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Social Support, mental health and effectiveness of a senior centre programme for elders living at home

Cross-sectional studies and a randomized controlled trial

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LIST OF PAPERS

1. Socio-demographic, psychosocial and health characteristics of Norwegian senior centre users: A cross-sectional study
   Hege Bøen, Odd Steffen Dalgard, Rune Johansen & Erik Nord
   Scandinavian Journal of Public Health, 2010; 38: 508-517

2. The importance of social support in the associations between psychosocial distress and somatic- and socio-demographic factors among older adults living at home: A cross-sectional study
   Hege Bøen, Odd Steffen Dalgard & Espen Bjertness
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3. A randomized controlled trial of a senior centre group programme for increasing social support and preventing depression in older adults living at home.
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ABBREVIATIONS

BDI	Beck Depression Inventory, instrument
CES-D	Center for Epidemiological Studies Depression Scale
CI	Confidence interval
CWD	Coping With Depression Course
HSCL- 5,10,25	Hopkins Symptom Checklist, instrument
HUBRO	The Oslo Health Study
HUNT	The Nord-Trøndelag Health Study
HUS	National health and social conditions survey
LOGG	Life Course, Gender and Generations
NorLAG	Norwegian longitudinal panel survey
OR	Odds ratio
OSS-3	Oslo-3 Social Support Scale, instrument
RCT	Randomized controlled study
SES	Socio-economic status
SSB	Statistics Norway
WHO	World Health Organization

SUMMARY

Depression and depressive symptoms are common mood disorders in later life and a challenging public health problem. Depression among elders is often related to physical symptoms resulting from chronic diseases or other impairments, as well as loneliness, isolation and lack of social support. Depression may lead to substantial costs and unfavourable impairments of health, thereby possibly causing a dramatic reduction in the quality of life.
In 2006, The Norwegian Health Association designed and initiated the programme, *"Senior centre – a service to elders with failing health".* The aims of the programme were to increase social support and quality of life, and to prevent late-life depression in older adults.

The most important aim of the present thesis was to evaluate the impact of the senior centre programme on depression and social support. An additional aim was to gain knowledge about the socio-demographic, psychosocial and health characteristics of users of the senior centres in relation to non-users. The third aim was to investigate the associations between psychological distress and social support, and between somatic and socio-demographic factors.

The thesis consists of three papers. The sampling frame for the data used in Papers I and II were obtained from the Norwegian Population Register for two municipal districts in Oslo, Ullern and Østensjø. A random sample was drawn that was limited to 4,000 of the total number of residents over 65 years living at home, with 2,000 from each district. Self report questionnaires were sent by post, and the response rate was 64% and n=2387. Psychological distress was assessed using a Hopkins Symptom Checklist (HSCL-10) and social support with an Oslo-3 Social Support Scale. Both Papers I and II were designed as cross-sectional studies. Paper III is based on a study with a randomized controlled design, and the recruitment of participants was from the same data material as described above. In total, 415 persons fulfilled the inclusion criteria and 277 persons dropped out, leaving 138 subjects for randomization in the trial.

The senior centre is the only welfare service in Norwegian elder care serving both fit and less functional pensioners. In Paper I, we investigated the socio-demographic, psychosocial and health characteristics of senior centres users in relation to non-users. The percentage of users was 44 among the survey respondents, with women overrepresented as users. High age and specific health problems were associated with increased use, while living alone predicted a greater use among women but less among men. The association with age could not be explained by socio-demographic, psychosocial or health variables.

In Paper II, we investigated the associations between psychological distress and social support. Furthermore, we investigated the associations between psychological distress and somatic- and socio-demographic factors. Finally, we examined changes in the association with somatic and socio-demographic factors when adjusting for social support. We reported a statistically significant association between psychological distress and social support for two of the items from the Oslo-3 Social Support Scale: the item "Number of close friends" (OR 0.61; 95% 0.47-0.80) and for "Concern and interest from others" (OR 0.68; CI 0.55-0.84). A strong association between a lack of social support and psychological distress, irrespective of the variables adjusted for, indicated a direct effect. The associations between psychological distress and physical impairments were somewhat reduced when adjusted for social support, which was particularly the case for the association between distress and hearing. We reported that physical impairments were associated with low levels of social support, which in turn were associated with high scores on psychological distress. In this context, social support functioned as a mediator. We also reported that physical impairments were associated with a reduced social support, which in turn were associated with higher levels of psychological distress than those of the selected diagnoses. Lastly, income was found to be an independent determinant of psychological distress.

Paper III reports on the effects of a senior centre programme for increasing social support and preventing depression in older adults. A total of 138 persons were randomized into an intervention group (n=77) and a control group (n=61). The number of persons who provided usable responses both at baseline and at 12 months was 92, with 37 in the intervention group and 55 in the control group. The outcome measures were the Beck

Depression Inventory (BDI), in addition to scales/items for the measurement of social support, health and life satisfaction. At follow-up, there were no significant differences between the intervention group and the control group with regard to these outcome measures. This may be due in part to a lack of statistical power. On the other hand, the consistent tendency towards increased social support and life satisfaction in the intervention group, and less increase in depression than among the controls, supports the hypothesis that the programme had a preventive effect by delaying a general age-dependent increase in depression, and in improving social support and quality of life. A "dose-response" effect which was shown by a greater improvement in the number of group meetings attended, was present for all outcome variables. Most of the participants said that the intervention meant much to them and led to an increased use of the centre. The effect sizes, however, were small and differences were not statistically significant, so the intervention did not have the effect we hoped for and expected.

High age and specific health problems were associated with increased use. Single women used the senior centres more than married women, whereas single men used the senior centres less than married men. A lack of social support and somatic health problems increased psychological distress. Functional impairments in general, and hearing impairments in particular, were associated with low levels of social support, which again was associated with psychological distress. This is a public health problem because the prevalence of functional impairments is high and loneliness is quite common, thus possibly leading to increased psychological distress. There were no significant effects on depression of the group programme, although the programme may have delayed a general age-dependent increase in depression, and shown a moderately improved social support and quality of life.

It is recommended that senior centres expand their activities with new group programmes that are free of charge, targeting social isolation and loneliness by the use of activities that strengthen social support. For the depressed however, more specialized programmes to cope with depression might be the right type of intervention.

SUMMARY IN NORWEGIAN

Depresjon og depressive symptomer er sinnsstemninger som utgjør vanlige plager i eldre år og er et utfordrende folkehelseproblem. Depresjon blant eldre er ofte relatert til fysiske symptomer på kroniske plager og sykdommer, ensomhet, isolasjon og mangel på sosial støtte. Depresjon kan forårsake alvorlige helseproblemer, omfattende kostnader, dårlige prognoser og dermed dramatisk nedgang i livskvalitet. I 2006 utviklet Nasjonalforeningen for Folkehelsen et gruppebasert program kalt "Rehabilitering i eldresentre". Hensikten med programmet var å øke sosial støtte og livskvalitet og redusere depresjon.

Hovedmålet med denne avhandlingen var å evaluere effekten av eldresenter programmet på sosial støtte og depresjon. I tillegg var målet å finne ut hva som karakteriserer brukere av eldresentre sosioøkonomisk, psykososialt og helsemessig i forhold til ikke brukere. Et tredje mål var å undersøke sammenhengene mellom psykiske plager og sosial støtte og somatiske og sosiodemografiske faktorer.

Avhandlingen består av tre artikler. Adresselister vi kunne trekke utvalg fra ble levert av Det norske folkeregisteret for bydelene Ullern og Østensjø i Oslo. Et tilfeldig utvalg ble trukket begrenset til 4000 personer av det totale antall hjemmeboende innbyggere over 65 år, 2000 fra hver bydel. Selvrapporterende spørreskjema ble sendt i posten. Responsraten var 64 % og n=2387. Psykiske plager ble vurdert i forhold til Hopkins Symptom Checklist (HSCL-10) og sosial støtte med Oslo-3 Social Support Scale (OSS-3). Artikkel I og II har tverrsnittsdesign. Artikkel III er bygget over en studie med et randomisert kontrollert design og rekrutteringen av deltakere til denne studien kom fra samme datamaterialet om tidligere beskrevet. Til sammen oppfylte 415 personer inklusjonskriteriene, 277 trakk seg så fra studien og 138 personer ble randomisert i forsøket.

Eldresentre er det eneste velferdstiltaket i norsk eldreomsorg som betjener både friske og mindre friske pensjonister. I artikkel I undersøkte vi hva som karakteriserte brukere av eldresentre sosiodemografisk, psykososialt og helsemessig i forhold til ikke brukere. Andelen brukere av eldresentre var 44 % og kvinner var overrepresentert blant brukerne. Høy alder og spesifikke helseproblemer var assosiert med økt bruk av sentre. Enslige

kvinner brukte sentrene mer enn gifte kvinner og enslige menn brukte dem mindre enn det gifte menn gjorde. Sammenhengen med alder kan ikke forklares gjennom sosiodemografiske, psykososiale eller helse variabler.

I artikkel II undersøkte vi assosiasjonen mellom psykiske plager og sosial støtte. Videre undersøkte vi assosiasjoner mellom psykiske plager og somatiske og sosiodemografiske faktorer. Til slutt undersøkte vi endringer i assosiasjonen med somatiske og sosiodemografiske faktorer etter å ha justert for sosial støtte. Vi fant en statistisk signifikant assosiasjon mellom psykiske plager og sosial støtte for to av punktene i Oslo-3 Social Support Scale: ”antall nære venner” (OR 0.61; 95% 0.47-0.80) og for ”omtanke og interesse fra andre” (OR 0.68; CI 0.55-0.84). En sterk assosiasjon mellom manglende sosial støtte og psykiske plager uavhengig av hvilke variabler det ble justert for indikerte en direkte effekt. Assosiasjonen mellom psykiske plager og fysiske plager ble noe redusert når vi justerte for sosial støtte. Dette gjaldt særlig for sammenhengen mellom psykiske plager og hørsel. Sosial støtte fungerte med andre ord, i denne sammenhengen, som en mediator. Fysiske plager korrelerte med lav sosial støtte, som i sin tur hang sammen med høy skår på psykiske plager, i større grad enn det som gjaldt for de utvalgte diagnosene. Inntekt var en selvstendig medbestemmende faktor på psykiske plager.

I artikkel III rapporteres effekten av gruppe programmet på eldresentre på endepunktene sosial støtte og depresjon. Totalt ble 138 personer randomisert i intervensjonsgruppe (n=77) og kontrollgruppe (n=61). Antall personer som gav brukbar informasjon både ved baseline og etter 12 måneder var 92, 37 i intervensjonsgruppen og 55 i kontrollgruppen. Endepunkter ble målt med Beck Depression Inventory (BDI), og med skalaer for sosial støtte, helse og livskvalitet. Etter 12 måneder var det ingen signifikante forskjeller mellom intervensjonsgruppen og kontrollgruppen når det gjaldt mål på utkomme. Dette kan delvis skyldes manglende statistisk styrke. På den annen side var det en konsistent tendens til økt sosial støtte og tilfredshet med livet i intervensjonsgruppen og mindre økning i depresjon enn i kontroll gruppen. Dette tyder på at programmet hadde en forebyggende effekt ved å forsinke en generell alders avhengig økning i depresjon, og ved å forbedre sosial støtte og livskvalitet. En ”dose-respons” effekt viste større bedring for alle utkomme variablene jo flere ganger deltakerne hadde vært til stede. De fleste deltakerne sa at intervensjonen

betydde mye for dem og det førte til økt deltagelse på sentre. Imidlertid er effektene svake og forskjellene er ikke statistisk signifikante. Derfor har ikke intervensjonen gitt den effekt vi hadde håpet på og regnet med.

Høy alder og spesifikke helseproblemer førte til økt bruk av eldresentre. Det å bo alene økte bruk av eldresenter blant kvinner men reduserte bruk av eldresenter blant menn. Manglende sosial støtte og somatiske helseproblemer økte psykiske plager. Fysiske plager, spesielt hørselsproblemer har sammenheng med liten sosial støtte som igjen henger sammen med psykiske plager. Dette er et folkehelseproblem fordi forekomsten av fysiske plager er høy og ensomhet er ganske vanlig og kan føre til økte psykiske plager. Det var ingen signifikante effekter av gruppe programmet på depresjon, men programmet kan muligens ha forsinket en generell aldersavhengig økning i depresjon, og forbedret sosial støtte og livskvalitet moderat.

Det anbefales at eldresentre øker aktiviteten med nye gruppe programmer som er gratis og retter seg mot sosial isolasjon og ensomhet gjennom å stryke sosial støtte. For de deprimerte, vil mer spesialiserte program rettet mot mestring av depresjon muligens være en nyttig intervensjon.

1 BACKGROUND

The Norwegian Health Association is a non-profit organization that owns and runs 32 senior centres in Norway. In 2006, it designed and initiated the programme, “Senior centre - a service to elders with failing health”. The aim of the programme was to increase social support and quality of life, and to prevent late-life depression in older adults. The aim of this study was to evaluate the programme. The Norwegian Institute of Public Health, Division of Mental Health performed the research.

The target group of the programme was persons 65 years and older in two areas of Oslo, who had functional impairments and did not use the local senior centre. The elders in question could suffer from depressed mood, loss of energy, grief reactions or reduced mental or physical capacity as a consequence of age-related diseases. The main hypothesis was that many elders who are lonely and have much life stress may benefit from participation in specially organized senior centre activities in their local community.

The research project was designed to answer the following questions: What characterizes the users of senior centres compared to non users? Which factors predict the mental health of older persons? Does evidence support the assumption that social support increases psychological well-being among elderly people? To what extent is it possible to recruit non-users of senior centres to a specially designed group programme at such centres, and to what extent will they benefit from participation in such a programme?

2 INTRODUCTION

2.1 Late-life depression and risk factors

Depression and depressive symptoms are common mood disorders in later life, and present a challenging public health problem. Epidemiological studies conducted from 1999-2006 suggest that as much as 15-16% of community-dwelling elders suffer from clinically significant depressive conditions (1, 1, 2, 2). A Norwegian study that used the Hospital Anxiety and Depression Scale (HADS-D) reported that the prevalence of depression increased with age, and was highest among the oldest, as 20% of those 80 years and older reported depression (3). A new report shows that the oldest have a higher prevalence of psychological distress than those who belong to the youngest among the elderly, aged 65-70 years (4).

Depression is associated with serious health problems, substantial costs and unfavourable prognoses. Depression among elders is often related to physical symptoms resulting from chronic diseases or other impairments (5). The combination of chronic diseases and depressive conditions causes dramatic reductions in the quality of life (6, 7).

Major depressive disorder is the most studied and clearly defined clinical depressive syndrome. The prevalence of major depressive disorders in community samples of adults aged 65 and older ranges from 1-5% in most large-scale epidemiological investigations (8).

No major depressive disorders, such as dysthymic disorders (low mood over time) and subclinical depression, are common conditions within the population of older adults. The symptoms are depressed mood, diminished interest or pleasure in activities, change of appetite (decreased or increased), sleep disorders, loss of energy, feelings of worthlessness, diminished ability to concentrate, recurrent thoughts of death and suicidal ideation (9).

There is co-morbidity between late-life depression and dementia. This phenomenon particularly occurs in the early stages of dementia, with depression known to be both a risk factor and prodromal feature of dementia (10). A report from a follow-up of a cohort free of both depression and cognitive impairment showed that those who developed depression were subsequently more likely to develop mild cognitive impairment or incident dementia (11). The prevalence of depression is higher among elders with a primary degenerative dementia than in the general elderly population (12).

Characteristics of late-life depression such as symptoms and outcomes differ from those of younger adults, although they have the same core symptoms (13), and depressed older adults are less likely than depressed younger adults to report affective symptoms (14). Blazer (1) suggests that older persons are more likely to report cognitive impairment, somatic symptoms, apathy and a general loss of interest, while younger persons report more sadness and depressed moods.

To explain the occurrence of depression one can distinguish between genetic/biological, personally related and psychosocial categories of factors. The onset and maintenance of depression in late life can be understood as an interaction between these three categories (15).
The review by (16) summarized studies that had identified a number of significant psychosocial risk factors for late-life depressive disorders, including negative life events and ongoing difficulties, medical illness, disability and functional decline, bereavement and lack of social contact. Another systematic review and meta-analysis differed from the first one since poor social support was not found to be a significant risk factor, nor was high age, lower education level and being unmarried. Being female, however, turned out to be a significant risk factor (17). The third review, which was more extensive and newer than the two others that reviewed epidemiology, etiology, treatment and prevention (15), points out that insomnia and the curtailment of daily activities accompanied by self-critical thinking may exacerbate and maintain a depressed state. A close social network was found to be a protective factor.

The inconsistent findings of social support as a risk and protective factor in these three reviews could in part be a result of the complex nature of social support variables in studies of late life. In particular, social circumstances may change because of age-related changes such as the death of family members and friends, loneliness or institutionalization. This inconsistency might also partially reflect debated problems in measuring social support, including the extent to which social isolation and support are external stressors versus aspects of the personality trait of neuroticism, and therefore the results of an individual's own social functioning.

The factors that are most commonly found to be significantly associated with an increased risk of depression in late life are: female gender, anxiety disorders, prior depression, cardiovascular diseases, insomnia, stressful life events, isolation, loneliness and lack of social support, normal age-associated neurobiological changes with different physical illnesses and functional losses, low income and low education and a lack of control over one's own life.

2.2 Associations between socio-economic status (SES) and somatic and mental health

A low socio-economic status is related to fewer psychosocial resources, and is a risk factor for both somatic diseases and depression. In a study among older adults, a low socio-economic status was shown to predict an increased incidence of depression over nine years of follow-up (18). Especially in older adults, a deterioration in financial status is a stressful event and those who are economically disadvantaged are more likely to experience persistent depressive symptoms (15, 19). Findings from another study on the relation between SES and health in women aged 70 years and above demonstrate that the impact of socio-economic factors on health were both strong and enduring into old age (20). Gender affects the coping mechanism with stress indirectly through marital status and financial strain. The results from a nationwide American study indicated that older women are more likely to experience more stress and a diminished sense of control than older men, but only because older women are exposed to more economic problems and a

lower probability of being married. Unmarried persons had more financial strain and a higher level of distress than married persons, and financial strain was equally distressful for older men and women (21).

Norwegian population studies have demonstrated a social gradient in both mental and somatic health (HUBRO). The prevalence of illness increased with a decreasing socio-economic status, while a low socio-economic status is also associated with low social support, with a lack of support explaining some of the social gradient in mental health. Low social support did not appear as a problem of poverty however, but was expressed as a social gradient such as psychosocial risks and health. The population included inhabitants in Oslo aged 75 years, but for the purpose of the study a focus on a working population between the ages of 30-60 years was chosen (22). Findings from a cross-cultural analysis among elders suggested that although financial strain was quite likely to lead to psychological distress, this could be mitigated, at least in part, by social relationships (23).

2.3 Associations between social support and somatic and mental health

The clustering of somatic health problems, including a lack of social support, loneliness, isolation and depression seems to define a group of older people with a poor quality of life (6, 7, 24), and the recognition and prevention of later-life depression that helps to address these factors is an important public health issue (25). The associations between the factors, however, are complex, and it is difficult to single out what is the cause and effect, thereby making prevention difficult.

One of the first definitions of social support was launched by Cobb (26): “Social support is information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations.” One may distinguish between four different subtypes of social support (27): *Emotional* support is related to the amount of empathy, love, care and confidence, and is often provided by family and friends. Emotional support is a common way of understanding social support. *Instrumental* support refers to practical help and assistance in everyday life, while the third type of support, *appraisal* support,

relates to help in decision making and giving appropriate feedback. The providers of such feedback might be colleagues, family, friends or someone more formal. *Informational* support includes the provision of advice and information to help persons with personal and social challenges.

There is a distinction in the measure of social support between cognitively oriented, called "perceived" (emotional) support and behaviourally oriented, which is "received" (instrumental) support. Perceived support is often grounded in experienced subjective support and behavioural transactions. Social support in this subjective meaning is the most common orientation in health-related quality of life studies. Received support items are orientated toward hypothetical conditions (if you need help, is there anyone you can count on?), and measure social support in a more objective way. Sarason (28) raised the critical question of whether social support primarily reflects the personality of the individuals and to a lesser extent measures the network structure and social environment. From this approach, a wave of research focusing on the provision of social support was developed. Berkman and Kawachi (29) give an overview of 10 different measures available for the assessment of social support, with a brief commentary regarding their utility for specific purposes.

Cassel (30) and Cobb (26) suggested a link between social resources, support and disease risk. Today, it is generally agreed that social support plays a beneficial role in the maintenance of mental health, psychological well-being and physical health. Social support is one of the main ways that a social network influences physical and mental health. There are two alternative causal models explaining the impact of social support on health: the direct effect model and the indirect (buffer) effect model (31). The direct effect implies that social relationships have a beneficial effect on health, regardless of one's life situation. The stress-buffering effect implies that social relationships are related to well-being only for persons exposed to stressors, such as negative life events and hardship over time. In this instance, social support is thought to buffer the effects of stress by enhancing personal coping abilities such as self-esteem and self-efficacy. Through a strengthening of the coping mechanism, the negative emotional reaction to a stressful event will either be reduced, or the physiological responses on health via the immune system will be

dampened. Additional pathways to psychological and physiological are behavioural, and a lack of social support may impact lifestyle behaviours in a health-damaging way such as smoking, a high alcohol consumption, a lack of exercise and malnutrition (32). Recent Norwegian studies report that persons with little social support seek appropriate professional help to a lesser extent when they experience psychological distress (33, 34).

Studies suggest that poor social support increases the risk of somatic disorders among the elderly (35). Most dramatically, the importance of social support is found on mortality among elders, particularly men (36, 37). Even so, there are also studies which show that somatic disorders have a negative effect on social support. A longitudinal study assessing the impact of disability on social relations in individuals with rheumatoid arthritis revealed that more peripheral social relationships were affected by RA than close attachments, especially among the older patients (38). A report demonstrated an increasing likelihood of social isolation with an increasing number of chronic health conditions, and that in particular, hearing and vision impairments and severe incontinence were significantly associated with social isolation (39). The negative effect of somatic disorders on social support implies that social support may be a mediator in the relationship between somatic disorders and mental health problems, and not only a moderator or buffer. Because somatic disorders tend to reduce social support, which is a risk factor for mental health problems, somatic disorders increase the risk of mental disorders, though only a few studies have looked into this pathway.

The social network of older adults easily becomes vulnerable. Smaller social networks, fewer close relationships and a lower adequacy of social support have all been linked to depressive symptoms within the general population (40), as elders are faced with greater losses in the context of fewer social resources. As previously stated, a lack of social support may lead to isolation and loneliness, both of which are important risk factors for depression, anxiety and cognitive disorders (41). In a population-based cross-sectional study, loneliness proved to be a significant predictor of depressive symptoms in the elderly (42). An Irish interview study of a large representative sample of community-dwelling people aged 65 and older found that a depressed mood was associated with both loneliness and the lack of a social network (43). Two cohort studies with well-functioning

older adults also confirm the protective role of a social network on cognitive decline (44, 45).

2.4 Association between somatic health and mental health

A number of cross-sectional studies have exhibited a high correlation between somatic health and mental health in the general population (5, 46). It has also been shown that somatic health correlates with mild cognitive impairment in older individuals (47).
In a Norwegian study (5), approximately one-third of individuals with somatic health problems had anxiety disorders and/or depression. Co-morbid anxiety disorders and depression are found to be more strongly associated with somatic health problems than pure anxiety and pure depression. Whereas these studies cannot tell what is the cause and effect in the relationship between somatic and mental health, prospective studies indicate that the causation may go in either direction.

Prospective studies have shown depression and depressive symptoms to be independent determinants of mortality in older persons (48), while depression also seems to be an independent risk factor for the onset of a wide range of cardiovascular diseases (49). Results from a nine-year follow-up show depressive symptoms to be independently associated with the incidence of stroke in elders with or without cardiac disease (50).

Other prospective studies have shown that somatic health problems increase the risk of mental health problems in older people, and that the effect depends upon social support (51). It has been shown that social support buffered the adverse impact on depression, but also had a significant direct effect on depression (52, 53). A follow–up study of community-dwelling persons, aged 55-85, indicated that the perceived social support, as measured by loneliness, had a direct as well as a modifying effect on depressive symptoms for most chronic diseases. Feeling less lonely acted as a buffer against depressive symptoms in the presence of chronic diseases (54).

2.5 Users and non-users of senior centres

Few studies are connected to the use/non-use of senior centres in Norway (55, 56). Previous research from senior centres showed that the percentage of users varied from 43 to 54, with women using the centres more frequently than men irrespective of age and marital status. The use of senior centres increased with an increased age and education level, and income had no relation to use (56-60). A Norwegian interview study from 1978 conducted in inner Oslo and Oslo West (n = 453) concluded that the users of senior centres had consistently poor health, were often single, lonely and had more need for help than non-users (5). Another study from 1995, with 431 respondents from one urban and one rural county, concluded that the fittest were most likely to use senior centre services and the chance of being a user was highest if one belonged to the middle level of social integration (56). Previous studies were old, with relatively small data bases, and somewhat conflicting in their conclusions.

2.6 Prevention and promotion in mental health

Definitions

Traditionally, the public health concept of disease prevention has been divided into primary, secondary or tertiary prevention depending on whether the strategy prevents the disease itself, the severity of the disease or the associated disability. Primary preventive strategies are usually directed against risk factors to prevent new cases from occurring (incidents). Secondary prevention refers to taking treatment-related measures throughout the course of the disorder in order to prevent manifestation, reduce severity, courses, duration and associated disability. Tertiary prevention refers to interventions that reduce disability and all forms of rehabilitation as well as the prevention of relapses of illness. This system works well for medical disorders with a known etiology.

Mental health promotion often refers to positive mental health as a desired outcome of intervention, rather than mental ill health. One among a number of definitions is: “Mental

health promotion is any action taken to maximize mental health and well-being among populations and individuals"(61). Among older people, mental health promotion and the prevention of depression-, anxiety- and stress-related disorders require supportive services to ensure their social cohesion and social inclusion. The prevention of loneliness, isolation and coping skills training have to be accounted for in community approaches (62).
Since the Ottawa conference in 1986 and the publishing of the Ottawa Charter (63), health promotion can also be understood as denoting a specific strategy for the promotion of health and the prevention of disease. Health promotion is the process of enabling individuals and communities to gain control over factors that influence health, thereby improving health. Important aspects of health promotion as a strategy are that all sectors in society, not only the health sector, have a responsibility for health, and that action should take place at all levels (from action involving individuals to societal approaches). In the wake of the Ottawa Charter, action to improve health among disadvantaged groups, in addition to action to reduce socioeconomic inequalities in health, have received much attention. The Ottawa Charter also defines a number of "fundamental conditions and resources for health" such as peace, education, a stable eco-system, social justice and equity. It is also stated that health promotion action means building healthy public policies, the creation of supportive environments, community action for health, the development of personal skills and a reorientation of health services with a stronger emphasis towards preventive action. The principles of health promotion are also obviously of relevance in the field of mental health.

Senior centres and prevention

Finding effect studies in the context of senior centres with programmes targeting depression, health and satisfaction with life has been difficult. Apparently, there have been only a few systematic studies of effect with these outcomes conducted, and up to now, we have not been able to find any. The studies of Leveille (64), Wallace (65) and Phelan (66) are effect studies, and were all conducted in senior centres located in the same district in Washington, with the aim of evaluating the effect of disability-prevention programmes in which physical activity among frail older adults was the important outcome. The outcomes of depression and social functioning were connected to the programmes of physical activity, rather than to the effects of social support. Apart from improved physical activity,

the results of the three American studies presented exhibited fewer depressive symptoms, a reduction in the number of depressed and less use of psychoactive medications. With respect to social functioning, two of the three studies showed that the participants more than tripled their rates of reported participation in senior centres and improved social functioning. For the third study, the proportion of social contact did not materially change.

2.7 Seniors centre as arenas for social support interventions

The senior centre is the only service provision in Norwegian senior care serving both fit and less well functioning pensioners. Senior centres have the goals of maintaining physical and psychological activity, functional health, protection, the promotion of self-sufficiency and the prevention of the psychosocial problems of loneliness and isolation in the elderly (67), and are organized as small local units for activity and social contact. Senior centres have a small staff of 2-4 persons and are run in large part by volunteers. They can be characterized as a welfare service and a private responsibility, not a statutory care service such as home help, home nursing or residential care facilities. Leading researchers of the elderly who chart the course of senior centres indicate the significant potential in the preventive arena (55, 56), (68). Previous results from research on and reports from senior centres in Norway reveal that the percentage of users is close to 50%, and there is a potential for even more users (69).

2.8 Rationale of the study

Background studies have provided considerable insight into depression and possible risk factors, with the relation between social support and psychosocial factors on the one side and physical and mental health on the other. Even so, less information was found on social support interventions to improve mental health in elders, and none in the arena of senior centres.

Depression and depressive symptoms are the most prevalent mood disorders among elders, with a great number of risk factors and their complex interaction having been identified. Social isolation and loneliness are among the most potent predictors of

depressive symptoms among elders, as the risk factors seem to cluster and lead to less well-being and poor quality of life.

The impact of social support on mental and physical health is extensively documented. A lack of social support increases the risk of mental disorders and increases mortality for different somatic conditions, while increasing the exposition for negative life strain and reducing coping abilities in dealing with the strain. Reduced coping abilities impact mental health by reducing self-efficacy, self-esteem and somatic health through developing stress reactions. The theory presented by Bandura states that psychological procedures alter the level and strength of self-efficacy. People process, weigh, and integrate diverse sources of information concerning their capability, and then they regulate their choice behaviour and effort expenditure accordingly (70).

Previous studies looking into the socio-demographic, psychosocial and health characteristics of Norwegian senior centre users are old, with relatively small samples and conflicting conclusions. There are few international studies, and none in Norway, which address the complex relationship between social support, somatic health, socio-economic status and mental health in elders, as well as its importance in the promotion of mental health. No controlled studies on the effect of senior centres on a person's mental health, well-being and social support seem to have been conducted.

Long-term predictions indicate a doubling of the number of older adults over the age of 67 and an increase from 4.6-9% of those over 80 years by 2060 (Statistics Norway). There is a political desire to reinforce preventive health action in municipalities for elders to prevent unnecessary human suffering and to reduce the need for more expensive specialist health care services (71).

We wanted to know more about senior centre users and their health, psychological and socio-demographic conditions compared to non-users. We also wanted to know more about the possibilities for launching senior centres as an arena for prevention and promotion in local communities, targeting isolation and loneliness among elders with depressive disorders living at home. Hence, this justified conducting a new trial.

