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**PROJECT FOR
TERVEYSNETTI: MUSIC AND
MASSAGE IN MANAGING
BEHAVIOURAL AND
PSYCHOLOGICAL SYMPTOMS
OF DEMENTIA** - a guide for family caregivers



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PROJECT FOR TERVEYSNETTI: MUSIC AND MASSAGE IN MANAGING BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA - A GUIDE FOR FAMILY CAREGIVERS

The purpose of this project was to create a guide for family caregivers of persons with dementia about non-pharmacological methods in managing behavioural and psychological symptoms such as anxiety, agitation and aggressiveness. More specifically the focus will be on methods of music and massage therapy. The purpose was to create a guide that will be published available for everyone on-line in Finnish and English.

For this project a literature search was conducted in databases CINAHL, Academic Search Elite Ebscohost, Science Direct, Medline Ovid, and manual search through Google and Pubmed, that resulted in 15 articles that were being used to build the theoretical framework for the project. The search was started with search terms "dementia" and "non-pharmacological interventions" and was further narrowed down to include methods that proved to have more consistent theoretical back-up, that is "massage" and "music therapy". A second literature search was carried out using search terms "hand massage" that resulted in 5 articles that were used to build the practical guideline for the hand massage part.

The end product of the project is a 5-page guide that gives instructions to a simple, easy-to-use hand massage and music listening that may help in reducing behavioural and psychological symptoms in persons with dementia. The guide includes pictures to guide through the hand massage. The guide is being published in May 2016; the English version in Terveysnetti: <http://terveysnetti.turkuamk.fi/> and the Finnish version in Hoitonetti of Turku University of Applied Sciences: <http://hoitonetti.turkuamk.fi>.

The project worked out as planned within the given period of time. The purpose of creating methods and a guideline for reducing behavioural and psychological symptoms in dementia was achieved. The hand massage was tested on an elderly person who did find it relaxing. The purpose of providing family caregivers ways to alleviate harmful symptoms of dementia in their loved ones was achieved since the methods of hand massage and music therapy have an evidence base which suggest they are efficient methods with no reported adverse effects noted in the studies. The interventions may also have the added effect of promoting improved relations through bonding and relaxing together with the family member.

KEYWORDS:

Dementia, BPSD, non-pharmacological methods, music therapy, massage, caregiver

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TERVEYSNETTI-PROJEKTI: MUSIIKKI JA HIERONTA MUISTISAIRAUTEEN LIITTYVIEN KÄYTÖSHÄIRIÖIDEN HALLINNASSA – OPAS OMAISHOITAJALLE

Tämän projektin tavoitteena oli luoda omaishoitajaa varten opas muistisairauteen liittyvien käytöshäiriöiden hallitsemiseksi lääkkeettömin menetelmin. Käytöshäiriöitä voivat olla ahdistuneisuus, levottomuus ja aggressiivisuus. Opas keskittyy musiikki- ja hierontamenetelmiin. Projektin tavoitteena oli luoda opas joka julkaistaan englanniksi ja suomeksi Turun ammattikorkeakoulun hoitotyön Internetportaaleissa, joissa se on kaikkien saatavilla.

Projektia varten suoritettiin kirjallisuuskatsaus tietokannoissa CINAHL, Academic Search Elite Ebscohost, Science Direct ja Medline Ovid sekä manuaalinen haku Googlen ja Pubmedin kautta. Haun tulos oli 15 tutkimusta joiden pohjalta opas rakennettiin. Haku aloitettiin sanoilla "dementia" ja "lääkkeetön hoito" josta se kapeni käsittämään "hieronta" ja "musiikkiterapia" jotka ovat ne menetelmät joiden tehokkuudella oli vahvin tieteellinen näyttö. Toinen kirjallisuushaku suoritettiin hakusanoilla "käsihieronta", ja sen tuloksena löytyi 5 tutkimusta joita käytettiin oppaan hierontaosuuden tekemiseen.

Projektin lopputulos on 5-sivuinen opas joka neuvoo helppoon käsihierontaan ja musiikin kuunteluun, jotka saattavat auttaa lieventämään muistisairauteen liittyviä käytöshäiriöitä. Opas sisältää kuvia jotka neuvovat käsihieronnassa. Opas julkaistaan toukokuussa 2016 suomeksi Turun ammattikorkeakoulun Hoitonetissä osoitteessa <http://hoitonetti.turkuamk.fi> ja englanniksi Terveysnetissä osoitteessa <http://terveysnetti.turkuamk.fi/>.

Projekti sujui suunnitellun aikataulun mukaisesti. Tavoitteena oli luoda menetelmät ja opas muistisairauteen liittyvien käytöshäiriöiden vähentämiseksi, ja siinä tavoitteessa onnistuttiin. Käsihieronta testattiin iäkkäällä henkilöllä jonka mielestä hieronta oli rentouttava kokemus. Oppaalle löytyy tieteellinen perusta ja se voi siten auttaa vähentämään muistisairauden käytöshäiriöiden aiheuttamaa taakkaa ja parantaa sekä muistisairaana että hänen läheisensä elämänlaatua sekä lisätä yhteenkuuluvuuden tunnetta perheenjäsenten kesken. Hieronnalla ja musiikin kuuntelulla ei todistetusti ole haittavaikutuksia.

ASIASANAT:

Dementia, muistisairaus, lääkkeetön hoito, musiikkiterapia, hieronta, käytöshäiriöt, omaishoitaja

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LIST OF ABBREVIATIONS (OR) SYMBOLS

BPSD	Behavioural and psychological symptoms in dementia
THL	Terveystieteiden ja hyvinvoinnin laitos / National Institute for Health and Welfare

1 INTRODUCTION

193000 Finns suffer from dementia, and the number is growing yearly by around 14500 (The Alzheimer Society of Finland 2016). The key risk factor for dementia is age (Prymachuk 2011, 268). It is estimated that the share of over 65-year olds in Finnish population will rise from 18 percent in year 2012 to 28 percent by year 2060 (Statistics Finland 2012). As the population gets older, dementia is on the rise and it presents a modern problem as well as a growing challenge as we head towards the future.

Symptoms of dementia include changes in behaviour and psyche such as agitation, restlessness, psychosis or aggressiveness. 97 % of persons with diagnosed Alzheimer's disease suffer from at least one neuropsychiatric symptom (Steinberg et al 2008). Behavioural and psychological symptoms of dementia (BPSD) pose a great challenge for the family caregivers of a person suffering from dementia and this is one cause of caregiver burnout and early institutionalization for the dementia patient. If left untreated, a person with BPSD may pose a threat for himself and others.

Traditionally BPSD symptoms have been treated with second-generation anti-psychotic medications. However, this treatment modality brings serious adverse effects. Second generation anti-psychotic medications have been shown to increase the mortality of dementia patients due to heart events and infections (U.S. Food and Drug Administration 2005). There are also other harmful side-effects with anti-psychotic medications such as muscle contractions and motor restlessness that may increase the risk for falls and lower quality of life.

Due to the serious adverse effects of pharmacological treatments, there is an increasing interest to introduce non-pharmacological methods to manage BPSD and there is research evidence to show that such methods are useful (de Oliveira et al 2015; Cohen-Mansfield et al 2007). Simple-to-use methods such as music and hand massage, that is the focus of this research project, can often be applied

with only relatively short training in community settings and may reduce some of the adverse BPSD symptoms.

The purpose of this project is to create a guide for family caregivers of persons with dementia about non-pharmacological methods in managing behavioural and psychological symptoms. More specifically focus will be on methods of music and massage therapy. The guide will be published in English in Terveysnetti: <http://terveysnetti.turkuamk.fi/> and in Finnish in Hoitonetti of Turku University of Applied Sciences: <http://hoitonetti.turkuamk.fi>. Permission for this project was granted by Salon Terveyskeskus, see appendix 3.

2 DEMENTIA

Dementia is not a disease in itself, but rather a collection of symptoms with memory and cognitive impairment such as lingual disturbances, reduced ability to perform practical tasks such as getting dressed or shaving, difficulties in recognizing familiar faces and objects and reduction of more challenging intellectual abilities such as orienting in a strange environment (The Alzheimer Society of Finland 2013). These symptoms are caused by a physical disease that affects the brain. The number of different diseases causing dementia is more than 100, but the most common ones and their shares of all dementias are: Alzheimer's disease (62%), vascular dementia (17%), mix of Alzheimer's and vascular dementia (10%), dementia with Lewy bodies (4%), fronto-temporal lobe dementia (2%), Parkinson's dementia (2%), and other types (3%) (Alzheimer's Society 2014).

In Finland there are approximately 193'000 persons with dementia. Of these at least 93'000 are in the moderate-to-severe phase. There are 14'500 new cases of dementia per year, and among working aged persons 7000-10'000 suffer from dementia. The cost for society is almost 1 billion euros, which is approximately 10'000 euros per person with dementia. (The Alzheimer Society of Finland 2016) As the demography of Finnish population continues to change so that the proportion of elderlies is constantly growing, good quality dementia care with existing resources is a challenge of today and the future. There is a need for complementary care methods that can be easily applied in the community setting.

