Implementation of coordinated healthy lifestyle promotion in primary care

Process and outcomes

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*A good idea is about ten percent
and implementation, hard work,
and luck is 90 percent*

– GUY KAWASAKI

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ABSTRACT

Background: The promotion of healthy lifestyles has not been systematically integrated into routine primary care. This is despite increasing evidence of the effect of lifestyle promotion on patient outcomes. There is emerging evidence that coordinated care and multi-professional teamwork can improve the efficiency and quality of care. However, more research is needed on the implementation of coordinated care within healthy lifestyle promotion. Also, there is limited understanding of the role of patients in the implementation process and the long-term outcomes of implementation efforts.

Overall aim: To investigate the implementation of coordinated healthy lifestyle promotion in primary care in terms of process and outcomes, from the perspectives of both staff and patients.

Methods: In 2008, the Western division in Östergötland County Council commissioned primary care centres to implement *lifestyle teams* aiming to standardize and improve practices regarding the promotion of physical activity, healthy eating, smoking cessation and moderate drinking of alcohol. A lifestyle team protocol including four components stipulated: (1) the formation of multi-professional teams, (2) the appointment of team managers, (3) team meetings at least every 6 weeks and (4) creating in-house referral routines for at-risk patients. *Paper I* investigated the implementation process of three lifestyle teams over a 2-year period using a mixed method, convergent parallel design. Data from manager interviews, documented data, and questionnaires were analysed by qualitative content analysis, analysis of variance and descriptive analysis. A proposed theory on implementation was used during the data analysis. *Paper II* explored patients' perceptions, interpretations and reactions in healthy lifestyle promotion situations using grounded theory. Interview data from 22 patients with varied experience of healthy lifestyle promotion were used. The data collection and analysis were intertwined. *Paper III* investigated implementation outcomes using a quasi-experimental, cross-sectional design that compared intervention centres ($n = 3$; lifestyle teams) with control centres ($n = 3$; traditional model). Data were collected by patient and staff questionnaires and manager interviews at 3 and 5 years after the commissioning of the teams. A modified version of the RE-AIM framework was used to define outcome variables: reach (the proportion of patients receiving promotion); effectiveness (attitudes and competency regarding promotion among staff); adoption (of lifestyle promotion and referral among staff); implementation (fidelity to the lifestyle team protocol); and maintenance (reach, effectiveness, adoption and implementation at 5-year follow-up).

Results: *Paper I:* The implementation process was complex including multiple innovation components and groups of adopters. The conditions for implementation, e.g. resources and commitment varied between staff and team members and this challenged the embedding of the teams and new routines at the centres. The lifestyle teams were continuously redefined by team members to accommodate contextual factors, features of the protocol and patient needs. The lifestyle team protocol presented an infrastructure for practice at the centres. *Paper II:* A grounded theory about *being healthy* with three interconnected subcategories emerged from the data: (1) *conditions*, (2) *managing*, and (3) *interactions* regarding being healthy. Being healthy represented a process of approaching a health ideal which occurred simultaneously with, and could contradict, a process of maximizing well-being. The process of balancing future ideals with current well-being was characterized by patients' conditions and experiences of managing being healthy. A typology of four patient types (resigned, receivers, co-workers, and leaders) illustrated how processes before, during and after healthy lifestyle promotion are interconnected and could be important implementation. *Paper III:* Reach: significantly more patients at control centres received promotion compared to intervention centres at 3-year (48% and 41% respectively) and 5-year follow-ups (44% and 36% respectively). Effectiveness: At 3-year follow-up, after controlling for centres, intervention staff were significantly more positive concerning perceived need for lifestyle teams; that healthy lifestyle promotion was prioritized at their centre and that there were adequate competency at individual and centre level regarding lifestyle promotion. At 5-year follow-up, significant differences remained regarding prioritization of lifestyle promotion at centre level. However, the majority of both intervention and control staff were positive towards lifestyle promotion. Adoption: No significant differences were found between control and intervention centres at 3 years (59% and 47% respectively) or at 5 years (45% and 36% respectively). Implementation fidelity: all components of the lifestyle team protocol had been implemented at all the intervention centres and at none of the control centres.

Conclusions: The implementation process was challenged by a complex interaction between groups of staff, innovation components and contextual factors. Although coordinated care are used for other conditions in primary care, the findings suggest that it is difficult to adopt similar routines for healthy lifestyle promotion. Findings suggest that the lifestyle team protocol did not fully consider relational and social components of coordinated healthy lifestyle promotion or the varied conditions for change exhibited by adopters. Patients can be seen as coproducing implementation of healthy lifestyle promotion. Patients challenged or facilitated implementation depending on expectations and appraisal of the situation.

LIST OF PAPERS

I. Thomas K, Bendtsen P, Krevers B. Towards implementing coordinated healthy lifestyle promotion in primary care: a mixed-method study. *Int J Integrated Care* 2015;15:e030.

II. Thomas K, Bendtsen P, Krevers B. Implementation of healthy lifestyle promotion in primary care: patients as coproducers. *Patient Educ Couns* 2014;97:2.

III. Thomas K, Krevers B, Bendtsen P. Long-term impact of a real-world coordinated lifestyle promotion initiative in primary care: a quasi-experimental cross-sectional study. *BMC Family Pract* 2014;15:201.

TERMS AND CONCEPTS

The following is a list of the central terms and concepts as defined in the thesis, references are provided when applicable. Italics represent terms and concepts in the list.

Adaptation: The degree to which an *innovation* is modified by a user during *adoption* and *implementation* to suit the needs or resources of a setting [1]

Adoption: The decision of an individual, group or organization to commit to and initiate an *innovation* [2]

Embedding: The process of incorporating an *innovation* in everyday work [3]

Fidelity: The extent to which the lifestyle teams are implemented according to the original protocol

Healthy lifestyle promotion: The promotion of healthy living (active lifestyle, healthy eating habits, moderate drinking of alcohol and smoking cessation) including screening, brief advice and extended counselling

Impact: The influence of *implementation strategies* on *implementation outcomes*

Implementation: The process of putting an *innovation* to use within a setting [2]

Implementation strategy: Systematic processes, activities or resources that are used to facilitate the *implementation* of an *innovation* [2]

Implementation outcome: The impact of deliberate and purposive actions to implement an *innovation* [4]

Innovation: An idea, practice, or object that is perceived as new by an individual or other unit of *adoption* [1]

Integration: The process of sustaining an *innovation* in routine practices [3]

Organization readiness to change: The extent to which staff and managers are psychologically and behaviourally prepared to implement an *innovation* [5]

1. INTRODUCTION

The goal of health care is to maximize the health of patients through good quality of care. The Swedish National Board of Health and Welfare defined good quality of care as knowledge-based, appropriate, safe, patient-centred, efficient, timely and equitable [6].

Primary care is faced with an increased proportion of patients with complex and long-term care needs, e.g. diabetes [7]. A central component in the prevention and management of these illnesses is to promote and support patients in healthy living [8,9]. However it has been challenging to systematically integrate the promotion of healthy lifestyles in routine primary care [10]. Lack of time, limited prioritization and relevant competency among staff have been found to hinder implementation in health care in Sweden [10]. Coordinated care models have been found to improve the quality and efficiency of care as well as patient outcomes in mental health and diabetes care [11,12]. It has been argued that similar models can be applied to healthy lifestyle promotion with improvements in practice routines [13–15]. However, research on coordinated care is subject to inconsistent use of terminology and definitions and limited consensus on how research is to be performed [12,16]. More research is needed on the implementation of coordinated care and how desired outcomes are achieved, specifically in the area of healthy lifestyle promotion.

The emerging field of implementation research is concerned with the systematic uptake of innovations into routine health care, and ultimately, increases in good quality care [17]. There is a growing consensus in the implementation research literature that (1) the characteristics of an innovation (new idea or method), (2) the characteristics of adopters (individuals or groups that will use the innovation), and (3) implementation strategies together with (4) contextual factors influence implementation [18–20]. Although our understanding of implementation is increasing, there are still significant knowledge gaps; several of the central questions regarding what strategies works, where, when and why remain unanswered [21]. More research is needed about the role of patients in the implementation process and the long-term outcomes of implementation efforts.

1.1. Aims

1.1.1. Overall aim

The overall aim of this thesis was to investigate the implementation of coordinated healthy lifestyle promotion in primary care in terms of process and outcomes, from the perspectives of both staff and patients.

1.1.2. Specific aims

To investigate the process of implementing coordinated healthy lifestyle promotion in primary care.

To explore and theorize on how patients perceive, interpret, and react in healthy lifestyle promotion situations in primary care.

To investigate the long-term implementation outcomes of coordinated healthy lifestyle promotion in primary care.

2. BACKGROUND

This chapter introduces the research field and places the thesis in a broader empirical context. The chapter begins with a brief overview of lifestyle-related illnesses and diseases and the significance of promoting healthy living in health care. Healthy lifestyle promotion in health care is then discussed including research evidence, the role of patients, national guidelines, implementation challenges and coordinated care. The chapter ends with an outline of the science of implementing change in health care.

2.1. Lifestyle-related illness and disease

Lifestyle-related illnesses and diseases, e.g. cardiovascular disease, cancers, and diabetes are leading causes of death worldwide [7,22,23]; 80% of coronary heart disease, 90% of type 2 diabetes and 30% of different forms of cancer can be prevented by healthy lifestyles. A longitudinal study showed that a sedentary lifestyle could reduce life expectancy by about 5 years, heavy smoking by 9-10 years, heavy alcohol consumption by 5 years, and obesity by about 2 to 3 years [24]. However, half of all women and two thirds of men in Sweden engage in at least one unhealthy lifestyle activity. Furthermore, unhealthy lifestyles are more prevalent in low socio-economic groups [25,26].

2.2. Healthy lifestyle promotion in health care in Sweden

The majority of people in Sweden who engage in unhealthy lifestyles wish to make changes. A large proportion are positive towards using healthy lifestyle promotion instead of, or in combination with, medication treatment [10]. Four out of five people are positive about being asked about their lifestyle by a practitioner and the majority of individuals do not mind receiving health care

support for a potential lifestyle change. However, there are individual differences; people over the age of 70 years and individuals with poorer self-rated health have been found to be more negative towards lifestyle promotion [27].

Health care in Sweden is publically funded and delivered by 21 county councils and regions. They have autonomy regarding health care policy and responsibility under the Health and Medical Service Act to provide health care and preventative services (Swedish Code of Statutes 1982:763). In 2003, the Swedish Parliament adopted a public health policy to guide public health practice at national, regional and local levels. The policy included 11 objectives based on health determinants throughout the lifespan, including the need for health-promoting health services. It stated that health promotion and disease prevention should be incorporated in Swedish health care and be a natural aspect of all care and treatment services [28].

Primary care is repeatedly proposed as the arena where healthy lifestyle promotion could be incorporated in a systematic and consistent way. Primary care is perceived to offer trustworthiness, continuity of care and have the capacity to reach a large proportion of the population [29–31]. Primary care in Sweden has been given the responsibility for the provision of medical care, preventative services and rehabilitation (Swedish Code of Statutes 1982:763).

2.2.1. Healthy lifestyle promotion practice

Different terminology has been used for *healthy lifestyle promotion* in the research literature, e.g. lifestyle counselling [32], behavioural counselling [15], behavioural support [33], brief lifestyle intervention [34], health behaviour discussions [35] and healthy lifestyle promotion [36,37]. In this thesis “healthy lifestyle promotion” is used to denote the promotion of regular physical activity, healthy eating habits, tobacco cessation and moderate drinking of alcohol. An inclusive definition is used encompassing a continuum of support from screening (for risk behaviours by asking patients about their lifestyles) to brief advice (about healthy living) and extended counselling (tailored advice and information using evidence-based strategies). A range of activities (e.g. advice, discussion, and encouragement) and strategies (e.g. decisional balance, self-monitoring, goal setting and relapse prevention) can be used [38]. Promotion can be spontaneous during a routine visit or through prearranged

consultations [10]. The focus of this thesis is consultations; thus other health promotion initiatives such as printed material are not explicitly addressed.

Health promotion has been defined as the process of enabling people to increase control over, and to improve, their health. Health promotion goes beyond individual factors to also include social and environmental interventions [39]. *Disease prevention* focuses on preventing the onset of disease, e.g. medical treatment to reduce high blood pressure and prevent heart disease. Health promotion and disease prevention can be important aspects of healthy lifestyle promotion, for example the process of increasing patients' self-efficacy to stop smoking, in order to prevent lung cancer.

2.2.2. Research evidence

There is an increasing evidence on the effect of healthy lifestyle promotion on patient lifestyle change [40]. One review including 42 trials found that brief advice, compared with no advice, significantly increased smoking cessation. The review also reported an advantage of extended counselling and a small benefit of follow-up visits [41]. Another review that included 21 trials showed that patients receiving brief advice in primary care exhibited lower alcohol consumption than controls at >12 months follow-up. Extended counselling demonstrated limited additional effect in this review [42]. Another example is the effect of dietary advice on healthy eating and cardiovascular risk profiles. A review that included 38 trials concluded that compared with no advice, dietary advice, could lead to an increase in the intake of fruit and vegetables by about one serving per day and dietary fibre by 6 grams and to a reduction in dietary fat by 2–4% [43]. A review including 10 studies showed that face-to-face interventions effectively promoted physical activity at 12 months although the quality of the studies differed [44].

In addition, effects on the prevention and management of illness and disease have also been reported. The promotion of a healthy diet, weight loss, and physical activity has been found to reduce the prevalence of diabetes in at-risk populations [8]. In another review of 44 trials, advice on healthy eating had an effect on patients' lifestyle change and reduced the risk factors for cardiovascular disease [9]. Also, despite a limited number of studies, there is some evidence suggesting that advice on fruit and vegetables consumption alone can prevent coronary vascular disease [45].

2.2.3. Patients' role in healthy lifestyle promotion

Patients play a significant role in their lifestyle change, therefore engaging them in the promotion process is a central part of healthy lifestyle promotion [46]. Research on the role of patients in health care delivery has changed from a focus on compliance (patients following recommendations), to adherence and concordance [47,48]. Adherence refers to the process whereby patients and practitioners together, in dialogue, agree on a recommended treatment. Concordance goes a step further and highlights the partnership between patient and practitioner and considers the perspectives of both parties where patients' role in care decision making is acknowledged [49]. The move from compliance to concordance represents a shift in perceptions of patients from predominantly passive recipients to valuable partners. Also, intrinsic in compliance is the assumption that the rational choice or behaviour of patients is to comply, whereas concordance acknowledges the right of patients to make (rational) informed decisions about their health and treatments, which can be inconsistent with recommendations [47,50].

Concepts that are prevalent in the literature, such as empowerment and patient-centred care, are relevant for healthy lifestyle promotion practice. Both concepts reflect the role of patients in health care in general and in healthy lifestyle promotion in particular. The aim of empowerment is to facilitate and support patients in self-directed lifestyle change. Empowerment strives to increase patients' capacity to think critically and make autonomous, informed decisions about their lifestyles rather than working towards conformity or compliance with recommendations [51–53]. Patient-centred care adopts a holistic perspective and recognizes all aspects of the patient's life situation when considering treatment or recommendations. With a holistic perspective, common ground between patients and practitioners on how to go forward can be achieved more easily [53].