3 AIMS OF THE THESIS

In a sample of persons 65 years of age and older living at home, we aimed at:

- describing the socio-demographic, psychosocial and health characteristics of users and non-users of the senior centre. **Paper I**

- investigating the association between social support and psychological distress, and the relationship between social support, selected diagnoses and physical impairments with respect to psychological distress. We hypothesized that social support has a *direct effect* on psychological distress, that social support acts as a *moderator* between somatic illness, physical impairments and psychological distress and that social support acts as a *mediator* between somatic illness, physical impairments and psychological distress. **Paper II**

- estimating the effect of participation in a senior centre group programme in a randomized controlled trial design with respect to reducing the occurrence of depression, while increasing the social support and satisfaction with life. We hypothesized that the programme could cause a lower score on a depression scale and higher scores on life satisfaction, health variables and social support scales for the participants of the programme than for the controls. **Paper III**

4 MATERIAL AND METHODS

A systematic literature search of depression, the elderly and prevention from the years from 2000 to 2006 was carried out. The studies examined confirmed the great need for increased knowledge on the health promotion and prevention effect of senior centres upon social isolation, loneliness and mental health. A new and extensive literature search of cross-sectional, longitudinal and intervention studies for the years from 2000 to 2006 were also conducted. I found no research that compared residents living at home who used the senior centres with elderly who were not users or that measured the effect of use of the senior centres on social isolation, loneliness or mental health.

4.1 Description of the intervention

The group programme consisted of a weekly meeting lasting three hours, which was carried out 35 to 38 times over the course of a year at three different senior centres. The five groups were fixed and counted 7- 10 participants each. The offer embodied transport to and from the senior centre if needed, a warm meal, physical training and a self-help group discussing topics that the participants agreed upon themselves. The group leaders were volunteers who had completed a training course for group leaders, and were supervised by the project leader, who was a nurse and an experienced leader at senior centres. The control group was free to continue daily activities as they chose, and were offered the same group activities as the intervention group after one year (delayed intervention). The group programme aimed at reducing the feeling of social isolation and loneliness, thereby reducing depressive symptoms while increasing satisfaction with life. The programme was started in late January 2007, approximately six weeks after baseline interviews, with follow-up interviews taking place in November/December of the same year.

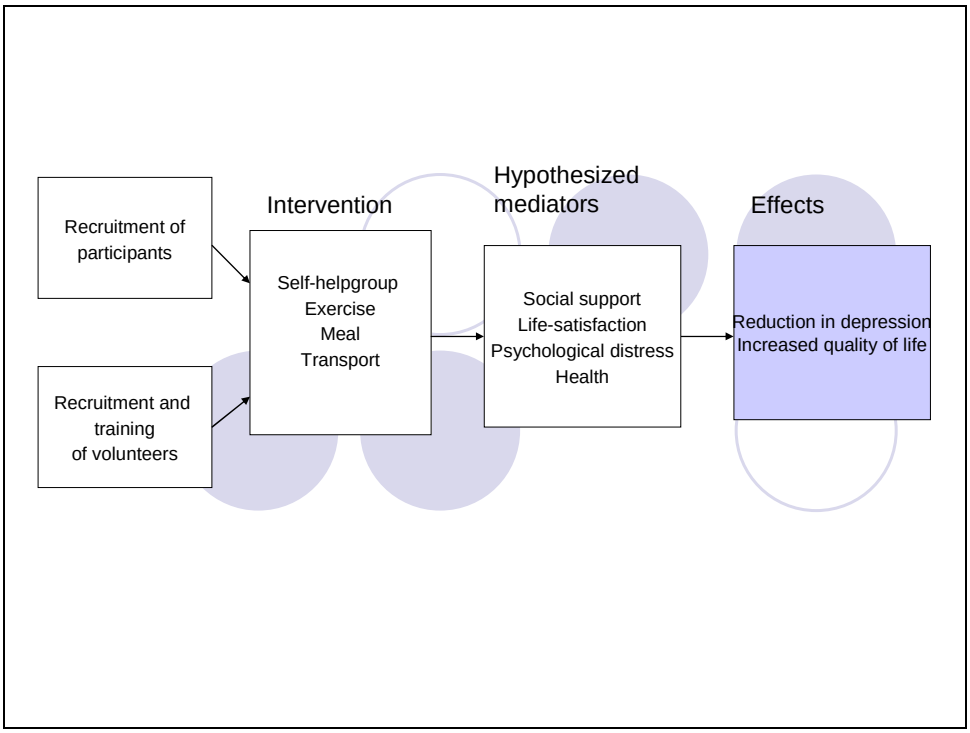

Figure 1: Model of the intervention

Figure 1 displays the key elements of the intervention, starting with the recruitment of the participants for research and the recruitment and training of volunteers to lead the group. By carrying out the intervention, we hypothesized that the four mediators could reduce the level of depression and increase the quality of life. A chronological diagram of the research design can be found in Chapter 5.5, Logistics.

In the current study, we view the prevention of disease and the promotion of health as overlapping and complementary activities since the two are possible outcomes of the same intervention programme. The concern was both to prevent depression and to improve the quality of life for the participants, and the target group in the study had already reported psychological distress. Through interventions at the senior centres, the goal was to prevent depressive disorders from manifesting themselves, in addition to preventing that more extensive depressive disorders occurred in this group, which was already suffering from psychological distress (secondary prevention). The determinants of mental health include actions by individuals, such as behaviours and coping skills, as well as psychosocial factors such as good interpersonal relationships and social support, income, education, marital status and good physical health.

4.2 Population and sample of the survey (Papers I and II)

The sampling frame for this study was obtained from the Norwegian Population Register, which contains the names, ages and addresses of all persons over the age of 65 living in two districts of Oslo, the capital of Norway. The total population over 65 of the two districts was 17,525. These two city districts, one eastern and one western, were chosen on the request of the Norwegian Health Association. Experience suggested that few people under the age of 65 visit senior centres, and many continue working into older age. Therefore, 65 seemed a reasonably low age limit for participation in this study. There was no upper age limit, as we also wished to examine the situation of the oldest participants. A random sample of 4,000 was drawn among all persons 65 years and older living at home, with 2,000 from each district. Of the random sample, 111 persons were residents of institutions and were excluded from the sample. Questionnaires with fixed response categories for 40 questions and letters of introduction (Appendix V) were sent by post to 3,889 persons (Appendix I), and one round of reminders was also sent. A further 166 persons had unclear living arrangements and were also excluded. The response rate was 64%: 2,394 of 3,723 persons returned the questionnaires, and the forms were scanned and quality controlled. In total, 2,387 forms were included in the material (61%). Among these, 51.7% were from Ullern (the western district) and 48.3% from Østensjø (the eastern district). The percentage of men was 40% and for women 60%, while the median age was 77 in Østensjø and 76 in Ullern.

Non-respondents

Out of the total number of 1,329 (36%) non-respondents, 181 persons gave the following reasons for not participating: illness, entered a residential facility, moved or no time. Of the remaining 1,148 non-respondents, we only have information on age and gender. The dropout rate was 37% for women and 38% for men, and was six percentage points higher for Østensjø (39%) than for Ullern (33%). Further details of the sample and dropouts are described in Paper I.

4.3 Participants and recruitment of the Randomized Controlled Trial Paper III

A total of 2,387 out of the 3,889 persons (61%) were confirmed as candidates for recruitment to the trial (Paper III). An initial inclusion criterion was having psychological distress (cut-off 1.85) according to the Hopkins Symptom Checklist-10 (HSCL-10). The lower limit was set at 1.39 and the upper limit was 1.99. The chosen limits seemed reasonable since the score corresponded to symptoms of light depression (72). Since the dropout rate was higher than expected, we had to do a second recruitment from the remaining material. Those with HSCL-10 scores in the range from 1.20-3.90 were included in the study. This means that we included candidates who were not depressed at all and candidates who were more depressed than those included in the first round of recruitment. Those who had answered less than seven out of 10 questions on HSCL-10 were excluded.

Other inclusion criteria were that they should not already be regular users of the senior centre, that they could speak understandable Norwegian and that they wanted to be part of the current study.

The intervention was planned for 80 people, with this being the maximum number allowed by the resources available for the project and the three centres in question. The research project therefore aimed at comparing an intervention group of 80 people with a control group of the same size.

Altogether, 415 filled the eligibility criteria and were contacted by post (Appendix VI) and by phone to make practical arrangements for the interviews. During this part of the recruitment process, 277 potential candidates dropped out. The reasons given for the dropping out were bad health and a heavy burden of care. Specially trained social work students, social worker pensioners, researchers and project leaders conducted the home visits, as well as the follow-ups, and written informed consents were obtained.

Randomization

A total of 138 persons were randomized, 77 (55%) were allocated to the intervention group and 61 (45%) to the control group. A larger lot was drawn to the intervention group than to the control group because of the expected loss of participants. The randomization was performed by drawing lots of the sample after stratification by geographical area and gender.

4.4 Measures of mental health and social support

In the survey part of the present study, the indicator of mental health is psychological distress as measured by the Hopkins Symptom Checklist- 10 (HSCL-10), rather than depression. The two concepts, however, are closely related, as the measure of psychological distress consists of questions on depression as well as anxiety, and a high score on the HSCL is a strong predictor of depression (73). Thus, in the present study, HSCL-10 is used as an indicator of depression (Appendix I).

HSCL-10 is the short form for a battery of 25 questions (HSCL-25) measuring symptoms of anxiety and depression (74). In population-based studies, the HSCL-25 has been extensively used for psychiatric symptom screening. A score of 1.85 or higher on the HSCL-10 indicates symptoms of anxiety and depression that interfere with daily living, but do not necessarily require treatment (72). Each item has four response categories, ranging from 1 (not at all) to 4 (extremely). Out of 10 items, four items indicate anxiety and six items relate to symptoms of depression. A sum score based on all of the items ranges from 1.00 to 3.90 in this study. The HSCL-10 is recommended for screening purposes because this scale represents the best compromise between economy and accuracy in identifying the groups of distressed and non-distressed (75). Since for practical reasons we wanted to keep the instrument short, the HSCL-10 was the natural choice.

The Beck Depression Inventory, a 21-item self-report scale, which is used for the measurement of the level of depressive symptoms, was used in the intervention study, with an important purpose being to examine a change in depression from baseline to

follow-up (Appendix II - IV). The scale for each item ranges from 0 (normal) to 3 (most severe), and a sum score based on all items ranges from 0 to 63. This inventory was chosen because it is widely used among older adults, though it was not specifically developed for the geriatric population, and because of its high reliability, documented internal consistency and validity. The BDI demonstrates good discrimination between patients with varying degrees of depression, and accurately reflects changes in the intensity of depression over time (76-79). A difference in the BDI score of $\geq$ 6 has been described as clinically significant (80).

Social support was measured by the Oslo-3 Social Support Scale (OSS-3) with three questions (Appendix III and IV). This scale was developed for the purpose of examining mental health and psychosocial variables, and their psychometric properties were examined in a number of community surveys among 1,717 adults from various types of neighbourhoods in Norway.
As a measure of mental health, the HSCL-25 was used. As a measure of perceived social support, 12 questions covering family, friends and neighbourhood were used, whereas factor analyses were used to examine the dimensionality of the scale. Two factors emerged: neighbourhood and family. To identify which single items in the family, friends and neighbourhood scale explained most of the variance in the HSCL-25, multiple linear regression analyses were carried out. Three items were significantly associated with the HSCL-25: *How easy can you get help from neighbors if you should need it? How many people are so close to you that you can count on them if you have serious problems? How much concern and interest do people show in what you are doing?*

These three items were considered to be the best predictors of mental health as measured by the HSCL-25, covered different fields of social support and were put together into a composite index of social support by adding the standardized Z scores for each item. A sum index may also be made by summarizing the raw score scores, with the range being 3-14. The score has been recoded into three broader categories and labeled as follows: A score of 3-8 means poor support, 9-11 means moderate support and 12-14 means strong support. In this study, both indexes were used, as well as the individual items. The Chronbach's alpha for the sum index is rather low, although this may reflect the

multidimensional structure of the index, and not necessarily a low reliability. The Oslo-3 scale has been used in several studies, helping to confirm feasibility and predictive validity with respect to psychological distress; www.euphix, (81-83).

4.5 Other variables

Questions on potential risk factors associated with mental health problems and poor quality of life in older adults were included in the questionnaires (Appendix I).
The socio-demographic variables included age, educational level, income, marital/cohabiting status and city district, while self-reported health was measured by the question, "How is your health now?" Questions were asked about diagnoses of diabetes, chronic lung disease, osteoporosis, musculoskeletal ailments, coronary infarct, angina, stroke and cancer. The disturbances in function covered were those of balance, hearing, vision, continence and memory. Life satisfaction was measured through a quality of life question, "How satisfied are you with your life?"
In the questionnaire to be used in the data collection that took place after 12 months, questions were included for the intervention group concerning what the programme meant to the participants, if they had made some new friends and whether they used the centre more often.

The remaining questions covered knowledge about senior centres and reasons for not being a user, as well as self-sufficiency in daily tasks and frequency in carrying out different activities such as reading, TV watching, walking, travelling, cultural activities and visiting others. Questions of nutrition and falls, use of medicine and health services, sense of mastery and expectations for the future (84) (70) and negative life events (85) were also included.

4.6 Fidelity of the intervention

The intervention was mostly implemented according to the project plan. Because the number of participants was reduced and the days available for the group programme had to fit the time schedules of the participants, the five groups were supplemented with

persons not taking part in the research project. A logbook at each senior centre documented the names and dates in relation to the presence and absence of the research participants. This intervention was tested for effectiveness under real-world conditions, with a lot of practical, local and human factors being taken into consideration. Another way of designing preventive research are efficacy trials that refer to the beneficial effects of a programme under optimal conditions (86). In that case, testing the current programme under optimal conditions would have required a rigorous research design, a high quality of programme implementation, researcher control over confounding factors and highly trained and supervised staff delivering the intervention. To identify preventive programmes worthy of dissemination, both conditions are recommended by Flay and co-authors.

4.7 Ethics, logistics and data handling

In September 2006, the study was approved by the Norwegian Data Inspectorate and recommended by the Regional Committee for Medical Research Ethics, Southern Norway. A concession was given. The Norwegian Population Register provided the necessary lists with names, age and addresses, with the respondents receiving a serial number on their forms, which was their identification throughout the entire study. Only the project leader and the study administration had access to personal information and serial numbers, the lists were not connected to other register lists and all forms and lists of names were kept in a locked filing cabinet. All of the received forms were controlled and optically scanned, and data from the questionnaires were entered into an electronic data base, an SPSS-data editor. Informed consent was also obtained from each individual participant of the trial. The experimental design afforded the opportunity to observe both the intervention group and control group at baseline, and then after 6 months and after 12 months. The intervention group got the group programme intervention, while the control group got a delayed intervention. The trial registration number was: DRKS00003120 on DRKS.

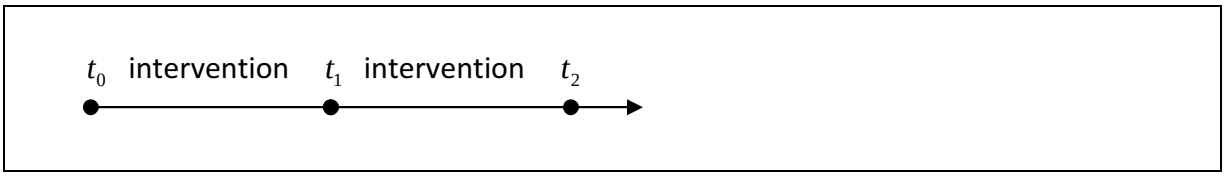

Figure 2: Chronology of the present design (t_0 is baseline, t_1 is after six months, while t_2 is after 12 months)

The baseline interviews were carried out in November – December 2006, and follow-ups were conducted at both 6 and 12 months. Home visits with data collection were arranged by specially trained social work students, as well as retired social workers, researchers and project leaders at both follow-up data collections, and each interview lasted approximately one hour.

During the fall of 2006, a special training programme was provided for all the students involved in order to teach them the skills necessary for data collections and home visits. A special check list was developed for the data collection that gave guidance on how to act during the home visits (Appendix VII). If problems occurred that were beyond the skills or qualifications of the personnel involved in the data collection, phone numbers for help were available. One person did not speak Norwegian at all and was excluded. One of the forms in particular that was delivered caused alarm. The informant seemed severely depressed, and contact was made with family members. It turned out that they were aware of the situation and had contact with a general practitioner, so the informant was excluded from the study.

4.8 Statistical methods

An overview of statistical methods/analyses used in the study is given in Table 1, and methods and analyses are briefly described according to the relevance of the three papers.

Table 1: Statistical methods and analyses used in Paper I, Paper II and Paper III

Paper I	Paper II	Paper III
Frequencies	Frequencies	Descriptive statistics
Correlations, Pearson's r	Correlations, Pearson's r	Mean score, Standard deviation, (SD) Standard error (SE)
Cross tabulation	Cross tabulation	Confidence interval (CI)
Binary logistic regression	Chi-square-test, p-value	Effect sizes: absolute, Cohen's d
Odds ratios	Principal component analyses, with	Univariate analyses of covariance,
	Varimax rotation and Kaiser Normalization	Paired sample t-tests
		One-way analysis of variance, Pearson's r
	Linear regression	
	Odds ratios	
	Binary multiple logistic regression, including testing of interaction effects	

The level of significance was set to $p \leq 0.05$ and 95% confidence intervals were calculated in all three papers. Versions 15 and 17 of SPSS (Statistical Package for the Social Sciences) were used in the data analyses.

Paper I: Correlations between selected socio-demographic factors and psychosocial and health variables, in addition to the use of the senior centre, were explored in using Pearson's r. Those variables showing a statistically significant association (Pearson's r) with use of the senior centre were included in a logistic regression analysis. Adjustments were done for socio-demographics, an HSCL-10>1.85, OSS-3 three items, health, quality of life, diagnoses and memory impairment. Odds ratios were used as a measure of effect.

Paper II: Chi-square-tests examined the gender differences. Pearson's r was used to describe the strength and direction of the linear relationships among variables such as social support, physical impairments and diagnoses. To explore the underlying structure and proximality of the HSCL-10 and the OSS-3 scales, principal component analyses (PSA) were used as a factor extraction method, with the type of rotation technique used being Varimax with Kaiser Normalization. The linear regression tested whether there was a significant difference between the number of impairments and the number of diagnoses

adjusted for gender and age with respect to social support. A logistic regression was performed to assess the associations, as well as odds ratios (ORs) between independent variables (social support, demographic variables, diagnoses and physical impairments) with psychological distress. The hypotheses of *direct effect and mediator effect* were tested. Finally, we checked for interaction effects in logistic regression models between somatic health variables and social support with respect to psychological distress, which were adjusted for age and gender to see if social support had a "buffer" or *moderator function.*

Paper III: Means with Standard Deviation were used to describe distributions on life satisfaction, social support and depression in intervention and control groups. A univariate analysis of covariance and a one-way analysis of variance were both used to investigate the differences between experimental and control groups with respect to the outcome measures. In addition, the effect sizes were calculated by dividing the differences between the mean change scores in the two groups with the standard deviation of pre-intervention score (87). The standard error (SE) of the mean differences was calculated as $SE = SD/\sqrt{N}$, and the 95% confidence intervals of the mean were calculated as mean differences +/- 2 standard deviations (SD).

Pearson's r was used to describe the associations between the number of times participating in group meetings and the outcome scores. Linear regression analysis, with BDI at follow-up as a dependent variable, and BDI at baseline with socio-demographic variables as independent variables, were carried out to detect the effect of the intervention when adjusted for possible selection bias in the sample.

A Consort 2010 Flow Diagram shows the process of eligibility and randomization in Paper III. The paper is written according to updated guidelines for reporting parallel group randomized trials (88, 89).

5 MAIN FINDINGS

Paper I*: Socio-demographic, psychosocial and health characteristics of Norwegian senior centre users: A cross-sectional study*

A random sample was drawn from among residents 65 years and older living at home in two districts of Oslo. A self-report questionnaire data from 2,387 persons was used and the percentage of users was 44 among the survey respondents, while women used the centres more than men. Age was the most significant variable explaining use of the senior centre; an increased age was associated with increased use. Single women used the senior centres more than married women, whereas single men used the centres less than married men. Other predictors for women's use of the centres included osteoporosis, memory impairment and concern and interest from others. Memory impairment was a predictor for men as well. There were small socio-demographic differences, although the association with age could not be explained through socio-demographic, psychosocial or health variables.

Paper II: *The importance of social support in the associations between psychological distress and somatic- and socio-demographic factors among older adults living at home: A cross-sectional study*

Sample and data collection were the same as in Paper I. Psychological distress was assessed using HSCL-10 and social support with OSS-3. Pearson's r for correlation and logistic regression with psychological distress as dependent variable were both used. There was a strong association between social support and psychological distress irrespective of the variables adjusted for. The association between physical impairments and psychological distress, adjusted for social support, was somewhat reduced, as income was found to be an independent determinant for psychological distress.

A lack of social support and somatic health problems were associated with psychological distress in elders, with a lack of social support having a direct effect on psychological distress. Social support acted as a mediator, thus implying that the negative effect of somatic health problems, and hearing in particular, on psychological distress was mediated

to a certain extent by weakened social support. Free interventions that target social isolation and loneliness should be implemented in mental health promotion.

Paper III: *A randomized controlled trial of a senior centre group programme for increasing social support and preventing depression in older adults living at home in Norway*

A total of 138 persons were randomized into an intervention group (N=77) and a control group (N=61). The number of persons who provided usable responses, both at baseline and at 12 months, was 92. The outcome measures were BDI, social support, health and life satisfaction, and there were no significant differences between the intervention group and the control group with regard to these outcome measures at follow-up. This may be due in part to a lack of statistical power, although the confidence intervals of the effect estimates clearly reject a hypothesis that the intervention yields large effects. On the other hand, the constant tendency towards increased social support and life satisfaction in the intervention group, coupled with less of an increase in depression among the controls, suggests that the programme may have had a preventive effect by delaying a general age-dependent increase in depression, and in improving social support and quality of life. The greater the number of group meetings attended, the more the improvement in the "dose-response effect" for all outcome variables. To the extent that the programme had an impact, it did not favour the depressed participants, but rather the non-depressed. Since no significant differences were shown, however, we cannot claim that the programme had any impact. In contrast, most of the participants said the intervention meant much to them, and led to new friendships and increased use of the centre.

6 DISCUSSION

6.1 Methodological considerations

Random and systematic errors are the two broad types of errors afflicting epidemiological studies. Random errors refer to variability in the data that cannot easily be explained and which could lead to a loss of precision. Random errors might also be handled statistically by enlarging the sample size. Systematic errors, also called bias, lead to a loss of validity and are only handled through the design of the study and through an implementation according to the plan (90). Three sources of systematic errors which may have influenced the results of this study will be discussed: selection bias, information bias and confounding.

Selection problems of inclusion and drop-out

Non-significant results may be due to an insufficient amount of statistical power, rather than because of no real difference between the intervention and control groups. Depending on the number of predictors and the (expected) effect size, one may estimate the sample size required to obtain a sufficient amount of statistical power, e.g. see Figure 5.9 on p. 173 in Field (91). If the effect size is large and there is between five and 10 predictors, a sample size in the range of 50-60 should suffice. If the effect size is medium, one should increase the sample size to approximately 100 individuals, while small effects call for sample sizes in excess of 500 in order to obtain a sufficient statistical power.

The present intervention had the economic and practical resources to include 80 participants. As a result, there was a potential discrepancy between the statistical request and reality. To calculate the need for a sufficient number of informants, experiences from the HUBRO study, with a response rate of 50%, were used. Thus, we estimated that out of 4,000 informants, approximately 2,000 would respond. Of those 2,000, 25%, that is 400 informants, were expected to fill the inclusion criteria. After the face-to-face interviews, we calculated a dropout of 10% for those filling the inclusion criteria. We expected that 30-40% of the invitees to the intervention would say no, and that 20% of those drawn to the control group would not respond. Altogether, it was expected that this would yield 225

informants, of which 125 would be drawn to the intervention group and 100 to the control group.

Based on these qualified guesses/estimates, a gross sample size of 4,000 should be expected to be sufficiently large in order to obtain an intervention group of approximately 80 individuals. In practice, however, the total dropout was even stronger than expected, yielding a net sample of 92 individuals. Of these, 37 individuals were used as intervention and 55 as controls. Consequently, if weak effects are to be expected, there are strong reasons to believe that the present intervention sample is too small to obtain sufficient statistical power.

After examining the impact of bias and the possible problems with randomization, the most important limitation was the dropping out of invitees from the RCT study, which is considered as a random error. The low number of participants caused a low statistical power, which may help to explain the lack of statistically significant differences in the material. Hence, one cannot rule out that a greater number of participants would have provided a sufficient statistical power that would have produced statistically significant differences.

The dropout rate at baseline was highest for the group 80+ years, at 43%. The explanations could be that more members of this group had significant health and social challenges that prevented them from responding, had problems completing the postal questionnaires or simply did not identify themselves with the questions (91). We do not know if they differ from the participants, as we only know their age and gender. Since we know little of those who did not reply, we also cannot say what characterized them. The dropout in the oldest group may have produced a selection problem. It is possible that there is an over-representation of the fittest among our study participants, thereby limiting the generalizability of our findings, which may not apply well to less fit segments of the population. This may have influenced the item “use of the senior centre” such that those who used the senior centre most were recruited as respondents.

Information problems

It is a possible weakness that the information on somatic health came from self-report, and not from medical examination. Representativeness was important in the study, and the study respondents seemed to be representative of the target population. This general population approach gives a random selection of the population, thus avoiding a heavy representation of those least fit as often occurs in primary care samples. In the study (Paper II), there was a potential bias in the recall of social support among distressed individuals, with such individuals being more inclined to describe their social support in more negative terms than others. Such dependency in the data may lead to false associations (92). From a longitudinal perspective, another problem was that the invitees might be inconsistent in their answers from one point of time to the next because their memory failed them. This is a common problem in epidemiological studies, but one that could be particularly relevant for older persons who might have been cognitively impaired during the data collection process (Paper III). This may have lead to a misclassification that could either underestimate or exaggerate an effect towards the null value, or away from the null value (OR=1). A possible classification bias might be due to the small sample size and that the respondents systematically give incorrect answers. Older persons with failing memory, and who might be eager to please the data collector, could give answers that were too positive. Another possible cause of bias is that the sample is small, and even if the respondents give random answers, bias may still occur. A third possibility is that the sample is small, but bias does not occur due to an even distribution.

Confounding

Associations between social support, psychological distress and somatic health problems have been adjusted for potential confounders. In order to control for such an influence, a stepwise logistic regression analysis was applied. Age proved to be the most significant variable for explaining use of the senior centre (Paper I). The oldest had a lower income and more health problems, but were still the most extensive users of senior centres. An explanation could be that this is not due to income or health problems, but connected to the basic needs of security and attachment in old age itself, which are variables that were not collected in this study.

The association between age and psychological distress was not affected by socio-demographic, psychosocial or somatic health variables, and income proved to be an independent determinant for psychological distress (Paper II). Since age and income appear to be independent factors associated with psychological distress, these factors are controlled for in the present study.

Control of confounding in the RCT study

In general, random assignment to an intervention group and control group is done for the purpose of avoiding or reducing confounding, which requires a sufficient number of participants in each group. In the present study, the numbers were low; hence, one should expect potential confounding in multivariable analyses.

To avoid confounding, we designed a randomized controlled trial (RCT). To deal with possible confounding of the variables, we randomized by drawing lots of the sample in blocks of geographical areas. The two groups were fairly similar when compared at baseline for demographic characteristics, life satisfaction, health and social support. The overall age in the intervention group was slightly higher than in the control group, although the difference was not statistically significant. With respect to depression the level of BDI indicated that the intervention group was slightly more depressed then the control group (Paper III, Table 1). Nonetheless, randomization cannot guarantee the absence of confounding. A random process with a small sample can still lead to confounding imbalances, e.g. the imbalance of age and BDI occurring in this study. To examine the degree of imbalance, we performed a linear regression analysis, with BDI at follow-up as the dependent variable, and BDI at baseline, with socio-demographic variables as independent variables. This was done in order to examine the differences between the intervention and control groups adjusted for possible selection bias in the sample, though it did not significantly affect the BDI level. Moreover, since the dropout from baseline to the end of the intervention was different between the two groups (six from the control group and 40 from the intervention group dropped out after randomization), various raking techniques were used to check whether this could affect the change in BDI from baseline to the end of the intervention. However, the results of the raking techniques used suggested no significant changes of BDI during the time span.

The fact of a large attrition, also from the follow-up, made it impossible to perform an "intention-to-treat" analysis, which is a statistical analysis conducted for all of the cases assigned to the treatment and control conditions. The statistical statements about biases and probability are only applicable if one does an "intention-to-treat" analysis. Data for the two groups as being randomized to condition should have been analysed, regardless of what programme they did or did not receive. We were not able to follow the cases assigned to the intervention and control groups to the end of the study due to death, bad health conditions, lack of interest, moving to institutions and so forth. The large attrition rate made it likely that the intervention group was biased compared to the control group, even if there were only small differences with respect to characteristics reported at baseline. These differences could have a substantial effect on the outcome measures, so therefore selection bias cannot be ruled out.

Other limitations

Another important limitation of the study is the cross-sectional design, which does not allow for drawing conclusions on causality (Papers I and II). One possibility for reversed causality could be that social isolation and a lack of social support are a consequence of mental health problems. Another limitation is that we have conducted a fairly high number of significance tests, so some significant associations may appear just by chance, which would have been a type 1 error. This error is more serious than a type 2 error, which here means not discovering an association that is present in the population. In order to adjust for multiple testing, we changed the p-values to ≤ 0.001 and the CI to 99% in the logistic regression, Table 5, Paper II. The associations of marital status, cardiac infarction and stroke with p-values ≤ 0.05 then proved non-significant. Income became borderline significant at a 99% level of significance, and the CI's became a little broader. Practically speaking, we do assess the contribution of income as a likely direct effect, since this has been so throughout the study at the 95% level and the 99% level is a rather strict criterion (Paper II). Other studies referred to also show direct effects of income. Statistically, it may be discussed as to whether this result is caused by a lack of power and the small amount of data material. However, the associations of some importance for an understanding and

interpretation of the data in this study are highly significant, meaning that this procedure has not changed the main conditions.

Strengths of the study

The methods and outcome measures of social support and psychological distress were assessed as accurate and established and validated both nationally and internationally. The participants were randomly drawn from a representative community sample, thereby allowing for generalizations to the general population. The high number of participants in the cross-sectional studies was a strength. The study addressed an important problem, namely the effect of senior centres on social support and psychological distress for the elderly living at home, which is a field with very few intervention studies. Here, new results were obtained.