2.1 Etiology

Dementia is a collection of symptoms with memory loss being the most obvious. The underlying cause behind dementia is a brain-affecting disease such as Alzheimer's or cardiovascular dementia. Alzheimer's disease is the most common form of dementia and what happens in the brain is that for an unknown reason brain cells are destroyed and there are changes to brain chemistry that cause a

progressive loss of functional capacities such as speech, recognition and purposeful movements (Prymachuk 2011, 268). The second most common form of dementia, vascular dementia, is caused by damage in the brain's blood vessels or different kinds of brain circulatory disorders; risk factors for developing vascular dementia are high blood pressure, coronary disease, diabetes, smoking and stroke (The Alzheimer Society of Finland 2015). Dementia with Lewy bodies and fronto-temporal lobe dementia are both forms of dementia that have their origin in the brain for reasons that are unknown although fronto-temporal lobe dementia is suspected to have a genetic tendency (Prymachuk 2011, 269).

It is possible to reduce probable risk factors for dementia such as high blood pressure and to maintain the patient's cognitive abilities and independency and to alleviate psychological and behavioural symptoms with specialized medications (Käypähoito 2010), but common for all dementias is that they are progressive and they cannot be cured. Therefore managing symptoms is a crucial part of good dementia care.

2.2 Diagnostic criteria

Dementia is a national issue in Finland; more than one third of over 65-year-old persons suffer from memory problems and yet a remarkable number of memory diseases are left undiagnosed. For an accurate diagnosis to be made, the doctor will conduct a clinical interview and examination of the person who is suspected to have dementia. Memory questionnaires, tests and laboratory examinations are conducted, as well as brain imaging which is preferably done with magnetic resonance imaging. (Käypähoito 2010)

The minimum criteria for dementia diagnosis is memory and cognitive impairment for a period of six months or more. Memory deficit can range from mild where the person is forgetting where he/she left the keys or other items, to severe in which the person cannot anymore remember the family members. Cognitive impairment implies the weakening of cognitive thinking, judging, planning, organizing and handling information. In the mildest form cognitive impairment manifests itself as

inability to perform more challenging everyday tasks, while the severe form is total loss of cognitive thinking. In dementia the level of consciousness is not reduced which would be the case in delirium. Dementia does also cause a decline in controlling emotions, decline in motivation and change in social behaviour. At least one of the following emotion-related criteria has to be filled for diagnosing dementia: emotional volatility, irritation, apathy and aggressive social behaviour. (THL 2012)

2.3 Behavioural and psychological symptoms in dementia (BPSD)

The term BPSD refers to the behavioural and psychological symptoms that can occur in people with dementia. It is estimated that most people with dementia will experience them at some point (Boltz and Gavin 2016. P.97). BPSD symptoms may be exhibited in several ways such as: anxiety, aggression both verbal and physical, inappropriate conduct such as: wandering, agitation, resistance to care and various other symptoms. However it is important to note that such symptoms may be caused by other conditions (for example urinary tract infection), which should be ruled out before a diagnosis of BPSD is given.

Traditionally BPSD symptoms have been treated by pharmacological means and they continue to do so as they have been shown to be beneficial in the treatment of some symptoms. However there is also a rising recognition that non-pharmacological methods should be used as a first line intervention in treatment of BPSD symptoms due in part to a recognized increase in mortality rates and adverse side effects which can have a significant negative impact upon the patient.

Types of medications used include antipsychotics, antidepressants, anxiolytics, anticonvulsants and cholinesterase inhibitors. Though the medications may be considered safe when used appropriately for the symptoms and when they are also well monitored, misdiagnosis and inadequate management of dosage and side effects causes significant risks (Boltz and Gavin 2016. P.85). Long-term use of atypical antipsychotic medications for example has been shown to increase the risk cerebrovascular adverse event as well as cumulative risks of cognitive

decline, falls as well as other unwanted side effects which increase risk to the wellbeing of the patient (Royal College of psychiatrists 2004). Further risks associated with use of major tranquilizers (neuroleptics): excessive sedation, dizziness, unsteadiness and falls (sometimes leading to injury), symptoms of Parkinson's disease (tremor, slowness and stiffness of the limbs), severe sensitivity in people with dementia with Lewy bodies(with a possible increase in mortality), Increased risk of stroke with some drugs within this class, e.g. risperidone and olanzapine, Changes in the ECG which may increase the risk of cardiac arrhythmias with some neuroleptics, e.g. thioridazine. Also there is some evidence emerging that long term use of these medications may increase the progression of dementia, this also increases concern over the long term use of these medications (Alzheimer's society UK).

2.4 Effect of BPSD on family caregivers

There are several advantages for family caregivers in adapting methods to reduce behavioural and psychological symptoms of dementia. Usually the family caregivers' inability to cope with BPSD is the reason for early institutionalization of their loved ones suffering from dementia. The burden to family caregiver increases tremendously as the levels of agitation and aggressiveness increase and eventually the caregiver is burned out. If caregivers are educated about methods in reducing the challenging symptoms, their loved one may be able to stay home for a longer time.

In the context of caregiving there are potentially many people who may play important roles in the provision of care for dementia patients. Commonly it is a close family member/s such as spouse or children of the patient, further there may be other family members involved or friends and neighbours also it is important to consider professional caregivers and organizations which may be involved.

The provision of dementia care is at times challenging and difficult. As the condition progresses over many years, there is a potentially considerable burden of stress upon the individuals who are providing care. Stress levels can have been

said to be increased if the patient is exhibiting symptoms of BPSD it has been reported by carers (WHO 2012.P.73). Hence it reasonably follows that if some the symptoms of BPSD may be alleviated then it could in turn reduce some of the strain experienced by the care giver.

BPSD has an adverse effect also on the life quality of the person suffering from dementia. A cross-sectional study with 119 nursing home residents with dementia concluded that behavioural problems such as agitation or aggression, refusal or resistance, aberrant motor behaviour and calling out result in lower quality of life in persons with dementia (Cordner et al 2010). As a conclusion, it is of high importance to treat behavioural and psychological problems in persons with dementia, not only for the sake of the care giver but also the person living with dementia.

3 LITERATURE REVIEW

3.1 Methods of data search

For this project a literature search was conducted in databases CINAHL, Academic Search Elite Ebscohost, Science Direct and Medline Ovid. The search was carried out in January 2016 and it resulted in 12 articles that can be considered of relevance for this project. The search was limited to include full text articles in Finnish, English and Swedish language that were published within 2000-2016. Search terms used were “dementia”, “intervention”, “family care”, “family”, “massage” and “music therapy”. See table 1 for a complete list of data searches used for this project.

Three studies of which two were systematic reviews and one a placebo-controlled study, backed up the use of non-pharmacological methods in reducing BPSD. Three studies showed the importance of massage as a method in reducing BPSD. Of those articles one was a randomized controlled trial, one was a prospective study and one was a review. Two studies, a systematic review and a review of trials, dealt with hand massage as a method of reducing BPSD:

Table 1: Data search

Database	Search terms and limiters	Re-sults	Selected by the ti-tle	Selected by the ab-stract	Selected by the whole text
CINAHL	dementia AND in-tervention. Full text.	103	10	1	1
CINAHL	dementia AND in-tervention AND family care OR family. Full text. 2000-2016.	208	150	1	1
CINAHL	dementia AND massage.	87	8	3	3
Academic Search Elite Ebscohost	dementia and music therapy Full text. 2010-2015.	55	7	5	5
Science Di-rect	dementia and music therapy 2010-2016	77	3	1	1
Medline Ovid	dementia and music therapy Full text. 2010-2016.	45	3	1	1

In addition 3 articles were found through a search in Google using search terms “dementia”, “massage” and “non-pharmacological interventions. Through a search in Google the articles could be retrieved in full text from Pubmed. A complete table of articles and descriptions used for the literature view is found in appendix 1.

3.2 Non-pharmacological management of BPSD

Due to the adverse effects that are connected with medical therapy in treating BPSD it is useful to search for alternative treatment methods. Research shows that non-pharmacological methods are useful in reducing BPSD (de Oliveira et al 2015; Cohen-Mansfield et al 2007; Hulme et al 2010).

A systematic review including 20 studies from 2005 to 2015 focusing on alternative approaches showed that different non-pharmacological interventions are efficient in reducing symptoms of dementia such as agitation, psychotic symptoms and apathy (de Oliveira et al 2015). Reliability of the results may be limited by heterogeneity of the studies in terms of design and interventions, subjective measurement of BPSD by caregivers and the fact that majority of the studies focused on dementia patients living in long-term care facilities. Out of the 20 studies included in the review, five focused on activities, four on music therapy, three on aromatherapy, three on exercises, two on light therapy, one on touch therapy, one on combination of activities, and one on cognitive rehabilitation. The only method showing negative effect on BPSD was cognitive rehabilitation.