Benefits of engaging patients in health care delivery have been reported. A meta-review on patient-focused quality interventions concluded that increased health literacy, shared-decision making, patient self-care and patient safety can improve patient knowledge and experience, use of services and lifestyle and health status [54].

2.2.4. National guidelines

Healthy lifestyle promotion has been supported internationally by national policies and guidelines [55–57]. In Sweden, the National Guidelines for Methods of Preventing Disease were released in 2011 [58]. These guidelines include recommendations on evidence-based, cost-effective methods to promote (1) moderate alcohol consumption, (2) healthy eating habits, (3) regular physical activity and (4) tobacco cessation. Recommendations include face-to-face methods with supplementary medical treatments and physical activity on prescription. The guidelines target health care decision makers and professionals with the aim of standardizing practice and ultimately improving public health. The guidelines and healthy lifestyle promotion in general have been actively supported by professional organizations in Sweden, e.g. the Swedish Society of Medicine [59,60]. Activities have included national seminars, blogs, publications in profession-specific journals, networks, and a policy document stressing the importance of prioritizing healthy lifestyle promotion in health care. Together these activities have encouraged the implementation of healthy lifestyle promotion using the national guidelines as the point of departure. However, making lifestyle promotion part of routine primary care has not been undisputed and optimal targets for practice remains unresolved [61,62].

A recent evaluation showed that the use of the guidelines in practice has been suboptimal. Although all county councils and regions have actively worked on implementing the guidelines, and the majority of managers reported that routines were put in place, over half of practitioners stated that there were no explicit routines in their workplace. Furthermore, the majority of practitioners reported that they worked little or very little with healthy lifestyle promotion [10].

2.3. Implementation of healthy lifestyle promotion in primary care

Implementing healthy lifestyle promotion in routine primary care has not been straightforward. The frequency of practice in primary care in Europe varies from a few percent of patients to about every third patient receiving advice

about their lifestyle [63–67]. Physicians have been found to adopt a symptom approach whereby promotion is triggered by patients' complaints rather than being incorporated in a care routine [64]. Another study found that patients requested more advice on stress, physical activity and weight reduction than was given [67]. In Sweden, rates have been fairly stable for the last 5 years (2009–2013) with 16–12% of patients being asked about healthy eating, 23–18% about physical activity, 9–16% about smoking cessation and 15–10% about moderate drinking of alcohol [68].

Research indicates that the quality of healthy lifestyle promotion is often inconsistent and comprises limited asking and offering advice rather than support, referral and follow-ups, activities that have been found to improve the ability of at-risk patients to make lifestyle changes [32]. A study investigating audio-recordings of actual consultations found that physicians initiated 65% of discussions (compared with patients) by using structured or opportunistic strategies (triggered by acute symptoms, chronic conditions) [35].

Moreover, research has shown that healthy lifestyle promotion is contingent on patient characteristics, e.g. older male patients receive more advice regarding healthy living with the exception of nutritional advice [64]. Also, patients who initiate conversations about healthy living with their practitioner and are open about their readiness to change are more likely to receive advice about healthy living [35]. However, the role of patients in implementation processes has received limited attention [30].

Research suggests, however, that it is important to study both practitioners' and patients' perspectives on healthy lifestyle promotion. In one study, physicians' discourse regarding priorities and content was characterized by their working conditions and experience, clinical interventions, action goals and evaluation of results. Patients' discourse, on the other hand, included fear of disease, not being ill and conditions connected to their micro-social context [67]. Furthermore, a study looking at predictors of patients attending healthy lifestyle promotion (after being referred) found that external factors such as work and family commitments influenced attendance. Practitioners, however, considered health risk status and motivation to change when making the referral [70]. Considering the central role of patients in lifestyle change, recognizing patients as important actors when implementing healthy lifestyle promotion may be valuable in understanding and explaining the

implementation challenges observed in the literature. However, more research is needed of patients' role in implementation.

Several barriers to healthy lifestyle promotion in health care have been identified. For example, intrapersonal barriers among staff, such as beliefs, expectations, skills, knowledge, confidence, attitudes and perceptions about healthy lifestyle promotion, have been reported to hinder implementation [30,71,72]. Interpersonal barriers between staff members and between staff and patients have also been reported, e.g. patient characteristics and expectations of colleagues [32,71,72]. Examples of barriers at the institutional level are limited resources, restricted reimbursement, insufficient training, heavy workload and lack of referral resources [30,32,73]. Evaluations of barriers in health care in Sweden include lack of time, limited prioritization and competency regarding healthy lifestyle promotion [10].

System level change such as re-organization of delivery [20] or support structures may be required [74] to fully assimilate healthy lifestyle promotion in routine primary care. An evaluation of the implementation of Swedish guidelines for healthy lifestyle promotion concluded that health care services need to develop internal work methods, increase staff competency and improve collaboration between professional groups [10]. In 2008, a coordinated care initiative named *lifestyle teams* was commissioned in a group of primary care centres in Östergötland County Council. The initiative aimed to improve and standardize healthy lifestyle promotion practice by introducing multi-professional teams. There is good evidence that coordinated care can improve the quality and efficiency of care as well as patient outcomes in mental health and diabetes care [11,12,75] and it has been argued that similar models can be applied to healthy lifestyle promotion in primary care [13,14].

2.3.1. Coordinated care

Coordinated care does not have a universally recognized definition. The term is related to, and has been used synonymously with, e.g. *integrated care*, *collaboration* and *inter-professional coordination* [12,76]. Integrated care has been used as an umbrella term to represent the integration between different levels of care at macro (system), meso (professional and organization) and micro (clinical) levels. Coordinated care could be placed on the meso system when aimed to organise staff and roles [77].

All these definitions strive to improve access, efficiency and quality of care [78]. Despite varied definitions, five key elements typically characterize coordinated care: (1) participation of multiple individuals; (2) inter-dependency between specialized competencies; (3) awareness of your own and others' roles, competency and resources; (4) effective information exchange; and (5) providing appropriate care, in the right order, at the right time and in the right setting [12]. Coordinated care in healthy lifestyle promotion comprises screening of at-risk patients, delivering brief advice and referring to extended counselling [79,80]. Primary care in Sweden is multi-professional which suggests good opportunities for coordinated healthy lifestyle promotion.

In general, coordinated care has been evaluated by measuring patient outcomes (satisfaction and symptoms), care delivery processes (adherence to recommendations) and mechanisms or enablers for coordinated care (resources, teamwork and team performance). However, there is limited agreement on instruments and optimal outcome variables [12,16].

There is emerging evidence that coordinated care can facilitate healthy lifestyle promotion in primary care. For example, a review evaluating nine interventions in primary care concluded that coordinated care facilitated follow-through for healthy lifestyle promotion and improved patient outcomes, and that in-house referral resources facilitated implementation together with automated prompts, decision support tools and staff training [15]. Moreover, referring patients to dietitians and physiotherapists and access to in-house resources for healthy lifestyle promotion has been found to promote healthy lifestyles [81]. However, there is limited knowledge about which key components are central to achieve desired outcomes such as improved care processes and patient outcomes [5]. Continuity of information has recently been proposed to be one mechanism that enables coordination of care. A conceptual framework of information use in coordinated care has been presented including three levels: micro (care level), meso (clinic) and macro (region). It is suggested that information travels both horizontally and vertically to achieve coordination [82]. More research on the implementation of coordinated care is needed, specifically in the area of healthy lifestyle promotion [12,15].

2.4. The science of implementing change in health care

Implementation research has been defined as “the scientific study of methods to promote the systematic uptake of clinical research findings and other evidence-based practices into routine practice, and hence to improve the quality (effectiveness, reliability, safety, appropriateness, equity, efficiency) of health care. It includes the study of influences on health care professional and organizational behaviour” [17]. There are several overlapping research fields that adopt similar underlying concepts but use varied terminology, e.g. implementation science [83], improvement research [84], knowledge utilization [85] knowledge translation [86] knowledge exchange, knowledge transfer, [86] and diffusion of innovations [1,87].

2.4.1. Implementation frameworks

Numerous frameworks have been developed to aid the planning and evaluation of implementation in health care [18–20,88–90]. A recent review identified 49 of these frameworks [91]. The majority of list determinants that can enable or hinder implementation at organization, group and individual levels. Determinants are often hypothesized to interact and together influence implementation. However, compare with theories, frameworks do not necessarily specify causal mechanisms of implementation [18,19,92]. This is illustrated by the use of terms such as “taxonomy” and “checklists” of determinants [18,19]. Although different terminology is used, there are significant overlaps between frameworks with a growing consensus on which determinants are the most important: (1) innovation characteristics; (2) adopter characteristics; (3) contextual factors; and (4) implementation strategies [92] (Figure 1).

Figure 1 Key determinants and outcomes in implementation research. Modified from Nilsen [93].

2.4.1.1. Innovation characteristics

An innovation is an idea, practice or object that is perceived as new by an individual, group or organization. Early diffusion of innovations theory proposed that implementation was influenced by five innovation characteristics: (1) relative advantage (the innovation is better than the status quo), (2) compatibility (with existing values, norms and needs), (3) complexity (perceived difficulty in understanding and using the innovation), (4) trialability (possibility of a trial period) and (5) observability (visible results and benefits) [1,87]. The empirical evidence for the role of innovation characteristics on implementation has been consistent [20]. A recent study showed that relative advantage facilitated implementation and that the effect was amplified by perceived need for change [69]. Thus, for an innovation to be implemented, it has to be something that is not too complicated, compatible with current ideas, does not require any (initial) commitment and produces observable results.

2.4.1.2. *Adopter characteristics*

Adopters in implementation research are perceived to be active rather than passive receivers of innovations. Adopters can also be central in the adaptation of innovations during implementation [3]. Alternative terminology that has been used for adopters includes *users* [94], *implementers* [95], and *agents* [3]. It is argued that adopter characteristics influence implementation through motivation, education, attitudes, competence, values, self-efficacy, readiness to change, perceived need or experience [18]. Also, research has shown that adoption differ between innovations within the same individual, and between individuals and contexts [20].

2.4.1.3. *Contextual factors*

Contextual factors are often divided into inner factors (where implementation occurs) and outer context factors. Inner context typically includes organizational structure, networks and communication, culture, implementation climate, capacity and readiness for change. Outer context typically includes the economic, political, and social environment outside the inner context [18,96]. A study looking at several determinants of implementation of a weight-management programme showed that it was primarily aspects relating to the inner setting that were associated with implementation outcomes, e.g. leadership engagement, resources, relative priority, high-functioning networks, regular meetings and communication [97]. The study also showed the importance of goals and feedback as a reminder and motivator to engage staff.

2.4.1.4 *Implementation strategies*

Implementation strategies have been defined as “the methods or techniques used to enhance adoption, implementation, and sustainability of a clinical programme or practice” [4]. The term *implementation strategy* has been used interchangeably with *implementation intervention* [98]. In general, implementation strategies aim to reduce barriers and increase facilitators for change. A recent review found 51 taxonomies of implementation strategies at organizational, group or individual levels and included education, financial support and organizational changes [99]. There is great heterogeneity on how

strategies are classified, which could be explained by the limited knowledge on which strategies are effective and how [2].

2.4.2 Implementation outcomes

Implementation outcomes signifies the impact of deliberate and purposive actions to implement an innovation [100]. A taxonomy of outcomes proposed by Proctor and colleagues presented eight outcomes: acceptability, appropriateness, adoption, feasibility, fidelity, penetration, costs and sustainability [100]. Outcomes can be more or less salient at different time points during an implementation process. For example, sustainability could be relevant in a long-term perspective whereas the acceptability of an innovation could be more appropriate to study early on in an implementation process. Also, an implementation outcome in a short-term perspective can be a determinant in a long-term perspective, e.g. the perceived acceptability of an innovation [100].

A framework for evaluating fidelity has also been developed whereby fidelity is conceptualized as adherence to the original plan or protocol. In the framework, adherence consists of three subcategories: frequency, duration and coverage. It is argued that four factors moderate the degree of fidelity: intervention complexity, facilitation strategies, quality of delivery and participant responsiveness [101]. There is a debate on whether all these elements need to be assessed when evaluating fidelity [101,102] or whether one of these elements is sufficient [103]. As a middle ground, studying the implementation of the core components could be sufficient. Core components are the active ingredients of an innovation, the components that are believed, or have been shown, to have an impact on desired outcomes [101].

Furthermore, the RE-AIM framework has been used to plan and evaluate the implementation and impact of an innovation [104,105]. The acronym stands for reach, effectiveness, adoption, implementation and maintenance. These elements are assessed at individual and organizational levels and it is argued that they together determine implementation outcomes. The framework measures results in terms of reach (of varied patient groups), effectiveness (impact on important outcomes), adoption (of an innovation by settings and practitioners), implementation (consistency of delivery), and maintenance of the results in the long term. The framework originally aimed to guide consistent

reporting of results and reviews. Recently, the framework has been used to facilitate implementation (planning phase) and identify important elements for implementation (evaluation phase) [104]. Modified versions of the framework has also been used [106].

2.5. Rationale of the thesis

In summary, it is important to promote healthy lifestyles in primary care because of the effects of lifestyle-related illnesses and diseases. However, healthy lifestyle promotion has not been systematically implemented in routine primary care. Factors such as attitudes and competency among health care staff and limited collaboration between professions have been found to challenge implementation.

Coordinated care models have been shown to improve the quality and efficiency of care as well as patient outcomes in mental health and diabetes care [11,12,75], and it has been argued that similar models can be applied to healthy lifestyle promotion practice. More research is needed on how coordinated care is implemented and how desired outcomes are achieved, however.

Even though our understanding of implementation in health care has increased, there are still significant knowledge gaps. Less is known about the role of patients in the implementation process and the long-term outcomes of implementation efforts. Considering the central role of patients in lifestyle change and healthy lifestyle promotion, their role in implementation needs further investigation.

Therefore, the overall aim of this thesis was to investigate the implementation of a coordinated healthy lifestyle promotion initiative (*lifestyle teams*) in primary care in terms of process and outcomes, from both staff and patient perspectives.

3. THEORIES RELEVANT FOR THE STUDIES

This chapter provides an outline of relevant theories in the thesis. A recent proposed theory on implementation [3] was used during the data analysis in Paper I. Theories on team performance were used in the development of a questionnaire used in Paper I. Theories on behaviour change were used to define the outcome variables in Paper III.

3.1. Implementation theory

Recently, a general theory of implementation has been proposed [3]. This theory was used to identify, describe and explain salient factors of the implementation process. The theory is still under development and extends from previous work by the same author [107,108]. The theory was chosen because it allowed for a comprehensive assessment including contextual, relational and individual aspects of implementation.

According to the proposed theory, implementation is a social, dynamic and emerging process. Implementation is perceived as the behavioural and cognitive practices necessary to implement an innovation, and these practices occur within a social system. Implementation is not perceived to be a discrete event but rather a continuous process that is the result of the interaction between the context, individuals within this context, and the innovation. The implementation (bring a practice into action); embedding (incorporate practices in everyday work) and integration (sustain practices) is addressed. The theory includes four constructs that explain implementation: potential, capacity, capability and contribution. Each construct also consists of a number of dimensions.