6.2 Discussion of main findings

6.2.1 Factors affecting the health of elders

As experienced in late life, health depends upon mental condition and cognitive functions, physical health and the maintenance of functional status, social contacts and socio-demographic factors. The risk of diseases and functional losses increases with age. In Norway in 2008, 15% of the population was 65 years or older, which is 700,000 persons. Among these, 4.6% were 80 years or older, which increased the need for health help and practical help in this age group. Among those who were 75 years of age, 65% reported that their health was good or very good (93). In this study sample, 30-40% reported physical impairments, with hearing impairment being the most prevalent among them, at 41%, while musculoskeletal ailments proved to be the most common diagnosis, at 34%. Women were more psychologically distressed than men in all age groups (Paper II).
The prevalence of psychological distress was 8.4%, which is close to the prevalence of depressive disorders in Europe among 8.6% of adults aged 18-64 years, as reported in the ODIN epidemiological study (94). Information on the mental health of elders is also

available in the interview study of the Norwegian Life-Course, Ageing and Generation Study, NorLAG, which is a longitudinal panel survey carried out every fifth year. Data were collected in 2002-2003 and 2007-2008. In collaboration with SSB, NorLAG was merged with the Generations and Gender Survey in the second wave of data collection under the acronym LOGG. In the age group from 70-79, 30.9% reported significant depressive symptoms (n=5589). Depression was measured by use of the instruments from the Center for Epidemiological Studies Depression Scale, CES-D and HSCL-5. The prevalence of depression and depressive symptoms in the studies described in Part 2.1 ranged from 16% to 20%. The differences in prevalence between this study and others might be due to the fact that in survey studies the dropout is larger among those with mental health problems (95). It is possible that we have reached the fittest in this survey, thereby overlooking the less fit ones. Also, different measures of depression and different methods of data collection were used in the described studies, making it difficult to compare them. For further details about samples and dropouts, see section 7.2.

For both women and men, psychological distress increased with age. Among women aged 80 and older, 15.8% reported depressive symptoms, whereas the figure was 5.2% (Paper II) among men. As the population ages, more people will be living alone, and social isolation among older people will emerge and become a major issue because of the adverse impact it can have on health and well-being. Little contact and support was reported by 25% of the respondents in this study (Paper II). This finding is close to the prevalence of loneliness of 25-30% among adults according to the national surveys on health and social conditions (HUS) and the NorLAG/LOGG (96). A weakness of the last study is that those older than 80 years are not included. With the data from the Nord-Trøndelag Health Study (HUNT), Næss (97) found that the prevalence of those who reported feeling lonely increased from age 70, and was particularly strong among those older than 85 due to the loss of a spouse and to living alone. Internationally, Norwegians report about the same prevalence of lonely people as other Western countries (98).

Both the HUS and The Oslo Health Study (HUBRO) have the HSCL as an outcome, though since the dropout rate is high and persons over 80 years are not included in the last one, I

have not during this work been able to find either national population-based data or publications based on these data on the mental health of elderly people.

Income was found to be an independent determinant for psychological distress (Paper II). There were significant differences between women and men on all demographic characteristics, except for age and city districts. Women had lower education, lower income and were more often single than men. The cross-sectional study of Rostad and co-authors (20) addressed the relation between socioeconomic factors and health in women 70 years and above (n=6380). They found that SES was the key determinant of health inequalities in older women, and that the associations remained significant after adjustments for health behaviour, marital status and medical conditions. The findings suggested that inequalities in health increased with advancing age.

6.2.2 Characteristics of senior centre users compared with non-users (Paper I)

Age, gender, marital status, social support and health problems were the main predictors of use of the senior centres. Use of the senior centres increased with an increased age for both men and women, and could not be explained through differences in health or other variables, which was also in accordance with the results of Pettersen and Laake's- and Thorsen's studies (56, 60). In a user evaluation with 2,764 respondents from 41 senior centres in Oslo, the results revealed that senior centres were important in the users' lives, and that the importance increased with age (57).

It may be that attending a senior centre is connected to the phenomenon of age itself more than to explanatory variables. Values such as freedom of choice, self-realization, activity and initiative must be adapted to the demands of aging and are largely unchangeable (99, 100). Security, attachment and coping are basic human needs that can become an imperative with age, and the community senior centre can provide means of meeting these needs if the service is experienced as being meaningful to the users. With increasing age, it may be difficult to avoid the duality between the strategies of coping with age and the inevitable connected losses and wishes of still being viewed as an agent influencing one's surroundings, as illustrated by a recent study. A participant observation

was conducted to examine older people's attitudes towards their own aging and towards persons who were older or frailer than themselves in a Norwegian senior centre. The users held two sets of attitudes. On the one hand, they saw the centre as helping them thrive, which was associated with involvement in the community and participation in the structured daily activities to promote a sense of belonging and being useful. On the other hand, some perceived the centre and the other users in particular as threats and reminders of their own aging and increasingly vulnerability to sickness and disability (101).

Previous results from research on Norwegian senior centres showed that the percentage of users varied from 43-54% (4-8). In this study, 50% of women and 35% of men used the centres. The over-representation of women is also a well-documented fact in previous studies of senior centres (56-60). In this study, this in particular was the case among previously married women. Single women between 70-79 years used the senior centre a great deal, while single men in the same age group rarely used this service. The percentage of users was 44%, which means that there is a great potential for new users, especially among men aged 70-79. The correlation between singlehood in women, particularly in the age group between 70-79 years, as well as greater use, suggests that women attend senior centres for contact, while single men in the same age group use the senior centre less than married/cohabiting men. One explanation for this difference may be that the women's relational orientation is closer to the core activities and social climate of the senior centre than the men's more individualistic activity orientation. Women's life histories tend to concern relationships and responsibility in social networks, whereas men's histories concern autonomy and independence (55, 102-105). Women may also have more time and energy when they no longer have caring responsibilities for others.

We do not know why single men do not attend senior centres. Perhaps they do not have the same need for new relations when they become single, or if they have lived alone, they do not want a larger network, or perhaps they have social contacts elsewhere. Another reason could be that they may also not be especially interested in the activities at the centres or may know little about what is offered. Women who show an interest and concern for others tend to use the senior centre regularly, as do men.

Specific health problems were also associated with an increased usage. Both among men and women, memory impairment predicted a high use, though severe memory impairment led to less use, which also was in accordance with Pettersen and Laake's study (56). The fact that both women and men with memory impairments, and women with osteoporosis, had a high use of the senior centre in this study may indicate that the service was experienced as secure and inclusive, which emphasizes the solidarity aspect of the senior centre. Here, visitors can give and receive support for their shared problems. In conclusion, according to this study, elders more than 70 years, especially those older than 80 years, those with specific health problems such as memory impairment and osteoporosis, and women living alone are among the most frequent users of the senior centres.

6.2.3 Social support increases psychological well-being (Paper II)

Regarding the association between social support and psychological distress, in addition to the role of social support in the relationship between diagnoses and physical impairments and psychological distress, we firstly hypothesized that social support had a *direct effect* on psychological distress. A direct association between social support and psychological distress was found irrespective of somatic health problems, thus supporting our hypothesis of direct effect. In the final analyses, when also adjusting for the various categories of social support, only a "number of close friends" and "concern and interest from others" remained as independent predictors of psychological distress. A likely explanation for this could be that the three factors of social support were interrelated, and that the neighbour factor was explained through the two others. The findings that social support is important for the mental health of elderly people is in accordance with the findings from other studies (106). Having someone trustworthy to turn to when experiencing great personal problems, and concern shown by other people in what you are doing, are important in diminishing psychological distress. Family is known to be an important source of social contact in one's older years, but less is known about the importance of friendship. In the present study, friends seem to be of great importance. This may be because friends represent a source of identity and are often of the same gender and about the same age, as well as the fact that they share experiences and remain close through hardships such as

the death of a spouse or other difficult life events. It seems that cultural norms for close ties held by older people differ little from those of people held throughout one's lifespan, as norms of trust, commitment and respect are important to them as well (107). Giles and co-authors considered the effects of the structural aspects of social relationships on the process of disability, and suggest that social relationships remain an important health resource into very old age. This health benefit on disability may be restricted to social relationships that tend to be more discretionary, such as those with friends and relatives other than children (108).

Secondly, we hypothesized that social support acted as a *mediator* between diagnoses, physical impairment and psychological distress. The associations between somatic disorders, and to a lesser extent physical impairments, and psychological distress were somewhat reduced when adjusting for social support, hence the hypothesis of a mediator function gained some support. It seems as if the negative effect of somatic disorders on mental health is explained to some extent by somatic disorders leading to reduced social support. It is interesting that the association between hearing loss and psychological distress was relatively strongly reduced when adjusted for social support. It is likely that an impairment of this type in particular, which is one of the most common chronic somatic disorders in elders, leads to a reduced social contact and support, and thereby to an increased psychological distress. The negative effect of hearing loss on social contacts is in agreement with other studies (109, 110). The burden of hearing impairment increased due to communication problems and a lack of social support, with social isolation and loneliness as consequences. Social isolation and loneliness led to increased psychological distress. As a result, this study is a good example of the role of social support as a mediator between hearing impairment and psychological distress.

Thirdly, we hypothesized that social support acted as a *moderator* of the relationship between diagnoses and physical impairment on the one side and psychological distress on the other. There were, however, no interactions between somatic health problems and social support with respect to psychological distress, thus the hypothesis of a moderator function for social support was not supported, which was not in agreement with findings from previous studies (6, 54, 111, 112). An explanation for this could be that the measure

of social support used in the present study was of a more general nature, and not sensitive to the actual experience of support linked to somatic health problems or other specific events. If questions had been included in the study on whether people had actually been able to obtain any help in connection with somatic health problems, we might have gotten more relevant information in order to demonstrate buffer effects.

This study revealed that a lack of social support and somatic health problems were associated with psychological distress in elders. Social support seemed to have a direct effect on mental health, independent of somatic health and other variables adjusted for. No interaction between somatic health problems and social support with respect to psychological distress was found, which does not give support to the moderator or "buffer" hypothesis. Even so, there was some support for the mediator hypothesis, implying that the negative effect of somatic health problems for hearing in particular on psychological distress was mediated to a certain degree by a weakened social support.

In conclusion, social contact and support are vital for the quality of life of elders, and of equal importance with good physical health in the prevention of depression and anxiety.

6.2.4 Effects of the senior centre participation project (Paper III)

The modest effect observed on BDI was somewhat surprising. The high percentage of dropouts during the enrolment process, which may have led to selection bias, as well as the low number of participants that caused a low statistical power, are explanations that are both discussed in Part 7.2.1 and Paper III, and will not be repeated here. One possible explanation for this could also be that the level of depression in the sample was too low for a substantial effect to be expected from the intervention, although this explanation is not supported by subgroup analyses of the data. In contrast to our expectations, we found that the programme seemed less effective for those who were depressed at baseline than the rest, and especially that the course of depression seemed more favourable among the controls than the group participants. Our expectations were based on results from other Norwegian psychosocial intervention research among elders in which the intervention

groups obtained significantly better mental health, an improved social network and a better quality of life than the control groups (113).

A critical question is why the depressed did not benefit from the intervention?
The aims of this programme, however, were not to target depression treatment, but to increase activity, participation and interaction with others. For this reason, it might have been too much to expect that the programme would have had an effect on persons for whom depression had already manifested itself. People did not come to solve a medical problem. They came because they wanted to be with somebody. The finding that those who valued the meetings as being the most helpful reported the most improvement in social support confirms that the strengthening of social support was one of the main elements of the programme. Those who were less bothered mentally were in greater favour of the programme than those who experienced much strain.

It became clear in the process of the enrolment of candidates that the number of dropouts would threaten the statistical power of the study; therefore, the upper limit of the HSCL-10 was extended to 3.90. Originally, only candidates with a light depression were meant to participate, so that the study might detect any preventive effect on depression. This extension meant that some candidates with chronic and/or severe depression were included. An alternative explanation for this is that an intervention of this type does not so much serve to improve the condition of those who already have considerable depression, but rather to avert the development of more severe depression in those who have only light symptoms.

The latter possibility is supported by the positive reporting from participants with respect to being satisfied with the intervention in a practical evaluation. The participants were active in the group setting, they met at the time agreed upon and were almost never absent. As a result, less loneliness, better spirits and better physical health were conclusively reported (114).

It is interesting that even if the depressed did not experience less depression, they still enjoyed the company of their fellow seniors so much that nobody withdrew because of

depression during the year that the programme lasted. Since both the depressed and those who were not depressed completed the programme, this shows that the programme must have been in accordance with both groups' interests and motivation. Otherwise, they would most probably have quit. Hence, the programme must then have been valuable beyond that which was hypothesized, although a reduction in depression could not be confirmed.

In conclusion, the group programme did not have a large effect on depression, although moderate effects cannot be excluded. These may consist of a delay of a general age-dependent increase in depression.

6.2.5 A Randomized controlled trial – the right design?

The evidence needed to demonstrate the effectiveness of public health interventions is normally obtained with an RCT design. This design is often based on the principles which have guided the "gold standards" of medicine. The goal of such trials is that the only systematic difference for the participants in the study is, e.g. medication, thus demonstrating that the issue of RCT design was thoroughly discussed for this psychosocial intervention study. We knew that the dropout rate might be high since this is a common challenge in studies with fragile persons (115, 116). A relevant question was also whether the criteria of efficacy in a rigorous controlled trial could be effective and useful in a local setting for senior centres, in which participation was more varied and with additional problems. By contrast, a randomized controlled trial was necessary to find out whether the intervention on social support had a mental health benefit for older persons that could be extended to the entire population. Such studies are few, and if successful, would provide a basis for a more widespread health promotion action (117).

Several researchers question the assumption that RCTs constitute a gold standard for testing the effects of public health interventions (118). Even if this study was randomized, it does not rule out selection bias; losses to follow-up and a lack of "intention to treat" analyses were also problematic.

My concern is that the strict criteria for evidence defined as effect under “ideal” conditions will overrule the effectiveness of an intervention, which has its effect defined under “normal” conditions.

Although the findings in this study were not statistically significant, it was fairly obvious to the observers that the participants positively valued this intervention, and might have had positive effects beyond what could be captured by our instruments and design. To sum up, the group participants who were not depressed at baseline were inclined to show less development of depressive symptoms than the controls, and exhibited more positive changes with respect to social support and life satisfaction. There was a “dose – response” effect in the sense that improvement increased in step with the number of group meetings attended, which pulls in the same direction. Those who valued the meetings as most helpful reported the most improvement in social support, thereby indicating that the strengthening of social support was important. Additionally, the participants reported high levels of satisfaction with the intervention. I also think that these findings are valuable and useful, but need to be tested again and on a larger scale. Hence, the suggestions to strengthen intervention research in Norway through collaboration between research institutions, and by establishing a new programme for national health promotion and prevention, have my support (4).

I assess the study as having external validation since it is possible to draw general conclusions from the results, which means that the results are also valid for other persons who have access to the same type of centre activities.

7 CONCLUSIONS

High age and specific health problems were associated with use of senior centres. Single women used the senior centres more often than single men, who seldom did so. This should be taken into consideration in discussions of how senior centre core activities can be developed effectively in relation to the existing user group, to new groups who can benefit from the service and for prevention as a public health issue.

A lack of social support and somatic health problems increased psychological distress, with functional impairments, particularly hearing impairments, being associated with low levels of social support, which again were associated with psychological distress. This is a public health problem because the prevalence of functional impairments is high, and loneliness is quite common and could potentially lead to increased psychological distress. There were no significant effects on depression in the group programme, though the programme may have delayed a general age-dependent increase in depression, while at the same time moderately improving social support and quality of life. It is recommended that senior centres expand their activities with new group programmes that are free of charge, targeting social isolation and loneliness by activities which strengthen social support. For the depressed, however, more specialized programmes to cope with depression may be the right type of intervention.

8 IMPLICATIONS AND FUTURE DIRECTIONS

Practical implications

The overall aim was not to evaluate the senior centre activities as a whole, but to investigate whether it was possible to establish new groups of persons with depressive symptoms and to prevent depression within a specially designed programme. From a practical point of view, the intervention seemed to be successful, and many of the participants continued to visit the senior centre after the study was finished. Today, three out of five groups are still active, demonstrating that the programme has functioned as a link to further use of the senior centre. The number of senior centre users in Oslo is close to 50%. That high age and specific health problems led to increased use, whereas single men seldom used the service, must be taken into consideration in discussions of how senior centre core activities can be developed more effectively in relation to the user group, to new groups who can benefit from the service and for prevention as a public health issue. In assessing recruitment interventions, non-users and single men between the ages of 70-79 represent a great potential for new users.

Theoretical implications

With regard to the fact that the intervention programme had no significant effect upon depression, the frequency of meetings and level of competence among the group leaders must be taken into consideration. The leaders were volunteers, had no health professional or social work background qualifying them to address mental health problems and no prior experience with conducting group programmes. If this programme is meant to address users' special mental health challenges, more experienced and professional group leaders are needed. The substance of the programme must also then be developed towards a treatment course, e.g. the Coping With Depression (CWD) course for elders. An effectiveness trial proved the CWD course to be effective for older people with subclinical depression, as well as for those with a current major depression (119).

Community implications

One problem with today's health system in Norway is that the elderly suffer from inadequate rehabilitation services. One of the ambitions of the Norwegian Coordination Reform currently being implemented is that patients will receive proper treatment at the right place and the right time (71). Problems could occur if politicians and health authorities assign responsibility for treatment and the rehabilitation of elders to senior centres that are low-threshold activities of care and welfare. One result of this is that the depressive problems of elders who need treatment might not be adequately handled, with a secondary result of this being that senior centres will then experience a lack of competence and success after a while because of too heavy a workload. As for others, programmes should be designed for the elderly who need treatment that will target their problems with professional competence, which is a political responsibility. Senior centres are meant to be low-threshold services in which users participate in activities that provide feel-good experiences and encouragement in everyday life, and not as an initiative which primarily targets health problems.

Prevention and promotion

Knowledge confirming that a lack of social support and somatic health problems increase psychological distress in various ways, is documented in this and other studies. To enhance the health promoting potential of an increasingly aging population, interventions targeting loneliness and social isolation by strengthening social support are natural consequences given the existing body of knowledge. Senior centres are a valuable service provision in this context, serving both fit and less functional pensioners. Although this intervention had no statistically significant preventive effect upon depression, it is possible to identify key components of the group programme that functioned well and which could possibly prove useful in other social support interventions to improve mental health. The intervention had several characteristics:

- The group intervention provided targeted social activation;
- Targeted a selection of elders with psychological distress who were not regular users of senior centres;

- Used several methods of intervention such as self-help group, physical activity, meals and transportation;
- Involving the participants in planning the developing of the intervention;
- An evaluation which included a practical evaluation, with a process evaluation and research evaluation that fit the intervention.

In summary, these are many of the same criteria that Cattan and co-authors (120) documented as being effective for health promoting interventions to better prevent social isolation and loneliness among older people. This prevention and promotion approach has the potential to be broadly applicable in many community settings. In addition, an economic evaluation with cost-benefit analyses was planned, though it was not proven to be worthwhile to conduct because of the small differences in outcome between the intervention and control groups.

Further research

The present lack of evidence highlights the need for further research on social support intervention studies that examines the impact on the mental health of older people and where possible cost-effective measures should be used. Further studies ought to be nationwide, and should include both cities and rural communities. The number of participants must be increased to secure statistical power, and a control group must be established.

Another approach other than traditional prevention research with illness and mortality as outcomes could be an empowerment approach that focuses on participatory empowering strategies, with mental well-being, quality of life and development outcomes. Evaluations of interventions should also within both approaches include sustainability and long-terms benefits, and needs to be prioritized and adequately funded.

Very few prevention and promotion intervention studies are conducted in the context of senior centres. This is rather surprising because the centres seem to be suitable arenas for learning more about development in elders concerning mental health, the need for

adequate nutrition, the effects of physical activity, as well as the impact of physical age-orientated impairments, social inequalities, well-being and quality of life, both for the volunteers and users. The centres have well-established structures which might practically ease the conducting of interventions. One suggestion is to establish a formal connection between the community service, e.g. in Oslo “Helse – og Velferdsetaten”, which would be responsible for the centres and volunteer organizations such as the National Health Association and research institutions. If undertaken, such collaboration would be in accordance with the aims of the Coordination Reform.

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Paper I

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ORIGINAL ARTICLE

Socio-demographic, psychosocial and health characteristics of Norwegian senior centre users: A cross-sectional study

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Abstract

Aims: The senior centre is the only welfare service in Norwegian elder care serving both fit and less functional pensioners over 65 years. The aim of the study was to determine the socio-demographic, psychosocial and health characteristics of users of the senior centres in relation to non-users in order to find out who can benefit from the senior centre service. *Methods:* Data was collected from the Population Register for all persons living at home over 65 years in two municipal districts in Oslo. A random sample was drawn limited to 4,000 of the total number of residents over 65 years, 2,000 from each district. Questionnaires were sent by post. The response rate was 64% ($n = 2{,}387$). Psychological ailments were assessed using Hopkins Symptom Checklist-10 and social support with Oslo-3 Social Support Scale. *Results:* The percentage of users was 44 among the survey respondents. Age was the most significant variable explaining use of the senior centre; increased age led to greater use. Single women used the senior centre more than married women while single men used it less than married men. Other predictors for women included osteoporosis, memory impairment and participation/interest from others. Memory impairment was a predictor for men. ***Conclusions:*** **High age and specific health problems led to increased use. Living alone predicted greater use among women but less use among men. The association with age could not be explained through socio-demographic, psychosocial or health variables.**

Key Words: *Cross-sectional, health characteristics, prevention, psychosocial characteristics, seniors, senior centres, socio-demographics*

Introduction

The percentage of seniors in the general Norwegian population is increasing. Projection to the year 2060 shows a doubling of the number of persons over 67 years. The percentage of those over 80 years will increase from 4.6% to 9% (Statistics Norway). The increase in the number of seniors increases the need for preventive health measures. Seniors are emphasized in Norwegian health policy as an important target group for illness prevention and health promotion [1]. To date, seniors have not been significantly prioritized in prevention work. The senior centre is the only service provision in Norwegian senior care serving both fit and less functional pensioners.

Senior centres have the goal of maintaining physical and psychological activity, functional health, protection and promotion of self-sufficiency and prevention of psychosocial problems of loneliness and isolation in elderly people [2]. They are organized as small local units for activity and social contact. Senior centres have a small staff of two to four people, and are run in large part by volunteers; they can be characterized as a welfare service and a private responsibility, not a statutory care service such as home help, home nursing and residential care facilities. Leading researchers of the elderly charting the course of senior centres indicate their significant potential in the preventive arena.

Few studies are connected to the use or non-use of senior centres in Norway [3,4]. Previous results of research on and reports from senior centres show that the percentage of users varies from 43% to 54%. Women use the centres more frequently than men, independent of age and marital status. Use of senior

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centres inclines with increased age, while education level and income have no relation to use [4–8]. A Norwegian interview study from 1978 conducted in inner Oslo and Oslo West ($n = 453$) concluded that users of senior centres consistently have poorer health, are often single, lonely and have a greater need for help than non-users [5]. Another study from 1995 with 431 respondents from one urban and one rural county concluded that the fittest seniors are most likely to use the service and the chance of being a user is greatest if one belongs to the middle stratum of social integration [4].

Previous studies are old with relatively small databases and have somewhat conflicting conclusions; there is need for a new study comparing users and non-users of senior centres. The present study used a larger database than previous ones, it included two districts of Oslo, and it had more variables. The aim was to determine the socio-demographic, psychosocial and health characteristics of users of the senior centre in relation to non-users in order to find out who can benefit from the senior centre service.

The results show which socio-demographic and health variables contributed to use of the senior centre. In relation to psychological ailments, social network and life quality, however, it is harder to draw such conclusions as these variables can have been influenced positively through use of the senior centre. Though the study is explorative, one can expect on the basis of previous studies that being female, single and very old tends towards the use of the senior centre, while socio-demographic status has no importance. Previous studies have reported contrary results in relation to health. One can conclude that a certain level of health predicts use of the senior centre, while the presence of health problems increases the need for the support the centre can provide. We will explore this in greater depth by examining different health problems.

Materials and methods

Population and sample

The data in this cross-sectional study was collected from the Norwegian Population Register and contains the names, ages and addresses of all persons over 65 years living in two districts of Oslo. Experience suggests that few people under 65 years visit the senior centre and many continue working. There was no upper age limit as we wished to examine the situation of the oldest old.

A random sample was drawn limited to 4,000 of the total number of persons over 65 years living at home – 2,000 from each district. Of the random sample, 111 persons were residents of institutions and were withdrawn from the sample. Questionnaires with letters of introduction were sent to 3,889 persons (gross sample). A further 166 persons had unclear living arrangements and were withdrawn early on. The response rate was 64%: 2,394 of 3,723 persons returned the questionnaires. One round of reminders was sent. The forms were scanned and quality controlled. A further seven forms were removed because they were incomplete.

In total, 2,387 (net sample) forms were included in the material, 51.7% from Ullern and 48.3% from Østensjø. The percentage of men was 40% and women 60%. The greatest number of participants was in the age group 70–79 years, 47%, and the fewest in the group 65–69 years, 19%. In the group 80+ years, participation was 34%.

Table I shows the distribution of the data contrasted with the total number of citizens over 65 years in Ullern and Østensjø.

Drop-out and bias

The number of non-respondents was 1,329 (36%). We know that of 181 persons, some had moved and the forms were returned by post, some had become ill, had entered the residential facility or died, and others were fully employed. Of 1,148 we know only the names, addresses and ages. In the oldest group of 80+ years, the drop-out rate was highest at 43%. In the group 65–69 years, it was 18%, and for 70–79 years it was 37%. The drop-out rate for women was 37% and for men it was 33%. The drop-out rate was higher by 6% for Østensjø (39%) than for Ullern (33%).

Not all respondents answered every question, and consequently the samples included in the analysis vary slightly. For the question on income, 6% of participants did not answer. For the question on marital status, 1% did not answer. The percentage of other questions left unanswered was insignificant.

Variables

Data were collected by self-report using a questionnaire with fixed answer alternatives for 40 questions. The variables covered socio-demographic and psychosocial goals as well as goals for health and satisfaction. The answer alternatives for each variable are shown in Table III.

Socioeconomic status was measured by educational level and income. The question on income did not specify whether gross, net or adjusted household income was asked for. This leaves room for different interpretations, but we assume that most respondents reported gross income.

Table I. Study population by gender, age by city districts.

		Gross sample $n = 3,889$		Net sample $n = 2,387$		Total number[a] $n = 17,525$	
	Age	*n*	%	*n*	%	*n*	%
Ullern							
Men	65–69	237	31	112	22	889	24
	70–79	302	39	226	44	1,673	45
	80+	229	30	177	34	1,138	31
Women	65–69	258	22	142	20	1,018	18
	70–79	436	38	310	43	2,393	42
	80+	465	40	267	37	2,320	40
Østensjø							
Men	65–69	159	22	75	17	536	18
	70–79	347	48	233	53	1,555	52
	80+	217	30	135	30	911	30
Women	65–69	233	19	125	18	823	16
	70–79	580	47	354	50	2,457	48
	80+	425	34	231	32	1,812	36

[a]Oslo statistics for age group 65 and older in the city districts Ullern and Østensjø, collected by Statistics Norway.

Psychosocial variables involve psychological ailments and social network. Psychological ailments were measured using the Hopkins Symptom Checklist (10 questions HSCL-10), the short form of a battery of 25 questions (HSCL-25) measuring symptoms of anxiety and depression. An average score of 1.85 or higher indicates symptoms of anxiety and depression that interfere with daily living but do not necessarily require treatment [9].

Social support was measured using the Oslo-3 Social Support Scale (OSS-3) with three questions. The response categories were assessed independently for each of the three questions [10–12]:

Oslo 1: How many people are you so close to that you can count on them if you have great personal problems?

Oslo 2: How much interest do people show in what you do?

Oslo 3: How easy is it to get practical help from neighbours should you need it?

Health and quality of life were measured through the questions, "How is your health now?", and "How satisfied are you with your life?" Questions were asked about the diagnoses of diabetes, chronic lung disease, osteoporosis, musculoskeletal ailments, coronary infarct, angina, stroke and cancer. Disturbances in function covered were those of balance, hearing, vision, continence and memory.

The remaining questions covered knowledge about senior centres and reasons for not being a user as well as self-sufficiency in daily tasks and frequency of different activities such as reading, TV watching, walking, travelling, cultural activities and visiting others.

User status as dependent variable

Use of the senior centre contained three answer categories: "regular user", "now and then user" and "non-user". Non-users formed the control group. Regular and now and then users were combined to form a group called "users". Information about distribution of the dependent variable could have been lost in this process. Therefore, we investigated whether there were any significant differences between non-users and users, and then compared the regular users with the now and then users and non-users.

Analyses

The correlation between descriptive variables and use of the senior centre was explored in simple cross-tabulations of percentages of users in the different groups. Those variables that showed statistically significant correlation with use of the senior centre were included in a logistic regression analysis with a specification of 95% confidence intervals (95% CI), initially non-adjusted, later adjusted for different variables. SPSS (Statistical Package for the Social Sciences) version 15 was used in the data analysis.

Ethical consideration

The study was approved by the Data Regulating Authority and recommended by the Regional Ethics Committee, South.

Results

The composition of the net sample with regard to gender, education, income and marital status is given in Table II.

Median age was 77 in Østensjø and 76 in Ullern. Educational level and income were higher in Ullern than in Østensjø. For income, the median was 150–200' (Norwegian crowns) in Østensjø and 200–300' in Ullern. In both districts, the percentage with higher education and income was greater among men. Over half of the women and 20–25% of the men in both districts were single.

For five of the most common diagnoses among elderly people – coronary infarct, angina, diabetes, chronic lung disease and cancer – there was no correlation with use of the senior centre. There was also no correlation between senior centre use and common deficits in function regarding balance, reading vision, hearing and incontinence.

The percentage of users in the total sample was 44%. Table III shows the percentage of users when participants were divided into sub-groups with regard to the most relevant single characteristics.

The percentage of users increased especially with age, among women, and in single people. The percentage of users declined with increased education, income and to some extent with increased socializing with friends and neighbourly support. We observed relatively higher user percentages in groups characterized by osteoporosis, musculoskeletal disease, stroke, impaired memory and among those who reported their health as reduced. Apart from this, there were no clear patterns.

The observed bivariate correlations can be completely or partially the result of the influence of other confounding variables. In order to control for such influence, a logistic regression analysis was performed. Table IV shows the odds ratio for different sub-groups when all the variables from Table III are included in the analysis.

