Improving the quality of dementia care through establishing a quality improvement collaborative of Agents of Change: an interrupted time series study

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Abstract

Background: Non-pharmacological interventions including physical activity programs, occupational therapy and caregiver education programs have been shown to lead to better outcomes for people with dementia and their care partners. Yet, there are gaps between what is recommended in guidelines and what happens in practice. The aim of this study was to bring together clinicians working in dementia care and establish a quality improvement collaborative. The aim of the quality improvement collaborative was to increase guideline adherence to three guideline recommendations.

Methods: We recruited health professionals from community, hospital and aged care settings across Australia to join the collaborative. Members of the collaborative participated in a start-up meeting, completed an online learning course with clinical and quality improvement content, formed a quality improvement plan which was reviewed by a team of experts, received feedback following an audit of their current practice and were able to share experiences with their peers. The primary outcome was adherence to their guideline recommendation of interest which was measured using checklists. Data were collected monthly over a period of 18 months and the study used an interrupted time series design to evaluate changes in adherence.

Results: A total of 45 health professionals (78% therapists) from different sites joined the collaborative and 28 completed all requirements. Data from 1717 checklists were included in the analyses. Over the duration of the project there was a significant increase in clinician adherence to guideline recommendations with a 42.1% immediate increase in adherence (Incidence Rate Ratio =1.42; 95% Confidence Interval =1.08-1.87; p=0.012).

Conclusion: Health professionals working with people with dementia are interested and willing in joining a quality improvement collaborative with the goal of improving non-pharmacological aspects of care. Participation in the collaborative improved the quality of care for people with dementia as measured through adherence to guideline recommendations. Although there are challenges in implementation of guideline recommendations within dementia care the quality improvement collaborative method was well suited as it equipped and empowered clinicians to lead improvement activities and allowed for heterogeneity in terms of service and setting.

Contributions To The Literature

- Quality improvement collaboratives have been shown to improve the quality of care but there are few examples of their use in dementia care.
- Although there are challenges in recruiting and retaining health professionals in aged care, we successfully recruited health care professionals and formed a quality improvement collaborative dedicated to improving non-pharmacological care for people with dementia.
- Adherence to guideline recommendation increased steadily over the 18 months of the project and improved substantially from baseline levels.

Background

Historically, there has been an emerging evidence base for dementia care as well as little awareness of the existence of evidence-based treatments which can lead to better outcomes for people with dementia and their care partners[1]. As such, the care of people with dementia has been adversely affected by therapeutic nihilism[2, 3]. In more recent years, the development of clinical practice guidelines for dementia has aimed to increase awareness of the evidence and subsequently improve the quality and consistency of dementia care[4, 5]. However, the production of clinical practice guidelines alone may not have a subsequent impact on practice. As described by Glasziou and colleagues[6], health professionals in the field must be aware of and accept guideline recommendations. They must believe that guideline recommendations are applicable to their workplace and they must be able to implement recommendations within existing resources. Furthermore, they must disrupt the status quo and take action to implement changes.

Governments worldwide are grappling with how to provide quality and cost-effective care for an increasing number of people with dementia. Therefore, it is critical to trial and evaluate interventions which can reduce the gap between evidence (as detailed in guideline recommendations) and practice. Within the field of dementia care there are specific challenges related to the implementation of guideline recommendations. There are usually several health professionals involved in the person's health and aged care (such as the general practitioner, geriatrician, nursing, allied health and care workers) and integration of care is limited in most regions[7].In addition, recruiting and retaining health professionals to work in dementia care is difficult and more work is needed to develop, support and retain leaders in the field[8]. Enablers that promote successful implementation in dementia care include: providing staff with knowledge and training in implementation, coaching, group and individual learning activities, dedicated time to implement strategies, organisational support and a clear understanding of the expected behaviour change[9, 10].

Quality improvement collaboratives have been used in other fields of healthcare with success[11]. Collaboratives generally involve (1) a focus on a specific topic, (2) clinicians from multiple sites, (3) a team of clinical and quality improvement experts available, (4) structured activities to promote learning, and (5) a model for quality improvement that tracks progress against measurable aims[12]. Wells and colleagues conducted a systematic review including 64 studies of quality improvement collaboratives and reported that overall collaboratives were associated with improvements in both process and clinical outcomes[11].

