to?	▸ Yes ▸ No
Knowledge about proper documentation routines	▸ Do you know what you should do to document what patients tell you about abuse in a correct and secure way in the medical record?	▸ Absolutely ▸ To a large extent ▸ To some extent ▸ Not really

Continued

Table 1 Continued

Barrier/facilitator	Item used to evaluate	Response categories
Knowledge about judicial concerns	▶ Do you think you have enough legal knowledge, for example, about when and to whom one can/must report if an older patient is mistreated and what secrecy rules apply?	▶ Absolutely ▶ To a large extent ▶ To some extent ▶ Not really
Preparedness at the clinic to care for victims of elder abuse		
Deficient routines	To what extent do you think that the following factors prevent you at your workplace from asking older patients questions about abuse? ▶ Deficient routines at the workplace for asking questions ▶ Deficient routines at the workplace for handling the answer	▶ Not at all ▶ To a small extent ▶ To a rather small extent ▶ To a rather large extent ▶ To a large extent ▶ To a very large extent
Preparedness at clinic and in society	▶ How do you think the preparedness at (a) your workplace and (b) in society is for taking care of older patients subjected to abuse?	▶ Very good ▶ Fairly good ▶ Somewhat inadequate ▶ Very inadequate ▶ Don't know what preparedness there is

REAGERA-P, Responding to Elder Abuse in GERiAtric care–Provider questionnaire.

with the education consists of a full data collection as the first part of the educational day and a limited data collection at the end of the day. The latter includes the items about cause for concern when asking questions about abuse, sense of responsibility, and self-efficacy for asking questions and managing the response, as well as some items used to evaluate the intervention.

Since we use an online survey, data input is conducted during the time of data collection. No interim analysis or other monitoring of data will be conducted during the time of data collection.

Retrospective selective review of medical records

For security reasons, it is recommended in Sweden that the information about abusive experiences should be documented using specific templates in the medical records that are hidden in the online records. We will retrieve anonymous statistics about how often these templates are used on a clinic level, that is, how many patients at each clinic that are identified as victims of abuse during the study period. The validity of this data has not been established, and it will therefore be considered an experimental outcome. However, this could potentially represent an objective assessment of whether the intervention leads to increased identification of patients subjected to elder abuse.

Statistical analyses

The background characteristics of participants will be explored using descriptive statistics and comparisons will be made between clusters to detect significant differences. Missing data will be analysed and, if appropriate, multiple imputations will be considered. Attrition analysis will be conducted using, for example, X^2 test and Student's t-test to detect differences between those lost to follow-up and those retained.

In a stepped wedge trial, results are compared across unexposed and exposed observation periods in the clusters, similar to the control and intervention arm in a parallel cluster trial.[40] The primary effect of this study will hence be calculated by comparing the main outcome (propensity to ask questions about abuse) in all clusters pre-intervention with all clusters post-intervention. Both mean difference in reported frequency of asking questions and changes in proportion of participants who report ever having asked questions about abuse will be reported. For the continuous outcome, a linear mixed-effects model will be used and for the binary outcome, a generalised linear mixed-effects model. The models will consider repeated measures and include cluster as random effects to determine if the anticipated effect of the model is dependent on the cluster, that is, unit or clinic. During a stepped wedge trial, more and more clusters will gradually transition from unexposed to exposed status, meaning that observation in the exposed status will on average be of a later date than the unexposed observation.[40] This may introduce a bias in the study considering that there may be underlying temporal trends affecting the outcome, for example, an increasing awareness of elder abuse in society over time. Therefore, both intervention status and time will be included as fixed effects in the models. Also, models will be adjusted for covariates,

for example, background characteristics, significantly associated with the outcome.

As previously described, we propose that the education will work by participants overcoming personal and organisational barriers towards asking older patients questions about abuse. The items in REAGERA-P used to evaluate the effect on the different barriers and facilitators are described in figure 1 and they will be included in linear models (for continuous outcome) and generalised linear models (for binary outcomes) to determine the effect of the intervention on these outcomes. If results support the theoretical model, efforts will be made to test if changes in perceived barriers mediate a potential effect of the intervention on the primary outcome, that is, asking questions about abuse.

Data from the medical records will be retrieved for the following periods: (a) 6 months pre-intervention, (b) 0–6 months post-intervention and (c) 6–12 months post-intervention. A linear mixed-effects model will be used to investigate changes concerning how many victims are identified pre-intervention and post-intervention at the participating clinics.

In all models, we will strive for parsimony; analysis will therefore be performed to determine which variables to include in multivariate analysis and only covariates that significantly affect the model will be included. Assumptions for models will be assessed graphically and, if needed, bootstrapping will be used to ensure model robustness. Significance level will be set at $p=0.05$ and results will be reported with 95% CIs.