The construct *potential* refers to the engagement and motivation among agents (i.e. individuals or groups) to implement an innovation. The construct includes two specific dimensions: individual intentions and shared commitment to the implementation.

The construct *capacity* of the social system, refers to the conditions for implementation that exist within the implementation context. Capacity includes four dimensions: cognitive resources, material resources and social norms and roles.

The construct *capability* signifies the process of operationalizing and incorporating an innovation into existing routines. Capability addresses both characteristics of the agents and the innovation, and how the two interact. The dimensions of capability are: the workability (of the innovation) and the integration of the innovation in routine practice.

The construct *contribution* represents the activities that agents do to implement an innovation e.g. re-organizing staff. The dimensions are cognitive participation (legitimizing the innovation and enrolling agents), collective action (realizing and performing the innovation in practice), reflexive monitoring (assembling and assessing information about the innovation) and coherence work (making sense of the innovation and its requirements).

The theory proposes that the *potential* and *capacity* of a social system and agents within it, together with the *capability* of an innovation influence *contribution* activities, i.e. the implementation and embedding of an innovation.

3.2. Team performance theories

Part of studying the implementation of coordinated care was to investigate what aspects of teamwork were implemented. It has been argued that both task-specific competencies (healthy lifestyle promotion), and teamwork competencies (communication) are important to achieve coordinated care [109].

Several theories on team performance share similarities with regard to which types of factors that are important. Hackman [110] highlighted factors such as the professional growth and well-being of team members, the fit between team composition and team purpose, collective responsibility, contextual support

and the continuity of team membership to be important for team performance. Similarly, Heinemann and Ziess [111] proposed that the organizational context and the relationship between the team and the host organisation, e.g. a primary care centre, are important for team performance. Furthermore, that the team composition (e.g. membership) team processes (e.g. communication) and team productivity (e.g. team accomplishments) are all parts of team performance. An integrated model of team performance was presented by Lemieux-Charles and McGuire [112] whereby aspects on organizational (e.g. resources), practice (e.g. task characteristics) and system level (e.g. policy) were highlighted.

Thus, several theories share similarities in what aspects are believed to be important for team performance. Factors can be summarized as the organizational context, team processes, structures and outputs [76]. It is unclear whether there is a hierarchy among these factors or whether factors are equally important. Also, the distinction between processes and structures can be arbitrary at times when applied in practice. For example, goals can be both a structure (e.g. documented goals) and a process (e.g. goal setting).

3.3. Behaviour change theories

Behaviour change is a central part of implementation and practice change. Theories on behaviour change are especially relevant when trying to understand adoption of practice change by individual staff members.

Theories of behaviour change propose that motivation and intention predict behaviour. Social cognitive theory [113] argues that behaviour change is predicted by an individual's expectations regarding the situation, the outcomes of engaging in the behaviour and beliefs about one's ability to perform a specific behaviour (self-efficacy). Supporting evidence for self-efficacy as a construct to predict behaviour have been found. Staff with high self-efficacy about being able to support patients in lifestyle change are more likely to engage in healthy lifestyle promotion [114].

The Theory of Planned Behaviour (TPB) [115] has been widely used to explain and predict behaviour. TPB posits that subjective norm (perceptions of social norms to perform behaviour) and attitudes (positive/negative evaluation of the behaviour and its consequences) towards a behaviour influence intentions. Intentions (or motivation) together with perceived behavioural control

(organizational constraints or patient preferences) are proposed to predict actual behaviour. TPB addresses the limitations of earlier behaviour change theories (e.g. Health Belief Model [116] and Theory of Reasoned Action [117]) by including social and temporal context of behaviour change [114]. However, TPB includes a limited number of predicting variables and fails to acknowledge, e.g. self-identity, emotion, anticipated regret or moral norms as antecedents to behaviour. Moreover, a nearly perfect correlation between behavioural intent and actual behaviour is assumed. Studies suggest that behavioural intentions typically account for 20–30% of the variance in actual behaviours [118].

4. METHODS

This chapter describes the methods used in the thesis including the research setting, the innovation, the study design, participants, materials, data collection and analyses. Ethical considerations are also discussed. Table 1 shows an overview of the methods used in the papers.

Table 1 Overview of the methods used in the papers regarding design, data source, study objective and method of analysis.

Paper	Design	Data source	Study objective	Data analysis
I	Mixed-method, convergent parallel	Staff questionnaire (n=120;132 ¹) Team questionnaire (n=20;22;15;20 ²) Manager interviews (n=5) Document data	Implementation process	Analysis of variance Descriptive statistics Qualitative content analysis
II	Qualitative interviews, Grounded theory	Patient interviews (n=22)	Implementation process	Grounded theory
III	Quasi-experimental, cross-sectional	Staff questionnaire (n=120;132 ¹) Patient questionnaire (n=888;994 ¹) Manager interviews (n=8)	Implementation outcomes	Chi square test Fisher exact test Logistic regression Bonferroni adjustment Qualitative content analysis

¹ Data collected at two time points: 2011 and 2013, ² Data collected at four time points during 2012–2013.

4.1. Setting

The research project was conducted in Östergötland; a county with approximately 440 000 inhabitants. Östergötland County Council has the administrative responsibility for the publicly financed health care. The county council has a history of working towards a health-promoting health service [119]. The council is separated into four divisions based on geographic location: Western, Eastern, Central and Finspång consisting of 10, 8, 14 and 2 primary care centres, respectively. Each division has their own primary care management group and is responsible for the provision of medical care, preventative services and rehabilitation. Primary care centres are primarily responsible for patients who are registered at the centres but also any individual

who requires care. In 2008, the primary care management group in the Western division commissioned all centres ($n = 10$) to implement a coordinated healthy lifestyle promotion initiative. The centres in the other divisions were not commissioned to implement teams.

4.2. The innovation

The coordinated healthy lifestyle promotion initiative (henceforth *lifestyle team*) aimed to improve and standardize practice routines for healthy lifestyle promotion in primary care. The innovation entailed screening for risk patients, giving brief advice in general practice and referral to specialized staff within the lifestyle teams. An important aspect of the lifestyle teams was the coordination between general practice and specialized staff: behavioural therapists, dieticians and nursing professions. The county council commissioned a lifestyle team protocol stipulating: (1) the formation of a multi-professional team, (2) the appointment of a team manager, (3) team meetings at least every 6 weeks, and (4) creating in-house referral routines for patients with health risk behaviours, i.e. sedentary lifestyle, risky alcohol consumption, poor nutrition or tobacco consumption.

4.3. Study design

This thesis comprises three studies. Paper I investigated the implementation process of the lifestyle teams during a period of two years. A mixed-method, convergent parallel design used data from manager interviews, documents, a team questionnaire and a staff questionnaire. Paper II explored patients' perceptions, interpretations and reactions in lifestyle promotion situations. Grounded theory was used and data were collected by patient interviews [120,121]. Paper III investigated implementation outcomes at 3 and 5 years after commissioning. A quasi-experimental, cross-sectional design was used comparing intervention centres ($n = 3$; lifestyle teams) with control centres ($n = 3$; traditional care). Data were collected using a patient questionnaire, a staff questionnaire and manager interviews. A modified version of the RE-AIM framework was used to define outcome variables [105]. The original definitions of the RE-AIM dimensions together with modified definitions are presented in Table 2.

Table 2 Original and thesis definitions of RE-AIM dimensions.

Dimension	Original definitions	Thesis definitions		
		Definition	Variable	Measurement
Reach	The absolute number, proportion and representativeness of individuals who are willing to participate in a given initiative	The proportion of patients who receive healthy lifestyle promotion in the last 6 months	Proportion of patients	Patient questionnaire
Effectiveness	The impact of an intervention on important outcomes, including potential negative effects, quality of life, and economic outcomes	Self-reported attitudes and competency among staff regarding healthy lifestyle promotion and the lifestyle team	Proportion of staff	Staff questionnaire
Adoption	The absolute number, proportion, and representativeness of settings and intervention agents who are willing to initiate a programme	The proportion of staff who engage in healthy lifestyle promotion practice including referring patients to specialized staff on a daily basis	Proportion of staff	Staff questionnaire
Implementation	At the setting level, implementation refers to the intervention agents' fidelity to the various elements of an intervention's protocol	Implementation fidelity to the lifestyle team protocol: multi-professional team, team manager, team meetings, referral routine	Implementation fidelity data	Manager interviews
Maintenance	At the individual level: the long-term effects of a programme on outcomes after 6 or more months after the most recent intervention contact.	Reach, effectiveness, adoption, implementation 5 years after commissioning	Reach, effectiveness, adoption and implementation variables and data.	Patient and staff questionnaires Manager interviews

4.4. Participating centres

A total of six primary care centres participated in the research project, three intervention centres and three control centres. Randomization of the centres to study groups was not feasible as the commissioning of the lifestyle teams began before the research project. All six centres were bound by similar financial and budgetary constraints; they were comparable regarding size, setting and socioeconomic factors. About 26 700 and 26 000 patients were listed at the

intervention and control centres, respectively (according to the county council database, 2011).

4.4.1. Intervention centres

Of the ten centres in the Western division that had been commissioned to implement lifestyle teams, three were invited to take part in the research project. When selecting intervention centres, a best-practice inclusion criterion was applied, based on county council data. Centres that were selected had started implementing lifestyle teams. Implementation had to have commenced to enable evaluation of the implementation process and outcomes. Also, the aim was to recruit a homogeneous group of centres; all intervention centres were situated in one urban setting. All intervention centres took part in all studies.

4.4.2. Control centres

Three centres from the Central division were invited to take part in the research project. These centres were selected based on comparability with the intervention centres in terms of size and setting. None of the control centres had been commissioned to implement lifestyle teams. Control centres were also situated in one urban setting. The control centres took part in Paper III and aided in recruiting patients for Paper II.

4.5. Participants, materials and data collection

Data were collected at several time points between September 2011 and November 2013. Figure 2 presents a timeline of activities carried out by the research group, primary care centres and the county council during the period under investigation. Participants included staff (practitioners with patient contact), lifestyle team members, managers (team and practice) and patients.

	2008	2009	2010	2011	2012	2013
County council activities	Appointed taskforce Planning workshop Debrief report Commissioning					
Primary care centre activities	Selection of taskforce representatives Participated at planning workshop	Generation of lifestyle teams	Implementation of the lifestyle teams			
Research study activities			Recruitment of centres to the research project	Staff questionnaire Sep 2011 Patient questionnaire Sep 2011 Manager interviews Oct 2011	Team questionnaire May & Nov 2012	Staff questionnaire Sep 2013 Patient questionnaire Sep 2013 Team questionnaire May & Nov 2013 Manager interviews Oct 2013 Document data from 2008 collected retrospectively
					Patient interviews May 2012 - Sep 2013	

Figure 2 Activities carried out by the research group, primary care centres and the county council during the period under investigation

4.5.1. Manager interviews

The implementation process (Paper I) and fidelity to the lifestyle team protocol (Paper III) were investigated using manager interviews (team and practice managers). Interviews were conducted by telephone at two time points: 3 and 5 years after commissioning. An invitation, accompanied by information about the study aims, confidentiality, and the subsequent interview were sent via e-mail to all managers. All managers agreed to take part ($n = 8$). At one of the centres, team and practice manager was the same person. All were women with a mean age of 57 years (SD 2 years).

A semi-structured interview guide consisting of two parts was used (Appendix A). The first part included both close-ended and open-ended questions and was used at both 3 and 5-year follow-ups. Four close-ended questions aimed to investigate fidelity and comprised protocol components: (1) the multi-professional team, (2) the team manager, (3) team meetings, and (4) in-house referral routines for at-risk patients. Eight open-ended questions aimed to

explore the degree of fidelity regarding the teams (size, professions included and what was discussed at meetings); team development (meaning of the teams, review and dissemination of team goals); and referral procedures (dissemination and use among staff).

The second part of the interview guide aimed to investigate the implementation process and was used at the 5-year follow-up only. This part included questions on the process; activities; challenges, successes and outcomes of the implementation. Only intervention managers received questions about the implementation process and these questions were only included at 5-year follow-up.

At the 3-year follow-up, data were recorded by taking notes using the interview guide as a score sheet to aid accuracy. At the 5-year follow-up, interviews were audio-recorded and transcribed. The interviews lasted for about 30 minutes and participants could select a suitable time for the interview. All interviews were carried out by same researcher (KT).

4.5.2. Document data

Document data from the Western division in Östergötland County Council were used to investigate the implementation process (Paper I). The data were collected retrospectively and included two data sources: a debriefing report and the minutes from a planning workshop. The debriefing report included background information on the lifestyle teams; a description of the status of healthy lifestyle promotion practices in primary care in the region; recommendations for improvement and commissioning of the innovation. Minutes from the workshop contained information about the planning process of the lifestyle teams. Data were collected from the primary health care management group.

4.5.3. Patient interviews

Patients' perceptions, interpretation and reactions in healthy lifestyle promotion were explored through individual interviews using grounded theory (Paper II) [120,121]. Interviews and analysis were carried out

analogously. The criterion for participation was the ability to speak and understand Swedish. Invitations were posted by the participating centres to patients registered at the centres. Patients expressed their interest by telephone, e-mail, or by returning an attached reply slip. Purposive sampling was used to generate a participant pool; recruitment occurred in two deliberate stages. First, patients who had experienced extended healthy lifestyle promotion in the last month ($n = 42$) were invited to gain rich data on the healthy lifestyle promotion situation. Second, a random selection of registered patients with varied experience of healthy lifestyle promotion ($n = 250$) were invited to maximize the theoretical scope. One of the researchers (KT) contacted all patients who had shown an interest in taking part ($n = 39$) to give them information about the study and to gather descriptive data: age, gender, occupation, education, and experience of lifestyle promotion. In total, 22 informants (15 women, 7 men; 30–78 years of age) were interviewed. After 20 interviews, the two subsequent interviews did not offer any new data, which suggested that theoretical saturation had been reached.

During the interviews, the informants were asked to speak freely about two topics: their experience of lifestyle change and experience of healthy lifestyle promotion in primary care. Sub-questions were prepared and used as prompts if needed, e.g. “how did it feel to talk about your lifestyle?” Appendix B shows the first version of the interview questions. However, the questions were continuously adapted in accordance with grounded theory [120,121]. Interviews were audio-recorded and transcribed verbatim and lasted between 40 and 75 minutes. Thoughts and perceptions that had surfaced during the interviews were recorded in field memos, which complemented the interview transcripts.

4.5.4. Team questionnaire

A short team questionnaire (Appendix C) was used to measure team performance (Paper I). The questionnaire was conducted at four time points at 6-month intervals. Information about the aim of the study, questionnaires and self-addressed envelopes were posted to the centres. A contact person at each centre distributed the material to all team members. Participants completed the questionnaires individually and anonymously and returned them by post. Two reminders were sent via e-mail to the contact person 2–3 weeks after the initial invitation. The lifestyle teams varied in size: A (6–7 members), B (10–15

members) and C (10-11 members) and included behavioural therapists, dietitians, district nurses, specialized nurses and practice managers. Two teams included physicians (A and B) and medical secretaries (B and C). The mean age was 49 years (SD 10 years). The majority of team members were women however all teams had 1-2 male members. On average 19 (66%) team members responded to the team questionnaire. The response rate varied however between 15 (50%) to 22 (79%) during the research period.