There are few examples of quality improvement collaboratives within the fields of gerontology and geriatrics[11] although studies are underway[13]. The field of dementia care is unique and consideration must be given as to how to adapt collaboratives accordingly. It is important that quality improvement collaboratives established within dementia care settings are flexible enough to accommodate participants from different settings and professional backgrounds, and who work within different models

of funding. It is also important in a country like Australia, which has a low population density, to take advantage of technologies such as videoconferencing which allow for meetings of the quality improvement collaborative without the time and cost associated with travel. Furthermore, with different time zones and schedules it can be difficult to identify mutually convenient times for the collaborative to meet and learn. The flexibility of e-learning activities is therefore valued by health professionals[14].

The aim of this study was to determine whether the establishment of a national quality collaborative could increase the quality of care for people with dementia. Specifically, members within the collaborative were interested in adherence to one of the three following guideline recommendations[4]. These recommendations are priorities for people with dementia and their care partners[15], but adherence is known to be poor[16].

1. People with dementia living in the community should be offered occupational therapy (reflecting evidence-based programs)
2. People with dementia should be strongly encouraged to exercise
3. Care partners and family of people with dementia should have access to programs that provide respite and support to optimise their ability to provide care for the person with dementia.

This paper addresses the following research questions:

1. Can the establishment of a national quality improvement collaborative increase adherence to three recommendations from clinical practice guidelines for dementia? If so, are increases sustained?
2. What is the impact of the quality improvement collaborative on experiences and outcomes for people with dementia and their care partners?
3. Do members of the quality improvement collaborative value participation?

Methods

The study protocol for this implementation research study was previously published and presents a detailed description of methods[17]. An overview is presented in Figure 1. Ethical approval was received from the Southern Adelaide Clinical Human Research Ethics (number 62.17) and governance approval was received at all participating sites. The study used an interrupted time series design to assess guideline adherence (the primary outcome) with monthly data collection over a period of 18 months during 2018 and 2019.

Insert Figure 1: Project overview about here

Setting and participants

We recruited health professionals (referred to hereafter as 'implementation clinicians') from health and aged care organisations and sites ('implementation sites') across Australia. Eligible health professionals

were registered with the appropriate registration board, regularly working with people with dementia and/or their care partners, with influence within their workplace (and possibly leadership responsibilities) and with clinical responsibilities. We advertised via professional associations, aged care organisations, peak bodies (such as Leading Age Services Australia) and health services. Interested health professionals were required to submit a written 'expression of interest' along with a signed statement from their manager or supervisor demonstrating support for their participation. Health professionals were invited to join the collaborative if they worked in a range of different settings including general practice, community care, memory clinics, residential care, private practice or hospital services and rural and metropolitan areas. Upon applying, the health professional had to state which guideline recommendation (out of the three recommendations which were the focus of this project) they wanted to work to improve adherence.

Intervention: implementation strategies

The (implementation) intervention involved identifying and recruiting health professionals to form a national quality improvement collaborative. The intervention elements of the quality improvement collaborative included: a face-to-face start-up meeting; an online, eight module, evidence-based education package with clinical and quality improvement content; a single instance of feedback on performance against audit criteria; access to ongoing clinical and quality improvement expertise within the project team; regular incentives; access to webinars designed to meet the learning needs of the clinicians; regularly scheduled videoconference meetings. Clinicians were supported through a process of identifying gaps in practice, key stakeholders, barriers and enablers to change and create change via iterative Plan-Do-Study-Act cycles[18]. A timeline detailing the contents of intervention and timing is provided in supplementary material online (Figure A). The intervention was specifically designed to allow for heterogeneity in terms of clinicians, client groups and sites and to recognise the expertise and knowledge of context and setting that individual clinicians possess. Clinicians were not paid to be involved in the collaborative and participation required an investment of their time.

Outcomes

The primary outcome for this implementation research study was adherence to the selected guideline recommendation. In consultation with clinical and consumer experts we transformed three existing clinical practice guideline recommendations for dementia into criteria that could be checked and audited. The recommendations were sourced from the Australian Clinical Practice Guidelines and Principles of Care for People with Dementia[4] and related to evidence based occupational therapy, encouragement to exercise and care partner support as described previously. Scoring criteria are presented in Table 1.