Sample size calculation
Cluster sample size was calculated using the Shiny CRT Calculator web application found at https://clusterrcts.shinyapps.io/rshinyapp/. A detailed description of the underlying rationale for the calculations conducted by the web application is presented elsewhere,[41] as well as on the website. The significance level was set at 0.05 and power at 0.8. Initially, we had planned a complete four-period stepped wedge design and hence, that was used in the sample size calculation together with the discrete time decay. Divergent cluster sizes were expected and coefficient of variation for a cluster size was set at 0.5. Results from the pilot study were used to estimate cluster autocorrelation at 0.6. Proportion was set as outcome, and we used data from the pilot study to estimate the proportion under control at 0.26 and the proportion under intervention at 0.56. An illustration of the trade-off between cluster size and number of clusters per arm calculated can be found in online supplemental file 2. The illustration also includes the parameters used in calculation and shows that a cluster size of 10 sufficed to reach adequate power. Since our smallest expected cluster has 31 participants, even a response rate of less than 40% is sufficient.

Patient and public involvement
A pilot study of the education was conducted in 2020, and qualitative interviews were subsequently conducted with some participants to ensure that the education was relevant to their practice.[26] This led to changes in the education that are implemented at this stage, for example, a stronger focus on how to manage cases and providing information about local societal resources available to victims. Cognitive interviews with healthcare providers were also used as one of the measures to validate the questionnaire used to evaluate the intervention (REAGERA-P).[39] This was done to ensure the comprehensibility of the questions, and also to make sure that the questions used for evaluation are perceived as relevant. There was no patient involvement when constructing the intervention. However, the research group has previously conducted qualitative studies with older patients subjected to abuse[34] and the results of those interviews have inspired the content of the intervention.

ETHICS AND DISSEMINATION
The study has been approved by the Swedish Ethical Review Authority (reference no. 2020-02548). Informed consent (online supplemental file 3) is obtained as the first part of REAGERA-P and must be given before starting to fill out the questionnaire at all data collection points. The database will be securely stored by Region Östergötland and only authorised persons will have access to the data. The results of the study will be published in peer-reviewed journals and conference proceedings. Anonymous data will be made available by the primary investigator upon reasonable request after results have been published. As a final product of the study, a manual of the course content will be published. The purpose is to use this manual to disseminate the course to other clinics or organisations that wish to use it.

DISCUSSION
This study protocol describes the evaluation of an educational intervention about elder abuse, directed at healthcare providers. One strength of the educational model tested is combining theory with interactive components, that is, group discussions and forum theatre. Interactive learning activities have previously been recommended when educating about elder abuse.[22–24]

Two of the researchers (JS and ML) are responsible for giving the lectures and moderating group discussions during the education. They are employed at one of the clinics that underwent the education in September 2021. It is possible that this circumstance will affect the outcome of the intervention, for example, knowing the researchers might influence the experience of the education and potentially also participants' assessments in the REAGERA-P. However, since the researchers are not generally known at the other participating clinics, such a potential effect is expected to have a limited impact on the overall results and it is adjusted for by including cluster effect in the analysis.

By including a measurement point at the start of the educational day, most staff members participating in the education are expected to also be included in the study. In fact, preliminary analysis reveals that around 99% of those participating in the education during the fall of 2021 choose to participate in the study. However, we anticipate that it will be a challenge to retain participants over multiple data collection points. One of the reasons for choosing a stepped wedge trial was that all participants will be offered the intervention, which is expected to increase motivation to participate in follow-up measurements. Hence, participants lost to follow-up will be fewer than if a parallel controlled cluster design would have been chosen. Efforts have also been made to assure motivation among the leadership of each clinic for participation in the study and allowing the education to be a part of the continuing educational programme at the clinics. By including all staff members, collective learning is stimulated which likely creates an increased preparedness to care for victims on both the individual and clinical level. It is also a strength of the study design that all staff members at the clinics are invited to participate because it increases generalisability of the results. However, only geriatric, internal medicine and primary care clinics are included in the study and the results may hence not be generalised to staff at other clinics.

The objective of the educational model evaluated is that healthcare providers should start asking older patients questions about abuse more frequently than before. If successful, a manual of the course content will be published, which may facilitate future education of healthcare providers concerning elder abuse and inspire other similar programmes and studies. By extension, more victims of elder abuse will hopefully be identified in healthcare. This is an important, but only a small piece of a more comprehensive, puzzle to improve societal response to elder abuse. Much more research is needed considering how effective response systems can be constructed and how elder abuse can be prevented.[32 35 42 43]

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