The probability of use also increased clearly with age when other variables were held constant. The association with being single held for women. This was true also of the association with osteoporosis among women and memory impairment among men. The correlations of reduced user percentages with higher education, income and social activity in the bivariate presentation in Table III are still present as tendencies but become reduced to non-significant levels in the stepwise logistic regression.

Table II. Net sample by gender, education, income and marital status divided by city district ($n = 2{,}387$).

	Women		Men		Total	
	n	%	*n*	%	*n*	%
Ullern						
Education						
Primary school	246	35	104	20	350	29
Secondar yschool	165	23	81	16	246	20
College/University	301	42	325	64	626	51
Income by thousands of NOK[a]						
150'	237	36	23	5	260	22
150–200'	125	19	52	10	177	15
200–300'	177	27	110	22	287	25
300+'	129	19	313	63	442	38
Marital status[b]						
Married/cohabiting	309	43	410	80	719	59
Single	403	57	105	20	508	41
Østensjø						
Education						
Primary school	549	78	269	61	818	72
Secondary school	68	10	41	9	109	9.5
College/University	86	12	129	29	215	19
Income by thousands of NOK[a]						
150'	352	54	67	15	419	39
150–200'	146	22	115	27	261	24
200–300'	114	17	131	30	245	23
300+	42	6	121	30	163	15
Marital status						
Married/cohabiting	323	46	332	76	655	57
Single	382	54	106	24	488	43

[a]NOK = Norwegian crowns. [b]Seven women did not answer this question.

Table III. Participation percentage and odds ratio at the senior centres, and the association with different subgroups ($n = 2{,}387$).

		Crude analysis		Crude analysis by women		Crude analysis by men	
Variables	Participation %	OR	95% CI	OR	95% CI	OR	95% CI
Gender							
Female	50	1.00					
Male	35	0.55[a]	(0.47–0.66)				
Age							
65–69	14	1.00		1.00		1.00	
70–79	45	5.25[a]	(3.91–7.05)	5.15[a]	(3.62–7.32)	6.18[a]	(3.52–10.83)
80+	59	9.23[a]	(6.82–12.52)	8.39[a]	(5.81–12.10)	12.15[a]	(6.85–21.54)
Education							
Primary, 9yrs	49	1.00		1.00		1.00	
Secondary, 12yrs	47	0.92	(0.73–1.16)	1.04	(0.77–1.39)	0.74	(0.49–1.14)
College/Univ >12yrs	36	0.59[a]	(0.49–0.70)	0.75[a]	(0.59–0.95)	0.53[a]	(0.39–0.70)
Income (NOK)							
150’	50	1.00		1.00		1.00	
150–200’	52	1.04	(0.82–1.32)	1.14	(0.86–1.52)	1.05	(0.63–1.77)
200–300	45	0.80	(0.64–1.00)	0.89	(0.67–1.18)	0.82	(0.50–1.35)
300+	28	0.39[a]	(0.30–0.49)	0.57[c]	(0.40–0.81)	0.39[a]	(0.25–0.63)
Marital status							
Married/cohabiting	38	1.00		1.00		1.00	
Single	52	1.73[a]	(1.46–2.03)	1.78[a]	(1.45–2.17)	1.01	(0.73–1.39)
District							
Ullern	42	1.00		1.00		1.00	
Østensjø	45	1.13	(0.96–1.33)	1.01	(0.82–1.25)	1.30[b]	(1.00–1.70)
HSCL–10 >1.85	8	1.25	(0.92–1.72)	1.14	(0.80–1.64)	0.97	(0.48–1.98)
Number of close friends							
None	47	1.00		1.00		1.00	
1 or 2	51	1.15	(0.70–1.90)	1.33	(0.75–2.38)	0.99	(0.36–2.68)
3–5	42	0.81	(0.50–1.33)	0.95	(0.53–1.68)	0.74	(0.76–1.98)
>5	39	0.70	(0.43–1.16)	0.83	(0.46–1.49)	0.64	(0.23–1.72)
Concern and interest							
None	44	1.00		1.00		1.00	
Little	52	1.36	(0.67–2.79)	1.84	(0.69–4.92)	0.96	(0.33–2.74)
Uncertain	43	0.95	(0.50–1.78)	1.29	(0.54–3.10)	0.63	(0.25–1.60)
Some	45	1.05	(0.57–1.93)	1.77	(0.76–4.16)	0.52	(0.21–1.28)
A lot	38	0.79	(0.43–1.48)	1.25	(0.53–2.96)	0.42	(0.17–1.05)
Practical help from neighbours							
Very difficult	51	1.00		1.00		1.00	
Difficult	45	0.81	(0.60–1.11)	0.92	(0.63–1.33)	0.74	(0.42–1.31)
Possible	44	0.74[b]	(0.56–0.98)	0.81	(0.58–1.12)	0.76	(0.46–1.28)
Easy	42	0.71[b]	(0.53–0.97)	0.81	(0.58–1.12)	0.70	(0.40–1.22)
Very easy	37	0.58[c]	(0.40–0.84)	0.81	(0.51–1.28)	0.41[b]	(0.21–0.81)
Seeing others as often as desired ref = no	57	0.76[b]	(0.59–0.99)	0.81	(0.60–1.10)	0.84	(0.51–1.37)
Health							
Bad	36	1.00		1.00		1.00	
Not too good	53	1.96[a]	(1.23–3.14)	2.03[b]	(1.17–3.53)	2.00	(0.80–4.99)
Good	43	1.34	(0.84–2.13)	1.47	(0.85–2.53)	1.37	(0.56–3.36)
Very good	28	0.67	(0.42–1.15)	0.89	(0.49–1.61)	0.61	(0.28–1.58)
Quality of life							
Very satisfied	37	1.00		1.00		1.00	
Mostly satisfied	46	1.48[a]	(1.21–1.81)	1.54[c]	(1.18–2.00)	0.56	(0.99–1.86)
Satisfied	49	1.65[a]	(1.32–2.07)	1.49[c]	(1.12–1.98)	1.69[c]	(1.15–2.47)
Dissatisfied	45	1.43	(0.87–2.34)	1.52	(0.80–2.88)	1.24	(0.55–2.76)
Very dissatisfied	20	0.46	(0.15–1.41)	0		0	
Diagnoses							
Osteoporosis	59	1.96[a]	(1.52–2.52)	1.70[a]	(1.30–2.25)	1.06	(0.44–2.55)
Musculoskeletal pain	49	1.33[a]	(1.12–1.58)	1.22	(0.99–1.50)	1.13	(0.82–1.55)
Stroke	53	1.50[a]	(1.13–1.98)	1.55[b]	(1.06–2.27)	1.59[b]	(1.04–2.42)
Memory impairment							
None	37	1.00		1.00		1.00	
Some	55	2.02[a]	(1.70–2.40)	2.08[a]	(1.66–2.61)	2.09[a]	(1.59–2.76)
Heavy	44	1.32	(0.70–2.33)	1.59	(0.79–3.20)	0.76	(0.25–2.37)

HSCL-10 = Hopkins Symptom Checklist; NOK = Norweigian crowns. [a]$p < 0.001$;[b]$p < 0.05$; [c]$p < 0.01$.

Table IV. Logistic regression analysis predicting use of senior centre versus non use by gender adjusted for socio–demographic, psychosocial and health variables ($n = 2{,}387$).

	Adjusted analysis by women		Adjusted analysis by men	
Variables	OR	95% CI	OR	95% CI
Age				
65–69	1.00		1.00	
70–79	5.70[a]	(3.57–9.08)	4.05[a]	(2.19–7.50)
80+	8.25[a]	(4.89–13.93)	8.13[a]	(4.26–15.53)
Education				
Primary, 9yrs	1.00		1.00	
Secondary, 12yrs	0.94	(0.60–1.47)	0.60	(0.33–1.11)
College/University >12yrs	0.86	(0.56–1.30)	0.67	(0.42–1.10)
Income (NOK)				
150’	1.00		1.00	
150–200’	1.01	(0.66–1.54)	1.01	(0.48–2.15)
200–300	1.15	(0.75–1.78)	1.07	(0.51–2.24)
300+	0.74	(0.43–1.26)	0.64	(0.30–1.40)
Marital status				
Married/cohabiting	1.00		1.00	
Single	1.50[b]	(1.07–2.10)	0.85	(0.54–1.35)
District				
Ullern	1.00		1.00	
Østensjø	0.98	(0.70–1.38)	1.01	(0.68–1.52)
HSCL–10 >1.85	0.95	(0.54–1.66)	0.77	(0.26–2.22)
Number of close friends				
None	1.00		1.00	
1 or 2	1.41	(0.57–3.49)	0.51	(0.12–2.20)
3–5	1.46	(0.57–3.72)	0.39	(0.09–1.73)
>5	1.31	(0.50–3.44)	0.40	(0.09–1.84)
Concern and interest				
None	1.00		1.00	
Little	0.91	(0.23–3.64)	0.93	(0.18–4.84)
Uncertain	1.09	(0.32–3.69)	0.76	(0.16–3.54)
Some	1.70	(0.50–5.75)	0.70	(0.15–3.23)
A lot	1.21	(0.35–4.17)	1.06	(0.22–5.12)
Practical help from neighbours				
Very difficult	1.00		1.00	
Difficult	0.86	(0.50–1.47)	0.64	(0.31–1.35)
Possible	0.69	(0.42–1.15)	0.78	(0.39–1.56)
Easy	1.19	(0.67–2.08)	1.10	(0.51–2.40)
Very easy	1.18	(0.59–2.36)	0.74	(0.30–1.81)
Seeing others as often as desired, ref = no	1.22	(0.75–2.01)	1.42	(0.73–2.78)
Health				
Bad	1.00		1.00	
Not too good	1.66	(0.71–3.86)	2.10	(0.51–8.61)
Good	1.56	(0.63–3.84)	1.65	(0.38–7.08)
Very good	1.23	(0.44–3.39)	1.00	(0.22–4.66)
Quality of life				
Very satisfied	1.00		1.00	
Mostly satisfied	1.13	(0.75–1.72)	0.94	(0.59–1.52)
Satisfied	1.00	(0.61–1.66)	1.01	(0.52–1.94)
Dissatisfied	1.09	(0.38–3.11)	0.83	(0.19–3.60)
Very dissatisfied	0.19	(0.03–1.07)	0.00	
Diagnoses				
Osteoporosis	1.62[b]	(1.10–2.41)	1.46	(0.33–6.50)
Musculoskeletal pain	1.09	(0.80–1.50)	0.87	(0.55–1.37)
Stroke	1.26	(0.75–2.12)	1.12	(0.63–2.01)
Memory impairment				
None	1.00		1.00	
Some	1.18	(0.84–1.65)	1.51[b]	(1.02–2.23)
Heavy	1.04	(0.33–3.30)	0.61	(0.61–3.41)

HSCL-10 = Hopkins Symptom Checklist; NOK = Norweigian crowns. [a]$p < 0.001$; [b]$p < 0.05$.

Table V. Logistic analysis predicting use of senior centre versus non-use by gender, age groups, marital status and memory impairment ($n = 2{,}387$).

		Marital status		Memory impairment	
		Ref = married/cohabiting		Ref = none	
Gender	Age groups	OR	95% CI	OR	95% CI
Women	65–69	1.05	(0.54–2.04)	2.45[a]	(1.16–5.18)
	70–79	1.44[a]	(1.06–1.95)	1.90[b]	(1.36–2.66)
	80+	1.38	(0.91–2.09)	1.11	(0.76–1.60)
Men	65–69	2.03	(0.65–6.33)	0.94	(0.25–3.50)
	70–79	0.56[a]	(0.33–0.96)	2.74[b]	(1.52–3.39)
	80+	1.23	(0.75–2.03)	1.04	(0.66–1.62)

[a] $p < 0.05$; [b] $p < 0.001$.

A new logistic regression was performed in which the correlation between marital status and memory impairment respectively and use of the senior centre was investigated, specifically for different age groups and sexes.

Living alone predicted greater use in women but the opposite was true for men in the group 70–79 years. Memory impairment predicted greater use in women in the groups 65–69 years and 70–79 years and in men of 70–79 years.

In the main analysis, "regular" and "now and then" users were combined and compared with "non-users". If we instead compared "regular" users with the combination "now and then users" and "non-users", the results were the same with one exception, namely for the variable *participation/interest from others*. Among female regular users who reported interest and participation from others, the odds ratio (OR) for use was 2.44 (not shown in the table).

Discussion

The main findings of the study are that use of the senior centre inclines with increased age for both genders. In the group 70–79 years, single women use the senior centre more than do married women and single men less than married men. Osteoporosis, participation/interest from others and minor memory impairment predict women's use, while memory problems predict men's use. There are no background variables, including psychosocial or health-related factors that otherwise show significant differences between users and non-users of the senior centre. The study has limited power owing to the inclusion of many variables in the logistic regression analysis.

Statistical and methodological considerations

The material included data from a larger number of participants than other studies. The response rate was high. The methods of measurement are assessed as accurate in spite of under-representation of the oldest women (Table I). Study respondents are assumed to be representative of our target sample.

The drop-out rate was highest for the group 80+ years. One explanation is that more members of this group had significant health and social challenges that prevented them from responding [13], had problems completing postal questionnaires, or did not identify with the elderly or with questions about difficulties in daily living. Because we know little of those who did not reply, we cannot say what characterized them. Drop-out in the oldest group may have produced a selection problem. It is possible that we have reached the fittest in this survey and thereby overlooked the least fit. This may have influenced the item use of the senior centre such that those who use the senior centre most were recruited as respondents. The results must be interpreted in light of these limitations.

A recent study of epidemiological research among elderly people emphasizes the importance of face-to-face meetings with older respondents. Secure surroundings and meaningful experiences are important in recruiting older participants [14]. These conditions were not catered for by the postal survey in this study. Important factors such as care duties, individual coping resources and elders' attitudes to use of the senior centre were excluded from the questionnaire.

Age

Use of the senior centre was closely related to age but cannot be explained through differences in health or

other variables. It may be that attending a senior centre is connected to the phenomenon of age itself more than to explanatory variables. Values such as freedom of choice, self-realization, activity and initiative must be adapted to the demands of aging and are largely unchangeable [15,16]. Security and attachment are basic needs that can become imperative with age and the community senior centre can provide a means of meeting needs if the service is experienced as meaningful.

Gender, marital status and social support

The correlation between singlehood in women, particularly in the age group 70–79 years, and greater use, suggests that women attend senior centres for contact, while single men in the same age group use the senior centre less than married/cohabiting men. One explanation for this difference may be that women's relational orientation is closer to the core activities and social climate of the senior centre than men's more individual activity orientation. Women's life histories tend to concern relationships and responsibility in social networks whereas men's histories concern autonomy and independence [3,17–20]. Women may also have more time and energy when they no longer have care responsibilities for others.

We do not know why single men do not attend senior centres. Perhaps they do not have the same need for new relations when they become single, or if they have lived alone, they do not want a larger network. Perhaps they have contacts elsewhere. They may also not be especially interested in the activities at the centres or may know little about what is offered. Women shown interest and participation from others tend to use the senior centre regularly, as do men.

Health problems

Memory impairment and osteoporosis correlated with use of the senior centre. The significant correlation of these two health variables is possibly connected with the reduced power of the study. However, if we view these health problems as one, an explanation can lie in the fact that consequences of memory impairment and osteoporosis for daily life are different from those of the other common health problems. Coronary infarct, diabetes, lung disease and cancer affect many younger people, are socially accepted and do not have visible daily consequences, while memory impairment is more socially stigmatizing and connected with aging and mental dysfunction. At a senior centre in which many participants have the same type of problem, one will not stand out if memory impairment is moderate. Tolerance of the problem is perhaps higher there than in other contexts in which an individual with reduced memory is more visible. Memory loss can be a normal age-related change. Incidence increases with age and poor health and is one of the most common mental problems affecting elderly people [15,21]. It can be disabling, occurs often with anxiety and depression and is a central characteristic of dementia [22].

Women in the age group 65–69 years and women and men of 70–79 years with memory impairment were over-represented among users. This emphasizes the solidarity aspect of the senior centre. Here visitors can give and receive support for shared problems. This was true also among the youngest women and among men who otherwise used the centre very little. Users with a high degree of memory impairment showed a tendency not to use the senior centre, but this was not significant.

In Pettersen and Laake's study, the percentage who reported they had few difficulties with memory was high, 40% ($n = 103$) [15]. For persons with a significant degree of memory impairment the chance of being a user of the senior centre was reduced by 60%. The study concluded that senior centres are a good and inclusive social meeting place for those with a lesser degree of memory impairment [15], which corresponds with the results of this study.

From a prevention perspective, it is important for the person to be examined and treated promptly if memory impairment is an early sign of disease. At the senior centre, symptoms can be caught early and assistance given to contact the correct helping services such as medical and home help.

Women with osteoporosis were over-represented. It is assumed that osteoporosis involves significant consequences for daily life, separating it from other function loss and diagnoses with more acceptable consequences. Most wrist and hip fractures in elderly people are the result of reduced bone mass combined with a fall. This type of fracture is painful and reduces life quality and will probably cause a fear of falling. In a study conducted in Oslo (1998) 36% of women over 50 had osteoporosis [23]. Risk factors related to fractures include physical inactivity. Exercising positively affects balance and thus also the risk of falling [24].

Senior centres are an easily accessible meeting place in which social needs can be met in spite of participants' ailments. Several senior centres offer physical exercise to improve balance, coordination and muscle strength. In the action programme for prevention and treatment of osteoporosis and osteoporosis fractures, the Social and Health Directorate [25]

emphasizes the importance of the senior centre as an arena for prevention.

Similarity between districts

In spite of being an important determinant of use, and income being quite different in the two districts, there were only small differences in use between the two districts. The explanation is on the one hand that the age distribution was much the same in the two districts, and on the other hand that income was not an independent, significant determinant of use.

The confounding effect of age

Significant associations of use and socializing with friends and neighbours, quality of life and some health problems also disappeared as independent significant determinants of use. The oldest had lower income and more health problems but still they were the most extensive users of senior centres. An explanation might be that this is not due to income or health problems but connected to the basic needs of security and attachment in old age itself.

Conclusions

Age was the variable most associated with use of the senior centre for both genders. Single women of 70–79 years used the senior centre a great deal, while single men in the same age group rarely used the service. That both men and women with memory impairment and women with osteoporosis had high use of the senior centre may indicate that the service was experienced as secure and inclusive. There were few social differences and the association with age could not be explained through socio-demographic, psychosocial or health variables. That high age and specific health problems led to increased use and single men seldom used the service must be taken into consideration in discussions of how senior centre core activities can be developed effectively in relation to the user group, to new groups who can benefit from the service and to prevention as a public health issue.

Conflicts of interest

None.

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Paper II

The importance of social support in the associations between psychological distress and somatic- and socio-demographic factors among older adults living at home: a cross sectional study

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ABSTRACT

Background: Little is known of the importance of social support in the associations between psychological distress and somatic- and socio-demographic factors among older adults living at home. The objectives of the present study were to investigate the associations of social support, somatic- and socio-demographic factors with psychological distress. We also examined changes in the association of somatic and socio-demographic factors with psychological distress after adjusting for social support.

Methods: A random sample of 4000 persons aged 65 years or more, in Oslo, living at home, was drawn. Questionnaires were sent by post. The total response was 2387 (64%). Psychological distress was assessed using Hopkins Symptom Checklist, (HSCL-10) and social support with Oslo-3 Social Support Scale, (OSS-3). A principal component analysis, PCA, included all items of social support and psychological distress. Pearson's r was used for correlations, and associations were studied by logistic regression.

Results: After adjusting for socio-demographics and somatic health problems we reported a statistically significant association between psychological distress and social support: "Number of close friends", OR 0,61; 95% CI 0,47-0,80. "Concern and interest" OR 0,68; CI 0,55-0,84. A strong association between lack of social support and psychological distress irrespective of variables adjusted for indicated a direct effect. The associations between psychological distress and physical impairments were somewhat reduced when adjusted for social support, in particular for hearing, whereas the associations between somatic diagnoses and psychological distress were more or less eliminated. Income was found to be an independent determinant for psychological distress.

Conclusions: Lack of social support and somatic health problems were associated with psychological distress in elders. Social support acted as a mediator, implying that the negative effect of somatic health problems, and hearing in particular, on psychological distress was to some extent mediated by low social support. We hypothesize that physical impairments reduced social support and, thereby increased psychological distress to a greater extent than the selected diagnoses did. The combination of poor social support, poor somatic health and economic problems may represent a vulnerable situation with respect to mental health of older persons. Interventions, free of charge, highlighting social support should be considered in mental health promotion.

Keywords: older adults, social support, psychological distress, somatic health, social inequality

INTRODUCTION

Little is known how associations between psychological distress and somatic disorders are mediated by social support among elderly. Several studies have documented associations between psychological distress and poor somatic health; low socioeconomic level, and weak social support. It is unclear, however, whether good social support can improve psychological distress despite poor somatic health and low level of socio-economy. In this cross sectional study we investigate how associations between psychological distress and somatic disorders and socio-demographic factors are mediated by social support.

Different studies point both to the impact of physical health and social support on mental health of older persons [1-3]. Late life depression is perhaps the most frequent cause of emotional suffering and is also found to be a risk for poor self-related health over time [4]. Health also shows a social gradient [5].

Social support and mental health

Elders might be faced with greater losses in the context of fewer social resources and lower adequacy of social support. Social relationships, ranging from social isolation to social support have long been implicated in risk for depression [6]. It is generally agreed that social support plays a beneficial role in maintenance of mental health and psychological well-being (and reduces the risk of depression). There are two alternative causal models, the direct effect model and the indirect (buffer) effect model. The direct effect implies that social relationship has a beneficial effect on health, regardless of life situation. The stress-buffering effect implies that social relationship has a beneficial effect only for persons exposed to stressors, like negative life events and hardship over time. In this instance social support is thought to buffer the effects of stress by enhancing personal coping abilities as self-esteem and self efficacy. Through strengthening of the coping mechanism the negative emotional reaction to a stressful event will either be reduced, or the physiological responses on health via the immune system will be damped [7-10].

Somatic health and mental health

Somatic health problems carry a high risk of anxiety disorder and depression. Depression produces the greatest decrements in health compared with other chronic diseases [11]. Disability and depressive symptoms are mutually reinforcing over time against a potential downward trend for disabled elderly adults. The effect of disability on depression was known to be faster and stronger than the effect of depression on disability [12].

Social support and somatic health

Studies show that poor social support increases both the risk of somatic disorders and mortality among elders [13, 14]. There are, however, also studies showing that somatic disorders have a negative effect on social support [15]. The negative effect of somatic disorders on social support implies that social support may be a mediator in the relationship between somatic disorders and mental health problems, and not only a moderator or buffer, as mentioned above. Because somatic disorders tend to reduce social support, which is a risk factor for mental health problems, somatic disorders increase the risk of mental disorder. Few studies have looked into this pathway.

Somatic health problems increase psychological distress. Lack of social support increases the risk of both psychological distress and somatic disorders. Low socio-economic status is associated with depression and low social support. These aspects seen together provide the rationale for this study.

The objective of the present study, of persons aged 65 and above living at home, was to investigate the association between psychological distress and social support. Furthermore, we investigated the association between psychological distress and somatic- and socio-demographic factors. Finally we examined changes in the association with somatic and socio-demographic factors after adjusting for social support.

We hypothesized that:

1. Social support has a *direct effect* on psychological distress
2. Social support acts as a *mediator* between psychological distress with somatic illness and physical impairments
3. Social support acts as a *moderator* between psychological distress with somatic illness and physical impairments.

METHODS

Sample design and data collection

The data in this cross-sectional study was collected using the Norwegian Population Register from one eastern (Østensjø) and one western (Ullern) district of Oslo. Median age was 77 in Østensjø and 76 in Ullern.

A random sample of 4000 persons aged 65 years or more, living at home, 2000 from each district was drawn. Of the random sample, 111 persons were residents of institutions and were therefore excluded from the material. Letters of information and questionnaires were sent to 3889 persons by post. One reminder was sent 2 weeks later, and resulted in a total response of 2387 (64%) participants. The forms were scanned and quality controlled. In total 2387 (64%) of 3889 forms were included in the material. The study was conducted in 2006.

Table 1 shows the distribution of the data contrasted with the total number of citizens over 65 years in Ullern and Østensjø.
Table 1 here

Variables

Data was collected by self-report using a questionnaire with fixed answer alternatives for 40 questions. Not all respondents answered every question, and consequently the numbers included in the analysis vary slightly. For the questions on income and marital status, 6% and 1% of participants respectively did not answer. The percentage of other questions left unanswered was less than 1%.
The indicator of mental health, psychological distress, was measured using the Hopkins Symptom Checklist (10 questions HSCL-10), the short form of a battery of 25 questions (HSCL-25) measuring symptoms of anxiety and depression. A score of 1.85 or higher indicates symptoms of anxiety and depression that interfere with daily living but do not necessarily require treatment [18]. The HSCL-10 is recommended for screening purposes because this scale represents the best compromise between economy and accuracy in building the groups “distressed” and “non-distressed” [19].
Social support was measured using the Oslo-3 Social Support Scale (OSS-3) with 3 questions. The response categories were assessed both independently for each of the 3 questions and a sum score was made by summarizing the raw scores. The sum score ranging from 3-14, was operationalized into “poor support” 3-8, “moderate support” 9-11 and “strong support” 12-14. The Oslo-3 scale has been used in several studies, confirming the feasibility and predictive validity with respect to psychological distress [20-22].

Oslo 1: How many people are you so close to that you can count on them if you have great personal problems? (none (1), 1-2 (2), 3-5 (3), 5+ (4))
Oslo 2: How much interest and concern do people show in what you do? (a lot (5), some (4), uncertain (3), little (2), none (1))
Oslo 3: How easy is it to get practical help from neighbors if you should need it? (very easy (5), easy (4), possible (3), difficult (2), very difficult (1))

Somatic disorders were measured by dichotomized questions (yes/no) about the presence of eight frequently occurring diagnoses: diabetes, chronic lung disease, osteoporosis, musculoskeletal ailments, coronary infarct, angina, stroke and cancer. The question to be answered was:"Do you have or have had some of the listed diagnoses?" Disturbances in function (physical impairments) covered were those of balance, hearing, vision, continence and memory also common in older years. Dichotomized questions (yes/no) about the present status were asked about the physical impairments.
Socioeconomic status was measured by educational level and income. Educational level ranged from primary school 9 years, secondary school 12 years to college/university more than12 years. Income was given in thousands (Norwegian crowns) including 150', 150-200', 200-300', 300' or more.

Statistical methods and analyses

Frequencies and cross tabulations gave the distribution of socio-demographic variables, diagnoses, disturbances in function, social support and psychological distress.

The way social support and psychological distress is defined in the present study, raises the question if we are dealing with distinct constructs other than psychological distress. To explore the underlying structure and the proximality of the HSCL-10 and OSS-3 scales principal component analysis, PCA, was used. As factor extraction method and the type of rotation technique used was Varimax with Kaiser Normalization (table 2). The correlations between each item of social support and psychological distress have been estimated, and PCA has been carried out including all items of social support and psychological distress. A correlation analysis shows moderate correlations between psychological distress and the three social support items (HSCL-10 and (1) number of friends to count on, -.264**, (2) concern from others, -.271**, (3) practical help, -182**), which indicates that we are dealing with different constructs (not shown in table). This is confirmed in the principal component analysis, where the items of psychological distress and social support are clearly loading on two different factors.

This is shown in table 2.

Table 2 in here

Of the total variance, 39 % is explained by factor 1 and in addition 15 % by factor 2.

Pearson product-moment correlation coefficient (Pearson's r) was used to describe the strength and direction of the linear relationship between social support, with physical impairments and diagnoses (table 4).In linear regression analyzes we tested whether there was a significant difference between sum score of impairments and sum score of diagnoses with respect to social support, adjusted for gender and age (not shown in table).

Logistic regression was performed to assess the associations, between independent variables, (social support, demographic variables, diagnoses and physical impairments) and psychological distress, table 5, models 1-4. According to our analytic strategy each predictor variable in model 1 was adjusted for gender and age one by one, hence, model 1 consists of a series of separate regression analyses. In model 2, the associations between diagnoses, physical impairments and psychological distress were additionally adjusted for the three categories of social support. In model 3, we additionally adjusted for socio-demographic variables. In the final model 4, we additionally adjusted for diagnoses and physical impairments (i.e. all variables). The hypothesis of *direct effect* of social support on psychological distress was conclusively tested in model 4, table 5. The hypothesis of *mediator effect* of social support on diagnoses, physical impairments and psychological distress was tested in models 2 and 3, table 5, with adjustment for social support and demographic factors. Finally we carried out a multiplicative interaction analysis to see if social support had a "buffer" or *moderator function.* A two-way ANOVA between-groups analysis of variance was conducted to explore possible interaction effects. The analyses were conducted between each socio-demographic variable and each somatic health variable and social support sum score, operationalized into poor, moderate and strong support with respect to psychological distress, adjusted for age and gender. Level of significance was set to $p \leq 0.05$, or CI=95%. SPSS (Statistical Package for the Social Sciences) version 17 was used in the data analysis.

RESULTS

Table 3 gives the distribution of demographic characteristics, diagnoses, physical impairment, psychological distress and social support by gender and for the total sample.

Table 3 in here

One or more physical impairments were reported by 29-41%. Hearing impairment was the most prevalent, 41%. Musculoskeletal ailment proved the most common diagnosis, 34 %. For women we report three times higher prevalence of psychological distress than for men. The sample reflects well known gender differences in psychological distress. For both women and men psychological distress increased with age. The prevalence of psychological distress was 8,4 %. Poor social support (score 3-8) was most frequent in women. In total 25% reported poor social support.

Results of the correlation analyses between social support (three categories), physical impairment and diagnoses are given in table 4.

Table 4 in here

There were significant negative correlations between social support and almost all of the physical impairments and diagnoses, r= -.042 to -.192, adjusted for age and gender. Correlations showed generally higher correlation coefficients between social support and physical impairments than for social support with diagnoses. The correlation was also proved between total social support and sum score impairments (-.299, CI -.313) than for total social support with sum score of diagnoses (-194, CI - 259). However, the strength of the correlations was not statistically different. Social support decreased for all three categories of social support when physical impairments and diagnoses were present.

The associations between HSCL-10 cut-off $\geq$1.85 and social support, demographic characteristics, diagnoses and physical impairments adjusted for gender and age, are presented in models 1-4, table 5.

Table 5 in here

Most independent variables were significantly associated with HSCL-10. High level of education and income and good social support were significantly associated with low psychological distress, while

being single, living in the eastern district (Østensjø), physical impairments and diagnoses, except diabetes and cancer, showed significantly higher Odds for psychological distress (model 1, adjusted for gender and age one by one).
The observed associations adjusted for age and separate analyzed by gender, showed no substantial differences in OR between women and men (not shown in table).