Insert Table 1 about here

In the absence of common datasets or standardised reporting mechanisms, we evaluated adherence to guideline recommendations through reporting checklists. An example of a checklist is presented in supplementary material online (Figure B). Implementation clinicians completed a checklist following each

consultation they completed with someone with dementia. We asked clinicians to submit checklists for up to ten clients per month (representing their first ten consecutive consultations for the month with people with dementia). We were mindful of capturing data which was representative of their practice but not overly burdensome to collect and therefore a barrier to participation in the collaborative. Checklists were scored with a 0 representing non or partial adherence or 1 representing full adherence. To address research question 2 of the study, we planned to contact a random sample of the implementation clinician's clients with dementia (or their care partners) who received the reported consultation by phone to verify the clinician's account of the consultation. The aim of the phone interview was to obtain the perspectives of the person with dementia and their care partner about the consultation and adherence to the criteria. We also planned to ask people with dementia and their care partner about their satisfaction with care, quality of life and level of burden reported by care partners.

Analysis

Data were entered into Excel and then exported into STATA (StataCorp, USA, version 16.0) for analysis. Descriptive analysis was performed using, means +/- standard deviation, medians (inter-quartile range) or frequencies (percentages) as appropriate. As per the criteria set out in Table 1, consultations (as described within clinician checklists) were scored by an independent assessor as being either in full adherence with the associated guideline recommendation (score =1) or not in full adherence (score=0). We used an interrupted time-series analysis approach to assess the changes in clinician adherence after December 2018 when the key elements of the intervention were completed. For this, a multilevel Poisson regression analysis was used; a Poisson distribution was chosen to in order to assess the relative rate of change in adherence, and a multilevel model was used in order to account for the repeated measures on clinicians across time. The model included fixed effects for month, period (before versus after Dec 2018) and a month X period interaction. A random intercept was also included for the participant to account for the correlation in the data. The fixed effect term for "period" allowed us to assess the immediate change in the rates of clinician adherence in December 2018 i.e. the "level" change, the "month" term allowed us to assess the relative increase in adherence prior to December 2018 i.e. the month-to-month increase, and the "month X period" interaction term allowed us to assess whether the slope after December 2018 changed significantly compared to the slope before December 2018. A 2-sided type 1 error rate of alpha =0.05 was used for significance testing.

Results

A total of 63 health professionals submitted written expressions of interest to participate in the collaborative. A total of 45 health professionals met all requirements and commenced involvement. Over the course of the project (which included several months to obtain research governance approvals at all participating sites as well as 18 months of data collection) there were several withdrawals and a total of 28 (62%) clinicians remained in the collaborative at the conclusion of the project. Recruitment and withdrawals are presented in Figure 2.

Insert Figure 2: Overview of recruitment and withdrawals about here

The 45 implementation clinicians who were initially enrolled in the project represented all states and territories of Australia and included seven clinicians (16%) who worked in regional or remote areas. Most clinicians (n=40, 89%) were female and worked on average 0.8 Full Time Equivalent (FTE) (range 0.2FTE – 1.0 FTE) which equates to approximately 30 hours per week. Characteristics of implementation clinicians are presented in Table 2.

Insert Table 2 about here

Participation in the quality improvement collaborative and achievement of key milestones: The median amount of time spent participating in the online learning modules was 40 hours. All 28 clinicians who completed the collaborative submitted their quality improvement plan for review.

Guideline adherence: Over the 18-month data collection period a total of 1717 checklists were submitted (average 95 per month). The number of checklists submitted varied each month due to changes in workload and the types of clients of the service that month, staff taking leave or changing duties during that month (including covering for other staff on leave at their site).

As seen in Table 3, there was a significant level change in clinician adherence to guideline recommendations in December 2018 with an estimated 42.1% immediate increase in adherence (Incidence Rate Ratio (IRR)=1.42; 95% CI=1.08-1.87; p=0.012). Prior to December 2018 the relative increase in adherence from one month to the next was approximately 5.3 % (IRR=1.05, 95% CI=0.97, 1.14; p=0.225). After December 2018, the relative increase remained the same at approximately 5.3% (IRR for Month X period interaction=0.99; 95% CI=0.92, 1.09). Overall, the estimated adherence increased from 24.4% in June 2018 to 82.7% in November 2019.

Insert Table 3 about here

The observed and estimated adherence levels are plotted for the two time periods in Figure 3.