The questionnaire was developed by the research group based on a thorough review of the research literature. Twelve items were generated from validated instruments and aimed to capture important factors for team performance [111]. The items were categorized by the researchers as follows:

- Structure (four items): composition, goals, roles and values
- Process (four items): conflict management, communication, cohesion and reflection
- Team effectiveness (four items): integration of healthy lifestyle promotion practice at the centre, primary and secondary referral practice to the teams, and shared understanding of the teams' purpose at the centre

The layout of the questionnaire was in the shape of a 12-armed star with statements presented at the end of each arm. The actual arms represented visual analogue scales with labelled scores between 0 and 10 to guide completion (0, disagree; 10, agree). The layout was designed to facilitate completion and prevent attrition. The items and layout of the questionnaire were reviewed by an expert panel and pilot tested with two lifestyle teams that were not involved in this study. Revisions were done to reach face and content validity, e.g. making the wording more context-specific by substituting "group" with "lifestyle team".

4.5.5. Staff questionnaire

A staff questionnaire (Appendix D) was developed to evaluate organization readiness to change (Paper I) and two RE-AIM outcomes: effectiveness (attitudes and competency) and adoption (Paper III). The questionnaire was distributed at two time points at 2-year intervals. An e-mail including information about the aim of the study, confidentiality and a link to the questionnaire was sent to all eligible staff at the primary care centres. Eligible

staff included all practitioners with patient contact. The e-mail was signed by the practice manager of each primary care centre. Two reminders were sent via e-mail 2–3 weeks after the initial e-mail. Participants completed questionnaires individually and anonymously, and returned the questionnaires electronically. Table 3 shows responder characteristics for the staff questionnaire at 3 and 5-year follow-ups.

Table 3 Responder characteristics for the staff questionnaire for 3 and 5-year follow-up regarding age, gender and profession.

	Response rate, n (%)					
	3-year follow-up ¹			5-year follow-up ²		
	Intervention	Control	Total	Intervention	Control	Total
Gender						
Women	58 (83)	34 (85)	92 (84)	58 (85)	38 (90)	96 (87)
Men	12 (17)	6 (15)	18 (16)	10 (15)	4 (10)	14 (13)
Age						
m (SD)	48 (11)	47 (11)	48 (11)	48 (12)	48 (11)	48 (11)
Profession						
Physician	16 (25)	17 (45)	33 (32)	13 (20)	6 (15)	19 (18)
Other ³	49 (75)	21 (55)	70 (68)	54 (81)	35 (85)	89 (68)

¹2011, ²2013, ³Nursing profession or Allied health care

Effectiveness and adoption items were generated by the research team, based on a thorough review of the research literature, reviewed by an expert panel and pilot tested among primary care staff. These items were subsequently modified within the research group to capture aims and to achieve face and content validity. In addition, three items on the staff questionnaire measured responder characteristics: age, gender and profession. The questionnaire comprised 36 items in total.

Self-reported effectiveness (attitudes and competency) was assessed using eight items (Table 7). A four-point response scale from “strongly disagree” to “strongly agree” and the alternative “do not know” was used. The items were divided into two sub-groups:

- Self-reported attitudes (4 items)
- Self-reported competency (4 items)

Self-reported adoption was assessed using two items: (1) “How often do you ask patients about their lifestyle behaviours (physical activity, eating habits, and tobacco or alcohol consumption?” and (2) “How often do you refer patients to staff specialized in healthy lifestyle promotion”. Response options for all items were (1) daily, (2) once/several times a week, (3) once/several times a month, (4) less often,

and (5) never. Adoption of healthy lifestyle promotion was defined as daily practice, however weekly practice was also reported.

Organization readiness to change was measured using 23 items. These items were based on the context scale of the Organizational Readiness to Change Assessment (ORCA), which is an assessment of readiness for general change [122]. A four-point Likert response scale from “strongly disagree” to “strongly agree” was used. The context scale contained 23 items with six subscales:

- Staff culture (4 items), e.g. staff readiness to change
- Opinion leaders (4 items), e.g. encourage and support changes
- Resources (4 items), e.g. necessary support, staffing and budget
- Leadership culture (3 items), e.g. senior leaders reward innovation and creativity
- Leadership practice (4 items), e.g. senior leaders clearly define areas of responsibility
- Evaluation (4 items), e.g. senior leaders provide staff with feedback

4.5.6. Patient questionnaire

Reach of patients (Paper III) was investigated using data from a Swedish national patient survey distributed bi-annually [34]. The overall aim of the national survey is to investigate quality of care, patient participation and care accessibility in primary care. For each primary care centre, a random sample of patients ($n = 200$) are sent the survey by post together with a pre-stamped envelope. Table 4 shows patient sample data regarding age gender and type of visit.

Table 4 Patient sample¹ data for 3 and 5-year follow-up.

	Response rate, n (%)					
	3-year follow-up ²		Total	5-year follow-up ³		Total
	Intervention	Control		Intervention	Control	
Gender						
Women	251 (59)	282 (63)	533 (61)	295 (60)	278 (57)	575 (58)
Men	173 (41)	167 (37)	340 (39)	198 (40)	212 (43)	410 (42)
Age						
16-44 years	70 (17)	122 (27)	192 (22)	86 (18)	97 (20)	183 (20)
45-65 years	136 (33)	136 (30)	272 (32)	149 (31)	157 (32)	306 (31)
65-74 years	97 (23)	87 (20)	184 (21)	113 (23)	112 (23)	225 (23)
75+	113 (27)	102 (23)	215 (25)	136 (28)	120 (25)	256 (26)
Type of visit						
Physician	276 (64)	307 (67)	583 (66)	347 (70)	350 (70)	697 (70)
Nursing profession	157 (36)	148 (33)	305 (34)	150 (30)	147 (309*)	297 (30)

¹Randomized sample of patients who visited their primary care centre, ²2011, ³2013

In this thesis, data from one item from the national patient survey was used: “Did the physician or other staff discuss [lifestyle behaviour] with you?” The item was repeated for: eating habits, physical activity and tobacco and alcohol consumption. There were three response options per lifestyle behaviour: (1) Yes, at the current visit, (2) Yes, at a visit during the last 6 months, and (3) No. Dichotomized response options were used as the primary outcome; responses (1) and (2) were analysed as patients having received healthy lifestyle promotion. Two items about age and gender were used to investigate responder characteristics.

4.6. Data analyses

4.6.1. Qualitative analyses

4.6.1.1. Manager interviews and document data

Qualitative content analysis was used [123] to analyse data from manager interviews and document data. In the analysis of the implementation process in Paper I, a predefined analysis scheme based on a proposed theory of implementation was used [3]. Both interview data and manager data were coded according to the constructs, and then according to the dimensions of the theory. Data that did not match the scheme, but were still assessed as relevant to the study aim, were coded as “other”. In the further analysis process, these codes formed a new category that was labelled based on its content.

In the analysis of the (degree of) fidelity in Paper III, a predefined analysis scheme based on components from the lifestyle team protocol was used. In the analysis, data describing (degree of) fidelity to the original protocol were identified and synthesized.

4.6.1.2. Patient interviews

Patient interviews were analysed using grounded theory [120,121] (Paper II). Research techniques such as open coding, constant comparison, memos and theoretical coding were used in accordance with grounded theory. Transcribed

interviews were initially coded (using open coding) line by line. Indicators and incidents relevant to the aim were grouped together to form categories. During a continuous analysis process, categories that had emerged were either confirmed or modified, and new categories were identified. Analysis of how categories related to each other was carried out using theoretical coding. Constant comparisons were used between and within transcripts, codes, and categories throughout the process. Analysis of the data guided further data collection by exploring the codes and categories identified in subsequent interviews. Memos were used throughout the data collection and analysis to record observations, thoughts, ideas, interpretations, hypotheses and questions. Theoretical memos were used during the analysis as worksheets to keep track of ideas and thoughts during the analysis.

4.6.2. Quantitative analyses

4.6.2.1. Team questionnaire

Descriptive analysis were used to investigate differences between centres on team performance (Paper I). The median scores for each centre and time point were calculated for each scale: process, structure and team effectiveness [76]. The convention in Ware et al. [124] was applied to handle missing values: an individual had to answer at least half of the questions on a scale for their score to be included in the analyses. Missing items was given the average score of the other items in the scale.

4.6.2.2. Staff and patient questionnaires

Differences between centres on organization readiness to change was investigated using analysis of variance (Paper I). Mean scores for each context subscale of the Organization Readiness to Change Assessment was used. The same analysis was carried at the 3 and 5-year follow-ups.

Differences between the intervention and control centres on reach, effectiveness and adoption (Paper III) were tested using the χ^2 test or the Fisher exact test. Bonferroni adjustment for multiple end points was applied in the analysis of differences in effectiveness items. The binary outcomes of the effectiveness and

reach were compared between the study groups with logistic regression using robust standard errors to take into account clustering effects within each primary health care centre (with the STATA command “cluster”).

4.7. Ethical considerations

Information was given to the participants about confidentiality, anonymity and the right to leave at any time. All questionnaires were completed anonymously. Two reminders were sent, which was thought to maximize response rates without distressing staff.

The primary care centres selected and invited patients for interviews. The research team did not have access to personal information until patients expressed an interest in taking part in the project and provided this information themselves. Personal data on informants were stored in the Linköping University database. All interview transcripts were de-identified.

Anonymity was considered when presenting the results throughout the thesis. The participating primary care centres are named A, B, C, etc., throughout. Due to the limited number of individuals in profession subgroups, the results are never presented using this categorization, e.g. dietician vs behaviour therapist. Also, no personal details of the informants (from any of the interviews) are used in the presentation of the results.

All studies in the thesis were conducted with the approval of the local Central Ethical Review Board (DNR: IMH-2009-00335).

5. RESULTS

This chapter presents the results from the three studies. First, the results of the implementation process are presented (Paper I and II). Then, the results of implementation outcomes are presented (Paper III).

5.1. Implementation process

5.1.1. Paper I

Paper I investigated the implementation process including activities, challenges, successes, team performance and organization readiness to change among staff. A proposed theory of implementation was used during the data analysis [3]. Table 5 summarizes the key findings for each category and their data source.

The lifestyle team innovation was developed in dialogue between the primary care management group and staff representatives. The majority of staff representatives consisted of future team members who worked with lifestyle-related illnesses and disease. In the development of the innovation, barriers for practice, needs assessments, status evaluations and action plans were generated and used. The barriers that were identified included: limited knowledge-exchange between professions; difficulties in identifying and reaching at-risk patients; and lack of standardized patient pathways for lifestyle promotion. After a period of development, lifestyle teams were commissioned. No added financial support was given and specialized staff was already based at the centres.

Table 5 Key findings for each category and their data source (Paper I).

Category ¹ / Construct	Dimension ²	Key findings	Data source
Development phase		Future team members participated in the development of a new practice model	Document data
		Status evaluations, needs assessments, barriers and facilitators regarding lifestyle promotion were investigated and used during the development phase Actions and plans for coordinated care were formulated resulting in the lifestyle team innovation	Interviews
Capability	Workability Integration	Implementation and embedding were compromised as the workability and integration of the lifestyle teams in routine practice were challenging	Interviews
		The lifestyle team protocol offered a structure for coordinated care but varied coordination activities were required to implement and embed the routines	Team questionnaire
Capacity	Material resources	Limited material resources hindered implementation, e.g. staff, time and electronic referral system	Interviews
	Cognitive resources	Cognitive resources had the potential to facilitate implementation, e.g. relevant competency	Interviews
	Social norms and roles	Conflicting social norms and roles among team members, staff and patients challenged implementation and embedding	Interviews
Potential	Individual intentions	Possible differences in potential between team members and general staff compromised implementation and embedding	Interviews
	Shared commitment	Questionnaire data showed shared commitment among staff towards general change, however interviews indicated limited shared commitment towards the lifestyle teams Team members showed motivation, positive attitudes, and shared commitment towards the lifestyle teams	Staff questionnaire
Contribution	Cognitive participation	Cognitive participation differed between team members and general staff due to differences in potential, capacity and roles during the development phase Managers were key individuals in promoting cognitive participation among both team members and general staff	Interviews
	Collective action	Collective action involved managing challenges in capability and differences in potential between staff and team members Team members tried to operationalize and integrate the coordinated care initiative at the centres and increase commitment among general staff by varied coordination activities	Interviews
	Reflexive monitoring	Reflexive monitoring was a continuous and informal process among team members The teams redefined their purpose and ambitions as a response to not meeting their original ambitions	Interviews
	Coherence	Coherence was an informal process among the lifestyle teams Matching of external and internal expectations about the purpose and role of the lifestyle teams Managers perceived the lifestyle teams to be a vehicle for lifestyle promotion practice at the centres	Interviews

¹ Proposed theory of Carl May [3]

Findings showed that an infrastructure for coordinated care was implemented at the centres including multi-professional teams, team managers, regular meetings, and in-house referral routines for at-risk patients. This was in accordance with the lifestyle team protocol. The referral routines clarified roles and responsibilities by appointing a referral coordinator or specifying predefined criteria for referral. However, it was difficult to embed the referral routines at the centres; managers reported that referral of patients to team members was used inconsistently.

The implementation process differed between team members and staff. Team members were committed to the lifestyle teams early on, including participating actively in the development phase. The teams were described as the vehicle for lifestyle promotion practice by the managers. Team members and managers continuously tried to embed routines and engage staff through various activities, e.g. feedback results to staff; increase awareness and mobilize staff and patients; network with external agents; and promote positive group processes within their own teams. Also, all three lifestyle teams showed higher scores on process and structure items compared with team effectiveness items. Figure 3 shows median scores for each scale, primary care centre and time point.

Figure 3 Lifestyle team members' perceptions concerning team performance factors: structure, process and team effectiveness. Median scores for each primary care centre at four time points

In contrast, implementation efforts among staff were challenged by limited commitment, conflicting social norms and limited resources. Although managers perceived that interest among staff had increased, illustrated by participation at lifestyle-related meetings, it was challenging to engage staff in the implementation, especially physicians. Managers reported that perceptions among staff and patients could question the work of the lifestyle teams. For example, attributing primary care a role of treating rather than preventing illness and disease. Similarly, managers perceived that the majority of patients seek care due to a specific illness, not for preventative purposes. Also, limited resources such as staff shortages and time challenged implementation. Despite consistently high scores on organizational readiness to change among staff (Table 6), competing demands combined with limited resources (time and staff shortages) made it difficult to prioritize healthy lifestyle promotion in routine visits. Managers, especially practice managers who had the mandate to pressure for change, played a key role in promoting commitment among staff. Also, multi-professional representation in the teams enabled information flow and buy-in among professional groups.

Table 6 Organization readiness to change context subscale: comparisons between primary care centres (A–C) for both 3 and 5-year follow-ups.