Activities that are individualized to the patients' needs showed more strong effect on reducing BPSD than standardized activities (de Oliveira et al 2015). This is backed up by a controlled trial that examined the efficacy of individualized, non-pharmacological interventions for reducing agitated behaviour in nursing home residents with dementia (Cohen-Mansfield et al 2007). 167 nursing home residents participated in the study. They were provided non-medical interventions for 10 days during the 4 peak hours of agitation. Interventions included a broad range from music, family videotapes and pictures to electronic massagers, pain treatment and outdoor trips. The results showed a significant decrease in overall agitation compared to control group and an increase in pleasure and interest. Although the study sample was large compared to most non-pharmacological studies, the validity of the study is limited by a short duration of interventions and by

the fact that the interventions were done by research personnel. Another limitation for the purpose of this project is that the study was conducted in a nursing facility.

A systematic review about non-drug treatments for dementia hinted that only three out of a broad range of methods might be useful for informal caregivers: music or music therapy, hand massage or gentle touch and physical activity or exercise (Hulme et al 2010). The literature search was carried out in 2007 and included seven electronic databases. 25 studies were of sufficient quality but they were characterized by weak study designs with small sample numbers and in addition to BPSD they investigated other symptoms of dementia relating to cognitive ability and ability to perform daily activities. Majority of the studies were conducted in institutions. Results of the review should therefore be viewed with caution although they give evidence that music and massage therapy might be efficient in reducing BPSD.

3.3 Music therapy

The effects of music therapy have been studied extensively; some recent literature reviews have shown promising results.

A systematic review using CINAHL and PubMed databases carried out in 2015 on published studies using group music interventions to reduce dementia-associated anxiety covering only quantitative articles published between 1989 and 2014. Found that out of the eight articles that met the inclusion criteria, seven reported decreases to anxiety after a group music intervention (Avis et al 2015). Another literature review carried out in 2010 for the British Journal of nursing looked into how music therapy influences the behaviour of older people with dementia (search was limited to peer reviewed papers 2003-2009). This study found that out of the thirteen studies reviewed majority of these studies reported that music therapy influenced the behaviour of older people with dementia in a positive way by reducing levels of agitation. The research also found a positive in-

crease in participants' mood and socialisation skills, with carers having a significant role to play in the use of music therapy used in the care of the elderly. However they did note that there were methodological limitations to be found in each of the studies reviewed (Wall & Duffy 2010).

Research carried out in Taiwan (Chang et al 2008) participants n=41, found that music played during lunch times in a residential home had the effect of reducing some BPSD dementia related behaviours, thus making the job of staff during this time somewhat easier to manage. The results of this research could perhaps be open to misinterpretation; it attributes the lowering of 'problematic behaviors' to music played in the preceding week rather than the current one. The study method stated that there were 'four alternate weeks over which a music program was played during the lunchtime; during the other four weeks no music was played.' If this is the case it could perhaps be interpreted that 'problem behaviors' increased during the weeks of the music intervention. A feasibility study into using individual music therapy within a care home found it both to be feasible and beneficial to the participants (Hsu et al 2015).

Preferred music as a therapeutic intervention is of particular interest in this paper as it is perhaps the easiest form of music therapy to replicate in the home environment and it does not require the ability to play an instrument. A small study N=47 which was a randomized cross-over design, with music and reading control groups, was employed. Forty-seven participants with mild – moderate dementia, from two aged care facilities in Queensland, Australia was carried out in 2009 and used personalized music intervention for N=29 each of this group received a 30-minute music listening intervention based on personal preferences delivered by trained nursing staff in mid-afternoon, twice a week for six weeks. Results showed a positive impact in the reduction of anxiety (Sung, Chang & Lee 2009).

Individual music therapy was used in an exploratory trial in 2012, this time trained music therapists were used participants numbered 42. The study aimed to examine the effect of individual music therapy on agitation in persons with moderate/severe dementia living in nursing homes, and to explore its effect on psychotropic medication and quality of life, participants were randomised to six weeks of

individual music therapy and six weeks of standard care. It was found that during the weeks of music therapy agitation and disruptiveness were decreased and increased during non-therapy weeks, it also suggested that the reduction in disruptiveness may have helped prevent increases of antipsychotic medication during this time (Ridder et al 2013).

Music therapy research is not without its limitations and many of the studies had only small groups which diminishes the ability to generalize the results, often different kinds of music therapy interventions were used making it difficult to differentiate between what is and isn't beneficial or indeed to be able to measure which is the most effective kind of intervention. Many of the studies were also carried out in nursing home settings making which leads to the question would the results be similar in the person's home environment? Physical limitations of the patient group may also make it harder to use some forms of music therapy (i.e. mobility issues for group music therapy sessions or hearing impediments. Also some patients are on medications also to combat the BPSD symptoms this may well confuse the results. It may be some time before there is a strong evidence base for music therapy as it is still very much in its infancy as a specialised area. However out of the seven papers used in this literature review six found positive reductions in anxiety and or agitation levels of dementia sufferers. Only one paper (Cooke et al 2010) found no significant reduction in agitation or anxiety levels; they did however find that the intervention had a positive effect on verbalisation behaviours.

3.4 Massage therapy

Research suggests that massage therapy can be used as a method in reducing BPSD (Rodríguez-Mansilla et al 2015; Holliday-Welsh et al 2009). A pilot randomized controlled trial that included 120 elderly with dementia living in residential homes in Spain, studied the effectiveness of ear acupressure and massage in the improvement of pain, anxiety and depression in persons diagnosed with dementia (Rodríguez-Mansilla et al 2015). The sample was divided into three

groups where one group was a control group receiving no extra therapy, one group was receiving acupuncture and the third group received relaxing massage therapy applied on the lower limbs and back during 20 minutes for five days per week. The study was carried out for five months of which three were therapeutic treatment and two non-treatment, and the factors pain, anxiety and depression were investigated. The results of the study concluded that ear acupuncture and massage do reduce pain, anxiety and depression in persons with dementia. The effect of massage on pain supports further the usefulness of massage since behavioural symptoms in dementia can be caused by pain, which can be left untreated due to reduction of communicational skills in persons with advanced dementia.

The results of this study can be considered fairly reliable due to the larger sample group, a longer time period and a control group compared to a prospective study that explored the efficacy of massage in reducing agitation in 52 cognitively impaired residents in two long-term care facilities in the USA (Holliday-Welsh et al 2009). Massage was given to the participants on six separate days during a two-week period for 10-15 minutes per session and it included head, shoulders and hands. Agitation was measured on a 0-6 scale using the factors wandering, verbally abusive, physically abusive, socially inappropriate/disruptive, and resists care. In all of these symptoms of agitation the study showed improvement, and on all categories except for socially inappropriate/disruptive the improvement was significant.

Although this was a prospective study with a small size and short intervention duration, the results are supported by a literature search that aimed at exploring the physiological and psychological effects of slow-stroke back massage and hand massage on relaxation in older people (Harris and Richards 2009). For the purpose of the study Cooper's five-stage model was used in eight databases for research until 2009. Using the Appraisal Checklist twenty-one studies were included in the review. All of the chosen studies showed with statistical significance that slow-stroke back massage and hand massage do improve the physiological and psychological indicators of relaxation. The most used protocol across the

studies were three-minute slow-stroke back massage and ten-minute hand massage. There was a strong correlation between slow-stroke back massage and reduction in agitation and improvement in relaxation, whereas hand massage was correlated with reduction in verbal aggression and non-aggressive behaviours in people with dementia. All studies showed improvement in relaxation as measured with vital signs such as heart rate. For the purpose of this project the study has its limitation in that it investigated relaxation in older people and not specifically persons with dementia. However, as agitation and restlessness are essential in BPSD, it can be concluded that this review supports the usage of massage in also dementia patients.

3.5 Hand massage

Hand massage can reduce agitation in persons with dementia (Kong et al 2009; Hansen et al 2008). A systematic review and meta-analysis showed that out of seven types of nonpharmacological methods available for agitation, only sensory interventions such as aromatherapy, thermal bath, calming music and hand massage were efficient in reducing agitation in dementia patients (Kong et al 2009). The methods that were not significantly efficient were social contact, activities, environmental modification, caregiver training, combination therapy and behavioural therapy intervention. The study was conducted so that seven electronic databases until 2004 were searched and fourteen studies (n=586) were included. The reliability of the review is limited by a small number of studies in each intervention category, small sample size of articles, small sample sizes in respective studies and a variety in duration of interventions lasting from 10 minutes to one year.