Insert Figure 3: Observed and estimated values of adherence during the study period about here

Outcomes for people with dementia and their care partners: As per our second research question, we had hoped to gain the perspectives of people with dementia and their care partners about the content of consultations, their satisfaction with care and their personal outcomes. However, we were not successful in obtaining this data. There were very few occasions where clinicians gained consent from the person with dementia and their care partner to be contacted. Therefore, we were unable to contact the person with dementia and their care partner to seek their perspectives. Potential reasons for our failure to obtain this data are discussed below (see Discussion). Clinicians reported that: they felt anxious about gaining their client's consent to participate in a formal research project; they were confused by the process; that it added extra time burden to consultations; and, that they did not think that their clients would want to be bothered with a phone call. We chose not to persist with reminders about this component of data

collection as we wanted to ensure that we supported implementation clinician participation and engagement and avoided complexity and possible withdrawals. When it was possible to contact people with dementia and their care partners all provided positive descriptions of their consultations. However, they tended to have difficulty remembering the exact content of consultations. It should be noted that clients would see the implementation clinician a number of times and it was difficult to recall the nature of a consultation completed on a particular date.

Satisfaction with participation

Upon completion of the project, implementation clinicians were asked to complete a survey describing their perspectives of participation. A total of 17 (of 28) clinicians completed the survey and results are presented in Table 4. Overall, clinicians reported that their quality improvement activities were successful and that the quality improvement skills learnt within the project were advantageous in their workplace.

Discussion

This translational research project revealed that there was interest amongst clinicians working in dementia care in participating in a quality improvement collaborative focussed on improving non-pharmacological aspects of care. Clinicians were not paid to be involved in the collaborative and participation required an investment of their time. Successful establishment of the collaborative demonstrates that there are clinicians with an interest in quality improvement activities and a commitment to improve the quality of dementia care. We found that a substantial increase in adherence to guideline recommendations over the duration of the project. Improvements in adherence were relatively steady over time but with a larger increase in adherence after the key elements of the intervention were introduced from December 2018 ; these were completion of online learning modules, submission of quality improvement plan and feedback following audit of current practice.

We were unable to successfully obtain data to determine whether increased guideline adherence resulted in improved satisfaction with care or enhanced outcomes for clients of the service as we had great difficulty contacting the clients of our implementation clinicians. We received feedback from implementation clinicians that they did not feel comfortable gaining formal consent from their clients in a research capacity. Many of our clinicians had little previous experience participating in research projects. Gaining consent added to the duration of the consultation and many of our clinicians reported being time poor (which was also a barrier to best practice and quality improvement). Although we were unable to determine the efficacy of the quality improvement collaborative in improving client outcomes, it makes sense that improvements in care would in turn have resulted in improved outcomes and satisfaction. The three guideline recommendations of interest within this project are supported by evidence from multiple randomised controlled trials[4]. There is good evidence that occupational therapy can delay functional decline in activities of daily living and improve quality of life[19]. Increased physical activity is associated with improved mobility and function in people with dementia[20] and there are many research studies which demonstrate the efficacy of caregiver support programs[21].

The findings of this study are consistent with those from other quality improvement collaboratives which have improved performance of process outcomes[11]. There have been few examples of quality improvement collaboratives within dementia care settings, but this study suggests that this knowledge translation strategy may be effective. Systematic reviews suggest that knowledge translation activities are often associated with modest albeit important improvements in care[22]. The extent of improvements in guideline adherence were beyond those anticipated by the research team. Our findings also suggest that transforming guideline recommendations into criteria which can be audited may be beneficial for health professionals to assist with operationalising changes in practice and self-reflection.

Defining and measuring primary outcomes is challenging in translational research involving non-pharmacological interventions. Guideline recommendations describe processes of care which are difficult to quantify and not routinely captured. The lack of consistent and accessible data across sites meant that we developed our own process of measuring outcomes and resulted in our use of checklists. This self-reported data was susceptible to bias as are other methods used to measure quality of care such as case note audits and being observed or audio recorded during consultations. We had not anticipated that completion and submission of the checklists alone would lead to changes in practice but our results suggest that this may have contributed as there were increases in adherence from the commencement of data collection. Clinicians reported that reflection about practice helped identify the gap and the need for changes in practice in some cases.