After additional adjustment for social support (model 2) hearing lost its position as a significant independent predictor for psychological distress. The rest of the physical impairments still showed strong significant association with psychological distress, but the ORs were reduced compared to model 1. Separate analyses with introduction of the social support variables one by one revealed that all three contributed to the reduction of ORs.

After additional adjustment for demographic variables (model 3) the estimates changed marginally. Only stroke no longer proved significant.

When adjusted for all variables, model 4, "practical help from neighbours" was no longer a significant determinant of psychological distress. "Number of close friends" and "concern and interest from others" kept consistent. Education, marital status and living in the eastern part of Oslo showed no significant association with psychological distress in model 4 contrasted to the analyses in model 1. Among the demographic characteristics income was still an independent determinant with some reduction in OR. The association between physical impairments and psychological distress was somewhat reduced adjusted for all variables but still significant whereas the associations between diagnoses and psychological distress were more or less eliminated. Also sum score diagnoses and sum score impairments kept consistent as independent predictors of psychological distress although somewhat reduced contrasted to model 1.

To investigate whether the associations between HSCL-10 and somatic- and socio-demographic factors varied by different levels of social support, interaction tests between social support and demographics, the five impairments and eight diagnoses with respect to psychological distress were carried out adjusted for gender and age. None of these tests proved significant.

DISCUSSION

The main findings of the present study were that a significant and consistent association was found between social support and psychological distress regardless of variables adjusted for (direct effect). The associations between psychological distress and physical impairments were somewhat reduced

when adjusted for social support, in particular for hearing (mediator effect), whereas the associations between somatic diagnoses and psychological distress were more or less eliminated. Income also kept its position as an independent determinant for psychological distress when adjusted for all variables.

Direct effect of social support on psychological distress

Social support, in terms of "number of close friends", and "concern and interest from others", were significant independently associated with psychological distress through the multivariate analyses, whereas "practical help from neighbours" lost significance. A likely explanation for this could bee that the three factors of social support were interrelated, and that the neighbour factor was explained through the two others. The findings that social support is important for the mental health of elderly, is in accordance with the finding of other studies [23, 24]. The fact that you have someone trustworthy to turn to when experiencing great personal problems, and concern shown by other people in what you are doing, are important in diminishing psychological distress. Family is known to be an important source of social contact in older years, but one knows less about the importance of friendship. In the present study friends seems to be of great importance. This may be because friends represent a source of identity of the same sex and usually the same age, share experiences and keep close through hardships as death of spouse or other life events. It seems that cultural norms for close ties held by older people differ little from rest of the life span; norms of trust, commitment and respect are important to them too [25].

Social support as a mediator between psychological distress with somatic health problems

The associations between somatic disorders, and to a lesser extent physical impairments, and psychological distress were somewhat reduced when adjusting for social support, and the hypothesis of a mediator function hence gained some support. It seems that the negative effect of somatic disorders on psychological distress to some extent is explained by somatic disorders leading to reduced social support. It is interesting that the association between hearing loss and psychological distress was relatively strongly reduced, when adjusting for social support. It is likely that in particular an impairment of this type, one of the most common chronic somatic disorders in elders, leads to reduced social contact and support, and thereby to increased psychological distress. This study showed hearing impairment to be the most prevalent of somatic disorders by 41%. The negative effect of hearing loss on social contacts is in agreement with other studies [36, 37] . The burden of hearing impairment increased due to communication problems and lack of social support with social isolation and loneliness as consequences. Social isolation and loneliness led to increased

psychological distress. Hence this study showed a good example of the role of social support as a mediator between hearing impairment and psychological distress.

The finding that somatic health problems are strongly associated with psychological distress is in accordance with the findings of a number of other studies [26-28]. It is interesting that physical impairments seems more strongly associated with psychological distress than diagnoses, and that the associations between diagnoses and psychological distress were more or less eliminated when adjusted for other variables, including physical impairments. This may indicate that the negative effect of diagnoses on mental health is partly mediated by impairments, and that it is the impairments that are most strongly interfering with daily life.

All physical impairments and diagnoses, with the exception of cancer, were negatively correlated with each category of social support. The correlations seemed stronger between physical impairment and social support than between diagnoses and social support. Given the cross-sectional nature of the data, it is difficult to decide what is cause and effect in the relationship between social support and somatic health. Both directions of causality are possible [13, 14, 29]. It is not likely however, that lack of social support should be a course of impairments of hearing, urine leak, vision and balance. Lack of social support might, however, be both the cause of memory impairment and the result of it. Some studies show that good cognitive functioning is associated with social integration and support [30] and prevention of dementia [31, 32].
The issue of comorbidity is important with respect to the number of diagnoses and the number of impairments and raises the question why persons with impairments got less social support than persons with diagnoses? An explanation can lie in the fact that practical and social consequences of impairments and diagnoses differs in daily life. Problems with balance, hearing, vision, urine function and memory may cause poor communication, information decrease and mobility problems, and are socially stigmatising and connected with aging and mental decline. Associations between recent vision impairment and changes in social life, for instance, are shown in recent studies. Older people with recent vision impairment reported to be lonelier and had reduced social interaction and declined mood as shown by others in relation to vision impairment [33, 34]. Daily consequences of medical diagnoses in question are of course severe, visible and troublesome too but not in the same degree connected to age decline since these diagnoses also affect younger people and are connected to the patient role which might generate more social and medical benefit than impairments.

There were no interactions between somatic health problems and social support with respect to psychological distress, and the hypothesis of moderator function was not supported. This finding was

not in agreement with other findings [26-28, 35]. An explanation could be that the measure of social support used is in the present study was of a more general nature, and not sensitive to the actual experience of support linked to somatic health problems or other specific events.

Income as an independent determinant for psychological distress

Mental health, as well as somatic health, show a social gradient; the prevalence of illness increasing by decreasing socio-economic status [5, 16]. Low socio-economic status is also associated with low social support, and lack of support explains some of the social gradient in mental health. Especially in older adults deterioration in financial status is known to be a stressful event and those who are economically disadvantaged are more likely to experience persistent depressive symptoms [17]. Hence socio-economic status was taken into consideration as a possible confounder when analysing the relationship between social support and psychological distress. Income kept its position as an independent protective factor for psychological distress also when adjusted for health and social support in the final multivariate model. Associations between education, marital status, districts of town and psychological distress become non-significant in the multivariate analyses when adjusting for all items. This confirms the assumption that financial strain is a source of psychological distress for many older adults [38-40], and that the challenge of social inequalities in health is present also in the elder age groups. In this material Odds ratio is 3 for economic problems for experiencing high levels of psychological distress among those with poor somatic health (level of significance 1%). In planning structural initiatives targeting psychological distress as public health issue, it is important to avoid that those in poorer socioeconomic conditions are less involved than those socially better positioned. This implies that such activities should be free of charge.

Strengths and limitations

Study respondents seemed to be representative both of the total number and of the invitees concerning age and gender in both districts except from a small underrepresentation among men in the youngest age group in Ullern. The question on income did not specify whether gross, net or adjusted household income was asked for. This leaves room for different interpretations, but we assume that most respondents reported gross income.

Several previous studies have investigated samples from primary healthcare and hospital setting. This study investigated a random sample of home living. We had pre-formulated hypotheses. The response rate was high, and the sample seemed fairly representative of the target population with respect to age, gender and place of living. However, missing one third of the sample is a concern, and

could lead to selection bias. It is possible that we have reached the fittest in this survey. However, the time-span between fully upgraded available list of addresses and invitations send was about six months. During that time some of the potential respondents with extensive somatic health problems and/or suffering from lack of social contact might have moved to institutions or died. Hence, the associations are at least not overestimated. Validations of HSCL-10 and Social Support Scale, OSS-3 indicate that they are regarded as valid and reliable instruments. It is a possible weakness that the information on somatic health came from self-report, and not from medical examination. However, it is regarded as easier to admit rather embarrassing health problems in a postal survey than in a face to face interview. Understating somatic health problems and reporting too much loneliness will weaken the associations. The approach that test whether social support serves more as a moderator or mediator in the relationship between physical and mental health is a strength of the study.
It is an important limitation that the study is based on a cross-sectional design, which does not allow for drawing conclusions on causality. In this study, there was a potential bias in the recall of social support among distressed individuals, such individuals being more inclined to describe their social support in more negative terms than others. Such dependency in the data may lead to false associations [41]. Another possibility for reversed causality could be that social isolation and lack of social support is a consequence of mental health problems. Certain personality traits, such as introversion, are associated with both lack of social network participation and occurrence of depressive symptoms [42]. The principal component analysis of psychological stress and social support (table 2) confirmed that the two measures clearly loaded on two different factors. Which indicate that although psychological distress and social support correlate there is no element of symptomatology or trait vulnerability in this correlation. The two measures operate as two different constructs.

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Summary of social support and health

Hearing loss and other common losses of vital functions lead to isolation and lack of social relations. The impairments become an additional load factor that increase loneliness like in a vicious circle. Lack of social support and impairments increased psychological stress in older persons. In this study 25% experienced poor social support (table 3) it seems that social support is equal important as physical health to prevent psychological distress and is then a natural target for prevention and health promotion. Impairments reduce social support to a larger extent than diagnoses do. This is a serious public health concern since impairments are quite common among older persons, between 29 and 41% in this study reported physical impairments and between 8 and 34% reported diagnoses.

Practical implications

It is important that lack of social support and somatic health-problems are addressed in mental health promotion among older people, since they both are important risk factors for psychological distress. Increased focus on initiating and implementing interventions highlighting social support, combined with awareness of possible somatic health problems, especially hearing impairment seems to be a good strategy. Senior centre is a valuable service provision in this context, serving both fit and less functional pensioners, free of charge. The goal of senior centre is to maintain physical and psychological activity, functional health and strengthen social support [43]. Further research ought to address different health and social service trials aiming to promote functional and mental health by social support.

CONCLUSIONS

This study revealed that lack of social support and somatic health problems were associated with psychological distress in elders. Social support seemed to have a direct effect on psychological distress. There was some support for the mediator hypothesis, implying that the negative effect of somatic health problems for hearing in particular, on psychological distress to some extent was mediated by weakened social support. Physical impairments reduced social support to a larger extent than diagnoses did. No support to the moderator or "buffer" hypothesis was found. Income was found to be an independent determinant for psychological distress. The combination of weak social support and poor somatic health and economic problems may represent an extremely vulnerable situation with respect to mental health of older persons. Interventions, free of charge, highlighting social support should be considered in mental health promotion.

Ethical approval

The study was approved by the Data Regulating Authority and by the Regional Ethics Committee, South, in 2006.

Competing interests

The author(s) declare that they have no competing interests.

Authors' contributions

HB was responsible for the data collection. HB, OSD and EB were responsible for the design. HB and OSD did the data analysis. EB contributed to interpretation of results. HB was responsible for drafting

the manuscript and OSD and EB contributed to writing of the article. All three approved of the final version of the article.

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Table 1

Study population stratified by gender and age within city districts (n=2387)

		Total number*	Invitees	Respondents
		n= 17525	n= 3889	n= 2387
	Age	n (%)	n (%)	n (%)
ULLERN				
Men	65-69	889 (24)	237 (31)	112 (22)
	70-79	1673 (45)	302 (39)	226 (44)
	80+	1138 (31)	229 (30)	177 (34)
Women	65-69	1018 (18)	258 (22)	142 (20)
	70-79	2393 (42)	436 (38)	310 (43)
	80+	2320 (40)	466 (40)	267 (37)
ØSTENSJØ				
Men	65-69	536 (18)	159 (22)	75 (17)
	70-79	1555 (52)	347 (48)	233 (53)
	80+	911 (30)	217 (30)	135 (30)
Women	65-69	823 (16)	233 (19)	125 (18)
	70-79	2457 (48)	580 (47)	354 (50)
	80+	1812 (36)	425 (34)	231 (32)
Total				
Men		6702 (38)	1491 (38)	958 (40)
Women		10823 (62)	2398 (62)	1429 (60)

* Oslo statistics for age group 65 and older in the city districts Ullern and Østensjø, collected by Statistics Norway

Table 2

Principal component analyses (PCA) with Varimax rotation of Two Factor Solution of psychological distress, (HCSL-10) and Oslo social support scale (OSS-3 items)

Items in HSCL-10, and OSS-3	Component 1	Component 2
HSCL-10		
1 HSCL Suddenly scared for no reason	.751	.028
2 HSCL Feeling fearful	.766	.005
3 HSCL Faintness, dizziness, or weakness	.587	-.163
4 HSCL Feeling tensed	.737	-.019
5 HSCL Blaming yourself	.724	-.051
6 HSCL Difficulties falling or staying asleep	.455	-.262
7 HSCL Feeling blue	.783	-.165
8 HSCL Feeling of worthlessness	.764	-.176
9 HSCL Feeling everything is an effort	.749	-.252
10 HSCL Feeling hopeless about the future	.722	-.290
OSS-3		
1 OSS number of friends to count on	-.137	.746
2 OSS concern from others	-.138	.698
3 OSS practical help	-.023	.739

Table 3
Distribution of demographic characteristics, diagnoses, physical impairment, social support, OSS-3 and psychological distress HSCL-10 by gender, among home living 65 years and above, (n=2387), (%)

	Women	Men	Total
Demographics			
Age group			
65-69	268 (19)	187 (20)	455 (19)
70-79	667 (46)	459 (48)	1126 (47)
80+	501 (35)	312 (33)	813 (34)
Education			
Primary, 9yrs	800 (56)	373 (39)	1173 (50)
Secondary, 12yrs	234 (17)	122 (13)	356 (15)
College/Univ>12yrs	388 (27)	454 (48)	842 (36)
Income in thousands*			
150’	591 (45)	90 (10)	681 (30)
150-200’	273 (21)	167 (18)	440 (20)
200-300’	293 (22)	241 (26)	534 (24)
300’	172 (13)	434 (47)	606 (27)
Marital status			
Married/cohabiting	633 (45)	742 (80)	1375(58)
Single	791 (56)	211 (22)	1002(42)
District of town			
Ullern	719 (50)	515 (54)	1234 (52)
Østensjø	710 (50)	443 (46)	1153 (48)
Diagnoses (dicotom)			
Diabetes	87 (6)	94 (10)	181 (8)
Chronic lung disease	96 (7)	44 (5)	140 (6)
Osteoporosis	260 (18)	22 (2)	282 (12)
Musculoskeletal ailment	607 (42)	216 (23)	823 (34)
Cardiac infarction	80 (6)	126 (13)	206 (9)
Angina	99 (7)	104 (11)	203 (9)
Stroke	118 (8)	99 (10)	217 (9)
Cancer	216 (15)	125 (13)	341 (14)
Physical impairment (dicotom)			
Balance	617 (44)	322 (34)	939 (40)
Vision	450 (32)	228 (24)	678 (29)
Hearing	513 (36)	435 (46)	948 (41)
Urine leak	444 (32)	334 (35)	778 (33)
Memory	505 (36)	362 (38)	867 (37)
Social support (3 items)			
Number of friends to count on			
None	51 (4)	17 (2)	68 (3)
1-2	431 (30)	245 (26)	676 (29)
3-5	557 (39)	403 (42)	960 (41)
5+	381 (27)	288 (30)	669 (28)
Concern from others			
A lot	396 (30)	261 (29)	657 (29)
Some	583 (44)	423 (46)	1006 (45)
Uncertain	262 (20)	164 (18)	426 (19)
Little	59 (5)	45 (5)	104 (5)
None	23 (2)	20 (2)	43 (2)
Practical help			
Very easy	118 (9)	93 (10)	211 (9)
Easy	248 (18)	192 (21)	440 (19)
Possible	551 (40)	404 (44)	955 (42)
Difficult	271 (20)	161 (18)	432 (19)
Very difficult	190 (14)	70 (8)	260 (11)
Social support (sum score)			
Poor support	357 (28)	193 (22)	550 (25)
Moderate support	656 (51)	469 (53)	1125 (52)
Strong support	275 (21)	227 (26)	502 (23)
HSCL-10>1,85			
Total	136 (12)	36 (4)	172 (8)
65-69	20 (8)	6 (3)	
70-79	56 (10)	16 (4)	
80+	60 (16)	14 (5)	

* Norwegian crowns

Table 4

Correlation (Pearson's r) between social support and somatic disorders adjusted for gender and age (n=2387)

Variables	Number of friends to count on	Concern from others	Practical help	Total social support
Impairments				
Balance	-.192**	-.163**	-.184**	
Vision	-.155**	-.141**	-.151**	
Hearing	-.106**	-.104**	-.098**	
Urine leak	-.124**	-.139**	-.127**	
Memory	-.141**	-.170**	-.104**	
Impairments sum	-.234**	-.234**	-.212**	-.299**
Diagnoses				
Diabetes	-.008	-.071**	-.012	
Chronic lung disease	-.069**	-.039	-.058**	
Osteoporosis	-.078**	-.038	-.089**	
Musculoskeletal ailments	-.075**	-.059**	-.072**	
Cardiac infarction	-.039	-.067**	-.013	
Angina	-.075**	-.057**	-.070**	
Stroke	-.052*	-.070**	-.067**	
Cancer	-.033	-.042*	-.062*	
Diagnoses sum	-.139**	-.139**	-.145**	-.194**

p-values; *p<0.05; **p<0.01

Table 5

Associations odds ratios (Ors) and 95% confidence interval (CI), between psychological distress (HSCL-10 ≥1.85), socio-demographic factors, somatic health problems and social support (OSS-3), (n=2387)

Independent variables	Model 1 Adjusted for age and gender	Model 2 Additional adjusted for social support	Model 3 Additional adjusted for demographics	Model 4 Adjusted for all variables
Social support				
Number of close friends	**0,44*** (0,36 – 0,54)**			**0,61*** (0,47 – 0,80)**
Concern and interest	**0,52*** (0,44 – 0,61)**			**0,68*** (0,55 – 0,84)**
Practical help from neighbours	**0,74*** (0,64 – 0,86)**			1,13 (0,93 – 1,37)
Demography				
Education				
Primary, 9yrs (ref)	1,00			1,00
Secondary, 12yrs	**0,55* (0,33 – 0,90)**			0,75 (0,39 – 1,43)
College/Univ> 12yrs	**0,60** (0,41 – 0,88)**			1,04 (0,61 – 1,75)
Income in thousands				
150' (ref)	1,00			1,00
150-200'	**0,51** (0,33 – 0,81)**			**0,53* (0,31 – 0,91)**
200-300'	**0,42*** (0,27 – 0,65)**			**0,54* (0,31 – 0,94)**
300+	**0,21*** (0,12 – 0,39)**			**0,31* (0,19 – 0,83)**
Marital status				
Married/cohabiting (ref)	1,00			1,00
Single	**1,48* (1,05 – 2,08)**			1,37 (0,90 – 2,08)
District of town				
Ullern (ref)	1,00			1,00
Østensjø	**1,71** (1,24 – 2,36)**			1,10 (0,71 – 1,72)
Somatic health problems				
Diagnoses				
Diabetes	1,45 (0,83 – 2,53)	1,37 (0,76 – 2,47)	1,37 (0,73 – 2,58)	0,86 (0,41 – 1,81)
Chronic lung disease	**2,04** (1,21 – 3,46)**	1,68 (0,95 – 2,98)	1,55 (0,85 – 2,81)	1,25 (0,67 – 2,35)
Osteoporosis	**2,52*** (1,71 – 3,71)**	**2,28*** (1,51 – 3,46)**	**2,38*** (1,54 – 3,68)**	1,59 (0,98 – 2,56)
Musculoskeletal ailments	**2,19*** (1,59 – 3,03)**	**1,90*** (1,35 – 2,69)**	**1,77** (1,23 – 2,53)**	**1,50* (1,01 – 2,22)**
Cardiac infarction	**2,09** (1,29 – 3,37)**	**1,85* (1,10 – 3,10)**	**1,78* (1,04 – 3,05)**	1,70 (0,94 – 3,08)
Angina	**2,10** (1,32 – 3,34)**	**1,67* (1,01 – 2,77)**	**1,72* (1,02 – 2,90)**	1,25 (0,69 – 2,26)
Stroke	**2,09** (1,34 – 3,28)**	**1,75* (1,07 – 2,85)**	1,44 (0,86 – 2,40)	0,87 (0,50 – 1,51)
Cancer	1,01 (0,66 – 1,55)	0,85 (0,54 – 1,36)	0,79 (0,48 – 1,29)	0,87 (0,51 – 1,47)
Diagnoses sum	**1,70*** (1,48 – 1,96)**	**1,53*** (1,32 – 1,78)**	**1.50*** (1,27 – 1,77)**	**1,29** (1,08 – 1,54)**
Physical impairment				
Balance	**6,58*** (4,41 – 9,83)**	**5,16*** (3,41 – 7,81)**	**5,53*** (2,97 – 6,91)**	**2,66*** (1,67 – 4,22)**
Vision	**4,06*** (2,92 – 5,65)**	**3,31*** (2,33 – 4,70)**	**3,07*** (2,12 – 4,44)**	**2,21*** (1,48 – 3,31)**
Hearing	**1,59** (1,14 – 2,21)**	0,79 (0,96 – 1,94)	1,30 (0,90 – 1,87)	0,87 (0,58 – 1,30)
Urine leak	**3,42*** (2,45 – 4,78)**	**3,02*** (2,11 – 4,31)**	**3,13*** (2,16 – 4,54)**	**2,02*** (1,43 – 3,20)**
Memory	**3,63*** (2,57 – 5,11)**	**3,32*** (2,31 – 4,78)**	**3,06*** (2,10 – 4,47)**	**1,99*** (1,31 – 3,00)**
Impairments sum	**2,10*** (1,84 – 2,38)**	**1,98*** (1,72 – 2,27)**	**1,90*** (1,65 – 2,20)**	**1,84*** (1,59 – 2,13)**

Paper III

A randomized controlled trial of a senior centre group programme for increasing social support and preventing depression in elderly people living at home in Norway

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Abstract

Background

Late-life depression is a common condition and a challenging public health problem. A lack of social support is strongly associated with psychological distress. Senior centres seem to be suitable arenas for community-based health promotion interventions, although few studies have addressed this subject. The objectives were to examine the effect of a preventive senior centre group programme consisting of weekly meetings, social support, depression and quality of life, while increasing participation in senior centres.

Methods

A questionnaire was sent to a random sample of 4,000 persons over 65 in Oslo, and a total of 2,387 completed questionnaires were obtained. These subjects served as a basis for recruitment of participants for a trial, with scores on HSCL-10 being used as a main inclusion criterion. A total of 138 persons were randomized into an intervention group (N=77) and control group (N=61). Social support (OSS-3), depression (BDI), life satisfaction and health were measured in interviews at baseline and after 12 months. Perceptions of benefits from the intervention were also measured. Mean scores, SD, SE and CI were used to describe the changes in outcomes. Effect sizes were calculated based on the original scales and as Cohen's d. Paired sample tests and ANOVA were used to test group differences.

Results

There was an increase in social support in both groups, but greatest in the intervention group. The level of depression increased for both groups, but more so in the control than the intervention group. There was a decrease in life satisfaction, although the decrease was largest among controls. There were almost no differences in reported health between groups. However, effect sizes were small and differences were not statistically significant. In contrast, most of the participants said the intervention meant much to them and led to increased use of the centre.

Conclusions

In all probability, the intervention failed to meet optimistic targets, but possibly met quite modest ones. It is recommended that senior centres expand their activities with group programmes by strengthening social support, but a further evaluation of such programmes is needed. For the depressed, more specialized programmes to cope with depression may be a more appropriate intervention.

Trial Registration: DRKS00003120 on DRKS

Key words

elderly people, social support, depression, prevention, senior centre

INTRODUCTION

Late-life depression and depressive symptoms are common conditions and a challenging public health problem. Studies from the Netherlands from 1999-2006 suggested a prevalence of 16% [1]. A Norwegian study reported that the prevalence of depression increased with age, and was highest among the eldest. Of those 80 years and older, depression was reported by 20% [2]. Depression among older people is often related to physical symptoms resulting from chronic diseases or other impairments [3], as the combination of chronic diseases and depressive conditions cause dramatic reductions in the quality of life [4, 5].

A lack of social support is strongly associated with psychological distress in elderly people, and is an important psychosocial risk factor for depressive disorders later in life [6]. Hence, interventions targeting loneliness and social isolation seem to be a good strategy for prevention, which is also pointed out by Luanaigh and Lawlor in their review article on loneliness and the health of older people [7]. A systematic review conducted to examine the effects of health-promoting interventions identified nine of 10 effective interventions to alleviate social isolation and loneliness among older people. Most were group interventions with an educational or support input for specific groups of older people, and it appeared that programmes that enabled participants to be involved in planning, developing and delivering activities were most likely to be the most effective [8]. A randomized controlled trial showed a decrease in the feeling of loneliness among frail elders who had been exposed to a physically oriented rehabilitation programme [9].

The senior centre is the only welfare service in Norwegian elder care serving both fit and less functional pensioners over 65 years. Senior centres have the goal of maintaining physical and psychological activity, functional health, protection, in addition to the promotion of self-sufficiency and the prevention of psychosocial problems of loneliness and isolation in the elderly. They are organized as small local units for activity and social contact, have a small staff of 2-4 persons and are run in large part by volunteers; they can be characterized as a welfare service and a private responsibility, though not a statutory care service such as home help, home nursing and a residential care facility.

Senior centres seem to be suitable arenas for community-based health promotion interventions that target social isolation and loneliness. However, few studies have addressed this subject. Three studies located at senior centres with physical activity as the main outcome also report a preventive effect on psychological distress. One randomized controlled intervention study located at a senior centre with 201 frail older adults demonstrated significantly higher levels of physical activity and senior centre participation, as well as a significant reduction in the use of psychoactive medications in the intervention group [10]. Another randomized trial with 100 older adults in a senior centre showed that after six months the intervention group had significantly better scores on the Medical Outcomes Study Short Form (SF-36) health survey subscales, and fewer depressive symptoms than controls measured with the self-report depression scale CES-D [11]. A pre-test, post-test evaluation of a one-year prevention programme with the participation of 300 men and women aged 65 and older and 14 senior centres participating, concluded with a decrease in depression symptoms, better self-evaluated health and increased physical activity among the participants [12].

The purpose of the present study was to test the effects of a senior centre group programme on preventing depression, increasing social support and self-rated health and satisfaction with life. We hypothesized that the programme could cause lower score on a depression scale, and higher scores on life satisfaction, self-rated health and social support scales in the participants of the programme than in controls. The intervention also aimed at increasing the use of senior centres in a selection of elderly people in two districts of Oslo, Norway.

THE INTERVENTION

The intervention was initiated by the National Association for Public Health, which owns 32 senior centres in Norway, and sponsored by the Extra Foundation for Health and Rehabilitation. Its aim was to reach out to elderly people with symptoms of loneliness and some symptoms of psychological distress. By having these people participate in common

senior centre activities, there was hope of increasing their feelings of social support, alleviating and preventing depression and increasing their satisfaction with life. Independent of the location of the senior centres, there are number of studies which show that mental stimuli, social network and social engagement, nutrition intervention and physical activity have a positive effect on the mental health of the elderly [13-19]. The intervention programme, however, was based on practical experiences from senior centre leaders, as well as the goals of the senior centre and some Norwegian studies concerning the above mentioned themes (only in the Norwegian language) [20-23]. It was designed to produce practical knowledge how the senior centres could expand their activities.

The intervention was started in late January 2007, and was conducted in three senior centres in two municipal districts, with one in eastern Oslo and one in western Oslo. Elderly people who were eligible for participation (see flow chart, Figure 1) were offered a programme consisting of a weekly group meeting of a three-hour duration that was carried out 35 to 38 times over the course of a year. Each group had a fixed membership and 7 – 10 participants. Addressing psychosocial problems such as depressive symptoms, loneliness and the isolation of elders within the senior centres context was chosen in this study because the senior centre leaders had a practical experience from local communities that many older persons were lonely and would benefit from a specially designed programme such as this. They also had a notion that many could not visit the centres due to a lack of transportation.

The intervention programme included transportation to and from the senior centre if needed and a warm meal at a low cost. A physical training programme developed by physiotherapists especially for older persons was included. It was easy to practice with a chair without changing clothes, footwear, etc. A self-help group discussed topics that the participants agreed upon themselves such as safety in the home and outdoors, how to avoid falling, social relations and aging, humour and laughter. These elements of the programme were well-known as key elements in daily activities at the centres. They were put together on the basis that if the participants who were slightly depressed when recruited would attend these groups, the content must be common and not too lengthy and that it was easy for them to meet. The group leaders were volunteers who had completed a training course for group leaders, and they were supervised by the project leader, who was a registered

nurse and an experienced senior centre leader. A description of the introduction to the group methods and practical advice was created by the National Association of Public Health, both for the themes for the group discussion and for the physical training (only in the Norwegian language) (13). The researchers had no part in planning or organizing this intervention.

The intervention was mostly implemented according to the project plan. Because the number of participants was reduced and the days available for the group programme had to fit the time schedules of the participants, the five groups were supplemented by other persons not taking part in the research project. In a logbook at each senior centre, the group leaders documented the names and dates of those present and absent from among the research participants.

The intervention was planned for 80 people, with this being the maximum number allowed by the resources available to the project and the three centres in question.

Preliminary evaluation of the intervention

Prior to the outcome evaluation reported in this paper, the intervention was evaluated by the project leader with respect to the participant's satisfaction. The participants were asked questions about health and well-being, and were tested for simple physical skills three weeks after the beginning of the programme and after 11 months. Both men and women reported being in a normal good mood after three weeks, though before the intervention they reported symptoms of distress and a lack of initiative. Some possible explanations for this are that the intervention had already fulfilled some of its intentions or that the participants reported what they thought the project leader expected. Among the women, 40% had made new friends, while the men reported no differences in friendships. Female participants also experienced that the number of visits from friends in their homes increased, and that the participants were active in the group setting and met on time. The project leader for the participants reported less loneliness, a better mood and better physical health [24].

Main evaluation of the intervention

The present evaluation was conducted by researchers who had no part in planning or organizing the intervention. The evaluation was designed as a randomized controlled trial which aimed at comparing an intervention group of 80 people with an equally large control group. The organizers of the intervention cooperated with the evaluators in recruiting participants so that a sound, randomized controlled trial could be conducted. The study intervention did not require any large additional expenditure of resources, and was easily fitted into the ongoing senior centre programme.

We were not able to detect any controlled studies of the effect of the senior centres' programmes on persons' mental health, well-being and social support as main outcomes. It was hypothesized that the intervention was particularly suitable for the elderly with only slight depression, which affected the inclusion criteria, see below.