Further evidence for hand massage in reducing agitation is proven by a literature review that aimed at assessing the effects of different massage and touch therapies on dementia symptoms such as anxiety, agitated behaviour and depression (Hansen et al 2008). Searching the Specialized Register of the Cochrane De-

mentia and Cognitive Improvement Group in 2005, only two articles met the methodological criteria. Concerning hand massage, it proved to have an effect on immediate or short-term reduction of agitated behaviour when level of agitation was measured during treatment, immediately after treatment and one hour after treatment. The second included study showed that touch added to verbal encouragement supports the intake of nutrition in persons with dementia. Clearly it is a limitation of this review that it included only two studies that were of methodological adequacy, and only one of those supported the goal of this project, which is to assess which methods are most suitable for reducing BPSD such as agitation.

3.6 Hand massage techniques

Touch massage can be used as a general term for soft massage techniques such as tactile massage, effleurage, aromatherapy massage, hand massage etc. This kind of massage can be used by nursing professionals or family caregivers as a complement to other nursing care to reduce anxiety, stress, and aggressive behaviour and to increase well-being in patients suffering from e.g. dementia. (Swedish Agency for Health Technology Assessment and Assessment of Social Services 2012)

3.6.1 Methods of data search

In order to gather research about massage techniques that are suitable for the purpose of this project a data search was conducted in February 2016 that resulted in 5 studies that could be considered useful for creating the guide. Search was conducted in databases Academic Search Elite EBSCOhost, Academic Search Elite EBSCOhost, Cinahl Complete EBSCOhost and Cinahl EBSCOhost. Search was limited to full text, between years 2000 and 2016 and languages English, Finnish and Swedish. Search terms “hand massage”, “soft tissue massage”, “dementia”, “Alzheimer’s”, “cognitive impairment”, “m technique” or “memory loss” were used. Literature search for the implementation of the project is described in table 2. One article was found through Google using the search

term “tactile massage”. For a complete table of articles used in the implementation see appendix 2.

Table 2: Data search: hand massage techniques

Database	Search terms and limiters	Re-sults	Se-lected by the title	Selected by the abstract	Selected by the whole text
Academic Search Elite EBSCOhost	Hand massage, full text, 2000-2016	40	2	2	1
Academic Search Elite EBSCOhost	Soft tissue massage, full text, 2000-2016	21	1	1	0
Cinahl Complete EBSCO-host	Hand massage	129	1	1	1
Cinahl Complete EBSCO-host	Hand massage AND dementia OR Alzheimer’s OR cognitive impairment OR memory loss	10	5	2	1
Cinahl EBSCOhost	M technique. Full text. 2000-2016.	17	5	3	1

3.6.2 Tactile massage

Tactile massage is a soft massage that involves stroking the skin softly with the intention to reach only the tactile receptors and not the deeper tissues as classic massage does. It is important that during the massage the receiver is kept warm by covering the entire body except for the part being massaged. There should be dignity and respect for receiver's wishes. Tactile massage can be applied to entire body except genitals. It begins and ends with slow, stroking movements to induce calmness and relaxation and is finished with covering and leaving the receiver for rest. (see Ardeby et al 1996)

Tactile massage for the hands and other parts of the body can induce positive feelings and relaxation in receiver and create a more warm and positive interaction between receiver and caregiver (Skovdahl et al 2007). An intervention study investigated the caregivers' experiences of giving tactile massage to individuals with BPSD and the changes in their behaviour. Five elderly people suffering from moderate-to-severe dementia were receiving tactile massage on hands, arms, legs and feet for 28 weeks by nursing home caregivers. Massage was given at least once per week and the average duration was 45 minutes. The caregivers then documented their experiences and any change in the behaviour of the residents. All of the five individuals were chosen randomly and they had expressed aggressive or restless behaviour in the past. The documentation was analyzed by using qualitative content analysis. The result was that all of the residents showed signs of positive feelings and relaxation, and the caregivers felt that they could have a more warm and positive interaction with the residents. Limitations of the study is that there were only five participants, but it can be counted as a strength that the intervention lasted for a long period of time and it was performed by familiar nurses. The massage was given on other body parts than hands, but for the purpose of simplicity this project is focusing on hand massage solely.

Tactile hand massage can help to maintain the intellectual and emotional function level of a person with dementia and it can decrease aggressive behaviour and physiological stress (Suzuki et al 2010). A study among 20 dementia patients and a control group of 20 showed that while the intellectual and emotional function decreased significantly in the control group, there was no such decline in the group that received massage. Aggressiveness and stress levels decreased significantly in the massage group. In the study, tactile hand massage was given to the participants 5 times per week during 6 weeks for about 20 minutes between 16:00 and 17:00 hours. The effect of massage was then evaluated using Mini Mental State Examination, The Gottfries-Brane-Steen Scale and the Behavior Pathology in Alzheimer's Disease Rating scale (BEHAVE-AD) as measures of functioning, and salivary Chromogranin A to measure physiological stress. Limitation of the study is small sample size. Table 3 shows a hand technique of the Japan Sweden Care Institute's Tactile Care Course I that was used in the study (Suzuki et al 2010).

Table 3: The Tactile Care Technique (Suzuki et al 2010)

1. Tell the subject that it is time for massage and arrange a comfortable position.
2. Wrap both hands in a towel. Remove one towel and turn the palm up.
3. Warm organic oil in your hands and then rub the oil on the subject's hand
4. Stroke the side of the hand slowly before starting finger effleurage.
5. Wrap your hand around each finger while performing effleurage in a slow circular motion starting from the base of the finger to the tip of the finger.
6. Stroke the hand making small clockwise circles on the palm and put the hands together before stroking the sides of the fingers.
7. Let your hands slide around the wrists while performing effleurage in circular motion.

8. Carefully wrap the subject's hand in a towel and move to the next hand.
--

9. Repeat the same procedure for the other hand and when finished thank the subject.
--

In both studies above massage was given from at least once per week up to 5 times per week. The caregivers received education for using the massage technique and they used natural oils in massaging. The education received was more intensive than the guideline of this project can offer, but it is good to bear in mind that for the purpose of the studies it was essential to ensure that the techniques used were as homogenous as possible to ensure objective research quality. The durations of the massages were also lengthy (mean 45 minutes and 30 min respectively) but because this project wants to offer an easy-and-fast-to-use technique for busy family caregivers that can be applied within time restraints, the massage in the guideline is kept as easy and short as possible.

One of the studies considered that best time for massage is between 16 and 17 pm to reduce disruptions to the circadian rhythm, which can cause restlessness and disquiet in day- and night time, and a so called sundown syndrome where hallucinations and paranoia increase after sunset (Suzuki et al 2010). The study showed a reduction in night time disquiet and diurnal rhythm disturbance although the effect was not statistically significant.

3.6.3 M Technique

The M Technique is a registered method of touch that is developed for patients that are critically ill, fragile or dying. It uses tightly choreographed light stroking movements that are repeated three times in a set sequence and always applying pressure level three on a scale from one to ten. The idea behind the three strokes is that the first time the receiver experiences the stroke, he or she will pay attention. The second time the receiver will recognize the stroke and the third time he/she will know what is going to happen and begins to relax. (Buckle 2002)

M Technique is an easy method to learn and it can be performed on the patient's hands in only five minutes which makes it suitable for nursing and family caregivers who are often under a time constraint. For the purpose of this project, no research was found that studied the effect of M technique on BPSD. Although M Technique is used in several hospitals and hospices in USA, the evidence-base for the usefulness of the method is relatively vague. A double-study measured the effect of the M technique on cerebral blood flow and compared it to conventional massage therapy (Buckle et al 2008). In the first study 4 participants received one M technique session and in the second study one participant received 10 conventional massages and one participant received 10 M-technique sessions. Results showed that both M technique and conventional massage do have a positive effect on blood flow activation changes and that M technique induces a greater change which is increased when the massage is repeated. The result hypothesizes that M technique induces a state of deep relaxation. The study results should be viewed with caution due to small sample sizes and lack of controls. Also there were no standardized measures about the participants' subjective data about how they felt after the intervention.

Research indicates that the M technique does have a positive effect on the person receiving massage and the family members of the patient (Roberts & Campbell 2011; Prichard et al 2015). A case study with two participants receiving end-of-life care at a hospice in the West Midlands, UK, resulted in a relaxing effect on the patient and family caregivers by giving a respite (Roberts & Campbell 2011). A quasi-experimental pilot study that showed that administering a brief hand massage using the M technique and pleasant-smelling oils to patients in an intensive care unit reduces anxiety of family members who administer the treatment (Prichard et al 2015). Fifteen family members participated in the study and there was a control group of 15 family members. There were 6 massage sessions that each lasted 5 minutes and they were given twice a day for 3 days. Both of these studies have to be viewed with caution due to small sample sizes and short durations of intervention.

Even if the M technique is not specifically developed for dementia patients and there were no research found on the effect of the technique on dementia patients, there is some evidence to suggest a possible relaxing effect on the subject and the caregiver who is giving massage. In addition it is an easy-to-learn technique that can be applied by family caregivers with no formal education in massage. Learning the technique requires 14 hours of instruction for full body and 1 hour for a hand technique whereas conventional massage requires 600-1000 hours of study (Buckle et al 2008).