There are an increasing number of knowledge translation activities occurring in the field of dementia care and aged care. This is one of the first examples of a quality improvement collaborative and builds knowledge and understanding about what works in this clinical area. We included health professionals from across Australia and had limited dropouts considering the duration of the project (18 months) and the need to obtain research governance approvals at each site. The total number of participants recruited was conducive to working together as one collaborative (dedicated to three recommendations). A larger number of participants would have necessitated breaking into smaller groups. If shown to be effective in pilot studies, quality improvement collaboratives should aim to be larger in scale so that they are able to maximise impact and benefits for people with dementia and their care partners relative to investment. Collaboratives that can be initiated and independently sustained by a group of clinicians (without external support) can reduce costs. However, a clinician-led collaborative would need to consider how it would offer access to advice, coaching and credibility; research establishing how best to achieve this is a worthwhile direction for future research.

Conclusions

In conclusion, the results of our study suggest that there are motivated health professionals who want to improve the quality of care for people with dementia and can do so when provided with skill development in quality improvement, support and structure in the form of a quality improvement collaborative. A quality collaborative can support each other even when it comprises health professionals working in different contexts in dementia health and aged care organisations.

Abbreviations

IRR
Incidence Rate Ratio
CI
Confidence Interval
FTE
Full time equivalent

Declarations

support with data analysis and contributed to manuscript review and editing. MCr, JAF, SK, IDC, CW, JT, BK and KH provided theoretical support to the project and assisted with manuscript review and editing.

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Tables

Due to technical limitations, Tables 1 - 4 are only available for download from the Supplementary Files section.
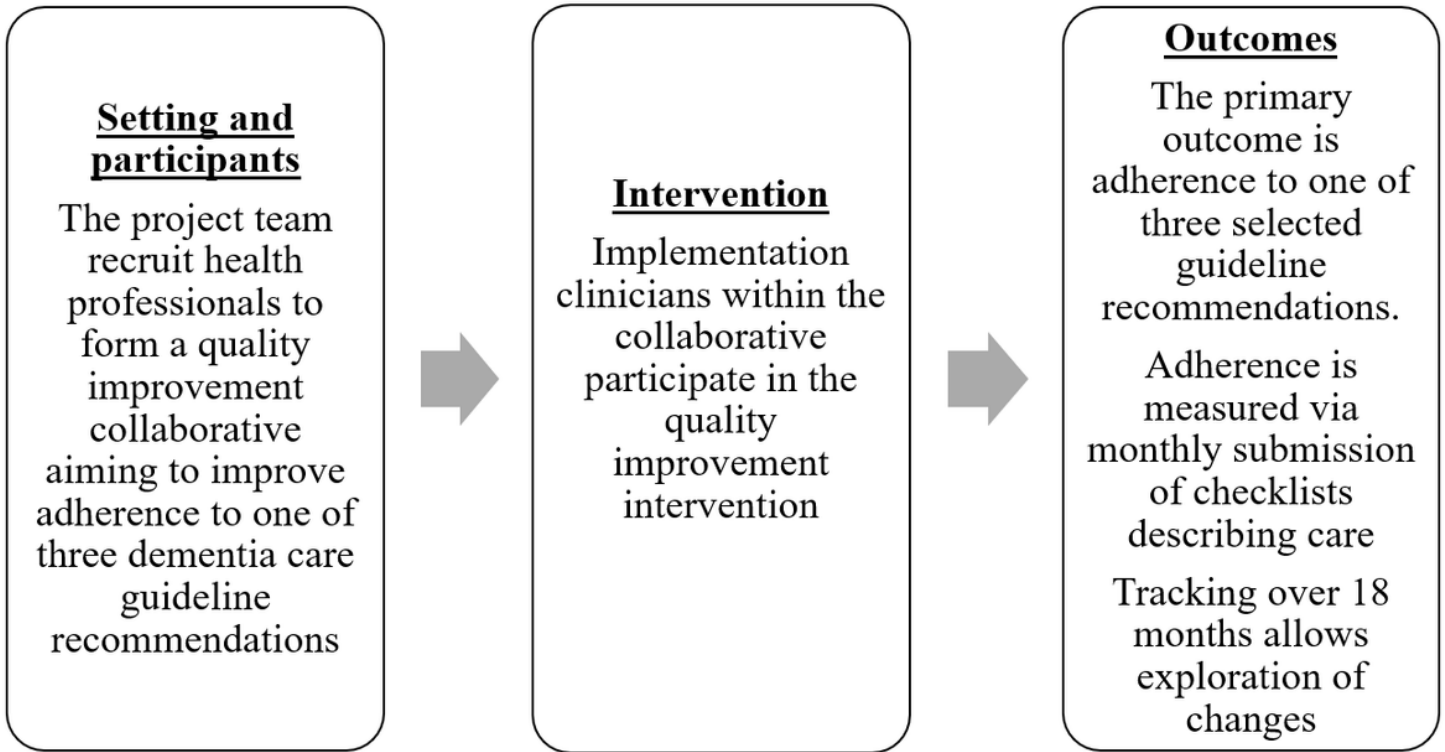
Figures

Setting and participants

The project team recruit health professionals to form a quality improvement collaborative aiming to improve adherence to one of three dementia care guideline recommendations

Intervention

Implementation clinicians within the collaborative participate in the quality improvement intervention

Outcomes

The primary outcome is adherence to one of three selected guideline recommendations.