The limitation of the intervention to 80 people inevitably set a limit to the statistical power that would be possible to achieve in an evaluation. It was therefore acknowledged that an assessment of the effectiveness could lead to results with fairly wide margins of uncertainty, which would have to be read as indicative rather than conclusive. As shown below, some fairly clear conclusions can nonetheless be drawn.

The flow diagram used is according to updated guidelines for reporting parallel group randomized trials [25, 26].

The study was approved by the Data Inspectorate and the National Committee for Medical and Health Research Ethics, (Southeast Region) in 2006.

Participants and recruitment

As a first step towards selecting people for the trial, a random sample of 4,000 persons over the age of 65 years living at home - with 2,000 from each of the two municipal districts - was drawn from the Norwegian Population Register. Of these, 111 persons were residents of nursing homes and were excluded from the material.

Letters were sent to the remaining 3,889 persons in October 2006. The letter contained information about the senior centres and an extensive questionnaire for self-administration and postal return, and asked about gender, age, education, income, ethnicity, marital status, use of the senior centre, reason for non-use, functional impairments (physical and mental), social support and quality of life. One reminder was sent to those who did not respond. The completed questionnaires were scanned and quality controlled. A total of 2,387 out of the 3,889 persons (61%) were obtained as candidates for recruitment to the trial. The further details of those who did not answer are described in Bøen et al. [27].

For recruitment to the trial, an initial inclusion criterion (see below) was 'having psychological distress according to Hopkins Symptom Checklist-10 (HSCL-10) in the range of 1.39 to 1.99', which corresponds to 'light depression'. Two other criteria were that the subjects should not have been regular users of the senior centre already, and that they wanted to be part of the current study. Of the 2,387 persons who responded satisfactorily to the questionnaire, 201 met these three initial eligibility criteria. The 201 were contacted by phone in order to make practical arrangements for face-to-face interviews in their homes. The purpose of the interviews was to make further observations regarding their eligibility and motivation for participation in the trial, and to obtain written informed consent. Specially trained social work students and retired social workers, researchers and project leaders conducted the interviews.

During this part of the recruitment process, a number of potential candidates dropped because of a lack of interest. The reasons given for this disinterest were bad health and a heavy burden of care. This was essentially as expected, although the *number* of dropouts was larger than anticipated and implied that the number of participants in the trial would be lower than planned. To avert a loss of statistical power beyond what had to initially be accepted for practical reasons, we carried out a second recruitment from the 2387 completed questionnaires, in which we expanded the inclusion criterion based on the HSCL-10 scale to the range from 1.20-3.90. This meant that we included candidates who were not depressed at all, although we also included candidates who were more depressed than in the first recruitment. Those who had answered less than seven out of 10 questions on HSCL-10 were excluded. An additional 214 persons were found eligible in this second round,

yielding a total of 415 eligible persons. Persons in the second round were contacted and interviewed in their homes in the same way as the first 201 persons**.**
The illustration of this process of going from the random sample (4000) to the sample assessed for eligibility (415) is shown in Figure 1.

Figure 1 about here

In total, 277 of the 415 eligible persons dropped out, leaving 138 subjects for randomization in the trial, which was performed by stratifying many in the sample by geographical area and gender. Seventy-seven (55%) were allocated to the intervention group and 61 (45%) to the control group. A larger lot was drawn to the intervention group than to the control group because of an expected loss of participants.

The first group (those recruited on the basis of the initial HSCL criterion) started the intervention in January 2007, four weeks after baseline interviews with the outcome measures described below. Follow-up interviews took place in November/December of the same year.

The additional second group started the intervention in April 2007, four weeks after baseline interviews, with the follow-up interviews conducted in April/March 2008.

The control group was free to continue daily activities as they chose, and they were offered the same group activities as the intervention group after one year. They were not subjects of further follow-up studies after the intervention had ended.

Data

One outcome parameter was social support, as measured by scores on the Oslo-3 Social support scale (OSS-3). The OSS-3 is based on three questions, with scores on each item and a sum score.
Oslo 1: How many people are you so close to that you can count on them if you have great personal problems? (none (1), 1-2 (2), 3-5 (3), 5+ (4))

Oslo 2: How much interest and concern do people show in what you do? (a lot (5), some (4), uncertain (3), little (2), none (1))
Oslo 3: How easy is it to get practical help from neighbours if you should need it? (very easy (5), easy (4), possible (3), difficult (2), very difficult (1))

In the present paper the sum score, ranging from 3 (worst) to 14 (best), is used. The OSS-3 has been used in several studies, thereby confirming its feasibility and predictive validity with respect to psychological distress [28, 29] .

Another outcome parameter was depression, as measured on the Beck Depression Inventory (BDI). The BDI is a 21-item, self-report scale, ranging from 0 (normal) to 3 (most severe), with a total maximum depression score of 63. This questionnaire is widely used among older adults, though not specifically developed for the geriatric population [30-33].

A third outcome parameter was life satisfaction, as measured by scores on a question about quality of life, ranging from 1-5, with 1 meaning very dissatisfied and 5 very satisfied.

A fourth outcome parameter was self-reported health, as measured by scores on a question of health, ranging from 1-4, with 1 meaning bad health and 4 very good health.

All of these measurements were conducted in an identical manner in face-to-face interviews, first at baseline and then at 12 months follow-up when the intervention had come to an end. After 12 months, the intervention group was also asked how much the weekly group programme meant to them, ranging from very much (4) to little (1). They were also asked if they had made any new friends or met the participants in a private setting (yes/no).

Specific hypotheses to be tested

The expectation of those who initiated and organized the intervention was that it would increase the participants' feelings of social support, alleviate and prevent depression and increase their satisfaction with life, though the exact strength of this expectation was not specified. We considered that the effects needed to be above a certain size to be clinically significant and thus of interest for policymaking. With respect to the Beck Depression

Inventory, Bright et al. (1999) suggested that a change of at least 6 points is clinically significant, even though this judgement is somewhat arbitrarily related to the size of standard deviations commonly observed in BDI data. Nord and Dalgard conducted a cost-value analysis of a programme for coping with depression based on an observed effect of 3.3 points on the BDI [34]. This corresponded for instance to 'somewhat less sadness, somewhat greater interest in others, somewhat greater enjoyment of activities and somewhat less problems with sleep', which was clearly a significant difference. Consequently, we therefore lowered the requirement even further, and tested the hypothesis that the intervention yielded a mean effect of at least a 2 point improvement on the BDI. The implication was that if the effect was less than that, which we refer to as a 'modest target', the intervention may be difficult to justify. Since there was inevitably an element of subjectivity in such a choice of 'satisfactory effect size', we additionally applied a wider test criterion of 3 points on the BDI, which we refer to as an 'optimistic target'.

We chose similar target levels of effect on the other three outcome measures. Here, we used the target level on the BDI as a reference and proportionally adjusted for differences in the length of the scales by looking at the standard deviations of scores on the four different scales as observed in the present study. As we shall see, the standard deviations were on the order of 6 for BDI, 2 for social support, 0.8 for life satisfaction and 0.6 for health. The target level of 2 points for BDI is 1/3 of the standard deviation. Applying the same fraction to the standard deviations of the other outcome measures, we achieved modest target levels of 0.67 points for social support, 0.27 points for life satisfaction and 0.2 points for health. The corresponding optimistic targets were 1.0, 0.4 and 0.3, respectively.

Statistical methods and analyses

Baseline characteristics for the intervention and control groups were given as the percentage of distributions or mean values. Changes on the four outcome measures in the intervention and control groups were reported in terms of mean scores at intervention and at follow-up, including standard deviations (SD) at each of these, mean differences from intervention to follow-up, the standard deviations of these differences, the standard errors (SE) of the mean differences calculated as $SE = SD/\sqrt{N}$ and the 95% confidence intervals of the mean differences calculated as mean differences + / - 2 SE.

Effect sizes were first calculated in absolute terms as the *difference between the mean change* in the intervention group and the mean change in the control group on each of the four outcome measures, and second as a standardized effect size, which is the effect size divided by the mathematical mean of the standard deviations of the changes in the two groups (the Cohen's d).

The standard error of an effect size in absolute terms on a particular outcome measure is calculated as the square root of the sum of the squared standard errors of the mean changes within the two groups.

We examined whether the estimated effect sizes in the study met the targets levels specified above by looking at the confidence intervals of the observed effects.

The Pearson's correlation coefficient was used to describe the associations between the number of times participating in the group meetings and the outcome scores.

To be sure that the observed results were neither due to selection nor group differences, various raking techniques were used that are explained in the Discussion section.
To test differences at the group level, paired sample tests and one-way between groups analyses (ANOVA) were used.

RESULTS

Of those allocated for intervention, 36 persons changed their minds about participating. They all cited too much stress or illness in their lives to carry through with the programme and completely withdrew from the study. Of those constituting the dropouts, one person died and some had great memory problems, which meant that they were not available for further interviews. In addition, four persons were lost to follow-up because of bad health and removal, which meant that a total of 40 persons dropped out.

Seven persons came to the group sessions 14 times or less and discontinued their participation, although group did not differ significantly from the others with respect to baseline characteristics.

Of those allocated for intervention, 37 (48%) took part in the follow-up, with the corresponding number of controls at 55 (90%). The total number of participants who completed the study was 92, which was much lower than what was initially hoped for (which was 80 for each group)

The total flow of eligible subjects is shown in Figure 2:
Figure 2 about here

Ideally, analyses of interventions should be conducted on the basis of intention-to-treat. However, no data collection could be carried out with the 40 participants who were lost after the allocation and during follow up, due to their health status and withdrawal from the study. Their reasons for withdrawal were not questioned, and it would have been unethical to pressure them. The seven persons who did come to the group sessions 14 times or less (discontinued participation) were all followed up and interviewed at 12 months, and were included in the main analysis.

Characteristics of the study sample in the intervention and control groups at baseline are shown in Table 1:

Table 1 about here

The intervention and control groups were fairly similar when compared at baseline for demographic characteristics, life satisfaction, health and social support, and the average age in the intervention group was slightly higher than among the controls. With respect to depression, the level of BDI indicated that the intervention group was slightly more depressed than the controls.

The scores on the outcome variables at baseline and the 12-month follow-up, as well as the difference scores for the intervention group and the control group, are shown in Table 2.

Table 2 about here

For both groups, there was a decrease in life satisfaction, although the decrease was largest among controls. There were almost no differences in health between the groups. There was an increase in social support in both groups, but was greatest in the intervention group. For both groups the level of depression increased, but more so in the control than in the intervention group. Even so, the effect sizes were very small and all differences were far from being statistically significant. A null hypothesis – i.e. a hypothesis that the intervention in reality was without effect on the parameters in question – can by no means be rejected.

To look for a possible 'dose-response' effect, the outcome measures were correlated with the number of times participated in the group meetings. Both with respect to BDI, social support and health, improvements increased in step with the increasing number of times that the persons participated in the group meetings, whereas this was not the case for life satisfaction. Correlations were on the order of .1 - .2 (not shown in table), and none of them were significant.

Tables 3 and 4 show the development of BDI scores among those who were younger than 80 years and those who were 80 years and older.

Table 3 about here

Table 4 about here

There was no significant difference between the intervention and control groups in any of the two age groups.

A comparison with memory impairments revealed no significant differences between the intervention group and the control group, either for participants younger or older than 80 at time t2. There was no significant difference with respect to memory impairment at t2

between the two age groups (not shown in table). The figures were too small to test for use of medication against depression among the participants.

Table 5 shows the effect estimates compared to the previously chosen clinically significant target levels.

Table 5 about here

For social support, health and life satisfaction, the 'optimistic' target levels were higher than the upper limit of the 95 % confidence intervals for the effect estimates, while for BDI, the optimistic target level was in the upper tail. Hence, the data strongly suggest the rejection of a hypothesis that the intervention yielded large effects. In contrast, the 'moderate' target levels were inside the effect size confidence intervals on all four parameters, meaning that the possibility of moderate effects (as defined above) cannot be rejected.

The participants in the research intervention group were also asked after 12 months to evaluate how much this intervention had meant to them. Of the 37 participants, 19 answered that it meant very much or much, 13 persons answered some and five persons said that it meant little. The ANOVA 'one-way between groups' analysis carried out with social support as the dependent variable suggested that those who valued the meetings as most meaningful also experienced the most improvement in social support, which was nearly significant ($p< 0.08$). Half the intervention group had made new friends, and 25 persons now availed themselves of more of the activities at the senior centre (not shown in the table).

DISCUSSION

The strength of this study is that it has a randomized, controlled design and uses well-established and validated outcome measures for social support and depression. Its main weaknesses are the high percentage of dropouts, which may have led to a selection bias by making it difficult to do a completely fair comparison between the groups (cf. the note above about the intention-to-treat analysis).

One possible explanation for the loss of participants in the intervention group after the randomization could be that when it came closer to the start of the programme, the participants started to have second thoughts and the obligation to weekly meetings for a year seemed too much to fulfil. As a result, the easiest way out was to withdraw at an early stage. The controls accepted three home visits during the year and a coming programme the next year, which did not imply that much personal commitment. To cushion this effect, we could have followed up the participants more closely by, e.g. phone calls.

The low number of participants, which leaves the study with a low statistical power, is also a problem. Both of these problems were difficult to avoid given the limited resources available in the intervention project, which calls for great care when interpreting the findings.

There were some differences between the intervention and control groups, both with respect to size and various socio-economic variables, and at baseline and the end of the intervention, thereby suggesting that the observed results might have been due to the selection mechanisms on one or more variable(s). However, including the variables under consideration as predictors in regression analyses did not significantly affect the results, which suggest that the observed results in the present paper were neither due to selection nor group differences.

This was also confirmed by using various raking techniques [35, 36]. More specifically, we first assumed that both the intervention and control group were identically distributed with respect to the different variables from Table 1: gender, age, income, education, marital status and geography at baseline, although this did not significantly affect the BDI level. Moreover, since the dropout rate from baseline to the end of the intervention was different in the two groups, we also checked whether this could affect the change in BDI from baseline to the end of the intervention by applying similar techniques. However, this did not significantly affect the BDI levels.

The effect of dropouts is difficult to judge. There are arguments for assuming that the dropouts would have benefited less than those who stayed, so that the inclusion of the dropouts would have made the differences between the intervention group and the control group smaller. But the opposite is also conceivable. Dropouts reported higher levels of stress and illness, so perhaps socializing at senior centres would have been of particular help to these people.

Disregarding the possible biases related to the high dropout rate, we may draw some conclusions from the data. Since all 95% confidence intervals of effect estimates clearly overlap with zero, it is impossible to reject the null hypothesis (that the intervention did not have any effect). That does not in itself mean that the intervention *cannot* have been effective, as there may have been positive effects that just do not show up in a statistically significant way due to the small sample size. We therefore focused on the possibility of there being more than just small and perhaps clinically insignificant effects, i.e. the possibility of effects that one would reasonably consider to be of clinical and policymaking interest. From this perspective, we suggested specific target values for effect sizes which the intervention should have been able to meet. According to our data, the intervention in all probability failed to meet optimistic targets, but possibly met quite modest ones. The latter possibility is supported by the positive reporting from participants with respect to satisfaction with the intervention. There was also a tendency towards a 'dose–response' effect, although this was not significant.

The very modest effect observed on BDI was somewhat surprising. An important concern is whether BDI is an inappropriate instrument in this context, in which the majority was over 80 years old. This inventory was chosen because it is widely used among older adults, with a well-documented high reliability, internal consistency and validity. The BDI also demonstrates a good discrimination between patients with varying degrees of depression, and accurately reflects changes in the intensity of depression over time [30-33]. Still, it may be difficult to separate depression and cognitive impairments, even in a diagnostic evaluation [37]. Since the majority of participants were over the age of 80 years, and knowing that the incidence of cognitive decline increases sharply in this age group, stratification in age groups over and less than 80 years was conducted. There were no

significant differences in BDI scores between the intervention and control groups in either of the two age groups. Furthermore, no significant differences were found in memory impairment.

There was a relatively large but non-significant decrease in BDI score among persons aged less than 80 years, and a significant increase in BDI score among persons over 80 years. It could well be that participants from 65 to 79 experienced a process of awareness and optimism as a result of being surveyed. In contrast, the oldest group might have experienced no awareness and optimism due to their age and future expectations from the staring point to the end of the intervention.

Another possible explanation for the modest effect on BDI could be that the level of depression in the sample was too low (a mean BDI score at baseline of approximately 10) for a substantial effect to be expected from the intervention, though this explanation is not supported by a subgroup analysis of the data. When we split the material into those with a BDI score equal to or less than 10 and those with a BDI score higher than 10 (not reported in the tables), we observe that the positive effect is almost statistically significantly *smaller* in the high BDI group than in the low BDI group.

An alternative explanation is therefore that an intervention of this type does not so much serve to improve the condition of those who already have considerable depression, but rather to avert development of more severe depression in those who have only mild symptoms.

With regard to the fact that the intervention programme at most had a modest effect upon depression, the frequency of meetings and the level of competence of the group leaders must be taken into consideration in the evaluation of this programme. The leaders were volunteers and had no health professional or social work background that qualified them to address mental health problems, and most of them had no prior experience with conducting group programmes. If this programme is meant to address users' special mental challenges, more experienced and professional group leaders are needed. The substance of the programme must then be developed towards a treatment course, such as a Coping With

Depression Course (CWD) for the elderly. An effectiveness trial proved the CWD course to be effective for older people with subclinical depression, as well as for those with a current major depression [38].

CONCLUSIONS

According to our data, the intervention in all probability failed to meet optimistic targets, but possibly met rather modest ones. The latter possibility is supported by the positive reporting from participants with respect to satisfaction with the intervention and a tendency toward a 'dose-response' effect. It is recommended that senior centres expand their activities with group programmes that target social isolation and loneliness and strengthen social support, although further evaluation of such programmes is needed. For the depressed, more specialized programmes to cope with depression may be a more appropriate intervention.

Competing interests

None of the authors had any economic interest in the project.

Author's contributions

HB and OSD were responsible for the design. EN contributed to determining sample size. HB was responsible for the data collection. RJ performed the randomization. HB, OSD and RJ conducted the data analysis. HB and OSD were responsible for drafting the manuscript. RJ commented on the possibility of a selection bias. EN made extensive amendments and revisions for important substantial content. OSD supervised the study.

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Table 1
Characteristics of the sample. For categorical variables: Percentage; For continuous variables: Mean, Standard Deviations in brackets, total n=92

		Intervention	Control
Gender	Women	59.5	54.7
	Men	40.5	45.3
Age group	65-69	5.4	15.1
	70-79	35.1	35.8
	80+	59.5	49.1
Income*[1]	≤150’	16.2	22.0
	150’-200’	27.0	28.0
	200’-300’	32.4	30.0
	300+	24.3	20.0
Education	Primary, 9 yrs	35.1	37.7
	Secondary,12 yrs	27.0	18.9
	College/University≥ 13 yrs	37.8	43.4
Marital status	Married/cohabiting	40.5	49.1
	Single	59.5	50.9
District of town	Ullern	56.8	64.2
	Østensjø	43.2	35.8
Life satisfaction* [2]	Mean	3.65 (0.82)	3.84 (0.71)
Health* [3]	Mean	2.44 (0.65)	2.55 (0.60)
Social support* [4]	Mean	9.32 (2.01)	9.21 (2.00)
BDI*[5]	Mean	10.14 (6.63)	8.70 (4.85)

*1 Norwegian crowns
*2 High value, most satisfied
*3 High value, good health
*4 High value, much support
*5 High value, most depressed

Table 2
Descriptive mean score, Standard deviations on the scales of life satisfaction, health, social support and Beck Depression Inventory at baseline and after 12months, n total=92 *

Instruments and scoring range	**Baseline**				**After 12 months**			**Differences Baseline-12 months**			**Effect size**
	Groups	*n*	Mean score	S.D.	*n*	Mean score	S.D.	*n*	Mean change	S.D.	Cohen's d
Life satisfaction 1-5	Intervention	37	3.65	0.82	37	3.59	0.76	37	-0.06	0.78	0.22
	Control	55	3.84	0.71	54	3.61	0.79	54	-0.22	0.74	
Health 1-4	Intervention	36	2.44	0.65	37	2.24	0.72	36	-0.20	0.74	0.07
	Control	55	2.55	0.60	55	2.40	0.63	55	-0.15	0.52	
Social support 3-14	Intervention	37	9.32	2.02	37	9.97	2.05	37	0.65	1.46	0.12
	Control	53	9.21	2.00	54	9.69	2.09	52	0.48	1.72	
BDI	Intervention	36	10.14	6.63	37	10.70	5.95	36	0.56	5.45	0.03
	Control	53	8.70	4.85	55	9.44	4.19	53	0.74	4.72	

* n differs, both in intervention group and in control group because not all the participants answered all the questions at both baseline and after 12 months

Table 3

Development of Beck Depression Inventory score in intervention and control groups in 12 months for participants younger and older than 80 years (n=92)

Age	**Younger than 80 years**				**80 years or above**			
Time	T1		T2		T1		T2	
	intervention	control	intervention	control	intervention	control	intervention	control
Number of participants	14	27	15	29	22	26	22	26
BDI	9.5	9.44	8.47	8.62	10.55	7.92	12.33	10.35

Table 4

Absolute and relative changes in Beck Depression Inventory score in intervention and control groups in 12 months for participants younger and older than 80 years (n=92)

Age	**Younger than 80 years**		**80 years or above**	
	intervention	control	intervention	control
Changes in BDI (absolute)	- 1.03	- 0.82	+ 1.68	+ 2.43
Changes in BDI (relative)	- 10.8%	- 8.7%	+ 19.9%	+ 30.7%

Table 5

Effect estimates of life satisfaction, health, social support and Beck Depression Inventory compared to reasonable, clinically significant target levels

	Effect estimate absolute	**SE**	**95% CI**	**Target level**	
	Mean			Modest	Optimistic
Life satisfaction	0.17	0.16	-0.15, +0.49	0.27	0.40
Health	-0.05	0.14	-0.33, +0.23	0.20	0.30
Social support	0.17	0.32	-0.47, +0.81	0.67	1.00
BDI	0.18	1.12	-2.06, +2.42	2.00	3.00

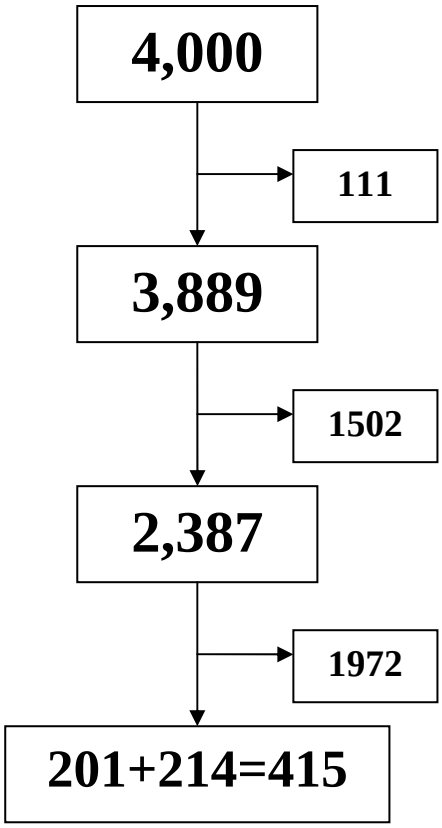

Figure 1

The illustration of the process of going from the random sample (4000) to the sample assessed for eligibility (415)

CONSORT 2010 Flow Diagram

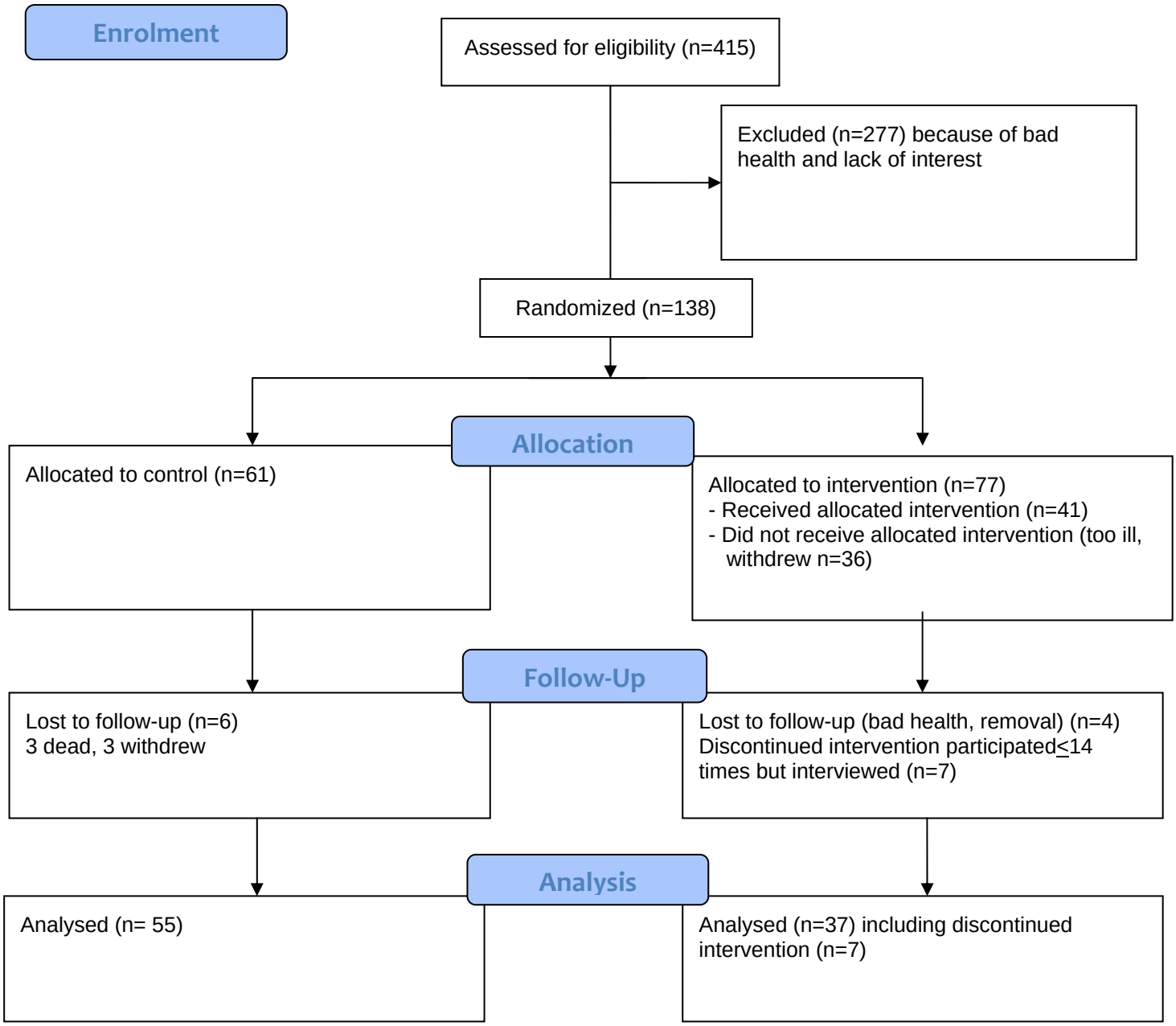

Figure 2

Flow diagram

APPENDIX I

Questionnaire
Recruitment

«LØPENR»

folkehelseinstituttet

Takk for at du tar deg tid til å fylle ut skjemaet. Det skal siden leses maskinelt. Skriv derfor med blå eller sort penn, og skriv inne i boksene, slik: ☒

1. Generelle opplysninger

1.1 Kjønn: Kvinne ☐ 1 Mann ☐ 2

1.2 Hvilket år er du født?

1.3 Hvor er du født?

Norge ... ☐ 1 Annet land i Europa eller Amerika ..... ☐ 2

Asia ..... ☐ 3 Afrika ... ☐ 4 Andre steder .... ☐ 5

1.4 Hvor bor du? Ullern bydel ☐ 1 Østensjø bydel ☐ 2

1.5 Hva er din høyeste utdanning? (Sett bare ett kryss)

Ufullstendig folkeskole ..... ☐ 1 Folkeskole ..... ☐ 2

Framhaldskole/realskole eller lignende .... ☐ 3 Gymnas ..... ☐ 4

Universitet/høgskole ☐ 5

1.6 Hvor høy omtrent var din inntekt siste år?

Ingen inntekt ☐ 1 Under 50 000 ☐ 2 50 – 100 000 ☐ 3

100 – 150 000 ☐ 4 150 – 200 000 ☐ 5 200 – 300 000 ☐ 6

300 – 400 000 ☐ 7 Mer enn 400 000 ☐ 8

1.7 Er du eller har du vært uføretrygdet før du fikk alderspensjon?

Ja ☐ 1 Nei ☐ 2

1.8 Nåværende sivilstatus?

Gift ..... ☐ 1 Samboende ..... ☐ 2 Ugift/ikke samboende ... ☐ 3

Enke/enkemann ..... ☐ 4 Separert ..... ☐ 5 Skilt ..... ☐ 6

1.9 Bor du alene? Ja ☐ 1 Nei ☐ 2

2. Eldresenteret/Seniorsenteret

2.1 Kjenner du tilbudene på eldre-/seniorsenteret i bydelen din?

Ja ☐ 1 Delvis ☐ 2 Nei ☐ 3

2.2 Bruker du eldre-/seniorsenteret?

Regelmessig ☐ 1 Av og til ☐ 2 Ikke i det hele tatt ☐ 3

2.3 Hvis du har krysset av på *av og til* eller *ikke i det hele tatt* på spørsmålet på forrige side er det fordi du: (kryss av på flere alternativer hvis det er mest dekkende)

Ikke klarer å komme dit alene..... ☐ 1

Ikke kjenner noen der ..... ☐ 2

Føler deg for skrøpelig til å gå der ..... ☐ 3

Føler deg for sprek til å gå der ..... ☐ 4

Ikke har noen interesse av tilbudene der..... ☐ 5

Har nok å holde på med fra før ..... ☐ 6

Andre årsaker ..... ☐ 7

3. Andre kommunale tilbud

Benytter du for tiden:

3.1 Dagsenterplass Ja ☐ 1 Nei ☐ 2

3.2 Hjemmesykepleie Ja ☐ 1 Nei ☐ 2

Hvis ja, antall ganger hjemmesykepleie pr. uke?