4 PURPOSE OF THE PROJECT

The purpose of this project is to create a guide for family caregivers of persons with dementia about non-pharmacological methods in managing behavioural and psychological symptoms. More specifically the focus will be on methods of music and massage therapy. The guide will be published in Terveystiete in English and in Turku University of Applied Sciences Hoitonetti in Finnish.

5 IMPLEMENTATION

5.1 Music method

For the reason of keeping this practical and accessible for people on low income in their home environment the method of using preferred individualized music was chosen based on the information gathered in the literature review in chapter 3.3.

The instructions are given in a simple and easy to follow format that covers what is needed, environmental suggestions and that a reasonable standard of hearing is required.

5.2 Massage method

For the purpose of this project a short and simple hand massage method was developed that is based on the literature review in chapter 3.6 of this project. The hand massage method has adopted features from tactile massage and M technique. In addition to the literature review, a video posted on Youtube.com was used for developing the recommended massage (St Michaels Hospice 2012). To keep the massage very easy to use and to learn, only three different kinds of strokes were introduced and the sequences and motions within the sequences are always counted to three.

When the massage method was ready, it was tested on the author's sister (age 27) and mother (age 67). They both experienced the massage as being relaxing. Especially the elderly lady receiving hand massage found it very relaxing. Although not suffering from dementia, she found the massage soothing for her hands that were slightly rheumatic and sore from decades of hard work.

Finally pictures were taken for the guideline. The author's sister and mother participated and assisted in the photo shooting, the sister taking the pictures while the author was massaging her mother's hands. Written instructions were added

to the pictures and guidelines for preparing and ending the massage were written based on the literature review in chapter 3.6 of this project.

5.3 Publication of the guide

The guide will be published in English (see appendix 4) in May 2016 in Terveysnetti which is a website managed by the Turku University of Applied Sciences and that contains BA theses made of students of Turku University of Applied Sciences. The location of the web site is: <http://terveysnetti.turkuamk.fi/>. A Finnish version of the guide (see appendix 5) will be published in Hoitonetti that is a website maintained by the Turku University of Applied Sciences. The location of the website is: <http://hoitonetti.turkuamk.fi>. No paper prints will be made of the guide since there is free access online to the guide through Terveysnetti and Hoitonetti for any parties that may have interest in using the guide.

6 DISCUSSION

As the review of relevant studies has shown, music and massage therapy have proved to be efficient methods in reducing BPSD. They are also recommended by professionals, which are shown by a systematic review of recent dementia practice guidelines (Ngo and Holroyd-Leduc 2015). A systematic review between 2008 and 2013 including 12 moderate-to-high quality guidelines show that music and massage therapy are recommended practices for non-pharmacological management of BPSD while controversial therapies aromatherapy and multisensory stimulation cannot be recommended. The review concludes that the wide range of recommendations lack consistency and that they are often based on weak evidence.

The purpose of this project was to create a guideline based on evidence, and therefore only two non-pharmacological methods with the strongest possible evidence, music and massage therapy, were included. However the studies that back up this project do have their limitations. The therapeutic massage interventions were often conducted by professionals or caregivers that had received a quite thorough training. It is good to keep in mind, though, that massage is not only about technique but also about touch and presence and these as such can promote relaxation and well-being to the massage giver and receiver and improve the bond between family members. Music is a deeply personal form of entertainment and in this way it could be said that a family carer may be best positioned to understand the preferences of the person with dementia as they have an understanding of the individual's history and also that such music may bring back shared memories that could increase the bond. However with music it is worth noting that some less pleasant events could be linked with certain songs and this is a matter that needs further research.

Another limitation of the studies is that they were mainly conducted in institutionalized facilities such as nursing homes or dementia care facilities, while the purpose of this project is to create a guide for family caregivers to be used at home. Because of the limited availability of studies conducted in home setting there is

no other option than to draw the conclusion that studies carried out in facilities apply also in home setting. In fact it could be discussed that while performed in a familiar setting by a familiar person the relaxing effect of music and massage therapy is at least as efficient as when performed in a facility.

The purpose of this project is to create an evidence-based guide for using non-pharmacological methods in reducing BPSD. The studies that back up this purpose have not excluded the pharmacological aspect meaning that most study participants may have also been using pharmacological means to reduce BPSD symptoms during the interventions which may cause misinterpretation of the results.

It can be discussed whether the music and massage methods created within this project have the same positive effects as the professional techniques that are used in the research studies that are the theoretical basis for this project. In some studies the music and massage interventions were performed by professionals and in some studies nursing practitioners were given a thorough education by professionals in how to do the interventions. It is uncertain whether the methods created in this project yield positive results in reducing BPSD unless any trials are conducted. There is clearly a gap in the existing literature about the effect of non-pharmacological methods in reducing BPSD when the interventions are carried out by family caregivers in a community setting.

While there is uncertainty about usefulness of music and massage carried out by family caregivers that are non-professionals, there is an advantage that is brought by the already existing closeness and trust that exists between family members. It can be disputed that the closeness and intimacy that exist between family caregiver and dementia patient can have a positive effect in reducing agitation and other symptoms in dementia while enabling a more relaxing and familiar environment compared to music and massage interventions performed by professionals in an institutionalized environment.

It certainly can be said that the both methods are open to very different responses from individuals as personal preference is very subjective especially as tastes

and preferences may vary according to many different factors such as age, culture and nationality.

Further research into non- pharmacological interventions in community settings would be useful because there appears to be very little research in this particular area. Concerning massage as a method in reducing BPSD, no studies were found for this project that study the effect of massage given at home by a family caregiver. Clearly that is an area in the research that is waiting to be explored.

Study into musical triggers and music based interventions would be interesting to see as it seems likely that adverse effects could occur when the music is linked to some past unhappy life event but none of the studies used for this project mentioned this potential issue.

7 CONCLUSION

The project worked out as planned according to the time table. The project proceeded smoothly and the available literature and existing research guided the whole process. The project started with the broader subject “non-pharmacological methods in reducing BPSD” and proceeded to being refined to include the two of the methods with most evidence for their usefulness: massage and music therapy.

The purpose was to create methods and a guideline that are very simple and easy-to-use for the family caregiver of a person living with dementia, and the purpose was achieved. The hand massage was tested on an elderly person who reported that they found it very relaxing.

The guide is published in Terveysnetti and Hoitonetti that are websites with access to everyone, thus making the guide available and easily accessible to family caregivers of person with dementia.

The guide provides information for family caregivers on ways to alleviate the anxiety and other harmful symptoms of dementia in their loved ones and this is considered to be achieved since the methods of hand massage and music therapy are proved to be efficient methods in reducing BPSD with no reported adverse effects noted in the studies. The methods may also have the added effect of promoting improved relations through the act of bonding and relaxing together with the family member.

The guide that was produced as a result of this project can also be utilised by nurses as a guidance tool given to caregivers and patients seeking non-pharmacological ways to reduce BPSD related anxiety and agitation symptoms.

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Appendix 1: Literature review table

Research	Names, place of publication, year	Purpose of the study	The sample and data collection methods	The main findings	Limitations
Non-pharmacological methods in reducing BPSD					
Nonpharmacological Interventions to Reduce Behavioral and Psychological Symptoms of Dementia: A Systematic Review.	de Oliveira, A. M.; Radanovic, M.; de Mello, P. C.; Buchain, P. C.; Vizzotto, A. D. B.; Celestino, D. L.; Stella, F.; Piersol, C. V. & Forlenza, O. V. BioMed Research International Vol. No. 2015, 1-9.	To review studies of nonpharmacological interventions published in the last 10 years.	Systematic review in Medline and Embase databases from 2005-2015. 20 studies included.	The symptoms more responsive to the interventions were agitation. Most studies have shown that non-pharmacological interventions have important and significant efficacy on reducing BPSD.	Intervention methods and theories varied across studies. 15 of the studies done in institutions. Measurement of symptoms subjected to caregiver burden, personality and ability to detect changes in behaviour.
Nonpharmacological Treatment of Agitation: A Controlled Trial of Systematic	Cohen-Mansfield, J.; Libin, A. & Marx, M. Journal of Gerontology Vol. No. 8/2007, 908-916	To examine the efficacy of a systematic algorithm for providing individualized, non-pharmacological	Placebo-controlled study. 167 nursing home residents with dementia. Direct ob-	The implementation of personalized, non-pharmacological interventions resulted	Intervention phase lasted only 10 days. Interventions were done by research