Adherence is measured via monthly submission of checklists describing care

Tracking over 18 months allows exploration of changes
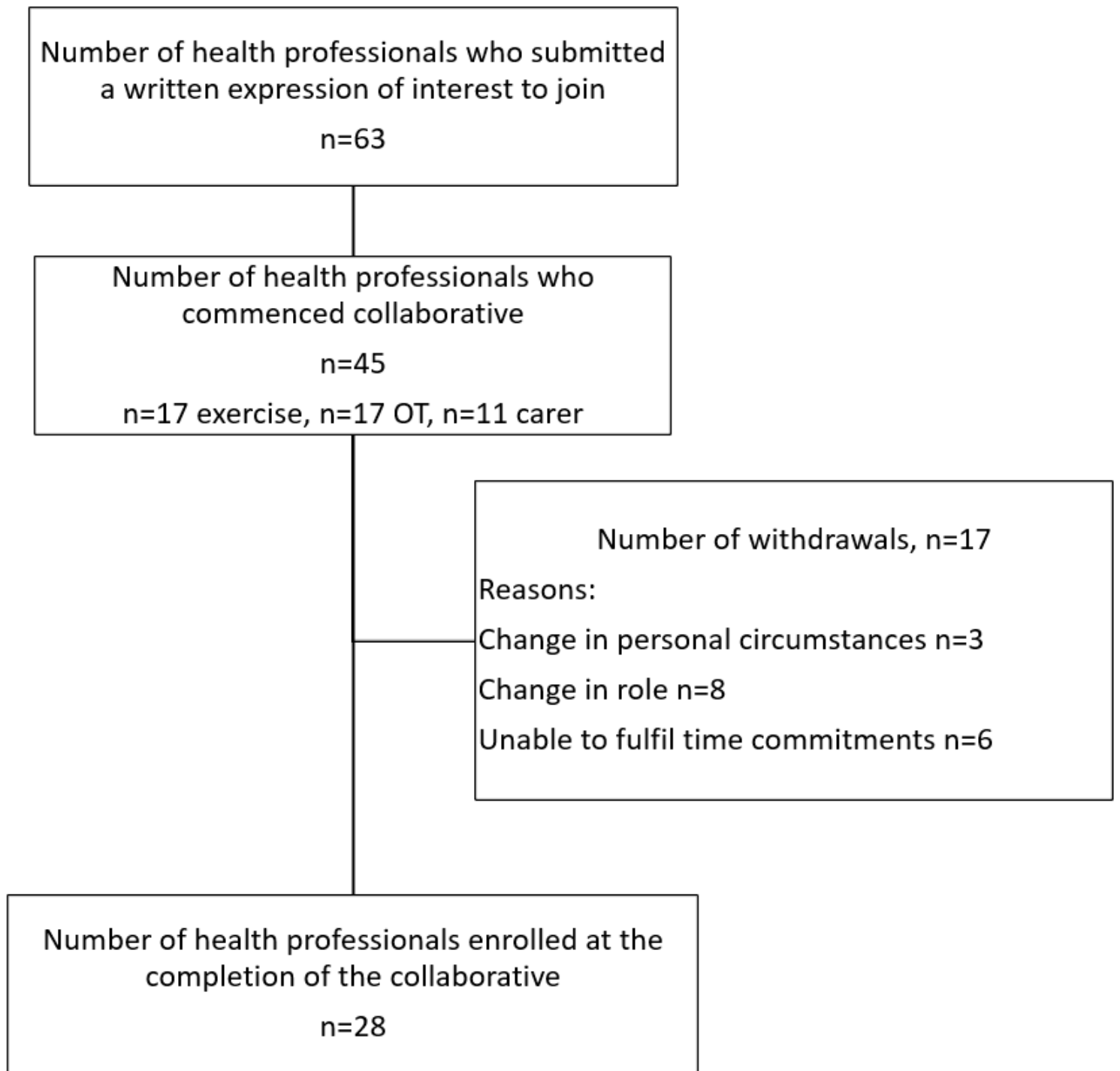
Figure 1