ORCA ¹ Subscale	A		B		C		P value ²
	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)	
Staff culture							
3-year ³	23	3.34 (0.45)	22	3.22 (0.59)	22	3.43 (0.53)	0.40
5-year ⁴	22	3.47 (0.45)	27	3.37 (0.54)	18	3.60 (0.47)	0.32
Leadership culture							
3-year ³	22	3.30 (0.49)	23	3.36 (0.63)	21	3.49 (0.65)	0.57
5-year ⁴	21	3.60 (0.43)	26	3.58 (0.43)	17	3.47 (0.58)	0.67
Opinion leaders							
3-year ³	20	3.31 (0.49)	22	3.19 (0.60)	21	3.18 (0.55)	0.70
5-year ⁴	15	3.20 (0.46)	24	3.41 (0.88)	12	3.19 (0.15)	0.30
Resources							
3-year ³	20	2.96 (0.50)	20	2.76 (0.42)	20	3.45 (0.61)	0.26
5-year ⁴	16	3.08 (0.69)	24	2.93 (0.49)	14	2.93 (0.76)	0.73
Evaluation							
3-year ³	22	3.44 (0.51)	24	3.44 (0.53)	22	3.53 (0.50)	0.78
5-year ⁴	20	3.51 (0.48)	25	3.67 (0.37)	19	3.57 (0.48)	0.48
Leadership practice							
3-year ³	2	3.40 (0.48)	22	3.31 (0.57)	20	3.45 (0.60)	0.67
5-year ⁴	20	3.50 (0.52)	25	3.52 (0.46)	19	3.34 (0.61)	0.51

¹Organization Readiness to Change Assessment [122]. ²P value for differences between centres, ³2011, ⁴2013.

Team members engaged in a continuous process of redefining the innovation and the work in terms of their purpose, ambitions and role at the centre. This process was informal and consisted of balancing different expectations about the innovation and different conditions for implementation (staff and patients vs team members). For example, targets set by the teams were redefined from screening every patient for unhealthy lifestyles to screening specific patient groups to accommodate limited resources and commitment. Also, a shift from predominantly working with hypertension, diabetes and lifestyle promotion, to also working with healthy ageing, fall prevention, and mental health promotion occurred. This development was in line with the events within the county council and changing patient needs. Managers also reported that it was difficult to achieve systematic evaluations of the work due to limited resources.

5.1.2. Paper II

Paper II explored how patients perceive, interpret, and react in healthy lifestyle promotion situations using grounded theory [120,121]. A grounded theory of being healthy emerged from the data with three interrelated subcategories: (1) *conditions* (conceptions, drives and resources), (2) *managing* (embracing or evading) and (3) *interactions* regarding being healthy (Figure 4). Being healthy was a constant process of approaching a health ideal that also contributed to how patients approached the healthy lifestyle promotion situation. Being healthy occurred simultaneously, and could contradict, a process of maximizing well-being. Being healthy was prospective in nature whereas well-being was a state of mind in the present. Thus, patients tried to balance future ideals with present goals and desires. How patients balanced these two processes, was characterised by their *conditions* and experiences of *managing* being healthy.

During the healthy lifestyle promotion situation, patients interacted with practitioners with varied degree of transparency depending on their expectations (e.g. reason for care) and appraisal of the situation (e.g. trust). High transparency was characterized by honesty and openness; low transparency by camouflaging and censoring. For example, low degree of transparency could result in less tailored advice or conversation cut short. Consequently, these patients were less equipped to embrace being healthy. In contrast, a high degree of transparency could result in more tailored advice.

A typology of four patient types was generated (resigned, receivers, co-workers and leaders) based on characteristics of the categories (Figure 5). The typologies were not constant in that one individual could change between different types. The typology exemplified the categories in the theory and shows different approaches to being healthy and engaging in healthy lifestyle promotion by patients. The four types were predominantly either passive or active during lifestyle promotion. Passive patient types attributed external responsibility to being healthy, had predominantly external drives and resources, and had challenging experiences of managing being healthy. During lifestyle promotion, passive types gave short answers to questions. Active patient types attributed internal responsibility to being healthy, had internal and external drives and resources, and had largely positive experiences of managing being healthy. During lifestyle promotion, active types would inject new angles on topics, asked questions, and give comprehensive answers. The typology illustrates how the categories are interconnected and how processes before and during healthy lifestyle promotion can be important for implementation.

Figure 4 Grounded theory of being healthy. Core category: being healthy; interconnected categories: conditions for being healthy, managing being healthy and interactions about being healthy

A: RESIGNED

B: RECEIVERS

C: CO-WORKERS

D: LEADERS

- Positive situation appraisal
- - - Negative situation appraisal
- · - · - Positive situation appraisal but limited internal drive
- · - · - Negative situation appraisal but expectations of an active patient role

Figure 5 Patient trajectories to being healthy for each patient type.

5.2. Implementation outcomes

Four outcome variables were investigated 3 and 5 years after the commissioning of the lifestyle teams: reach of patients; effectiveness and adoption among staff; and implementation fidelity to the lifestyle team protocol (Paper III). The following describes each outcome in turn. The 5-year follow-up represent the maintenance

5.2.1. Paper III

5.2.1.1. Reach

At the 3-year follow-up, significantly more patients at control centres received lifestyle advice compared with intervention centres (48% and 41% respectively). Also, significantly more patients received advice about physical activity (in the last 6 months) at control centres compared with intervention centres. In general, the frequency of the promotion of healthy eating, tobacco cessation and moderate drinking of alcohol, was less at intervention centres compared with control centres at the 3-year follow-up, even though none of these comparisons were significant.

At the 5-year follow-up, significant differences between control centres remained. Still, significantly more patients at control centres received healthy lifestyle promotion compared with intervention centres (44% and 36%, respectively). In addition, a significantly larger proportion of patients at control centres received promotion on healthy eating, physical activity, tobacco cessation and moderate drinking of alcohol compared with intervention centres. However, significant differences for the promotion of tobacco cessation disappeared when controlling for primary care centres.

Thus, differences between intervention and control centres remained over time with additional differences in favour of the control centres at the 5 year follow-up when analysing lifestyle behaviours separately. In general, both the intervention and control centres showed decreased proportions between the 3 and 5-year follow-ups, however control centres to a lesser extent. Table 7 shows comparisons on reach at 3 and 5 years. Figures on reach regarding individual lifestyle behaviours and total healthy lifestyle promotion are reported.

Table 7 Comparisons for reach between intervention and control centres: number and percentage of patients who received healthy lifestyle promotion.

	3-year follow-up (2011)			5-year follow-up (2013)		
	Intervention <i>n</i> = 433 <i>n/N</i> (%)	Control <i>n</i> = 455 <i>n/N</i> (%)	<i>P</i> value ¹	Intervention <i>n</i> = 497 <i>n/N</i> (%)	Control <i>n</i> = 497 <i>n/N</i> (%)	<i>P</i> value ²
Eating habits						
Current visit	54/411 (13)	63/439 (14)	0.608	55/485 (11)	50/481 (10)	0.637
Last 6 months	41/411 (10)	53/439 (12)	0.330	34/485 (7)	71/481 (15)	<0.001
Total ³	95/411 (23)	116/439 (26)	0.264	89/485 (18)	121/481 (25)	0.010
Physical activity						
Current visit	71/403 (18)	79/433 (18)	0.813	72/482 (15)	91/478 (19)	0.091
Last 6 months	46/403 (11)	76/433 (18)	0.012	53/482 (11)	81/478 (17)	0.008
Total ³	117/403 (29)	155/433 (36)	0.037	125/482 (26)	172/478 (36)	0.001
Tobacco consumption						
Current visit	70/402 (17)	82/428 (19)	0.516	54/482 (11)	74/477 (16)	0.050
Last 6 months	39/402 (10)	39/428 (9)	0.771	35/482 (7)	47/477 (10)	0.151
Total ³	109/402 (27)	121/428 (28)	0.710	89/482 (18)	121/477 (25)	0.010
Alcohol consumption						
Current visit	49/406 (12)	48/432 (11)	0.665	33/480 (7)	56/476 (12)	0.009
Last 6 months	30/406 (7)	36/432 (8)	0.612	23/480 (5)	48/476 (10)	0.002
Total ³	79/406 (19)	84/432 (19)	0.996	56/480 (12)	104/476 (22)	<0.001
Lifestyles total						
Current visit	110/416 (26)	140/441 (32)	0.088	113/488 (23)	126/485 (26)	0.306
Last 6 months	74/416 (18)	101/441 (23)	0.063	82/488 (17)	118/485 (24)	0.004
Total ³	169/416 (41)	211/441 (48)	0.033	177/488 (36)	211/485 (44)	0.021

¹ Significance of difference between intervention and control centres determined by the χ^2 test.

² Significance of difference between intervention and control centres determined by logistic regression using standard robust errors in order to adjust for clustering by centre.

³ Total for current visit and visit in the last 6 months.

5.2.1.2. Effectiveness

At the 3-year follow-up, the intervention and control centres differed significantly on four out of eight competency and attitude items after controlling for clustering by centre. Intervention staff were significantly more likely to agree that there was a need for the lifestyle teams, that issues regarding healthy lifestyle promotion were prioritized at their centre and that there was sufficient competency at individual and centre levels to manage healthy lifestyle promotion. Adjusted P values could not be estimated for all the items. However, analyses using the χ^2 test showed that a significant larger proportion of intervention staff compared with controls agreed that lifestyle counselling is an efficient method. In general, the majority of staff (intervention and control) reported positive attitudes and competency regarding healthy lifestyle promotion.

At the 5-year follow-up, after adjusting for clustering by centre intervention staff still agreed to a significantly larger extent that issues regarding lifestyle promotion were prioritized at their centres. Adjusted P values could not be estimated for all the items. Analyses using the χ^2 test showed differences on items concerning perceived need for the lifestyle teams and sufficient competency at centre level at 5-year follow-up. The majority of staff reported positive attitudes and competency regarding healthy lifestyle promotion. However, the proportion of staff agreeing to statements decreased in both study groups at the 5-year follow-up. Notably, both study groups showed an increase in the proportion of staff agreeing that it was sometimes uncomfortable to bring up healthy living with patients. Table 8 shows comparisons for effectiveness in intervention and control centres for both follow-ups.

Table 8 Comparisons for effectiveness (competency and attitudes): number and percentage of staff agreeing to statements.

	3-year follow-up (2011)				5-year follow-up (2013)			
	Intervention <i>n</i> = 77	Control <i>n</i> = 43	<i>P</i> value ¹	<i>P</i> value ²	Intervention <i>n</i> = 76	Control <i>n</i> = 56	<i>P</i> value ¹	<i>P</i> value ²
	<i>n</i> / <i>N</i> (%)	<i>n</i> / <i>N</i> (%)			<i>n</i> / <i>N</i> (%)	<i>n</i> / <i>N</i> (%)		
Self-reported attitude								
There is a need for a lifestyle team or similar initiative at my centre	67/73 (92)	30/39 (77)	0.028 ^a	0.026	66/71 (93)	34/43 (79)	0.029 ^a	0.225
It is important that primary care centres offer support regarding healthy living	69/72 (96)	38/39 (97)	1.000 ^b	0.699	71/71 (100)	42/43 (98)	0.377 ^b	— ³
Lifestyle counselling is an efficient method to support patients in lifestyle change	70/70 (100)	33/37 (89)	0.013 ^b	— ³	61/64 (95)	39/43 (91)	0.435 ^b	0.490
Issues regarding healthy lifestyle promotion are prioritized at my centre	36/69 (52)	7/35 (20)	0.002 ^a	<0.001	30/64 (47)	5/36 (14)	0.001 ^a	<0.001
Self-reported competency								
I have sufficient competency to give patients lifestyle advice	65/73 (89)	38/41 (93)	0.744 ^b	<0.001	62/70 (89)	36/42 (86)	0.658 ^a	0.687
During a typical consultation I have sufficient time to discuss healthy living with patients	38/73 (52)	15/40 (38)	0.138 ^a	0.085	35/70 (50)	17/44 (39)	0.236 ^a	0.324
There is sufficient competency (knowledge, skills) at my centre to manage issues regarding healthy lifestyle promotion	69/70 (99)	31/38 (82)	0.003 ^b	0.002	71/71 (100)	38/42 (90)	0.017 ^b	— ³
Sometimes it is uncomfortable to bring up healthy living with patients	22/73 (30)	13/40 (33)	0.795 ^a	0.760	32/68 (47)	16/44 (36)	0.264	0.154

¹Significance of difference between intervention and control centres determined by the χ^2 test^a or the Fisher exact test^b.²Significance of difference between intervention and control centres determined by logistic regression using robust standard errors in order to adjust for clustering by centre.³Allocation group with too few numbers in some cells due to complete agreement. Adjusted *P* value cannot be estimated.

5.2.1.3. Adoption

At the 3-year follow-up, no significant differences were found between intervention and control centres on self-reported healthy lifestyle promotion and referral among staff. At the 3-year follow-up, about half, 47% ($n = 34$) of intervention staff and 59% ($n = 24$) of control staff, reported that they asked patients about their lifestyles on a daily basis. At 5 years, these figures had decreased to 36% ($n = 26$) and 45% ($n = 21$) for intervention and control centres, respectively. Differences between centre groups were still not significant. Referral to specialized staff occurred at both intervention and control centres. About a third, 27% ($n = 20$) of intervention staff and 31% ($n = 13$) of control staff, did this on a weekly basis at 3 years. These figures were slightly lower at 5 years with 25% ($n = 18$) of intervention staff and 21% ($n = 10$) of control staff referring patients on a weekly basis. A small number, one to three staff members, reported that they referred patients daily at intervention and control centres at both follow-ups.

5.2.1.4. Implementation fidelity

The results showed a high degree of fidelity to the lifestyle team protocol: (1) formation of multi-professional teams, (2) appointment of a team manager, (3) team meetings at least every 6 weeks, and (4) creating in-house referral routines for patients with health risk behaviours. All intervention centres reported that they had implemented these components at 3 years and that the components were maintained at 5 years. Control centres had not implemented any of the components at either follow-up.

6. DISCUSSION

This chapter places the findings in a broader empirical and theoretical context. The chapter begins with a general discussion including a brief summary of the findings followed by a discussion on the implementation *process* and *outcomes* of the lifestyle teams. The chapter ends with a methodological discussion including *limitations* and *strengths* for each study.

6.1. General discussion

The findings illustrated a complex *implementation process* including multiple innovation components and groups of adopters: team members, patients, staff and managers (Papers I and II). Conditions for implementation, i.e. resources, commitment, social norms and early involvement, differed between staff and team members. The findings suggested that this challenged the embedding of the teams. The work of the teams was continuously redefined by team members in an attempt to accommodate varied commitment, resources and patient needs. Staff reported a high degree of organization readiness to change at both 3 and 5-year follow-ups. Also, all three lifestyle teams reported high scores on process and structural factors for team performance. Paper II presented a grounded theory about the process of “being healthy” including three interrelated subcategories: conditions, managing and interactions regarding being healthy. In being healthy, patients tried to balance future ideals with present goals and desires of well-being. The typology illustrated how the categories are interconnected and how processes before and during healthy lifestyle promotion can be important for implementation.

Findings on *implementation outcomes* were consistent over time (Paper III). All the components of the lifestyle team protocol were implemented and had the potential to standardize healthy lifestyle promotion at the centres. However, significantly more patients at the control centres received healthy lifestyle

promotion at 3 and 5-year follow-ups. No significant differences between intervention and controls were found regarding adoption among staff at either follow-up. At 3-year follow-up, after controlling for primary care centre, intervention staff were more positive regarding the need for lifestyle teams, that healthy lifestyle promotion were prioritized at their centre and that there were sufficient competency at individual and centre levels to manage healthy lifestyle promotion. At 5-year follow-up, differences remained regarding perceived prioritization of lifestyle promotion at centre level. However, the majority of staff from both intervention and control centres reported positive attitudes and competency regarding healthy lifestyle promotion.