Individualized Intervention		interventions for reducing agitated behaviours in nursing home residents with dementia.	servations by trained research assistants using Agitated Behavior Mapping Instrument (ABMI).	in statistically significant decreases in overall agitation and increases in pleasure and interest.	personnel. The study was done in institutional setting.
Non-pharmacological approaches for dementia that informal carers might try or access: a systematic review	Hulme, C.; Wright, J.; Crocker, T.; Oluboyede, Y. & House, A. International Journal of Geriatric Psychiatry Vol. No. 25/2010, 756–763.	To review non-drug treatments for dementia; to provide a source of evidence for informal carers who want ideas about non-drug approaches for dementia, that they might try or that they could try to access.	Literature searches of seven electronic databases were carried out in November 2007. 25 reviews included.	Three interventions were found to be effective for use with particular symptoms of dementia: music or music therapy, hand massage or gentle touch and physical activity/exercise.	Majority of research studies presented within the systematic reviews were based in community residential settings and were characterised by weak study designs with small sample numbers.
Music therapy					
Group music interventions for dementia-associated anxiety: A	Ing-Randolph A., Phillips L., Williams A. 2015 International Journal of Nursing Studies 52 1775–1784 Found on Science direct.	This systematic review examines the few published studies using	All quantitative studies from 1989 to 2014 were searched	Eight articles met the inclusion criteria for review. Subject	Studies ranged from 1989-2014 practice has changed

<p>systematic review</p>		<p>group music interventions to reduce dementia-associated anxiety, the delivery of such interventions, and proposes changes to nursing curriculum for the future</p>	<p>in CINAHL and PubMed databases. Only published articles written in English were included. Studies excluded were reviews, non-human subjects, reports, expert opinions, subject age less than 65, papers that were theoretical or philosophical in nature, individual music interventions, case studies, studies without quantification of changes to anxiety, and those consisting of less than three subjects.</p>	<p>dementia severity ranged from mild to severe among studies reviewed. Intervention delivery and group sizes varied among studies. Seven reported decreases to anxiety after a group music intervention.</p>	<p>considerably during this period and could affect the outcome somewhat. Of the eight reviewed studies, six collected descriptive data on age and sex and summarized values in tabular form. However, these 6 studies varied significantly on inclusion Requirements making it possible that other factors could be attributed to the results.</p>
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<p>Individual music therapy for agitation in dementia: an exploratory randomized controlled trial</p>	<p>Ridder M., Stige B., Qvale L. and Gold C. 2013: Aging & Mental Health, Vol. 17, No. 6, 667–678, 22 March 2013 Found on Ebscohost Elite</p>	<p>The aim of this study was to examine the effect of individual music therapy on agitation in persons with moderate/severe dementia living in nursing homes, and to explore its effect on psychotropic medication and quality of life.</p>	<p>42 participants with dementia were randomized to a sequence of six weeks of individual music therapy and six weeks of standard care. Outcome measures included agitation, quality of life and medication.</p>	<p>This study shows that six weeks of music therapy reduces agitation disruptiveness and prevents medication increases in people with dementia. The positive trends in relation to agitation frequency and quality of life call for further research with a larger sample.</p>	<p>Small group size N=42.</p>
<p>The effects of music therapy for older people with dementia</p>	<p>Michelle Wall, Anita Duffy British Journal of Nursing 2010 Found on Ebscohost Elite</p>	<p>The aim of this literature review is to explore how music therapy influences the behaviour of older people with dementia.</p>	<p>A comprehensive review of nursing literature using the online databases CINAHL, PsycINFO and MEDLINE were carried</p>	<p>Thirteen studies reviewed the majority of these studies reported that music therapy influenced older</p>	<p>Methodological limitations were found in each of the studies reviewed.</p>

			<p>out. The search was limited to articles in the English language and peer-reviewed journals dating 2003–2009.</p>	<p>people with dementia in a positive way, reducing levels of agitation. The research also showed a positive increase in participants' mood and socialisation skills, with carers having a significant role to play in the use of music therapy in care of the elderly nursing.</p>	
<p>Individual music therapy for managing neuropsychiatric symptoms for people with dementia and their</p>	<p>Hsu M., Flowerdew R., Parker M., Fachner J. and Odell-Miller H. 2015.</p> <p>BMC Geriatrics DOI 10.1186/s12877-015-0082-4</p>	<p>This study reports initial feasibility and outcomes from a five month music therapy programme</p>	<p>17 care home residents and 10 care staff were randomised to the music therapy intervention</p>	<p>The music therapy programme appeared to be a practicable and acceptable in-</p>	<p>Very small group size N=17</p>

<p>carers: a cluster randomised controlled feasibility study.</p>		<p>including weekly individual active music therapy for people with dementia and weekly post-therapy video presentations for their carers in care homes.</p>	<p>group or standard care control group. The cluster randomised, controlled trial included baseline, 3-month, 5-month and post-intervention 7-month measures of residents' symptoms and well-being. Carer-resident interactions were also assessed. Feasibility was based on carers' feedback through semi-structured interviews, programme evaluations and</p>	<p>intervention for care home residents and staff in managing dementia symptoms.</p>	
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			track records of the study.		
A randomized controlled trial exploring the effect of music on agitated behaviours and anxiety in older people with dementia	Cooke M., Moyle W., Shumb D., Harrison S and Murfield J.: 2010 Aging & Mental Health, Vol. 14, No. 8, November 2010, 905–916, DOI: 10.1080/13607861003713190	This study, as part of a larger programme of research, sought to investigate the effect that participation in a 40-min live group music programme, involving facilitated engagement with song-singing and listening, three times a week for eight weeks, had on agitation and anxiety in older people with dementia.	A randomized cross-over design, with music and reading control groups, was employed. Forty-seven participants with mild – moderate dementia, from two aged care facilities in Queensland, Australia, were recruited. Participants were assessed three times on the Cohen-Mansfield Agitation Inventory – Short Form (CMAI-SF) and the Rating Anxiety in Dementia	Participation in the music programme did not significantly affect agitation and anxiety in older people with dementia. Both the music and reading group activities, however, gave some participants a ‘voice’ and increased their verbalization behaviour.	the results may be reflective of discrepancies seen on outcome measures when completed by different respondents, particularly proxy respondents and the person with dementia

			Scale (RAID).		
The effect of a music programme during lunchtime on the problem behaviour of the older residents with dementia at an institution in Taiwan.	Chang F., Huang H., Lin K. and Lin L.: 2008 Journal of Clinical Nursing, Blackwell Publishing Ltd, , 939–948 939 doi: 10.1111/j.1365-2702.2009.02801.x	To study the effect of a music programme during lunchtime on problem behaviour among institutionalised older residents with dementia.	This study used a quasi-experimental design with an eight-week time series follow-up. The intervention was background music when residents had their lunch meal. A purposive sampling technique was used. Forty-one participants were selected from an institution housing residents with dementia located in a city in Taiwan.	The results from this study suggested that music is able to reduce the degree of problem behaviours among the older residents with dementia and this helps to ease workload of nurse aides and nurses during meal times.	Questionable results- positive results attributed to week prior's programme.
A preferred music listening intervention	Sung H., Chang A. and Lee W.: 2010.	This article reports the results of a study	Twenty-nine participants in the ex-	ANCOVA results indicated that	Small group size N=52.

<p>to reduce anxiety in older adults with dementia in nursing homes</p>	<p>Journal of Clinical Nursing, 19, 1056–1064 Blackwell Publishing Ltd doi: 10.1111/j.1365-2702.2009.03016.x</p>	<p>evaluating a preferred music listening intervention for reducing anxiety in older adults with dementia in nursing homes.</p>	<p>perimental group received a 30-minute music listening intervention based on personal preferences delivered by trained nursing staff in mid-afternoon, twice a week for six weeks. Meanwhile, 23 participants in the control group only received usual standard care with no music. Anxiety was measured by Rating Anxiety in Dementia at baseline and week six. Analysis of covariance (ANCOVA)</p>	<p>older adults who received the preferred music listening had a significantly lower anxiety score at six weeks compared with those who received the usual standard care with no music</p>	<p>Experimental design used. All participants were Taiwanese which could bring into question transferability in a more international environment.</p>
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			was used to determine the effectiveness of a preferred music listening intervention on anxiety at six weeks while controlling for pretest anxiety, age and marital status.		
Massage					
The effects of ear acupressure, massage therapy and no therapy on symptoms of dementia: a randomized controlled trial	Rodríguez-Mansilla, J. R.; González López-Arza, M. V.; Varela-Donoso, E.; Montañero-Fernández, J.; González Sánchez, B. & Garrido-Ardila, E. M. Clinical Rehabilitation Vol. No. 29(7)/2010, 683–693.	To assess the effectiveness of ear acupressure and massage vs. control in the improvement of pain, anxiety and depression in persons diagnosed with dementia.	A total of 120 elders with dementia institutionalized in residential homes in Spain. 3 months of treatment, 2 months of follow-up. Structured questionnaires done by one independent interviewer.	Ear acupressure and massage therapy improve pain, anxiety and depression in elders with dementia, ear acupressure being slightly more efficient.	Sample size, duration of study. Study done in institution.
Massage in the	Holliday-Welsh, D. M.; Gesbert, C. E. & Renier, C. M.	A prospective	Data was collected during	Massage proved	Small sample size, short