Project overview

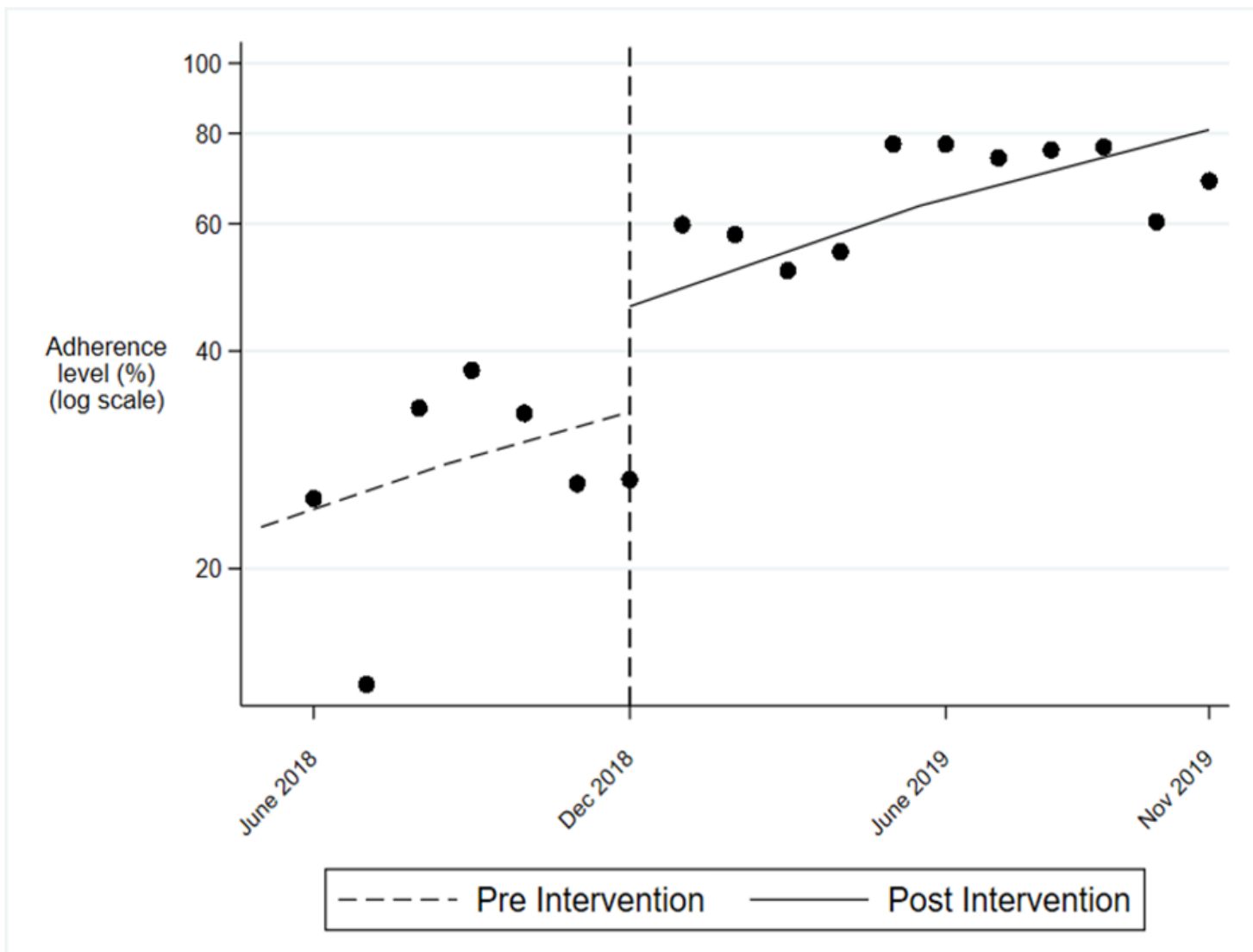**Figure 2**

Overview of recruitment and withdrawals

Figure 3

Observed and estimated values of adherence during the study period

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- FigureB.pptx
- SQUIRE2.0checklist.checked.pdf
- FigureA.pptx
- Tables.docx