3.3 Hjemmehjelp Ja ☐ 1 Nei ☐ 2

3.4 Tilleggstjenester fra privat firma Ja ☐ 1 Nei ☐ 2

3.5 Har du benyttet noen av de følgende kommunale tilbud siste år?:
(Kryss av på flere alternativ hvis det er mest dekkende)

Fysioterapi/ergoterapi ..... ☐ 1

Samtale med psykiatrisk sykepleier ..... ☐ 2

Korttidsopphold ved sykehjem ..... ☐ 3

Servicebolig ..... ☐ 4

Trygdebolig ..... ☐ 5

4. Helse og trivsel

4.1 Hvor fornøyd er du med tilværelsen?

Meget fornøyd ☐ 1 Godt fornøyd ☐ 2 Fornøyd ☐ 3

Misfornøyd ☐ 4 Meget misfornøyd ☐ 5

4.2 Hvordan klarer du deg i det daglige?

Er selvhjulpen ☐ 1 Trenger litt hjelp av og til ☐ 2 Trenger mye hjelp ☐ 3

4.3 Klarer du selv nødvendig....

	Ja	Delvis	Nei
Klesvask	☐	☐	☐
Matlaging	☐	☐	☐
Innkjøp	☐	☐	☐
Rengjøring	☐	☐	☐
Personlig hygiene	☐	☐	☐
	1	2	3

4.4 Hvordan er helsen din nå?

Dårlig ☐ 1 Ikke helt god ☐ 2 God ☐ 3 Svært god ☐ 4

4.5 Har du eller har du hatt noen av de følgende sykdommene?

(Kryss av for flere alternativ hvis det er mest dekkende)

Diabetes ..... ☐ 1 Kronisk lungesykdom ☐ 2 Benskjørhet (Osteoporose) ☐ 3

Muskel/skjelettplager ☐ 4 Hjerteinfarkt ☐ 5 Angina pectoris (hjertekrampe) ☐ 6

Hjerneslag/hjerneblødning "drypp" ☐ 7 Kreft ... . ☐ 8

4.6 Har du problemer med balansen?

Nei ☐ 1 Litt ☐ 2 Ja ☐ 3

4.7 Hvordan er lesesynet? (Med briller hvis nødvendig)

Godt ☐ 1 Litt dårlig ☐ 2 Dårlig ☐ 3

4.8 Hvordan er hørselen? (Med høreapparat hvis nødvendig)

God ☐ 1 Litt dårlig ☐ 2 Dårlig ☐ 3

4.9 Har du vansker med urinlekkasje eller med å tømme blæren?

Nei ☐ 1 Litt vansker ☐ 2 Nokså store vansker ☐ 3

4.10 Har du vansker med hukommelsen?

Nei ☐ 1 Litt vansker ☐ 2 Nokså store vansker ☐ 3

5. Andre plager

5.1 Har du opplevd noe av det følgende den siste uken (til og med i dag)?

Kryss av alle 10 spørsmål, sett ett kryss for hver linje

.

	Ikke plaget	Litt plaget	Ganske mye plaget	Veldig mye plaget
Plutselig frykt uten grunn	☐	☐	☐	☐
Følt deg redd eller engstelig	☐	☐	☐	☐
Følt deg svimmel eller matt	☐	☐	☐	☐
Følt deg anspent eller oppjaget	☐	☐	☐	☐
Lett for å klandre deg selv	☐	☐	☐	☐
Søvnproblemer	☐	☐	☐	☐
Nedtrykt, tungsindig	☐	☐	☐	☐
Følt deg uten verdi/verdiløs	☐	☐	☐	☐
Følt at alt er et slit	☐	☐	☐	☐
Følt håpløshet ved tanken på fremtiden	☐	☐	☐	☐
	1	2	3	4

6. Sosial kontakt

6.1 Hvor mange mennesker står deg så nær at du kan regne med dem hvis du har store personlige problemer?

Ingen ☐ 1 1 til 2 ☐ 2 3 til 5 ☐ 3 Flere enn 5 ☐ 4

6.2 Hvor stor interesse viser folk for det du gjør?

Stor deltakelse og interesse ☐ 5 Noe deltakelse og interesse ☐ 4 Usikker ☐ 3

Liten deltakelse og interesse ☐ 2 Ingen deltakelse og interesse ☐ 1

6.3 Hvor lett er det å få praktisk hjelp fra naboer om du skulle trenge det?

Meget lett ☐ 5 Lett ☐ 4 Mulig ☐ 3 Vanskelig ☐ 2 Meget vanskelig ☐ 1

6.4 Treffer du andre mennesker så ofte du vil? Ja ☐ 2 Nei ☐ 1

7. Aktivitet

	Daglig	Ofte	Av og til	Aldri
Leser du aviser/bøker?	☐	☐	☐	☐
Går du tur?	☐	☐	☐	☐
Besøker du venner eller familie?	☐	☐	☐	☐
Ser du på TV?	☐	☐	☐	☐
Reiser du til kjente eller nye steder?	☐	☐	☐	☐
Går du på kino/teater/konsert?	☐	☐	☐	☐
	1	2	3	4

8. Oppfølging

8.1 Kan vi ta kontakt med deg om å være med videre i prosjektet ved eldresenteret i bydelen din?

Ja ☐ 1 Nei ☐ 2

8.2 Kan du tenke deg å hjelpe litt til ved et eldresenter?

Ja ☐ 1 Nei ☐ 2 Er frivillig fra før ☐ 3

8.3 Hvis ja, kan vi ta kontakt med deg for nærmere avtale?

Ja ☐ 1 Nei ☐ 2

Dersom du har svart ja på at vi kan kontakte deg, enten for å være med videre i prosjektet ved eldresenteret eller for frivillig innsats, eventuelt begge deler, vil vi gjerne at du skriver telefonnummeret ditt her:

Privat (ett tall i hver boks)

Mobil (ett tall i hver boks)

Takk for at du svarte på spørsmålene!

NB! SKJEMAET MÅ IKKE BRETTES

APPENDIX II

Questionnaire
Baseline

folkehelseinstituttet

Takk for at du tar deg tid til å fylle ut skjemaet. Det skal siden leses maskinelt. Skriv derfor med blå eller sort penn, og skriv inne i boksene, slik:☒

1. Ernæring

1.1 Hvor mange dager i uken spiser du middag? (Sett bare ett kryss)

- Hver dag ☐ 1
- 4-6 ganger pr. uke ☐ 2
- 2-3 ganger pr. uke ☐ 3
- Færre enn 2 ganger pr. uke ☐ 4

1.2 Får du middag levert fra bydelen? Ja ☐ 1 Nei ☐ 2

1.2.1 Hvis ja, hvor mange porsjoner i uken? (Sett bare ett kryss)

- 7 porsjoner ☐ 1
- 4-6 porsjoner ☐ 2
- 2-3 porsjoner ☐ 3
- En porsjon ☐ 4

2. Fall

2.1. Er du redd for å falle? (Sett bare ett kryss)

- Ofte ☐ 1
- Av og til ☐ 2
- Svært sjelden ☐ 3
- Aldri ☐ 4

2.2. Hvorfor er du eventuelt redd for å falle?

(Kryss av på flere alternativer hvis det er riktig for deg)

- Jeg føler meg svimmel ☐ 1
- Jeg føler meg ustø ☐ 2
- Bena svikter meg ☐ 3
- Er redd for å skli på gladd underlag ☐ 4

2.3. Hvor mange ganger har du vært redd for å falle den siste uken?

(Sett bare ett kryss)

- Daglig ☐ 1
- Nesten hver dag ☐ 2
- 1 – 2 ganger ☐ 3
- Ikke i del hele tatt ☐ 4

2.4. Hvor mange ganger har du falt den siste måneden? (Sett bare ett kryss)

- Ingen ☐ 1
- 1 gang ☐ 2
- Flere enn 1 gang ☐ 3

3. Følelseslivet

I denne delen av spørreskjemaet er det grupper av utsagn som handler om følelseslivet. Les hver gruppe av utsagn nøye. Sett kryss ved det utsagnet i hver gruppe som best viser den måten du føler deg på akkurat nå. Dersom flere utsagn i hver gruppe passer på deg, kryss av for hvert av dem.

Utsagn 1:

- Jeg føler meg ikke trist ☐ 0
- Jeg føler meg trist ☐ 1
- Jeg føler meg trist hele tiden og klarer ikke å løsrive meg fra denne følelse ☐ 2
- Jeg føler meg så trist og ulykkelig at jeg ikke holder ut ☐ 3

Utsagn 2:

- Jeg føler meg ikke særlig motløs med hensyn til fremtiden ☐ 0
- Jeg føler meg motløs med hensyn til fremtiden ☐ 1
- Jeg føler at jeg ikke har noe å se frem til ☐ 2
- Jeg føler at fremtiden er håpløs og at det ikke er håp om noen bedring ☐ 3

Utsagn 3:

- Jeg føler meg ikke mislykket ☐ 0
- Jeg føler jeg har mislyktes mer enn de fleste ☐ 1
- Når jeg ser bakover i livet ser jeg bare en serie nederlag ☐ 2
- Jeg føler meg som en helt og holdent mislykket person ☐ 3

Utsagn 4:

- Jeg opplever like mye tilfredsstillelse som tidligere i ting jeg foretar meg ☐ 0
- Jeg har ikke lenger samme glede av ting, som jeg hadde tidligere ☐ 1
- Jeg får ingen virkelig tilfredsstillelse i noe lenger ☐ 2
- Jeg er motløs og finner ingen glede i noe ☐ 3

Utsagn 5:

- Jeg føler meg ikke spesielt skyldbetynget ☐ 0
- Jeg føler meg skyldbetynget av og til ☐ 1
- Jeg føler meg skyldbetynget mesteparten av tiden ☐ 2
- Jeg føler meg skyldbetynget hele tiden ☐ 3

Utsagn 6:

- Jeg føler ikke at jeg blir straffet ☐ 0
- Jeg føler at jeg kanskje blir straffet ☐ 1
- Jeg forventer å bli straffet ☐ 2
- Jeg føler at jeg blir straffet ☐ 3

Utsagn 7:

- Jeg føler meg ikke skuffet over meg selv ☐ 0
- Jeg er skuffet over meg selv ☐ 1
- Jeg føler avsky over meg selv ☐ 2
- Jeg hater meg selv ☐ 3

Utsagn 8:

Jeg føler ikke at jeg er verre enn andre ☐ 0
Jeg er kritisk overfor meg selv for mine svakheter og feil ☐ 1
Jeg anklager meg selv hele tiden for mine feil ☐ 2
Jeg anklager meg selv for alle vonde ting som skjer ☐ 3

Utsagn 9

Jeg har ingen tanker om å ta livet av meg ☐ 0
Jeg har tanker om å ta livet av meg, men vil ikke gjennomføre det ☐ 1
Jeg har lyst til å ta livet av meg ☐ 2
Jeg ville ta livet av meg hvis jeg hadde muligheten ☐ 3

Utsagn 10:

Jeg gråter ikke mer enn vanlig ☐ 0
Jeg gråter mer enn jeg pleier ☐ 1
Jeg gråter hele tiden nå ☐ 2
Jeg pleide å kunne gråte, men nå kan jeg ikke gråte selv om jeg ønsker det ☐ 3

Utsagn 11:

Jeg er ikke mer irritert nå enn jeg vanligvis er ☐ 0
Jeg blir lettere misfornøyd eller irritert nå enn jeg pleier ☐ 1
Jeg føler meg irritert hele tiden ☐ 2
Jeg blir ikke i det hele tatt irritert over de tingene jeg pleide å irritere meg over ☐ 3

Utsagn 12:

Jeg har ikke mistet interessen for andre mennesker ☐ 0
Jeg er mindre interessert i andre mennesker enn jeg er til vanlig ☐ 1
Jeg har mistet mesteparten av interessen for andre mennesker ☐ 2
Jeg har mistet all min interesse for andre mennesker ☐ 3

Utsagn 13:

Jeg tror ikke det er vanskeligere for meg enn vanlig å ta avgjørelser ☐ 0
Jeg utsetter å ta avgjørelser oftere enn vanlig ☐ 1
Jeg har større vanskeligheter med å ta avgjørelser nå enn tidligere ☐ 2
Jeg kan ikke ta avgjørelser lenger ☐ 3

Utsagn 14:

Jeg føler ikke at jeg ser verre ut enn vanlig ☐ 0
Jeg bekymrer meg over at jeg ser gammel og lite tiltrekkende ut ☐ 1
Jeg føler at mitt utseende er forandret på en måte som gjør at jeg er lite tiltrekkende ☐ 2
Jeg synes at jeg ser stygg ut ☐ 3

Utsagn 15:

Jeg kan arbeide omtrent like bra som før ☐ 0
Jeg trenger mer energi for å få satt i gang med noe ☐ 1
Jeg må tvinge meg selv til å få satt i gang med noe ☐ 2
Jeg greier ikke lenger å arbeide ☐ 3

Utsagn 16:

Jeg sover like godt som vanlig ☐ 0
Jeg sover ikke så godt som jeg pleide ☐ 1
Jeg våkner 1-2 timer tidligere enn vanlig og opplever det vanskelig å sovne igjen ☐ 2
Jeg våkner opp flere timer tidligere enn vanlig og greier ikke å sovne igjen ☐ 3

Utsagn 17:

Jeg er ikke mer trett enn vanlig ☐ 0
Jeg blir fortere trett enn vanlig ☐ 1
Nesten alt gjør meg trett ☐ 2
Jeg er for trett til å gjøre noe ☐ 3

Utsagn 18:

Matlysten min er ikke dårligere enn vanlig ☐ 0
Matlysten min er ikke så god som den pleier ☐ 1
Matlysten min er mye verre nå ☐ 2
Jeg har ingen matlyst lenger ☐ 3

Utsagn 19:

Jeg har gått lite eller ingen ting ned i vekt i det siste ☐ 0
Jeg har gått ned mer enn 2,5 kg ☐ 1
Jeg har gått ned mer enn 5 kg ☐ 2
Jeg har gått ned mer enn 7,5 kg ☐ 3

Jeg går med hensikt inn for å gå ned i vekt ved å spise mindre
Ja ☐ Nei ☐ 2

Utsagn 20:

Jeg er ikke mer bekymret for helsa enn vanlig ☐ 0
Jeg er bekymret over fysiske problemer som smerter og plager, eller urolig mage eller forstoppelse ☐ 1
Jeg er svært bekymret over fysiske problemer og det er vanskelig å tenke på noe særlig annet ☐ 2
Jeg er så bekymret over fysiske problemer at jeg ikke kan tenke på noe annet ☐ 3

Utsagn 21:

Jeg har ikke merket noen forandring i min seksuelle interesse i det siste ☐ 0
Jeg er litt mindre seksuelt interessert enn vanlig ☐ 1
Jeg er mye mindre seksuelt interessert i øyeblikket ☐ 2
Jeg har mistet helt interessen for det seksuelle ☐ 3

4. Kontroll og mestring

Under er det satt opp fem utsagn som handler om å kontrollere og mestre dagliglivet. Vi ber deg ta stilling til i hvilken grad du er enig i at disse utsagnene passer for deg.

(Sett ett kryss for hver linje)

	Svært enig	Enig	Like mye enig som uenig	Uenig	Svært uenig
1. Jeg har liten kontroll over det som hender med meg	☐	☐	☐	☐	☐
2. Noen av mine problemer er det ikke mulig for meg å løse	☐	☐	☐	☐	☐
3. Det er ikke mye jeg kan gjøre for å forandre på viktige ting i livet mitt	☐	☐	☐	☐	☐
4. Jeg føler ofte at jeg er hjelpeløs når det gjelder å takle livets problemer	☐	☐	☐	☐	☐
5. Av og til føler jeg meg som en brikke i livets spill	☐	☐	☐	☐	☐
	1	2	3	4	5

5. Livshendelser

Har du i løpet av de siste 12 måneder vært utsatt for eller opplevd at:

(Sett ett kryss for hver linje)

	Ja	Nei
1. Alvorlig sykdom	☐	☐
2. En av dine nærmeste har vært alvorlig syk eller vært utsatt for skade eller overfall	☐	☐
3. Dødsfall i nærmeste familie	☐	☐
4. Dødsfall blant andre nære	☐	☐
5. Separasjon eller skilsmisse på grunn av vanskeligheter i ekteskapet	☐	☐
6. Brudd i et langvarig vennskap	☐	☐
7. Alvorlig problem med en nær venn, nabo eller slektning	☐	☐
8. Å bli arbeidsledig eller søkt forgjeves etter arbeid i mer enn en måned	☐	☐
9. Å bli avskjediget fra din jobb	☐	☐
10. Alvorlige økonomiske problemer	☐	☐
11. Problemer med politiet	☐	☐
12. Noe som settes stor pris på ble mistet eller stjålet	☐	☐
	1	2

6. Forventninger til fremtiden

Det er ingen riktige eller gale svar på disse utsagnene.
Svar så nøyaktig og ærlig som du kan. Ikke la ditt svar på det foregående spørsmålet påvirke ditt svar på det neste. (Sett ett på hver linje)

	Svært uenig	Uenig	Like mye enig som uenig	Enig	Svært enig	Vet ikke
1. Når det er usikre tider, venter jeg som regel det beste	☐	☐	☐	☐	☐	☐
2. Jeg er alltid optimistisk angående min fremtid	☐	☐	☐	☐	☐	☐
3. Jeg forventer nesten aldri at ting skal gå min vei	☐	☐	☐	☐	☐	☐
4. Jeg regner sjelden med at det skal skje meg noe godt	☐	☐	☐	☐	☐	☐
5. Alt i alt venter jeg at det skal skje flere gode enn dårlige ting	☐	☐	☐	☐	☐	☐
	1	2	3	4	5	6

7. Bruk av medisiner

7.1. Hvor ofte i løpet av de siste 4 ukene har du brukt følgende medisiner:

(Sett ett kryss for hver linje)

	Daglig	Hver uke men ikke daglig	Sjeldnere enn hver uke	Ikke brukt
Smertestillende uten resept	☐	☐	☐	☐
Smertestillende med resept	☐	☐	☐	☐
Sovemedisin	☐	☐	☐	☐
Beroligende medisin	☐	☐	☐	☐
Medisin mot depresjon	☐	☐	☐	☐
	1	2	3	4

8. Bruk av helsetjenester

8.1. Hvor mange ganger i løpet av de 4 siste ukene har du:

(Sett ett kryss på hver linje)

	Ingen	1 gang	2 ganger	3 ganger	4 ganger
Vært hos fastlegen	☐	☐	☐	☐	☐
Ringt legevakten	☐	☐	☐	☐	☐
Ringt legekontoret	☐	☐	☐	☐	☐
Hatt fysioterapi/ergoterapi	☐	☐	☐	☐	☐
Hatt samtale med psykiatrisk sykepleier	☐	☐	☐	☐	☐
Hatt hjemmesykepleie	☐	☐	☐	☐	☐
Hatt hjemmehjelp	☐	☐	☐	☐	☐
Kjøpt tilleggstjenester fra kommunen	☐	☐	☐	☐	☐
Kjøpt tilleggstjenester fra privat firma	☐	☐	☐	☐	☐
	1	2	3	4	5

9. Yrkesaktivitet

9.1. Er du yrkesaktiv Ja ☐ 1 Delvis ☐ 2 Nei ☐ 3

9.2. Dersom du her helt eller delvis yrkesaktiv, hvor mange ganger har du vært sykemeldt siste året ☐☐ Antall ganger

9.3 Mottar du uførepensjon? Ja ☐ 1 Nei ☐ 2

9.4. Mottar du alderspensjon? Ja ☐ 1 Nei ☐ 2

10. Tilbudet på Eldre-/seniorsenteret

10.1. Har du venner som går på eldre-/seniorsenteret? Ja ☐ 1 Nei ☐ 2

10.2. Er det nye tilbudet på eldresenteret med tilhørende forskningsprosjekt (beskrevet i informasjonsbrevet) noe du kan tenke deg å være med på, dersom du blir trukket ut?

Ja ☐ 1 Nei ☐ 2

TAKK FOR AT DU SVARTE PÅ SPØRSMÅLENE!

3. Følelseslivet

I denne delen av spørreskjemaet er det grupper av utsagn som handler om følelseslivet. Les hver gruppe av utsagn nøye. Sett kryss ved det utsagnet i hver gruppe som best viser den måten du føler deg på akkurat nå. Dersom flere utsagn i hver gruppe passer på deg, kryss av for hvert av dem.

Utsagn 1:

- ☐ 0 Jeg føler meg ikke trist
- ☐ 1 Jeg føler meg trist
- ☐ 2 Jeg føler meg trist hele tiden og klarer ikke å løsrive meg fra denne følelse
- ☐ 3 Jeg føler meg så trist og ulykkelig at jeg ikke holder ut

Utsagn 2:

- ☐ 0 Jeg føler meg ikke særlig motløs med hensyn til fremtiden
- ☐ 1 Jeg føler meg motløs med hensyn til fremtiden
- ☐ 2 Jeg føler at jeg ikke har noe å se frem til
- ☐ 3 Jeg føler at fremtiden er håpløs og at det ikke er håp om noen bedring

Utsagn 3:

- ☐ 0 Jeg føler meg ikke mislykket
- ☐ 1 Jeg føler jeg har mislyktes mer enn de fleste
- ☐ 2 Når jeg ser bakover i livet ser jeg bare en serie nederlag
- ☐ 3 Jeg føler meg som en helt og holdent mislykket person

Utsagn 4:

- ☐ 0 Jeg opplever like mye tilfredsstillelse som tidligere i ting jeg foretar meg
- ☐ 1 Jeg har ikke lenger samme glede av ting, som jeg hadde tidligere
- ☐ 2 Jeg får ingen virkelig tilfredsstillelse i noe lenger
- ☐ 3 Jeg er motløs og finner ingen glede i noe

Utsagn 5:

- ☐ 0 Jeg føler meg ikke spesielt skyldbetynget
- ☐ 1 Jeg føler meg skyldbetynget av og til
- ☐ 2 Jeg føler meg skyldbetynget mesteparten av tiden
- ☐ 3 Jeg føler meg skyldbetynget hele tiden

Utsagn 6:

- ☐ 0 Jeg føler ikke at jeg blir straffet
- ☐ 1 Jeg føler at jeg kanskje blir straffet
- ☐ 2 Jeg forventer å bli straffet
- ☐ 3 Jeg føler at jeg blir straffet

Utsagn 7:

- ☐ 0 Jeg føler meg ikke skuffet over meg selv
- ☐ 1 Jeg er skuffet over meg selv
- ☐ 2 Jeg føler avsky over meg selv
- ☐ 3 Jeg hater meg selv

APPENDIX III

Questionnaire Intervention
6 and 12 months

folkehelseinstituttet

S 2 T3 FASE 1 - INTERVENSJON

Takk for at du tar deg tid til å fylle ut skjemaet. Det skal siden leses maskinelt. Skriv derfor med blå eller sort penn, og skriv inne i boksene, slik:☒

1. Ernæring

1.1 Hvor mange dager i uken spiser du middag? (Sett bare ett kryss)

- Hver dag ☐ 1
- 4-6 ganger pr. uke ☐ 2
- 2-3 ganger pr. uke ☐ 3
- Færre enn 2 ganger pr. uke ☐ 4

1.2 Får du middag levert fra bydelen? Ja ☐ 1 Nei ☐ 2

1.2.1 Hvis ja, hvor mange porsjoner i uken? (Sett bare ett kryss)

- 7 porsjoner ☐ 1
- 4-6 porsjoner ☐ 2
- 2-3 porsjoner ☐ 3
- En porsjon ☐ 4

2. Fall

2.1. Er du redd for å falle? (Sett bare ett kryss)

- Ofte ☐ 1
- Av og til ☐ 2
- Svært sjelden ☐ 3
- Aldri ☐ 4

2.2. Hvorfor er du eventuelt redd for å falle?

(Kryss av på flere alternativer hvis det er riktig for deg)

- Jeg føler meg svimmel ☐ 1
- Jeg føler meg ustø ☐ 2
- Bena svikter meg ☐ 3
- Er redd for å skli på glatt underlag ☐ 4

2.3. Hvor mange ganger har du vært redd for å falle den siste uken?

(Sett bare ett kryss)

- Daglig ☐ 1
- Nesten hver dag ☐ 2
- 1 – 2 ganger ☐ 3
- Ikke i del hele tatt ☐ 4

2.4. Hvor mange ganger har du falt den siste måneden? (Sett bare ett kryss)

- Ingen ☐ 1
- 1 gang ☐ 2
- Flere enn 1 gang ☐ 3

3. Følelseslivet

I denne delen av spørreskjemaet er det grupper av utsagn som handler om følelseslivet. Les hver gruppe av utsagn nøye. Sett kryss ved det utsagnet i hver gruppe som best viser den måten du føler deg på akkurat nå. Dersom flere utsagn i hver gruppe passer på deg, kryss av for hvert av dem.

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- ☐ 0 Jeg føler meg ikke trist
- ☐ 1 Jeg føler meg trist
- ☐ 2 Jeg føler meg trist hele tiden og klarer ikke å løsrive meg fra denne følelse
- ☐ 3 Jeg føler meg så trist og ulykkelig at jeg ikke holder ut

Utsagn 2:

- ☐ 0 Jeg føler meg ikke særlig motløs med hensyn til fremtiden
- ☐ 1 Jeg føler meg motløs med hensyn til fremtiden
- ☐ 2 Jeg føler at jeg ikke har noe å se frem til
- ☐ 3 Jeg føler at fremtiden er håpløs og at det ikke er håp om noen bedring

Utsagn 3:

- ☐ 0 Jeg føler meg ikke mislykket
- ☐ 1 Jeg føler jeg har mislyktes mer enn de fleste
- ☐ 2 Når jeg ser bakover i livet ser jeg bare en serie nederlag
- ☐ 3 Jeg føler meg som en helt og holdent mislykket person

Utsagn 4:

- ☐ 0 Jeg opplever like mye tilfredsstillelse som tidligere i ting jeg foretar meg
- ☐ 1 Jeg har ikke lenger samme glede av ting, som jeg hadde tidligere
- ☐ 2 Jeg får ingen virkelig tilfredsstillelse i noe lenger
- ☐ 3 Jeg er motløs og finner ingen glede i noe

Utsagn 5:

- ☐ 0 Jeg føler meg ikke spesielt skyldbetynget
- ☐ 1 Jeg føler meg skyldbetynget av og til
- ☐ 2 Jeg føler meg skyldbetynget mesteparten av tiden
- ☐ 3 Jeg føler meg skyldbetynget hele tiden

Utsagn 6:

- ☐ 0 Jeg føler ikke at jeg blir straffet
- ☐ 1 Jeg føler at jeg kanskje blir straffet
- ☐ 2 Jeg forventer å bli straffet
- ☐ 3 Jeg føler at jeg blir straffet

Utsagn 7:

- ☐ 0 Jeg føler meg ikke skuffet over meg selv
- ☐ 1 Jeg er skuffet over meg selv
- ☐ 2 Jeg føler avsky over meg selv
- ☐ 3 Jeg hater meg selv

Utsagn 8:

Jeg føler ikke at jeg er verre enn andre ☐ 0
Jeg er kritisk overfor meg selv for mine svakheter og feil ☐ 1
Jeg anklager meg selv hele tiden for mine feil ☐ 2
Jeg anklager meg selv for alle vonde ting som skjer ☐ 3

Utsagn 9

Jeg har ingen tanker om å ta livet av meg ☐ 0
Jeg har tanker om å ta livet av meg, men vil ikke gjennomføre det ☐ 1
Jeg har lyst til å ta livet av meg ☐ 2
Jeg ville ta livet av meg hvis jeg hadde muligheten ☐ 3

Utsagn 10:

Jeg gråter ikke mer enn vanlig ☐ 0
Jeg gråter mer enn jeg pleier ☐ 1
Jeg gråter hele tiden nå ☐ 2
Jeg pleide å kunne gråte, men nå kan jeg ikke gråte selv om jeg ønsker det ☐ 3

Utsagn 11:

Jeg er ikke mer irritert nå enn jeg vanligvis er ☐ 0
Jeg blir lettere misfornøyd eller irritert nå enn jeg pleier ☐ 1
Jeg føler meg irritert hele tiden ☐ 2
Jeg blir ikke i det hele tatt irritert over de tingene jeg pleide å irritere meg over ☐ 3

Utsagn 12:

Jeg har ikke mistet interessen for andre mennesker ☐ 0
Jeg er mindre interessert i andre mennesker enn jeg er til vanlig ☐ 1
Jeg har mistet mesteparten av interessen for andre mennesker ☐ 2
Jeg har mistet all min interesse for andre mennesker ☐ 3

Utsagn 13:

Jeg tror ikke det er vanskeligere for meg enn vanlig å ta avgjørelser ☐ 0
Jeg utsetter å ta avgjørelser oftere enn vanlig ☐ 1
Jeg har større vanskeligheter med å ta avgjørelser nå enn tidligere ☐ 2
Jeg kan ikke ta avgjørelser lenger ☐ 3

Utsagn 14:

Jeg føler ikke at jeg ser verre ut enn vanlig ☐ 0
Jeg bekymrer meg over at jeg ser gammel og lite tiltrekkende ut ☐ 1
Jeg føler at mitt utseende er forandret på en måte som gjør at jeg er lite tiltrekkende ☐ 2
Jeg synes at jeg ser stygg ut ☐ 3

Utsagn 15:

Jeg kan arbeide omtrent like bra som før ☐ 0
Jeg trenger mer energi for å få satt i gang med noe ☐ 1
Jeg må tvinge meg selv til å få satt i gang med noe ☐ 2
Jeg greier ikke lenger å arbeide ☐ 3

Utsagn 16:

Jeg sover like godt som vanlig ☐ 0
Jeg sover ikke så godt som jeg pleide ☐ 1
Jeg våkner 1-2 timer tidligere enn vanlig og opplever det vanskelig å sovne igjen ☐ 2
Jeg våkner opp flere timer tidligere enn vanlig og greier ikke å sovne igjen ☐ 3

Utsagn 17:

Jeg er ikke mer trett enn vanlig ☐ 0
Jeg blir fortere trett enn vanlig ☐ 1
Nesten alt gjør meg trett ☐ 2
Jeg er for trett til å gjøre noe ☐ 3

Utsagn 18:

Matlysten min er ikke dårligere enn vanlig ☐ 0
Matlysten min er ikke så god som den pleier ☐ 1
Matlysten min er mye verre nå ☐ 2
Jeg har ingen matlyst lenger ☐ 3

Utsagn 19:

Jeg har gått lite eller ingen ting ned i vekt i det siste ☐ 0
Jeg har gått ned mer enn 2,5 kg ☐ 1
Jeg har gått ned mer enn 5 kg ☐ 2
Jeg har gått ned mer enn 7,5 kg ☐ 3

Jeg går med hensikt inn for å gå ned i vekt ved å spise mindre

Ja ☐ Nei ☐ 2

Utsagn 20:

Jeg er ikke mer bekymret for helsa enn vanlig ☐ 0
Jeg er bekymret over fysiske problemer som smerter og plager, eller urolig mage eller forstoppelse ☐ 1
Jeg er svært bekymret over fysiske problemer og det er vanskelig å tenke på noe særlig annet ☐ 2
Jeg er så bekymret over fysiske problemer at jeg ikke kan tenke på noe annet ☐ 3

Utsagn 21:

Jeg har ikke merket noen forandring i min seksuelle interesse i det siste ☐ 0
Jeg er litt mindre seksuelt interessert enn vanlig ☐ 1
Jeg er mye mindre seksuelt interessert i øyeblikket ☐ 2
Jeg har mistet helt interessen for det seksuelle ☐ 3

4. Kontroll og mestring

Under er det satt opp fem utsagn som handler om å kontrollere og mestre dagliglivet. Vi ber deg ta stilling til i hvilken grad du er enig i at disse utsagnene passer for deg.