6.1.1. Implementation process

The implementation process in this thesis was characterized by *complexity*, *continuous refinements* and *coproduction* between staff and patients.

6.1.1.1. Complexity

Innovation complexity has been described as the number of steps required to implement an innovation, the number of choices available, the number of target groups and the types of people involved and to what degree implementation will require change in core work routines [125,126]. The lifestyle team innovation involved multiple components whereby different groups of adopters took part in different ways: e.g. screening and referral (staff); teamwork (team members), audit and feedback (managers) and healthy lifestyle promotion (staff and patients) (Papers I and II). Each component was associated with distinct implementation efforts, determinants and adopters resulting in a network of adopter groups engaged in parallel implementation processes. The findings from Paper I showed that the conditions, e.g. commitment for implementation differed between staff and team members.

Participation and the source of an innovation, including having a shared vision, has been found to influence commitment among adopters [18,20]. The commitment among team members was evolved in conjunction with the development of the actual innovation which could have created good conditions for implementation in this group. Also, healthy lifestyle promotion was compatible with the team members' work [96]. The degree to which an

innovation is perceived compatible with existing values, past experiences and needs among staff has been proposed to be an important determinant of implementation [3,96]. Also, it has been argued that physicians, with a fairly high status in health care, play a key role in changing norms and roles. However, that this group has been the most challenging to engage in promotion [127]. Thus, in this thesis staff could have encountered more challenging conditions for implementation compared with team members.

However, findings also indicated a high degree of readiness to change among staff which suggested that facilitating conditions were present (Paper I). Also findings from Paper III suggested that the majority of staff were positive towards healthy lifestyle promotion, which again is good prerequisites for implementation [96]. Thus, questionnaire data were inconsistent with interview data. Staff could have exhibited readiness to change without committing to healthy lifestyle promotion and the teams. The items of readiness to change investigates change in general, rather than the lifestyle teams specifically [122]. Also, it is important to separate readiness to change and the capacity to change. Capacity refers to material, financial or cognitive resources, whereas readiness for change typically refers to the collective psychological state of accepting or resisting change [128]. Capacity, for change differed between staff and team members, e.g. resources, which could have challenged the implementation process [3]. Therefore, readiness to change may be an important precursor for successful implementation, similar to positive attitudes, but is not sufficient on its own.

6.1.1.2. Continuous redefinitions

The lifestyle team innovation was continuously redefined by team members regarding the purpose, ambitions and their role at the centres. This process of redefining the work aimed to accommodate factors within and outside of the teams. These findings give support to theories arguing that implementation is a process rather than a discrete event [3]. The implementation literature and research have largely moved away from linear models of change [1] towards an understanding that implementation is a dynamic process with multiple, interacting, determinants.

Factors such as leadership, social norms, values, attitudes and motivation towards an innovation have been proposed to guide modifications [96].

Similarly, findings from Paper I suggested that perceived expectations and attitudes among staff and patients influenced redefinitions of the work. The continuous redefinitions can be seen as part of the coherence work, the activities necessary to embed a new practice in existing routines [3]. Coherence work is proposed to involve the separating of new practices from existing routines, developing a shared understanding of aims, beliefs and objectives, understanding the value and benefit of the innovation and making sense of tasks and responsibilities [129]. According to implementation theory, these are all important aspects of implementing and embedding innovations in everyday routines. Furthermore, findings from Paper I suggested that factors within the teams, e.g. communication were implemented whereas aspects relating to the organizational context, e.g. mutual understanding of the purpose of the innovation were more challenging to achieve. Theories on team performance highlight the importance of the wider organization where the team exist [76]. The findings from Paper I elucidate how the teams and staff in the wider organization (the primary care centre) differed in terms of participation, commitment and resources for implementation. Findings further suggest that redefinitions and coherence work aimed to reduce this gap and thus facilitate embedding of the new routines.

The findings suggest that redefinitions aimed to compensate for contextual factors such as suboptimal conditions for implementation among staff as well as the structural nature of the protocol. Indeed, the necessity of continuous redefinitions of the work was potentially amplified by how the protocol was formulated [3]. The commissioning of the teams were broadly defined (including four primarily structural components only) and did not explicitly specify, e.g. aims, tasks and responsibilities.

6.1.1.3. Coproduction

Paper II suggests that patients can be seen as co-producing implementation. The patients' role in healthy lifestyle promotion and implementation also surfaced in the manager interviews (Paper III).

Implementation theory could be enhanced by considering patients as agents of implementation, especially in the area of lifestyle promotion. A number of patient-related aspects have been argued to be important for successful implementation, e.g. providing choices, reducing barriers and minimizing the

complexity and costs associated with an innovation [130]. Thus, determinants similar to those identified for staff adoption is thought to apply to patients. Patient needs have also been acknowledged as a determinant of implementation and patients have been conceptualized as part of the outer implementation setting [18].

Taking a predominantly staff perspective could limit our understanding of the implementation process. In previous research, typologies of practitioners based on their attitudes towards healthy lifestyle promotion have been developed [81]. Six categories of physicians have been presented: ignorer, advisor, confirmer, evangelist, interferer, and nurturer. These types differed from not acknowledging responsibility (ignorer) to discussing lifestyle with all patients (interferer) and taking on a role of educator (nurturer) [81]. The above typology and the patient typology presented in Paper II illustrate the complexity of implementation. They show how both parties bring with them characteristics, e.g. expectations that contribute to the implementation process. Paper II also showed how these characteristics changed depending on patients' appraisal of the situation (e.g. trust). Hence the interaction between patients and practitioners is central for the implementation process and outcomes.

Furthermore, a study found that physicians had a rather poor understanding of how patients' perceived the consultation in terms of making sense of the condition, health beliefs, reasons for the condition, sense of control and preferences. Physicians often supposed a shared understanding even when there was none [131]. Thus, staff perspectives of care processes (and their implementation) is one piece of the jigsaw and patient perspectives on implementation could be important contributions in future studies.

Patient participation in implementation has been studied previously in various settings. Studies on staff hand hygiene in health care, for example, have included patient education and prompts for patients to ask practitioners if they washed their hands before consultation. The results showed that soap consumption increased by 34% to 94% among practitioners. Although handwashing is not the same as healthy lifestyle promotion these studies show that patients play a role in implementation and that strategies can be developed to utilize this role [132].

In summary, the implementation process was characterised by complexity, continuous redefinitions and coproduction. Multiple adopter groups took part

in the implementation. The conditions for implementation differed between staff and team members, e.g. resources and commitment which can have challenged the embedding of the teams and routines. Continuous redefinitions of the lifestyle teams were made to accommodate contextual factors at the centres, features of the protocol and patient needs. The findings underline the importance of a trustful patient-practitioner relationship and highlights patients as important agents in the implementation process.

6.1.2. Implementation outcomes

The teams had limited impact on reach of patients, effectiveness (competency and attitudes) and adoption among staff. Findings are discussed in terms of *innovation characteristics, implementation strategies, and contextual factors*.

6.1.2.1. *Innovation characteristics*

The characteristics of an innovation such as complexity, observability, relative advantage and compatibility have shown to influence implementation [18,20,87]. Characteristics of the lifestyle team innovation may have contributed to the implementation outcomes observed in Paper III.

As previously discussed, the lifestyle team innovation was complex with multiple components. Implementation required change across multiple systems (structural, behavioural and interpersonal) and across multiple professional groups which has been found to be more challenging than change within one system and one profession [20].

Furthermore, observability, the extent benefits of the innovation are visible, could have been difficult to achieve quickly for the lifestyle teams [1]. Results from healthy lifestyle promotion often materialize long after implementation and may even then be fairly intangible or impermanent. Also, the staff member who refer a patient to a lifestyle team member, will not necessarily be the person who conducts the follow-up and thus appreciate the results. Indeed, previous research have also shown that barriers to referring patients include perceived effectiveness [70].

Furthermore, Paper III showed that referral among staff was relatively low and that there was no significant difference between the intervention and control centres. Studies looking at multi-professional teamwork in primary care have found that contact alone is not sufficient for effective collaboration [133]. Thus, having a lifestyle team present per se at the centres may not have been sufficient to facilitate referral to extended counselling. Alternatively, referral may have been perceived as unnecessary; the majority of staff were confident in giving advice about healthy lifestyles, potentially making referral redundant. The perceived relative advantage of an innovation has been argued to determine adoption [87,96].

There was potentially a high degree of compatibility between new routines and existing coordinated care routines at the centres. The lifestyle team innovation did not differ significantly from routines of other conditions, e.g. diabetes [134]. However, findings from Paper I suggested that norms and values inconsistent with the work of the lifestyle teams challenged the embedding process. It has been argued that compatibility is specifically challenging for preventative innovations because health care organizations have traditionally been predominantly treatment focussed rather than adopting a preventative approach [87].

Furthermore, it is unclear how the flexibility of the innovation may have influenced the outcomes. The flexibility of an innovation has been argued to facilitate implementation [3,18,135] which has also been shown in studies [80]. A study evaluating the implementation of ten healthy lifestyle promotion interventions in primary care showed that modifications were common, and often unforeseen. Modifications occurred as a response to practice conditions, patient circumstances and costs [136]. However, a recent study showed that both high and low implementers rated flexibility of the innovation as positive without having an effect on implementation [97].

Thus, the lifestyle teams and the integral components lifestyle promotion and referral could be more challenging to implement due to compromising characteristics, as perceived by staff. These hindrances need to be considered in the planning and implementation of lifestyle team innovations in the future.

6.1.2.2. Implementation strategies

The protocol that was commissioned to the centres can be perceived as a part of a strategy to implement the lifestyle teams. The primarily structural protocol was limited in guiding the centres on *how* to implement and embed the teams and routines at the centres. Indeed, the findings from Paper I showed that the lifestyle teams and coordinated care encompassed relational, social and structural components.

A prevalent notion is that multifaceted strategies are generally more effective than single-component strategies. However, a recent overview of systematic reviews found that there is limited evidence that multifaceted strategies are more effective than single-component strategies on clinical behaviour change outcomes [137]. Research suggests that it is the tailoring of strategies, rather than the number of components, that determine the effectiveness of a strategy although it is unclear which methods of tailoring is the most effective [138]. Tailoring of strategies involve the design of strategies in accordance with identified determinants and subsequent evaluations of strategies [139]. Barriers for practice were considered in the lifestyle team protocol. However, barriers such as social norms or limited commitment among staff were not anticipated and consequently not considered. The findings highlight the potential difficulty in identifying true barriers for practice prior implementation.

Teasing out individual mechanisms of change may be necessary to understand how coordinated care can be achieved. A challenge to plan and evaluate strategies could be to simultaneously consider the effect of individual components (e.g. prompts) and the effect of components combined (education together with prompts) [128]. A recent framework of coordinated care proposed that patient characteristics, external factors, (inter)organizational mechanisms, and relational coordination are important aspects to achieve improved outcomes on patient, team or organisational level. The framework was developed using a literature review and focus groups with health care staff. Future efforts to develop and implement lifestyle teams could benefit from looking at these conceptual frameworks in the planning and implementation of strategies.

6.1.2.3. Contextual factors

Contextual factors were not explicitly investigated in this thesis. However, determinants of the implementation context have been found to influence outcomes [18,20].

Strategies to promote healthy lifestyle promotion in primary care on national level may have influenced implementation outcomes, e.g. public health policy and national guidelines [28]. Also at local level, various initiatives have been introduced to facilitate and promote healthy lifestyle promotion. Initiatives have been aimed at both patients and staff (e.g. electronic health records, health coordinators, pay for performance, and health checks for patients). Both the control and intervention centres would have been exposed to these initiatives and the lifestyle team innovation was one of many initiatives put in place. Thus, the lifestyle team innovation may not have been sufficient to influence practice routines over and above that of other initiatives. In addition, the intervention and control staff both had access to multi-professional competency such as dietitians within their centres which may have reduced the differences between the study groups.

Furthermore, aspects of the consultation context may have influenced the implementation. Research shows that there are competing demands in routine practice and that lifestyle promotion is often down prioritized because it is competing with acute and chronic illness needs, as well as patient concerns [74]. Similarly, findings in Papers I and II suggested that limited time challenged healthy lifestyle promotion practice. However, findings contradicting time to be a barrier have also been reported. In a large randomized control trial, two thirds of practitioners reported that healthy lifestyle promotion caused little or no increase in the duration of a routine visit. In fact, there are numerous studies in which practitioners report that healthy lifestyle promotion is important in their work, suggesting that there is a willingness and capacity to work with these issues among practitioners [32,73]. It has been argued that a positive implementation climate includes relative priority; that adopters perceive that the innovation needs to be prioritized [97]. Findings from Paper I suggested that the relative priority of healthy lifestyle promotion differed among profession groups (and patients). However, more research is needed to investigate potential differences in conditions between different professional groups regarding the implementation of lifestyle promotion.

In summary, the lifestyle team innovation exhibited several characteristics that can have challenged implementation and embedding of the teams and routines at the centres. These aspects need to be considered in future studies. The predominantly structural protocol did not fully consider social characteristics of coordinated care which could have contributed to implementation outcomes. Contextual factors at both national, regional and micro levels can also have influenced implementation outcomes.

Furthermore, the rates of healthy lifestyle promotion found in Paper III are comparable with national rates in Sweden, figures which have remained similar the last five years [68]. It has been argued that promotion should be provided to patients who will benefit the most, that are at-risk or express readiness to change [140,141]. This criteria would qualify almost every second Swede for healthy lifestyle promotion [26]. Paper II showed that it is important to recognize multiple aspects in patients' efforts to 'being healthy' during promotion rather than risky lifestyles only. Findings from Paper I suggested that promotion competes with various issues during a routine visit. Thus, it is difficult to determine whether reach and adoption rates in Paper III represent optimal or suboptimal practice rates. Target goals of healthy lifestyle promotion need to be reasonable to implement in routine care, consider patient preferences and needs as well as meet public health demands.

6.2. Methodological discussion

In this section, general strengths and limitations are first discussed, followed by methodological considerations for each study.

The thesis presents a comprehensive investigation of the implementation of an innovation. Implementation process and outcomes are studied from the perspectives of both staff and patients using both qualitative and quantitative data. Also, the implementation process is studied long-term, over a period of 2 years, with the last follow-up 5 years after the teams were commissioned [2,142]. Although studying a real-world case such as the lifestyle teams was challenging, it offered valuable knowledge of the implementation process under realistic conditions.

The limited empirical and theoretical base of the lifestyle team innovation made it difficult to place the studies in a research field. However, the field of

coordinated care was considered appropriate because it provided a theoretical and empirical understanding regarding similar innovations and emphasised the multi-professional approach.

It is important to consider contextual differences when comparing the findings of the thesis with international studies. For example, primary care in Sweden is multi-professional with access to, e.g. dieticians and behavioural therapists. This may not be the case in other contexts. Contextual differences are a challenge for coordinated care research in general whereby practice models and health care organizations are compared across cultural settings and it can be unclear how settings differ. Transparency has been applied as much as possible throughout the thesis when describing the innovation.