Management of Agitation in Nursing Home Residents with Cognitive Impairment	Geriatric Nursing Vol. No. 30(2)/2009, 108-117	study designed to examine the potential of massage to reduce agitation in cognitively impaired nursing home residents.	baseline (3 days), intervention (6 days), and at follow-up. The study was conducted in 2 skilled nursing facilities in north-easter Minnesota. N=54.	to be efficient in reducing agitation on all categories except for socially inappropriate/disruptive behaviour.	intervention duration. Institution setting.
The physiological and psychological effects of slow-stroke back massage and hand massage on relaxation in older people	Harris M and Richards K. C. Journal of Clinical Nursing Vol. 19 (2010), 917–926	Review to examine the physiological and psychological effects of slow-stroke back massage and hand massage on relaxation in older people and identify effective protocols for massage in older people.	Review using Cooper's five-stage model. Dates through June 2009. 21 studies included.	All studies using slow-stroke back massage and hand massage showed statistically significant improvements on physiological or psychological indicators of relaxation.	Only two researches were carried out in community. Focus on older people and not dementia.
Hand massage					
Nonpharmacological intervention	Kong, E.-H.; Evans, L. K. and Guevara, J. P. Aging & Mental Health	To systematically review the	Seven electronic databases (to 2004)	Sensory interventions	Small number of studies in each

<p>for agitation in dementia: A systematic review and meta-analysis</p>	<p>Vol. 13, No. 4, July 2009, 512–520</p>	<p>literature regarding the effectiveness of non-pharmacological interventions for agitation in older adults with dementia.</p>	<p>were searched. Fourteen studies included. Categories: sensory intervention, social contact, activities, environmental modification, caregiver training, combination therapy, and behavioral therapy.</p>	<p>(aromatherapy, thermal bath, calming music and hand massage) had efficacy in reducing agitation.</p>	<p>category, small sample sizes in studies (n=8-118), duration of intervention program 10min – 1 year, heterogeneity across interventions.</p>
<p>Massage and touch for dementia</p>	<p>Hansen, N. V., Jørgensen, T. and Ørtenblad, L. 2008, The Cochrane Library 2006, Issue 4</p>	<p>To assess the effects of a range of massage and touch therapies on conditions associated with dementia, such as anxiety, agitated behaviour and depression, identify any adverse effects, and provide</p>	<p>Trials identified from a search of the Specialized Register of the Cochrane Dementia and Cognitive Improvement Group on 12 July 2005 using the terms massage, reflexology, touch and shiatsu.</p>	<p>Hand massage can reduce agitated behaviour immediately or short-term and the addition of touch to verbal encouragement to eat can improve nutritional intake.</p>	<p>Two studies included, and only one of those concerned effect of massage on BPSD.</p>

		recom- menda- tions about fu- ture trials.	Two stud- ies in- cluded.		
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Appendix 2: Hand massage literature review table

Research	Names, place of publication, year	Purpose of the study	The sample and data collection methods	The main findings	Limitations
Tactile massage					
Tactile stimulation associated with nursing care to individuals with dementia showing aggressive or restless tendencies: an intervention study in dementia care.	Skovdahl, K.; Sörlie, V. & Kihlgren, M. (2007) International Journal of Older People Nursing Vol. No. 2(3)/2007, 162-170.	To describe from documentation both the caregivers' experiences of giving tactile stimulation to five people with moderate-to-severe dementia and who showed aggressive or restless tendencies, and the changes seen in them.	Caregivers' documentation of experiences from 28 weeks of giving of tactile stimulation to five randomly selected people with dementia showing aggressive or restless tendencies and the subsequent changes noticed.	All residents displayed signs of positive feelings and relaxation. The caregivers stated that they felt able to interact with the residents in a more positive way and that they felt they had a warmer relationship with them.	A case study with only five participants. It gives hints but difficult to draw statistically significant conclusions based on this study.
Physical and Psychological Effects of 6-Week Tactile Massage on Elderly Patients With Severe Dementia	Suzuki, M.; Tatsumi, A.; Otsuka, T.; Kikuchi, K.; Mizuta, A.; Makino, K.; Kimoto, A.; Fujiwara, K.; Abe, T.; Nakagomi, T.; Hayashi, T. & Saruhara, T. American Journal of Alzheimer's Disease & Other Dementias Vol. No.	To examine the effects of a 6-week tactile massage on changes in physical and mental function and BPSD among elderly patients with dementia.	One group receiving massage (n=20) and one control group (n=20)	Tactile massage reduces aggressiveness and stress level in patients with dementia.	Small sample size. Institutional setting.

	25(8)/2010, 680-686				
M-Technique					
Measurement of Regional Cerebral Blood Flow Associated with the M Technique—Light Massage Therapy: A Case Series and Longitudinal Study Using SPECT	Buckle, J.; Newberg, A.; Wintering, N.; Hutton, E.; Lido, C. and Farrar, J. T. The Journal of Alternative and Complementary Medicine Vol. No. 14 (8) 2008, 903-910.	To measure the physiologic effect of the M technique on the brain using single photon emission computed tomography (SPECT) and compare it to conventional massage therapy.	1 st study: 4 participants received 1 M technique session. 2 nd study: 1 participant received 10 conventional massages and one participant received 10 M technique sessions.	M technique and conventional massage may both elicit blood flow brain activation changes. The M technique revealed greater changes and responses increased when the M technique was repeated over time (unlike massage).	Small sample size and lack of controls. There were no standardized measures about the participants' subjective data about how they felt after the intervention.
Using the M technique as therapy for patients at the end of life: two case studies.	Roberts, K. & Campbell, H International Journal of Palliative Nursing Vol. No. 17 (3) 2011, 114-118.	To reflect on the potential for palliative care nurses in a hospice setting to support patients with agitation and distress at the end of life by using the M technique.	Case study: 2 cases conducted at a hospice in the West Midlands, UK.	In both cases the patients relaxed and agitation was reduced. Also some respite for the family was noticed.	Small sample size, one-time case study.
Benefit to family members of delivering hand massage with essential oils to critically ill patients.	Prichard, C. & Newcomb, P. American Journal of Critical Care Vol. No. 24(5), 2015, 446-449.	To study the effect of a family-delivered touch treatment on anxiety and depression of family members of patients.	15 family members in a treatment group and 15 family members in control group.	The 5-minute M technique intervention was associated with positive change in anxiety and depression	Small sample size and duration of intervention.

				among family members visiting patients.	
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Appendix 3: Commission form

OPISKELIJAN TIEDOT

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Koulutusohjelma Degree Programme in Nursing

OPINNÄYTETYÖ

Aihe/työnimi Project for Terveystietä: Non-pharmacological methods in managing behavioural and psychological symptoms in dementia - a guide for family caregivers
Aikataulu 25.5.2016

TOIMEKSIANTAJA

Organisaatio Salon Terveystietä
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OPINNÄYTETYÖN SOPIMUSEHDOT*

OHJAUS JA VASTUUT

Vastuu opinnäytetyön tekemisestä ja tuloksista on opiskelijalla. Turun ammattikorkeakoulu vastaa opinnäytetyön ohjauksesta. Toimeksiantaja sitoutuu antamaan opiskelijan käyttöön kaikki opinnäytetyön tekemisessä tarvittavat tiedot ja aineistot sekä ohjaamaan opinnäytetyötä toimeksiantajaorganisaation näkökulmasta.

OIKEUDET

Opinnäytetyön tekijänoikeus kuuluu tekijälle eli opiskelijalle. Tekijänoikeuden lisäksi myös muiden immateriaalioikeuksien osalta noudatetaan kulloinkin voimassa olevaa kyseessä olevaa oikeutta koskevaa lainsäädäntöä.

TYÖSUHDE JA KUSTANNUKSET

Mahdollisesta työsuhteesta, työstä maksettavasta palkki-osta ja työstä mahdollisesti aiheutuvien kustannusten korvaamisesta toimeksiantaja ja opinnäytetyön tekijä sopivat erikseen.

TULOSTEN JULKISTAMINEN JA LUOTTAMUKSELLISUUS

Opinnäytetyöstä laaditaan Turun ammattikorkeakoulun ohjeen mukainen kirjallinen raportti.

Mitä liike- tai ammattisalaisuuksiin liittyviä asioita ei esitetä opinnäytetyöraportissa?

Kirjallinen raportti luovutetaan toimeksiantajalle ja asetetaan kirjaston kokoelmiin tai julkaistaan elektronisessa muodossa verkkokirjastossa.

Julkaistava opinnäytetyöraportti on laadittava niin, ettei se sisällä liike- tai ammattisalaisuuksia tai muita julkisuuslaissa (laki viranomaisten toiminnan julkisuudesta) salassa pidettäväksi määritettyjä tietoja, vaan ne jätetään työn tausta-aineistoon. Opinnäytetyön arvioinnissa otetaan huomioon sekä julkaistava että salassa pidettävä osa.