(Sett ett kryss for hver linje)

	Svært enig	Enig	Like mye enig som uenig	Uenig	Svært uenig
1. Jeg har liten kontroll over det som hender med meg	☐	☐	☐	☐	☐
2. Noen av mine problemer er det ikke mulig for meg å løse ...	☐	☐	☐	☐	☐
3. Det er ikke mye jeg kan gjøre for å forandre på viktige ting i livet mitt	☐	☐	☐	☐	☐
4. Jeg føler ofte at jeg er hjelpeløs når det gjelder å takle livets problemer	☐	☐	☐	☐	☐
5. Av og til føler jeg meg som en brikke i livets spill	☐	☐	☐	☐	☐
	1	2	3	4	5

5. Livshendelser

Har du i løpet av de siste 12 måneder vært utsatt for eller opplevd at:

(Sett ett kryss for hver linje)

	Ja	Nei
1. Alvorlig sykdom	☐	☐
2. En av dine nærmeste har vært alvorlig syk eller vært utsatt for skade eller overfall ..	☐	☐
3. Dødsfall i nærmeste familie	☐	☐
4. Dødsfall blant andre nære	☐	☐
5. Separasjon eller skilsmisse på grunn av vanskeligheter i ekteskapet	☐	☐
6. Brudd i et langvarig vennskap	☐	☐
7. Alvorlig problem med en nær venn, nabo eller slektning	☐	☐
8. Å bli arbeidsledig eller søkt forgjeves etter arbeid i mer enn en måned	☐	☐
9. Å bli avskjediget fra din jobb	☐	☐
10. Alvorlige økonomiske problemer	☐	☐
11. Problemer med politiet	☐	☐
12. Noe som settes stor pris på ble mistet eller stjålet	☐	☐
	1	2

6. Forventninger til fremtiden

Det er ingen riktige eller gale svar på disse utsagnene.
Svar så nøyaktig og ærlig som du kan. Ikke la ditt svar på det foregående spørsmålet påvirke ditt svar på det neste. (Sett ett på hver linje)

	Svært uenig	Uenig	Like mye enig som uenig	Enig	Svært enig	Vet ikke
1. Når det er usikre tider, venter jeg som regel det beste	☐	☐	☐	☐	☐	☐
2. Jeg er alltid optimistisk angående min fremtid	☐	☐	☐	☐	☐	☐
3. Jeg forventer nesten aldri at ting skal gå min vei	☐	☐	☐	☐	☐	☐
4. Jeg regner sjelden med at det skal skje meg noe godt	☐	☐	☐	☐	☐	☐
5. Alt i alt venter jeg at det skal skje flere gode enn dårlige ting	☐	☐	☐	☐	☐	☐
	1	2	3	4	5	6

7. Bruk av medisiner

7.1. Hvor ofte i løpet av de siste 4 ukene har du brukt følgende medisiner:

(Sett ett kryss for hver linje)

	Daglig	Hver uke men ikke daglig	Sjeldnere enn hver uke	Ikke brukt
Smertestillende uten resept	☐	☐	☐	☐
Smertestillende med resept	☐	☐	☐	☐
Sovemedisin	☐	☐	☐	☐
Beroligende medisin	☐	☐	☐	☐
Medisin mot depresjon	☐	☐	☐	☐
	1	2	3	4

8. Bruk av helsetjenester

8.1. Hvor mange ganger i løpet av de 4 siste ukene har du:

(Sett ett kryss på hver linje)

	Ingen	1 gang	2 ganger	3 ganger	4 ganger
Vært hos fastlegen	☐	☐	☐	☐	☐
Ringt legevakten	☐	☐	☐	☐	☐
Ringt legekontoret	☐	☐	☐	☐	☐
Hatt fysioterapi/ergoterapi	☐	☐	☐	☐	☐
Hatt samtale med psykiatrisk sykepleier	☐	☐	☐	☐	☐
Hatt hjemmesykepleie	☐	☐	☐	☐	☐
Hatt hjemmehjelp	☐	☐	☐	☐	☐
Kjøpt tilleggstjenester fra kommunen	☐	☐	☐	☐	☐
Kjøpt tilleggstjenester fra privat firma	☐	☐	☐	☐	☐
	1	2	3	4	5

9. Yrkesaktivitet

9.1. Er du yrkesaktiv Ja ☐ 1 Delvis ☐ 2 Nei ☐ 3

9.2. Dersom du her helt eller delvis yrkesaktiv, hvor mange ganger har du vært sykemeldt siste året ☐☐ Antall ganger

9.3. Mottar du uførepensjon? Ja ☐ 1 Nei ☐ 2

9.4. Mottar du alderspensjon? Ja ☐ 1 Nei ☐ 2

10. Tilbudet på Eldre-/seniorsenteret

10.1. Hvor mye betyr det ukentlige tilbudet på eldresenteret som du er med på for deg?

Svært mye ☐ 1 Mye ☐ 2 Noe ☐ 3 Lite ☐ 4

10.2. Har du fått nye venner gjennom dette tilbudet?

Ja ☐ 1 Nei ☐ 2

10.3. Treffer du noen av de andre deltagerne i gruppen utenom eldresenteret?

Ja ☐ 1 Nei ☐ 2

10.4. Benytter du deg av eldresenteret utover gruppetilbudet?

Ja ☐ 1 Nei ☐ 2

10.5. Hvis ja på spørsmålet over, hvilke(t) tilbud er det?

Frisør/fotpleie ☐
Kulturtilbud/utflukter ☐
Sosialt samvær ☐
Spiser lunsj/middag ☐
Aktiviteter/kurs ☐

10.6. Hvor ofte har du benyttet tilbudene i punkt 10.5.? Hver uke ☐ 1 Hver annen uke ☐ 2 En gang i måneden ☐ 3 Sjeldnere ☐ 4

11. Helse og trivsel

11.1. Hvor fornøyd er du med tilværelsen?

Meget fornøyd ☐ 1 Godt fornøyd ☐ 2 Fornøyd ☐ 3
Misfornøyd ☐ 4 Meget misfornøyd ☐ 5

11.2. Hvordan er helsen din nå?

Dårlig ☐ 1 Ikke helt god ☐ 2 God ☐ 3 Svært god ☐ 4

11.3. Har du vansker med hukommelsen?

Nei ☐ 1 Litt vansker ☐ 2 Nokså store vansker ☐ 3

12. Sosial kontakt

12.1. Hvor mange mennesker står deg så nær at du kan regne med dem hvis du har store personlige problemer?

Ingen ☐ 1 1 til 2 ☐ 2 3 til 5 ☐ 3 Flere enn 5 ☐ 4

12.2. Hvor stor interesse viser folk for det du gjør?

Stor deltakelse og interesse ☐ 5 Noe deltakelse og interesse ☐ 4 Usikker ☐ 3
Liten deltakelse og interesse ☐ 2 Ingen deltakelse og interesse ☐ 1

12.3. Hvor lett er det å få praktisk hjelp fra naboer om du skulle trenge det?

Meget lett ☐ 5 Lett ☐ 4 Mulig ☐ 3 Vanskelig ☐ 2 Meget vanskelig ☐ 1

12.4. Treffer du andre mennesker så ofte du vil? Ja ☐ 2 Nei ☐ 1

13. Aktivitet

	Daglig	Ofte	Av og til	Aldri
Leser du aviser/bøker?	☐	☐	☐	☐
Går du tur?	☐	☐	☐	☐
Besøker du venner eller familie?	☐	☐	☐	☐
Ser du på TV?	☐	☐	☐	☐
Reiser du til kjente eller nye steder?	☐	☐	☐	☐
Går du på kino/teater/konsert?	☐	☐	☐	☐
	1	2	3	4

Takk for at du svarte på spørsmålene!

APPENDIX IV

Questionnaire Control
6 and 12 months

folkehelseinstituttet

T

S 2 T3 FASE 1 - KONTROLL

Takk for at du tar deg tid til å fylle ut skjemaet. Det skal siden leses maskinelt. Skriv derfor med blå eller sort penn, og skriv inne i boksene, slik:☒

1. Ernæring

1.1 Hvor mange dager i uken spiser du middag? (Sett bare ett kryss)

Hver dag ☐ 1
4-6 ganger pr. uke ☐ 2
2-3 ganger pr. uke ☐ 3
Færre enn 2 ganger pr. uke ☐ 4

1.2 Får du middag levert fra bydelen? Ja ☐ 1 Nei ☐ 2

1.2.1 Hvis ja, hvor mange porsjoner i uken? (Sett bare ett kryss)

7 porsjoner ☐ 1
4-6 porsjoner ☐ 2
2-3 porsjoner ☐ 3
En porsjon ☐ 4

2. Fall

2.1. Er du redd for å falle? (Sett bare ett kryss)

Ofte ☐ 1
Av og til ☐ 2
Svært sjelden ☐ 3
Aldri ☐ 4

2.2. Hvorfor er du eventuelt redd for å falle?

(Kryss av på flere alternativer hvis det er riktig for deg)

Jeg føler meg svimmel ☐ 1
Jeg føler meg ustø ☐ 2
Bena svikter meg ☐ 3
Er redd for å skli på glatt underlag ☐ 4

2.3. Hvor mange ganger har du vært redd for å falle den siste uken?

(Sett bare ett kryss)

Daglig ☐ 1
Nesten hver dag ☐ 2
1 – 2 ganger ☐ 3
Ikke i del hele tatt ☐ 4

2.4. Hvor mange ganger har du falt den siste måneden? (Sett bare ett kryss)

Ingen ☐ 1
1 gang ☐ 2
Flere enn 1 gang ☐ 3

Utsagn 8:

Jeg føler ikke at jeg er verre enn andre ☐ 0
Jeg er kritisk overfor meg selv for mine svakheter og feil ☐ 1
Jeg anklager meg selv hele tiden for mine feil ☐ 2
Jeg anklager meg selv for alle vonde ting som skjer ☐ 3

Utsagn 9

Jeg har ingen tanker om å ta livet av meg ☐ 0
Jeg har tanker om å ta livet av meg, men vil ikke gjennomføre det ☐ 1
Jeg har lyst til å ta livet av meg ☐ 2
Jeg ville ta livet av meg hvis jeg hadde muligheten ☐ 3

Utsagn 10:

Jeg gråter ikke mer enn vanlig ☐ 0
Jeg gråter mer enn jeg pleier ☐ 1
Jeg gråter hele tiden nå ☐ 2
Jeg pleide å kunne gråte, men nå kan jeg ikke gråte selv om jeg ønsker det ☐ 3

Utsagn 11:

Jeg er ikke mer irritert nå enn jeg vanligvis er ☐ 0
Jeg blir lettere misfornøyd eller irritert nå enn jeg pleier ☐ 1
Jeg føler meg irritert hele tiden ☐ 2
Jeg blir ikke i det hele tatt irritert over de tingene jeg pleide å irritere meg over ☐ 3

Utsagn 12:

Jeg har ikke mistet interessen for andre mennesker ☐ 0
Jeg er mindre interessert i andre mennesker enn jeg er til vanlig ☐ 1
Jeg har mistet mesteparten av interessen for andre mennesker ☐ 2
Jeg har mistet all min interesse for andre mennesker ☐ 3

Utsagn 13:

Jeg tror ikke det er vanskeligere for meg enn vanlig å ta avgjørelser ☐ 0
Jeg utsetter å ta avgjørelser oftere enn vanlig ☐ 1
Jeg har større vanskeligheter med å ta avgjørelser nå enn tidligere ☐ 2
Jeg kan ikke ta avgjørelser lenger ☐ 3

Utsagn 14:

Jeg føler ikke at jeg ser verre ut enn vanlig ☐ 0
Jeg bekymrer meg over at jeg ser gammel og lite tiltrekkende ut ☐ 1
Jeg føler at mitt utseende er forandret på en måte som gjør at jeg er lite tiltrekkende ☐ 2
Jeg synes at jeg ser stygg ut ☐ 3

Utsagn 15:

Jeg kan arbeide omtrent like bra som før ☐ 0
Jeg trenger mer energi for å få satt i gang med noe ☐ 1
Jeg må tvinge meg selv til å få satt i gang med noe ☐ 2
Jeg greier ikke lenger å arbeide ☐ 3

Utsagn 16:

Jeg sover like godt som vanlig ☐ 0
Jeg sover ikke så godt som jeg pleide ☐ 1
Jeg våkner 1-2 timer tidligere enn vanlig og opplever det vanskelig å sovne igjen ☐ 2
Jeg våkner opp flere timer tidligere enn vanlig og greier ikke å sovne igjen ☐ 3

Utsagn 17:

Jeg er ikke mer trett enn vanlig ☐ 0
Jeg blir fortere trett enn vanlig ☐ 1
Nesten alt gjør meg trett ☐ 2
Jeg er for trett til å gjøre noe ☐ 3

Utsagn 18:

Matlysten min er ikke dårligere enn vanlig ☐ 0
Matlysten min er ikke så god som den pleier ☐ 1
Matlysten min er mye verre nå ☐ 2
Jeg har ingen matlyst lenger ☐ 3

Utsagn 19:

Jeg har gått lite eller ingen ting ned i vekt i det siste ☐ 0
Jeg har gått ned mer enn 2,5 kg ☐ 1
Jeg har gått ned mer enn 5 kg ☐ 2
Jeg har gått ned mer enn 7,5 kg ☐ 3

Jeg går med hensikt inn for å gå ned i vekt ved å spise mindre

Ja ☐ Nei ☐ 2

Utsagn 20:

Jeg er ikke mer bekymret for helsa enn vanlig ☐ 0
Jeg er bekymret over fysiske problemer som smerter og plager, eller urolig mage eller forstoppelse ☐ 1
Jeg er svært bekymret over fysiske problemer og det er vanskelig å tenke på noe særlig annet ☐ 2
Jeg er så bekymret over fysiske problemer at jeg ikke kan tenke på noe annet ☐ 3

Utsagn 21:

Jeg har ikke merket noen forandring i min seksuelle interesse i det siste ☐ 0
Jeg er litt mindre seksuelt interessert enn vanlig ☐ 1
Jeg er mye mindre seksuelt interessert i øyeblikket ☐ 2
Jeg har mistet helt interessen for det seksuelle ☐ 3

4. Kontroll og mestring

Under er det satt opp fem utsagn som handler om å kontrollere og mestre dagliglivet. Vi ber deg ta stilling til i hvilken grad du er enig i at disse utsagnene passer for deg.

(Sett ett kryss for hver linje)

	Svært enig	Enig	Like mye enig som uenig	Uenig	Svært uenig
1. Jeg har liten kontroll over det som hender med meg	☐	☐	☐	☐	☐
2. Noen av mine problemer er det ikke mulig for meg å løse	☐	☐	☐	☐	☐
3. Det er ikke mye jeg kan gjøre for å forandre på viktige ting i livet mitt	☐	☐	☐	☐	☐
4. Jeg føler ofte at jeg er hjelpeløs når det gjelder å takle livets problemer	☐	☐	☐	☐	☐
5. Av og til føler jeg meg som en brikke i livets spill	☐	☐	☐	☐	☐
	1	2	3	4	5

5. Livshendelser

Har du i løpet av de siste 12 måneder vært utsatt for eller opplevd at:

(Sett ett kryss for hver linje)

	Ja	Nei
1. Alvorlig sykdom	☐	☐
2. En av dine nærmeste har vært alvorlig syk eller vært utsatt for skade eller overfall	☐	☐
3. Dødsfall i nærmeste familie	☐	☐
4. Dødsfall blant andre nære	☐	☐
5. Separasjon eller skilsmisse på grunn av vanskeligheter i ekteskapet	☐	☐
6. Brudd i et langvarig vennskap	☐	☐
7. Alvorlig problem med en nær venn, nabo eller slektning	☐	☐
8. Å bli arbeidsledig eller søkt forgjeves etter arbeid i mer enn en måned	☐	☐
9. Å bli avskjediget fra din jobb	☐	☐
10. Alvorlige økonomiske problemer	☐	☐
11. Problemer med politiet	☐	☐
12. Noe som settes stor pris på ble mistet eller stjålet	☐	☐
	1	2

6. Forventninger til fremtiden

Det er ingen riktige eller gale svar på disse utsagnene.
Svar så nøyaktig og ærlig som du kan. Ikke la ditt svar på det foregående spørsmålet påvirke ditt svar på det neste. (Sett ett på hver linje)

	Svært uenig	Uenig	Like mye enig som uenig	Enig	Svært enig	Vet ikke
1. Når det er usikre tider, venter jeg som regel det beste	☐	☐	☐	☐	☐	☐
2. Jeg er alltid optimistisk angående min fremtid	☐	☐	☐	☐	☐	☐
3. Jeg forventer nesten aldri at ting skal gå min vei	☐	☐	☐	☐	☐	☐
4. Jeg regner sjelden med at det skal skje meg noe godt	☐	☐	☐	☐	☐	☐
5. Alt i alt venter jeg at det skal skje flere gode enn dårlige ting	☐	☐	☐	☐	☐	☐
	1	2	3	4	5	6

7. Bruk av medisiner

7.1. Hvor ofte i løpet av de siste 4 ukene har du brukt følgende medisiner:

(Sett ett kryss for hver linje)

	Daglig	Hver uke men ikke daglig	Sjeldnere enn hver uke	Ikke brukt
Smertestillende uten resept	☐	☐	☐	☐
Smertestillende med resept	☐	☐	☐	☐
Sovemedisin	☐	☐	☐	☐
Beroligende medisin	☐	☐	☐	☐
Medisin mot depresjon	☐	☐	☐	☐
	1	2	3	4

8. Bruk av helsetjenester

8.1. Hvor mange ganger i løpet av de 4 siste ukene har du:

(Sett ett kryss på hver linje)

	Ingen	1 gang	2 ganger	3 ganger	4 ganger
Vært hos fastlegen	☐	☐	☐	☐	☐
Ringt legevakten	☐	☐	☐	☐	☐
Ringt legekontoret	☐	☐	☐	☐	☐
Hatt fysioterapi/ergoterapi	☐	☐	☐	☐	☐
Hatt samtale med psykiatrisk sykepleier	☐	☐	☐	☐	☐
Hatt hjemmesykepleie	☐	☐	☐	☐	☐
Hatt hjemmehjelp	☐	☐	☐	☐	☐
Kjøpt tilleggstjenester fra kommunen	☐	☐	☐	☐	☐
Kjøpt tilleggstjenester fra privat firma	☐	☐	☐	☐	☐
	1	2	3	4	5

9. Yrkesaktivitet

9.1. Er du yrkesaktiv Ja ☐ 1 Delvis ☐ 2 Nei ☐ 3

9.2. Dersom du her helt eller delvis yrkesaktiv, hvor mange ganger har du vært sykemeldt siste året ☐☐ Antall ganger

9.3. Mottar du uførepensjon? Ja ☐ 1 Nei ☐ 2

9.4. Mottar du alderspensjon? Ja ☐ 1 Nei ☐ 2

10. Tilbudet på Eldre-/seniorsenteret

10.1. Har du benyttet deg av noen av tilbudene ved eldresenteret siden nyttår?

Ja ☐ 1 Nei ☐ 2

10.2. I tilfelle ja på spørsmålet over, hvilke(t) tilbud er det?

Frisør/fotpleie ☐
Kulturtilbud/utflukter ☐
Solsialt samvær ☐
Spiser lunsj/middag ☐
Aktiviteter/kurs ☐

10.3. Hvor ofte har du benyttet tilbudene i punkt 10.2.?

Hver uke	Hver annen uke	En gang i måneden	Sjeldnere
☐ 1	☐ 2	☐ 3	☐ 4

10.4. Har du begynt med andre sosiale eller praktiske aktiviteter etter nyttår?

Ja ☐ 1 Nei ☐ 2

11. Helse og trivsel

11.1. Hvor fornøyd er du med tilværelsen?

Meget fornøyd ☐ 1 Godt fornøyd ☐ 2 Fornøyd ☐ 3

Misfornøyd ☐ 4 Meget misfornøyd ☐ 5

11.2. Hvordan er helsen din nå?

Dårlig ☐ 1 Ikke helt god ☐ 2 God ☐ 3 Svært god ☐ 4

11.3. Har du vansker med hukommelsen?

Nei ☐ 1 Litt vansker ☐ 2 Nokså store vansker ☐ 3

12. Sosial kontakt

12.1. Hvor mange mennesker står deg så nær at du kan regne med dem hvis du har store personlige problemer?

Ingen ☐ 1 1 til 2 ☐ 2 3 til 5 ☐ 3 Flere enn 5 ☐ 4

12.2. Hvor stor interesse viser folk for det du gjør?

Stor deltakelse og interesse ☐ 5 Noe deltakelse og interesse ☐ 4 Usikker ☐ 3

Liten deltakelse og interesse ☐ 2 Ingen deltakelse og interesse ☐ 1

12.3. Hvor lett er det å få praktisk hjelp fra naboer om du skulle trenge det?

Meget lett ☐ 5 Lett ☐ 4 Mulig ☐ 3 Vanskelig ☐ 2 Meget vanskelig ☐ 1

12.4. Treffer du andre mennesker så ofte du vil? Ja ☐ 2 Nei ☐ 1

13. Aktivitet

	Daglig	Ofte	Av og til	Aldri
Leser du aviser/bøker?	☐	☐	☐	☐
Går du tur?	☐	☐	☐	☐
Besøker du venner eller familie?	☐	☐	☐	☐
Ser du på TV?	☐	☐	☐	☐
Reiser du til kjente eller nye steder?	☐	☐	☐	☐
Går du på kino/teater/konsert?	☐ 1	☐ 2	☐ 3	☐ 4

Takk for at du svarte på spørsmålene!

APPENDIX V

Letter of information 1

folkehelseinstituttet

Forespørsel om å delta i et forskningsprosjekt om eldre-/seniorsentre, helse og livskvalitet.

Til deg som er beboer i Ullern eller Østensjø bydel og er 65 år eller eldre!

Nasjonalforeningen for folkehelsen og Nasjonalt folkehelseinstitutt ***samarbeider om å finne ut om eldre-/seniorsentre kan bidra til å styrke eldres helse og livskvalitet*.**

I den forbindelse ønsker vi å få vite litt om helse og trivsel hos eldre mennesker i bydelene Østensjø og Ullern og om de kjenner til eldre-/seniorsentrenes tilbud.

Vedlagt følger et spørreskjema som jeg håper du vil fylle ut og returnere ***innen 14*** dager. Du kan bruke vedlagte konvolutt som er ferdig frankert og adressert. Utfyllingen vil ta ca 20 minutter.

Spørreskjemaet blir behandlet strengt konfidensielt. Det vil ikke inneholde navn, bare et løpenummer, slik at vi kan sende en påminnelse dersom vi ikke får svar i første omgang.
Datatilsynet har godkjent prosjektet og Regional komité for medisinsk forskningsetikk tilrår det. Prosjektet vil vare ut 2009. Alt innsamlet materiale vil deretter bli anonymisert. I rapporter fra undersøkelsen vil enkeltpersoner ikke kunne gjenkjennes.

En del av de som svarer på dette spørreskjemaet, vil bli kontaktet med tanke på videre deltakelse i prosjektet. Det dreier seg om å delta i en gruppe som får et nytt tilbud ved eldresenteret, eller være med i en kontrollgruppe. Du vil få nærmere beskjed om hva prosjektet dreier seg om, hvis du kommer i en av disse gruppene.

Det er selvfølgelig helt frivillig om du svarer på spørreskjemaet og om du eventuelt vil delta i den senere oppfølgingen. Dersom du ikke ønsker å delta i oppfølgingen, får dette ingen konsekvenser for deg.

Dersom du fyller ut og sender inn spørreskjemaet er du med i trekningen av 10 ”Universal – gavekort” til verdi á kr. 500,-

Med vennlig hilsen

Hege Bøen
Prosjektleder
Nasjonalt folkehelseinstitutt, Marcus Thranes gt. 6
P.b 4404 Nydalen, 0403 Oslo
Tlf. 23 40 83 46

APPENDIX VI
Letter of information 2

folkehelseinstituttet

Oppfølging av prosjektet om Eldre-/Seniorsentre og eldres helse og trivsel

Dette brevet informerer om det nye tilbudet på eldre-/seniorsenteret på Bøler og Skøyen/Smestad og forskningsprosjektet. På grunnlag av de opplysningene du har gitt om deg selv i det første spørreskjemaet, mener vi at du er blant dem som kan ha nytte av et slikt tilbud. En prosjektmedarbeider har derfor kontaktet deg på telefonen og avtalt et møte hjemme hos deg og du blir bedt om å fylle ut et nytt spørreskjema. Besøket varer ca 11/2 time. Prosjektmedarbeideren vil hjelpe deg dersom du har problemer med utfyllingen.

Kort om tilbudet:
Eldre-/seniorsentrene på Bøler og Skøyen/Smestad er preget av stort engasjement, pulserende liv og mye aktivitet. Målet er å tilby gode møteplasser, forebygge sykdom og øke eldres livskvalitet. Det nye tilbudet omfatter:

- Mulighet for transport til og fra eldresentret
- Middag
- Deltakelse i fysisk aktivitet og utflukter
- Samtale rundt viktige temaer for deg som er pensjonist
- Sosialt samvær og tilhørighet i en mindre gruppe

Tilbudet innebærer også muligheter for å benytte senterets øvrige kurs og tilbud som frisør, fotpleie og sosialfaglig rådgivning. Middagen på senteret koster kr 50,- og transport kr 50,- tur/retur.

Kort om forskningsprosjektet:
I det nye tilbudet på eldresentret er det plass til 80 personer til sammen. Derfor er det ikke sikkert at du får tilbudet selv om du er interessert. Vi fordeler personer som har fylt ut det nye skjemaet og som er interesserte i å være med, tilfeldig i to grupper. 80 personer får tilbudet om aktivt å være med i det nye opplegget og like mange vil være deltakere i en mindre aktiv gruppe der en ikke får noe spesielt organisert tilbud. Alle 160 deltakere blir fulgt opp med spørreskjema ved hjemmebesøk i løpet av tiden forsøket pågår (1 år) 1-2 ganger. Alle deltakere i begge grupper (160) får også tilbud om å delta i det nye opplegget ved eldresentre etter at forsøket er avsluttet om ett år.

Du blir kontaktet om hvilken gruppe du er kommet med i etter at vi har samlet inn alle opplysningene vi trenger for å fordele i to grupper.
Som tidligere vil de opplysningene du gir, bli behandlet strengt konfidensielt. I rapporter fra undersøkelsen vil enkeltpersoner ikke kunne gjenkjennes.

Det er selvfølgelig frivillig å delta i forsøket videre og du kan når som helst trekke deg uten å oppgi grunn og uten at det får konsekvenser for deg.

Med vennlig hilsen
Hege Bøen
Prosjektleder
Nasjonalt folkehelseinstitutt, Marcus Thranes gt. 6 P.b 4404 Nydalen 0403, Oslo
Tlf. 23 40 83 46

APPENDIX VII
Checklist for interviews

Eldres helse og trivsel: **Sjekkliste for prosjektmedarbeider ved hjemmebesøk/intervju**

Hvordan gå fram?
Du tar selv kontakt med informantene for tidspunkt (se vedlagte telefonliste). Hvert besøk med forflytning er beregnet til 11/2 time.

Hva skal være med?
Samtykke erklæring, informasjon om tilbudet ved eldresentret og spørreskjemaet (S2) og ID-skilt

Hva skal skje ved hjemmebesøket?
1. Informanten skriver under samtykkeerklæringen som du skal ha med tilbake
2. Du presenterer de nye tilbudene på eldresenteret og forskningsprosjektet (eget informasjonsskriv som skal ligge igjen hos informanten). Presisere at de ikke nødvendigvis blir trukket ut til å få tilbudet selv om de ønsker å være med. De kan komme i den mindre aktive gruppen (kontrollgruppen) Men alle deltakere vil etter ett år, når forsøket er ferdig, få mulighet til å være med i det organiserte tilbudet ved eldresentret. NB Personer som oppsøker eldresentret fordi de er blitt inspirert av informasjonen eller lignende går ikke ut av kontrollgruppen. De vil imidlertid ikke være med i det organiserte tilbudet. Men kan selvfølgelig ellers gjøre hva de vil.
3. Informanten leser og fyller ut skjemaet selv. Dersom syn, holde blyant etc er et problem hjelper du til med utfyllingen. Men tankearbeidet og svarene skal de selv produsere. Du tar med skjemaene tilbake.
4. Vurdere kriterier for eksklusjon (vil være stor grad av funksjonshemming, fysisk eller mental, slik at personen ikke kan greie seg selv inne på senteret, atferd med stor grad av utagering som skiller seg vesentlig ut fra atferd som ellers preger brukere av eldresenteret)
5. Gjelder for studenter: Spørsmål om frivillighet som måtte være av interesse for deres oppgave ved skolen.

Prosjektmedarbeiders rolle og ansvar:
Fremme forståelse for besøket og intervjuet, få informantene til å fylle ut.
Svare på oppklarende spørsmål
Være ”mildt rettledende”
Vurdere informantens atferd, melde tilbake til meg dersom atferden klart skiller seg ut fra det vanlige (se eksklusjonskriteriene ovenfor)

Hvilke problemer kan oppstå?
Hva kan vi gjøre hvis informanten trekker seg under utfyllingen? Hvis informanten har samme standpunkt etter et mildt forsøk på overtalelse må ønsket respekteres.

Hva hvis informanten blir sint, begynner å gråte og virker sårbar?
Prosjektet representerer ingen hjelpeinstans, men undertegnede kan hjelpe til med formidling av kontakt med fagperson. Dersom personen vil, kan jeg ta kontakt med vedkommende for videreformidling. De kan selv ringe meg eller dere melder behov tilbake til meg.
En annen mulighet dersom de trenger noen å snakke med etter besøket er åpen telefon ved Sosial Vakttjeneste (legevakten) tlf 23 48 70 90 eller
Kirkens SOS tlf 815 33 300.

Med vennlig hilsen og lykke til fra Hege

Hege Bøen tlf 23 40 83 46 mobil 47 01 06 09