The staff questionnaire and the team questionnaire were not validated instruments [143]. Both questionnaires were developed by the research group based on a thorough review of the research literature, reviewed by an expert panel and pilot tested among target groups (staff and lifestyle teams). Items were subsequently modified within the research group to capture aims and to achieve face and content validity. However the response rate for the staff questionnaire was high for both 3 and 5-year follow-ups which can increase the representativeness of these findings to the population.

Papers I and II are based on qualitative data and analyses. The trustworthiness of qualitative research can be assessed through four criteria proposed by Guba (1981) [144]. The first criteria *credibility* of the data refers to the congruency between data interpretations and the truths of the informants. In Paper I, qualitative content analysis was chosen as the interest of the study was to explore patterns of the implementation process. The informants were considered to have an in-depth understanding and insight concerning the implementation process. The document data included information on the early phase of the implementation process in accordance with the aim of the study. In Paper II, a wide range of patients were enrolled in the study. In the selection procedure several aspects were considered e.g. experience of promotion, age, gender, professions, and education. Grounded theory was suitable for the study because it allowed for the theorizing about interactions in the implementation process. Regarding the second criteria *dependability*, two researchers were actively involved in the data analyses including auditing of the results. This could have strengthened the dependability of data in Papers I and II. *Confirmability* denotes the objectivity in quantitative studies. The data collection

and analyses in Papers I and II were systematic and carried out according to qualitative content analysis and grounded theory respectively in an attempt to increase confirmability (and trustworthiness in general). However, the researcher (KT) had an understanding of healthy lifestyle promotion which could have influenced the interpretation and understanding of the data. Two researchers took part in the analysis which strengthened degree of objectivity. Also in Paper II, memos were used to elucidate thoughts and views and how it could influence the data analysis. The fourth criteria *transferability*, refers to the generalisability or applicability of the findings to other settings. A thorough description of data collection analyses was given to guide readers to estimate the transferability of the findings to their particular setting. The findings in Paper I emerged from real-world conditions and therefore have clinical implications regarding the implementation of lifestyle teams in primary care in Sweden. The phenomena under study in Paper II can be considered as transferable to other settings for the patient group.

6.2.1. Paper I

The mixed method design provided a broader understanding about the implementation process where data sources complemented each other. By including a process evaluation of the implementation, the understanding of outcomes was improved [145].

The diversity of the concepts and data sources was challenging to combine in a meaningful way in the data analysis. However, the theoretical framework that was used in the data analysis guided integration of the different sources and concepts, i.e. team performance, readiness to change, challenges, successes and implementation activities. The proposed theory of implementation [3] was a suitable and useful tool because it combined a broad range of determinants of implementation and has a sound theoretical and empirical base.

One limitation of Study I was that the implementation process was predominantly investigated using the perceptions of managers (practice and team). Interviews with staff could have enriched the understanding of the process. For example about conflicting social norms and attitudes regarding healthy lifestyle promotion practice.

Regarding the team questionnaire, there was a small total sample of team members, in addition, the response rate varied. This restricted the generalisability of the findings and feasibility of conducting any inferential statistics [143,146]. Therefore, only descriptive statistics were conducted regarding team performance. The findings may show four snapshots of team factors for the specific teams, at specific time points. However, the data contributed with valuable information regarding team performance during the implementation process.

6.2.2. Paper II

Classic grounded theory was chosen because the role of patients in implementation has not been extensively explored in past research. Grounded theory, allowed for social processes and interactions between patients and practitioners to be explored and theorized.

6.2.3. Paper III

A general limitation is the small number of primary care centres included. This was considered in the choice of statistical analyses. Furthermore, the generalizations that can be drawn from the findings are restricted however, the study contributes with knowledge of how the RE-AIM framework [104] can be used to investigate implementation outcomes. Also, the findings from Papers I and III can together contribute with an increased understanding of how implementation process and outcomes are interrelated.

No pre-test data was used to investigate impact on implementation outcomes. Intervention and controls could have differed significantly on outcomes prior implementation of the teams. This would have influenced the interpretation of the results as pre-test practice rates for example could have been confounding factors. Cross-sectional design are always restricted in causation inference thus limits any conclusions regarding implementation outcomes [143]. Participating centres were bound by similar financial and budgetary constraints, were comparable regarding size, setting and socioeconomic factors. Also, the data analyses was adjusted for clustering by centre when comparing intervention and controls on reach, effectiveness and adoption.

Furthermore, a comprehensive definition and operationalisation of healthy lifestyle promotion was used to measure reach of patients and adoption among staff. The measurement of healthy lifestyle promotion may have been too crude to detect differences between intervention and control staff. Also, the measurement gave limited insight into the type of promotion that was given (e.g. screening or extended).

Although, the RE-AIM framework [104] provided a structure for evaluating implementation outcomes, the thesis used a modified version of the framework. This could challenge comparisons of the findings with previous and future studies using the RE-AIM. For example, reach of patients could have included patient characteristics, e.g. at-risk patients. The survey data used to measure reach did not include this type of data unfortunately however, this would have been useful to determine reach.

It was difficult to operationalise and measure fidelity in a valuable way. The paper operationalised fidelity as adherence to the lifestyle team protocol. There was no other apparent target, component or aspects that was commissioned. It would have been interesting to look at fidelity to coordinated care routines, e.g. the quality of healthy lifestyle promotion, number of patients referred to the teams, number of staff referring to the teams. However, the studies explored and investigated the overall implementation process which may show some indication of these aspects, e.g. self-reported adoption among staff and team performance factors.

7. SUMMARY AND CONCLUSIONS

We set out to investigate the implementation of coordinated healthy lifestyle promotion in primary care. The thesis makes a relevant contribution to the knowledge on and understanding of implementing a new practice in a real world setting. The implementation of three lifestyle teams was studied during a period of two years.

The implementation process was characterised by complexity and included several groups of adopters. Both lifestyle team members and other staff participated in the implementation process, however, they differed with respect to available resources, commitment, early participation and social norms regarding the innovation. Patients also took part in the implementation of healthy lifestyle promotion. The findings underscore the importance of a trustful patient-practitioner relationship and highlights patients as agents in the implementation process. Redefinitions of the work of the lifestyle teams were continuously made to accommodate contextual factors at the centres, features of the protocol and patient needs.

The findings demonstrated that coordinated care, whereby different professions work together, is a social as well as a structural innovation. The protocol offered an infrastructure for healthy lifestyle promotion practice and had the potential to standardize routines however the protocol had limited impact on reach of patients and adoption among staff. The majority of staff reported positive attitudes and competency regarding healthy lifestyle promotion. The lifestyle teams were described as important for practice change and a forum for knowledge exchange among managers. However during the two year follow-up period the positive attitudes concerning having a lifestyle team at the centres were not accompanied with a positive trend in offering more patients lifestyle advice as was the expected results of introducing the teams. The following conclusions can be made from the findings:

- The implementation process was challenged by a complex interaction between adopter groups, innovation complexity, contextual factors and characteristics of the lifestyle team protocol.
 - Staff, team members, managers and patients participated in the implementation with varied conditions for implementation.
 - Findings suggest that the lifestyle team innovation consisted of both structural and social components.
 - Findings suggest that contextual factors, e.g. commitment, competing demands and resources influenced implementation and embedding of the innovation.
 - Findings suggest that the predominantly structural protocol did not fully consider relational and social components of coordinated healthy lifestyle promotion or the diverse conditions for change exhibited by adopters.
- Team members continuously redefined the lifestyle team innovation during implementation to accommodate contextual factors, protocol characteristics and patient needs.
- Although there is evidence that coordinated care strategies have been implemented successfully for a variety of conditions, the findings suggest that it is difficult to adopt similar routines for healthy lifestyle promotion.
- Patients can be seen as coproducing implementation of healthy lifestyle promotion. Patients could challenge or facilitate implementation depending on their expectations and their appraisal of the situation.

8. IMPLICATIONS

8.1 Implications for practice

The findings suggest that to implement coordinated healthy lifestyle promotion requires a tailored implementation strategy targeting both social and structural aspects of coordinated care. Important aspects to consider could be: to give facilitating support during implementation, to engage all groups of staff from the beginning (also as a way to identify barriers within all groups in the setting), allow time for monitoring and reflection during implementation and create space for audit and feedback to all adopter groups. Furthermore, the findings highlight the potential difficulty in identifying true barriers for practice prior implementation. Allowing for refinements and giving support during implementation could be important in accommodating for unanticipated barriers.

The typology of patient trajectories emphasised that patients have varied preconditions and preferences for taking part in healthy lifestyle promotion in healthcare and making lifestyle changes outside of healthcare. The typology could guide practitioners in promotion practice. A next step could be to generate a screening tool based on patient typologies so that patients' conditions and experiences of being healthy are easier identified. For example, questions to identify patients' conditions and experiences of managing being healthy before lifestyle promotion in order to tailor the advice and communication style.

8.2. Implications for future research

The findings highlight the value and importance of process evaluations to understand the implementation. Future research could advance our knowledge about the implementation of coordinated healthy lifestyle promotion by exploring physicians' perspectives. Physicians play a significant role in healthy

lifestyle promotion in primary care as they are typically first point of contact and can make referral to specialized staff. There are research on adopter characteristics regarding healthy lifestyle promotion, e.g. attitudes. However, more research is needed of physicians' perceptions of innovation characteristics regarding preventative work.

Implementation theory and future research could be enhanced by considering patients as coproducing implementation, especially in the area of lifestyle promotion. More research is needed on how patients influence implementation and how they adopt various innovations.

Studies including a larger number of primary care centres could improve our knowledge on the effectiveness of coordinated care on improving care. Although randomisation may not be feasible, larger number of centres could increase the representativeness of study groups. Frameworks for coordinated care could guide the identification of outcome variables (e.g. patient, service or organizational outcomes) and mechanisms for change (e.g. goals or quality of relationships). This could provide knowledge on the impact of coordinated care on healthy lifestyle promotion practice.

9. SVENSK SAMMANFATTNING

Ökade behov av stöd till patienter med levnadsvanor som medför kända hälsorisker, dvs. tobaksbruk, riskbruk av alkohol, otillräcklig fysisk aktivitet och bristfälliga matvanor, ställer förändrade krav på vad hälso- och sjukvården ska tillgodose. Enligt internationella studier kan hälsosamma levnadsvanor förebygga 80 procent av all hjärt- och kärlsjukdom, 30 procent av all cancer samt förebygga eller fördröja utvecklingen av typ 2-diabetes. Forskning visar också att en stor del av patienter är positiva till att diskutera sina levnadsvanor med vårdpersonal. Enligt Svenska nationella riktlinjer för sjukdomsförebyggande metoder rekommenderas rådgivning eller samtal om levnadsvanor för att stödja patienter. Det har dock varit svårt att systematiskt införa detta i primärvården. Bidragande hinder för det har bl.a. visat sig vara tidsbrist, brist på kompetens och att det inte är en prioriterad åtgärd att ge stöd till att förändra levnadsvanor. Teamarbete och samverkan mellan yrkesgrupper har visat sig öka vårdkvalitén, inklusive vårdresultat, och har effektiviserat arbetsrutiner inom bl.a. diabetesvård och psykiatri. Liknande arbetssätt har därför föreslagits i arbetet med levnadsvanor. Under 2008 fick tio vårdcentraler i Östergötland i uppdrag att bilda s.k. livsstilsteam. Detta initiativ syftade till att förbättra och standardisera rutiner kring arbetet med levnadsvanor. Uppdraget innehöll specifikt fyra delar: (1) bilda multi-professionella livsstilsteam, (2) hålla gemensamma möten, (3) utse teamledare och (4) skapa en struktur för remittering av patienter med riskfyllda levnadsvanor till specialiserad vårdpersonal (livsstilsteam). Kunskapsläget har dock varit svagt om vilka hinder och möjligheter som finns för implementering av teamarbete kring levnadsvanor i rutinvården och vad detta kan innebära i effektivitet och kvalitet. Vidare har kunskap om patienters roll varit bristfällig när det gäller deras betydelse för implementeringsprocesser och implementering ur ett långsiktigt perspektiv.

Det övergripande syftet i denna avhandling var att studera implementeringen av livsstilsteam i primärvård, både av implementeringsprocessen och av utfallet avseende hur många patienter som fick rådgivning om levnadsvanor. Avsikten var att beakta både personal- och patientperspektiv. Avhandlingen bygger på kvalitativa och kvantitativa data, datainsamling gjordes kontinuerligt och belyser implementeringsprocessen under en femårsperiod.

Delstudie I undersökte implementeringsprocessen av teamen där data från kvalitativa intervjuer, dokumentdata, och frågeformulär användes. Resultaten visade på en komplex implementeringsprocess där olika användare (teammedlemmar, personal och chefer) deltog på flera sätt. Förutsättningar för implementering och att arbeta med levnadsvanor skilde sig både inom och mellan olika persongrupper vilket bidrog till att det var svårt att integrera livsstilsteam och deras arbete på vårdcentralerna. Förutsättningar som till exempel resurser och engagemang försvårade implementeringen. Livsstilsteam justerades kontinuerligt och anpassades till personalkategorier, patienter och till andra faktorer på vårdcentralen. Resultaten betonar vikten av att identifiera och stödja viktiga aktörer tidigt i en implementeringsprocess för att underlätta och möjliggöra integrering av en ny praxis i vardagsrutinerna.

I delstudie II var syftet att utforska hur patienter uppfattade och tolkade rådgivning och samtal om levnadsvanor i primärvården samt hur de agerade under och efter rådgivningen. En teori om *att skapa hälsa* kom fram ur data. Teorin består av tre sammanhängande underkategorier: (1) förutsättningar för att skapa hälsa, (2) hantering av att skapa hälsa och (3) interaktion om att skapa hälsa. Patienter var i olika grad öppna om sina levnadsvanor i rådgivning och samtal med vårdpersonal. Deras förväntningar på samtalet och bedömning av rådgivningssituationen hade betydelse för hur öppna de ville vara vilket fick betydelse för implementering av rådgivning. En hög grad av öppenhet präglades av ärlighet; låg grad av öppenhet präglades av att patienter kamouflerade och censurerade information. Resultaten pekar på att patienters förväntningar tillsammans med deras bedömning av rådgivningssituationen (tillit till vårdpersonal) har betydelse för deras agerande under rådgivning och kan på så vis få betydelse för implementeringen av livsstilsrådgivning. I delstudie II skapades också en patienttypologi som belyser de tre kategorierna i teorin om förutsättningar, hantering och samtal om att skapa hälsa samt hur processer före, under och efter en rådgivning är sammankopplade.