Opinnäytetyön toimeksiantaja ja opiskelija sitoutuvat pitämään salassa kaikki opinnäytetyön tekemisessä ja sitä edeltävissä tai sen jälkeisissä neuvotteluissa esiin tulevat luottamukselliset tiedot ja asiakirjat.

Toimeksiantajan edustajalle varataan mahdollisuus tutustua opinnäytetyöraporttiin viimeistään neljätoista (14) päivää ennen aiottua julkaisemista. Toimeksiantaja antaa työstä ennen edellä mainittua julkaisemisajankohtaa lausunnon, jossa voidaan määrittellä opinnäytetyöraporttiin mahdollisesti sisältyvät liike- tai ammattisalaisuudet, joita ei julkaista.

OLEMME YHTEISESTI SOPINEET OPINNÄYTETYÖN TOTEUTUKSESTA YLLÄ ESITETYLLE TAVALLA

___/___/20___

20/7/2016

 HEIDI LÖNNQVIST

Opiskelija


Toimeksiantaja

LIITE : OPINNÄYTETYÖSUUNNITELMA

* Turun ammattikorkeakoulun toiminnan yhtiöittämistä vuoden 2014 alusta valmistellaan. Osakeyhtiön toiminnan alettua tämä sopimus siirtyy Turun AMK:n toiminnan vastaanottavalle yhtiölle.

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Appendix 4: The guide (EN)

A QUICK CAREGIVERS GUIDE TO MASSAGE AND PREFERRED MUSIC TO RELIEVE ANXIETY AND AGITATION IN PEOPLE WITH DEMENTIA

Research suggests that both massage and use of preferred music relaxation techniques may be effective in reducing anxiety and agitation symptoms in people living with dementia. This is a short guide aimed at family caregivers that gives easy to follow instructions for both methods.

Written by
Heidi Lönnqvist
& Gareth Stowers
May 2016

Easy and quick hand massage
This easy and quick hand massage can help to reduce agitation in a person who is suffering from dementia.

For best possible result: perform this massage every day or at least once per week at 16-17 pm.

Duration of massage is approximately 10 minutes.
Do not give massage on open wounds or injured or traumatized areas.

What you need for the massage:
Plain natural oil (e.g. olive or almond oil, hand lotion or baby lotion). Use only oils or creams with familiar aromas to avoid allergic reactions.
Two towels.

Preparations:
Choose a comfortable position for yourself and the subject so that you are facing the subject in straight line to avoid body rotation. Keep your back straight and keep your shoulders relaxed.
Make sure that the subject is kept warm by covering the entire body.
Wrap the subject's hands in towels.

Getting started:
Tell the subject that you are going to give a hand massage that will last for 10 minutes.
Unfold the other towel. Warm up oil in your own hands and rub the subject's hand in oil from finger tips until the elbow.
Unfold the other towel. Warm up oil in your own hands and rub the subject's hand in oil from finger tips until the elbow.
Do the massage as slowly and calmly as you can.
When finished with one hand, carefully wrap subject's hand in a towel.

1

1. Slide your hand from the wrist until the elbow and back. Repeat 3 x 3 times.
2. Slide your thumbs from the middle of the back of the hand towards the outer parts. Repeat 3 x 3 times.
3. Rotate your thumb on each joint on each finger. Repeat three rotations per joint.
4. Turn the hand with palm upwards and massage each finger same way as in previous point.
5. Slide your thumbs from the middle of the palm towards the outer parts. Repeat 3 x 3 times.
6. Slide your hand from the wrist until the elbow and back. Repeat 3 x 3 times.

2

Ending the massage:
When finished thank the subject.
Cover the subject and leave for rest.

Music for relaxation:
Listening to preferred music can lead to a reduction of anxiety and agitation for people with dementia.
It is suggested sessions should be twice a week on the same days.
Duration should be around 30 minutes.
The subject must have sufficient level of hearing for this to be beneficial.

What you need:
A collection of 30 minutes of the person's preferred music and a music player.
A comfortable environment where the subject will not be disturbed for 30 minutes.

Preparations:
Set the music to a suitable volume.
Ensure the person is comfortable.

Getting started:
Explain what you have planned and how long it will take.
Ask the person if they would like to listen to the music.
If yes then press play, sit back and relax and enjoy the music together!

TIP: You can combine hand massage with personalized music!

Appendix 5: The guide (FIN)

**PIKAOPAS MUISTISAIRAAN OMAISELLE
HIERONNAN JA SUOSIKKIMUSIIKIN
KÄYTTÖÖN AHDISTUKSEN JA
LEVOTOMUUDEN VÄHENTÄMISEKSI**

Tutkimustiedon mukaan hieronta ja suosikkimusiikki ovat tehokkaita menetelmiä ahdistuksen ja levottomuuden vähentämiseksi muistisairailta. Tämä lyhyt opas on tarkoitettu omaishoitajalle ja se sisältää helpot ohjeet molempien menetelmien...

Heidi Lönnqvist
& Gareth Stowers
Toukokuu 2016

Helppo ja nopea käsihieronta
Tämä helppo ja nopea käsihieronta voi auttaa lievittämään muistisairaaseen henkilön levottomuutta.
Parhaan tuloksen saavuttamiseksi suorita tämä hieronta päivittäin tai ainakin vähintään kerran viikossa mielellään klo 16-17 välisenä aikana.

Tämä hieronta kestää noin 10 minuuttia.
Älä tee hierontaa jos käsissä on ihorakkoja, haavoja tai vammoja.

Hierontaa varten tarvitset:
Luonnollista öljyä (esimerkiksi oliivi- tai manteliöljyä), käsivoivaa tai perusvoidetta. Käytä vain turtuja hajusteita välttääksesi mahdollisen allergisen reaktion.
Kaksi pyyhettä.

Valmistelut:
Valitse mukava asento itsellesi ja hierontavälille siten että istut suorassa linjassa hierontavaivastasista välttääksesi vartalon kiertymistä. Pidä selkä suorassa ja hartiat rentoina.
Pöytäle hierottavaa vilttiä varmistaaksesi että hän pysyy lämpiminä koko hieronnan ajan.
Kääri hierontavan kädet pyyhkeisiin.

Aloita näin:
Kerro hierontavälille että aiot tehdä hänelle käsihierontaa joka kestää noin 10 minuuttia.
Ava toinen pyyhkeistä. Lämmitä öljyä omassa kädessäsi ja hiero öljyä hierontavan käteen ja käsivarteen sovelletusti kynänpäänäin asti.
Hiero paineella 3 (asteikolla nolasta kymmeneen hierontavan näkökulmasta). Hiero mahdollisimman hitaasti ja rauhallisesti.
Kun olet hieronut vainiksi yhden käden, kääri se varovasti pyyhkeeseen ja aloita toisen käden hieronta.

1

- Liu'uta kätsisi hierontavan käsivartta pitkin ranteesta kynänpäänäin ja takaisin. Toista 3 x 3 kertaa.
- Liu'uta peukalolta hierontavan kämmenselän keskiosasta ulkosyrjiin päin. Toista 3 x 3 kertaa.
- Pyöritä peukalosta hierontavan jokaisen sormen rystyksen ja nivelten kohdalla. Toista kolme pyörittystä per sormi.
- Käännä käsi kämmenpuoli ylöspäin ja hiero jokainen sormi edellisen kohdan mukaisesti.
- Liu'uta peukalolta hierontavan kämmenen keskiosasta ulkosyrjiin päin. Toista 3 x 3 kertaa.
- Liu'uta kätsisi hierontavan käsivarren sisäpuolta pitkin ranteesta kynänpäänäin ja takaisin. Toista 3 x 3 kertaa.

2

Hieronnan lopettaminen:
Hieronnan päätteeksi kiitä hierontavaa.
Pöytäle hierontava ja jätä hänet lepäämään.

Mitä tarvitset:
Musiikkisoittimen ja 30 minuutin kokoelman henkilön suosikkimusiikkia.
Rauhallisen ja häiriintymättömän ympäristön 30 minuutin ajaksi.

Suosikkimusiikin kuuntelu
Oman suosikkimusiikin kuuntelu saattaa vähentää levottomuutta ja ahdistuneisuutta.
Musiikkituokioita tulisi pitää mielellään kahdesti viikossa ja samoina päivinä.
Yhden musiikkituokion suositeltu kesto on n. 30 minuuttia.
Musiikkiterapia edellyttää tarpeeksi hyvää kuuloa.

Valmistelut:
Säädä musikin voimakkuus sopivaksi.
Varmista että henkilöllä on rento ja mukava asento.

Aloita näin:
Kerro henkilölle mitä aiotte tehdä ja kuinka kauan se kestää.
Kysy henkilöltä, haluaako hän kuunnella musiikkia.
Jos vastaus on kyllä, pistä musiikki soimaan, ottakaa mukava asento ja rentoutukaa yhdessä.

VINKKI: yhdistä käsihieronta suosikkimusiikin kuunteluun!