I delstudie III utvärderades implementeringsutfall tre och fem år efter att vårdcentralerna hade fått i uppdrag att implementera livsstilsteam. Tre vårdcentraler med livsstilsteam jämfördes med tre vårdcentraler utan livsstilsteam. Ramverket RE-AIM användes för att definiera utfallsmått dvs. *Reach* (andel patienter som fick råd om levnadsvanor), *Effectiveness* (attityd och kompetens bland personal beträffande rådgivning), *Adoption* (andel personal som ger råd), *Implementation* (följsamhet till uppdraget) och *Maintenance* (vidmakthållande av utfallen). Resultaten visar att livsstilsteam hade implementerats enligt uppdraget som gav en infrastruktur för

arbetet. Innovationen (livsstilsteamen) kan ha bidragit till att underlätta rådgivningsarbetet på vårdcentralsnivå men påverkade i liten utsträckning enskilda vårdgivares rutiner. Analys av rådgivning visade att en större andel patienter på kontrollvårdcentraler fick rådgivning jämfört med interventionsvårdcentraler vid tre- och femårsmätningar. Majoriteten av personalen från både interventions- och kontrollcentraler rapporterade positiva attityder och kompetens beträffande rådgivning och samtal om levnadsvanor.

Avhandlingen bidrar med kunskap om implementering av nya arbetssätt under realistiska förutsättningar. Följande konklusioner kan dras:

- Implementeringsprocessen försvårades av en komplex interaktion mellan användargrupper, innovationen, uppdraget och kontextuella faktorer:
 - Personal, teammedlemmar, chefer och patienter hade olika förutsättningar för att implementera förändring.
 - Resultaten tyder på att innovationen bestod av både sociala och strukturella komponenter.
 - Resultaten tyder på att resurser, engagemang och sociala normer samt deltagande i utvecklingen av innovationen påverkade integreringen av teamen och rutiner vid vårdcentralerna.
 - Resultaten tyder på att uppdraget som gavs till vårdcentralerna inte beaktade vilka förutsättningar som fanns för implementering eller sociala aspekter av innovationen. Detta kan ha försvårat integreringen av livsstilsteamen på vårdcentralerna.
- Teammedlemmarna justerade kontinuerligt arbetet under implementeringsprocessen för att anpassa det till kontextuella faktorer, uppdraget och patienters behov och förväntningar.
- Även om teamarbete används för andra patientgrupper i primärvården, så tyder resultaten på att det är svårt att integrera liknande rutiner för rådgivning och samtal om levnadsvanor i vårdcentralen som helhet.
- Patienter kan ses som en viktig aktör i implementeringen av rådgivning och samtal om levnadsvanor i primärvården. Resultaten tyder på att patienter kunde försvåra eller underlätta implementeringen, då deras förväntningar och bedömning av rådgivningssituationen fick betydelse för hur öppna de var i samtalet avseende sina levnadsvanor.

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12. APPENDICES

Appendix A Interview guide for manager interviews at 3 and 5-year follow-ups

QUESTIONS at 3 and 5-year follow-ups to investigate the (degree of) fidelity to the lifestyle team protocol¹:

1. Finns det en grupp eller **team** som har specifikt ansvar för arbetet med levnadsvanor på er vårdcentral?
 - Hur många medarbetare ingår i teamet/gruppen?
 - Vilka yrkesgrupper ingår i teamet/gruppen?
 2. Finns det någon **samordnare** för teamet/gruppen?
 3. Hur ofta **träffas** teamet/personalen?
 - Vad tas upp på möten?
 4. Finns det **nedskrivna rutiner** för hur patienter remitteras till teamet/personalen inom vårdcentralen?
 - Remitteras patienter, som behöver livsstilsrådgivning, till andra än teamet/personalen?
 - Hur har nedskrivna rutiner förts in på vårdcentralen?
 5. Hur ser du på teamen i förhållande till uppdraget?
 - Uppdateras eller revideras målen? Av vem?
 - Vet du om målen sprids till personal? Hur?
-

QUESTIONS at 5-year follow-up to investigate the implementation process²:

6. Kan du berätta för mig om hur uppstarten av teamen såg ut?
 7. Hur har arbetet med livsstilsteamet förändrats sen vi pratade sist/sedan start?
 8. Vad har gått bra? Varför? På vilket sätt?
 9. Vad har varit svårt? Varför? På vilket sätt?
 10. Hur ser du på livsstilsteamens i relation till uppdraget att arbeta med levnadsvanor?
 11. Hur ser du på framtiden?
-

¹Both intervention and control centres

²Intervention centres only

Appendix B Interview guide for patient interviews

QUESTIONS

PROMPTS:

I. Tidigare erfarenheter av och syn på förändring av levnadsvanor.

Har det funnits någon anledning eller intresse för dig att förändra dina levnadsvanor t ex med tanke på din hälsa?

Vad tänker du på när jag säger levnadsvanor?
Det finns ju mycket information och intresse kring levnadsvanor och hälsa i media och i tv. Hur påverkar det dig i ditt liv?
Kan du berätta om hur det var?
Om du tänker på andras försök till att ändra levnadsvanor (din familj, vänner eller kändisar till exempel) vad tänker du på då?

II. Rådgivning kring levnadsvanor.

Har personalen någon gång diskuterat levnadsvanor med dig när du besökt vårdcentralen?

Hur gick det till?
Vad tror du föranledde samtalet?
Kan du berätta mer om hur det var?
Vad sa han/hon?
Vad sa du?
Vad var din reaktion?
Hur bemöttes din reaktion av han/hon?
Hur kändes det att prata om dina levnadsvanor just då?
Hur skulle du vilja att samtalet såg ut?
Har det hänt vid flera tillfällen?
Spelar det någon roll vem som ger råd?
På vilket sätt påverkades du?
Hur använde du informationen/råden du fick?
Hur kändes det efter samtalet?
Hur tror du det kan vara för andra som kanske har andra behov än dig?
Ledde samtalet till försök till förändring för dig?
Om vi pratar om att förändra levnadsvanor generellt, vad för slags stöd skulle du vilja ha från hälso- och sjukvården i framtiden?
Hur tänker du om samtal och råd i förhållande till mer handfast stöd t ex genom att få regelbundet stöd individuellt eller i grupp?

Hälsofrämjande och sjukdomsförebyggande arbete: En kort enkät om livsstilsteamets arbete.

Syftet med den här undersökningen är att få ökad kunskap om hur livsstilsteamet arbetar och hur arbetet kring levnadsvanor upplevs på vårdcentralen.

Du svarar anonymt och ditt deltagande är helt frivilligt.

Frågorna tar ungefär 10 minuter att besvara.

Om du har frågor angående enkäten eller vill veta mer kontakta:

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Nedan ser du en stjärna med tolv armar med ett påstående vid varje arm. Markera hur väl du tycker att påståendet stämmer överens med ditt livsstilsteam just nu (genom att ringa in en siffra per arm). Svarskalan är från noll till tio: **0 = instämmer inte alls; 10= instämmer helt.**

Dessa två frågor handlar om livsstilsteams arbete på vårdcentralen. Här får du möjlighet att med dina egna ord beskriva hur du upplever arbetet.

1. Hur tycker du arbetet med levnadsvanor har förändrats sedan livsstilsteamet skapades?

2. Är det något du vill tillägga som belyser ert arbete i livsstilsteamet just nu?

Appendix D Staff questionnaire¹

E-post meddelande

Arbetet med levnadsvanor på vårdcentralen

Just nu pågår ett forskningsprojekt om arbetsrutiner kring levnadsvanor där vårdcentralen deltar. Den enkät du nu fått kommer vara en viktig del i utvecklingsarbetet med levnadsvanor där resultatet förhoppningsvis kan ge kunskap om hur arbetet ser ut idag, och hur vi på bästa sätt kan fortsätta arbetet i framtiden.

Projektet genomförs av en forskargrupp vid Institutionen för Medicin och Hälsa vid Linköpings universitet under ledning av doktorand Kristin Thomas i samverkan med professor Preben Bendtsen (FoU-samordnare i NSV) och forskningsassistent Barbro Krevers.

Deltagande är frivilligt och du svarar helt anonymt.

Enkäten tar ungefär 10 minuter att besvara.

Hälsningar

XXXXX

Vårdenhetschef/vårdcentralchef

Om du har frågor angående enkäten eller vill veta om projektet, kontakta gärna:

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Introduktionstext

Enkäten är indelad i tre delar.

Den första delen handlar om arbetet med levnadsvanor och hur du upplever olika arbetsrutiner. Med levnadsvanor menas alkoholkonsumtion, fysisk aktivitet, matvanor och tobaksvanor.

Den andra delen handlar om arbetsmiljö och förutsättningar för förändring av arbetsrutiner.

Den sista delen av enkäten innehåller allmänna frågor.

Du svarar utifrån hur du uppfattar att det förhåller sig just nu på vårdcentralen där du arbetar.

Enkät frågor:

Arbetet med levnadsvanor på den vårdcentral där du arbetar:

1. På vårdcentralen finns det en grupp av vårdgivare (livsstilsteam eller liknande) som arbetar specifikt med levnadsvanor. *Med livsstilsteam menas grupp av vårdgivare med särskild kompetens och/eller avsatt tid till arbete med levnadsvanor.*

- (1) Stämmer inte alls
- (2) Stämmer ganska dåligt
- (3) Stämmer ganska bra
- (4) Stämmer helt
- (5) Vet inte

Om 3-4 p på fråga 1.1:

2. Den här gruppen med vårdgivare (livsstilsteam eller motsvarande) träffas för att specifikt diskutera arbetet med levnadsvanor:

- (1) Aldrig
- (2) Mer sällan
- (3) 1 gång per kvartal
- (4) Mer ofta
- (5) Vet inte

Till alla igen:

3. Vårdcentralen har definierat mål för arbetet med levnadsvanor.

-
- (1) Inga definierade mål
(2) Otydliga mål
(3) Ganska tydliga mål
(4) Mycket tydliga mål
(5) Vet inte
4. På vårdcentralen finns det ett strukturerat samarbete mellan olika professioner när det gäller arbetet med levnadsvanor.
- (1) Stämmer inte alls
(2) Stämmer ganska dåligt
(3) Stämmer ganska bra
(4) Stämmer helt
(5) Vet inte
5. På vårdcentralen finns det en struktur för hur patienter kan hänvisas till specialiserade vårdgivare för frågor som rör levnadsvanor.
- (1) Stämmer inte alls
(2) Stämmer ganska dåligt
(3) Stämmer ganska bra
(4) Stämmer helt
(5) Vet inte
8. Jag ser inget behov av ett livsstilsteam (eller motsvarande) på vårdcentralen.
- (1) Stämmer inte alls,
(2) Stämmer ganska dåligt,
(3) Stämmer ganska bra,
(4) Stämmer helt,
(5) Vet inte.
9. Hur ofta frågar du patienter om en eller flera levnadsvanor (fysisk aktivitet, matvanor, tobaksvanor eller alkoholvanor)?
- (1) Dagligen
(2) Någon/några gånger i veckan
(3) Någon/några gånger i månaden
(4) Mer sällan
(5) Aldrig
10. Hur ofta hänvisar du patienter till någon vårdgivare som är specialiserad inom området levnadsvanor?
- (1) Dagligen
(2) Någon/några gånger i veckan
(3) Någon/några gånger i månaden
(4) Mer sällan
(5) Aldrig
12. Det är viktigt att vårdcentralen erbjuder patienter stöd angående hälsosamma levnadsvanor.
- (1) Stämmer inte alls,
(2) Stämmer ganska dåligt,
(3) Stämmer ganska bra,
(4) Stämmer helt,
(5) Vet inte.
13. Rådgivning om hälsosamma levnadsvanor (strukturerade samtal) är ett effektivt sätt att hjälpa patienter till att förbättra sina levnadsvanor.
- (1) Stämmer inte alls,
(2) Stämmer ganska dåligt,
(3) Stämmer ganska bra,
(4) Stämmer helt,
(5) Vet inte.
14. Jag har tillräcklig kompetens för att ge patienter råd om hälsosamma levnadsvanor.
- (1) Stämmer inte alls,

- (2) Stämmer ganska dåligt,
- (3) Stämmer ganska bra,
- (4) Stämmer helt,
- (5) Vet inte.

15. Under ett typiskt möte med en patient har jag tillräckligt med tid till att diskutera frågor kring levnadsvanor.

- (1) Stämmer inte alls,
- (2) Stämmer ganska dåligt,
- (3) Stämmer ganska bra,
- (4) Stämmer helt,
- (5) Vet inte.

16. Ibland känns det svårt (obekvämt) att ta upp frågor som rör levnadsvanor med patienter.

- (1) Stämmer inte alls,
- (2) Stämmer ganska dåligt,
- (3) Stämmer ganska bra,
- (4) Stämmer helt,

17. Frågor om arbetet med levnadsvanor får stort utrymme jämfört med andra frågor på möten på vårdcentralsnivå.

- (1) Stämmer inte alls,
- (2) Stämmer ganska dåligt,
- (3) Stämmer ganska bra,
- (4) Stämmer helt,
- (5) Vet inte.

18. På vårdcentralen finns tillräckligt med samlad kompetens (kunskaper, förmågor) att kunna hantera frågor som rör levnadsvanor.

- (1) Stämmer inte alls,
- (2) Stämmer ganska dåligt,
- (3) Stämmer ganska bra,
- (4) Stämmer helt,
- (5) Vet inte.

Arbetsmiljön på den vårdcentral där du arbetar

Medarbetare på vårdcentralen:

- 20. Känner eget ansvar för att förbättra kvaliteten av den vård som ges till patienterna.
- 21. Samarbetar för att bibehålla och förbättra vårdens effektivitet.
- 22. Är positiva till att utveckla och testa nya metoder för att förbättra arbetsrutiner.
- 23. Är öppna för förändringar av arbetsrutinerna

Tongivande personer eller informella ledare:

- 24. Anser att de nuvarande arbetsrutinerna kan förbättras.
- 25. Uppmuntrar och stöttar förändringar av arbetsrutiner för att förbättra vården av patienter.
- 26. Är öppna för att prova nya arbetssätt
- 27. Drar åt samma håll som ledningen i förändringsarbetet på vårdcentralen.

Om vi på vårdcentralen är eniga om att en förändring behövs, får vi i allmänhet, tillräckligt med stöd när det gäller:

- 28. Utbildning.
- 29. Lokaler och utrustning.
- 30. Bemanning och personal.
- 31. Ekonomiska resurser.

Ledningen (verksamhetschef/ vårdenhetschef):

- 32. Uppmuntrar medarbetarnas kreativitet och idéer som förbättrar vården av patienter.
- 33. Tar till vara medarbetarnas åsikter om beslut som rör vården av patienterna.
- 34. Arbetar aktivt för att förbättra patientinformation och patientinflytande.
- 35. Erbjuder goda förutsättningar för ett kontinuerligt förbättringsarbete.
- 36. Definierar tydliga ansvarsområden och befogenhet för all personal.

- 37. Uppmuntrar arbetsgrupper att lösa problem i arbetet.
- 38. Uppmuntrar samverkan mellan olika yrkeskategorier och vårdteam.
- 39. Ger medarbetare information om riktlinjer som rör patientarbetet.
- 40. Fastslår tydliga mål för arbetsrutiner och arbetsresultat.
- 41. Ger medarbetare återkoppling om vårdcentralens kvalitetsresultat.
- 42. Understryker alla medarbetares ansvar för att uppnå bra kvalitetsresultat.

ALLMÄN INFORMATION

43. Jag är född år:

44. Jag är ☐ man ☐ kvinnan

45. Mitt yrke:

Tack för din medverkan!

¹ Questions 1-5 was not included in the analyses of this thesis.

Included Papers

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