

Overview of research on the Sonas® programme

REPORT 1

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Foreword

I would like to thank Mary Threadgold RSC for devising the Sonas Programme, a therapeutic communication activity as innovative in 1990 as it is today.



*The programme was designed for people with significant communication or cognitive difficulties, and over time it became evident that it was particularly helpful for people living with dementia. Given that the aim was to activate each participant's potential for communication, Sr Mary Threadgold included the letters *apc* in the title of the organisation that was established to deliver training in the use of the programme.*

*Over the years that followed, Sonas *apc* trained thousands of health and social care professionals to deliver the Sonas Programme. It introduced quality standards and expanded Sonas training to a three day course involving work-based learning. On completion of training, attendees were certified as Sonas Programme Licensed Practitioners (SPLPs). There are now more than 500 SPLPs in residential centres throughout Ireland delivering the Sonas Programme.*

*The organisation also facilitated training in the use of other psychosocial interventions and established Ireland's largest annual dementia event. Sonas *apc* initiated community activities involving music, communication and the creative arts, and collaborated on the design of award-winning dementia gardens. Moreover, the organisation pioneered the first Alzheimer Café in Ireland in 2011 and is currently developing an Irish Dementia Café Network, funded by the National Dementia Office.*

*While Sonas *apc* changed its name to Engaging Dementia in 2018 to reflect its expanded activities, the Sonas Programme remains an integral element. The principles underpinning the Sonas Programme are at the heart of the organisation's mission:*

To facilitate communication, engagement and connection for people with dementia and their care partners, through education, resources and community activities.



And so, on behalf of myself, the Board of Directors of Engaging Dementia, and our team, I would like to thank Sr Mary who has left a lasting legacy in the Sonas Programme and will always be an inspiration to us.

Sinead Grennan

Sinead Grennan, Chief Executive, Engaging Dementi

Biography



Mary Threadgold was born in Dublin and joined the Religious Sisters of Charity in the 1950s. After her Profession as a Religious Sister of Charity, she qualified as a Speech and Language Therapist in London, later doing an MSc in Human Communication at the University of London.

Mary worked with a wide variety of people with communication disorders until she moved to Ballybane, Galway in the 1980s where she specialised in intellectual disabilities. In the absence of meaningful language she noticed the positive effect of music and touch as a facilitator of communication.

She had often been struck by the sight of older people in nursing homes, who were gathered together in day rooms with few interactions or opportunities for communication. Influenced by her training and her personal conviction that love and respect needed to underpin any professional approach to meeting the communication needs of such a group of older people, Mary turned her attention to them.

Her background as a Sister of Charity also influenced her desire to make a difference to the lives of this group. Finally, having grown up with grandparent with whom she was very close, Mary also felt an affinity with older people.

She believed that many of the nursing home residents had been seen by a Speech and Language Therapist but that therapy may have been discontinued when it was no longer deemed to be effective. Many of the residents were living with dementia. In 1990 Mary decided to design a therapeutic intervention for this group. Drawing on her expertise and experience, the activity was based on sensory engagement, structure and repetition, with an emphasis on nonverbal communication and quality interaction. She named the activity 'Sonas', the Irish word for joy and contentment. She added the abbreviation aPc meaning activating Potential for communication, to underline the rationale for this approach. With the support of the Religious Sisters of Charity and later the Irish Department of Health, Mary produced the programme materials and began training healthcare staff to implement the programme. Sonas apc was established as a not for profit organisation in 1996.

In 2005 Mary's interest in dementia took on a new meaning when her brother, her only sibling, developed Lewy Body disease. For seven years she visited him three times a week in his nursing home.

Since her retirement from Sonas apc, now called Engaging Dementia, in 2016, Mary has focused her attention on spiritual care and befriending. She drafted the materials for a befriending toolkit which Engaging Dementia is now producing, and is currently developing a guide promoting companionship for visitors to enhance their relationship with older people living at home or in longstay care.

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INTRODUCTION

The Sonas programme is a multi-sensory stimulation programme which involves cognitive, sensory, and social stimulation, including all five senses; touch, smell, taste, hearing and sight. Sonas is a word in the Irish (Gaelic) language that means well-being, joy and contentment. The programme was developed by Sr. Mary Threadgold in 1990 as a therapeutic activity for people who have significant communication impairment, primarily as a result of dementia.

THE AIMS OF THE SONAS PROGRAMME

1. To activate whatever potential for communication has been retained by an older person with communication impairment, especially those with dementia

2. To encourage the creation of an environment which will facilitate communication

3. To have activation of potential for communication recognized and accepted as an essential part of care planning for older people.

(Sonas apc, 2011)

The aims of the Sonas programme are consistent with Kitwood's concept (1997) of person-centeredness and focus on the person's abilities rather on limitations. The programme is delivered at least twice a week in groups of eight residents and follows the same structure each time, in the belief that repetition is a way of helping the individual to remember. Each session takes 45 minutes and is led by a person who is trained in how to perform the Sonas programme.

The focus of this review is to give an overview of published and unpublished studies, and to explore possible effects of the Sonas programme. All available studies of the Sonas programme have been included: studies, reports and dissertations. However, studies, which did not report on the effect of the Sonas, programme, were not included.

METHOD

To identify research on the Sonas programme a review was conducted in June 2019 in four databases; CINAHL, PubMed (Medline), PsycINFO and PubPsych. The search terms Sonas OR Sonas programme, were used. A hand-search was also conducted in order to find unpublished results, since the tendency is to publish studies reporting significant effect whereas non-significant findings might be rejected by reviewers and editors, leading to publication bias (Polit & Beck, 2012). Even though primary sources are the first choice when conducting a review (Polit & Beck, 2012), secondary sources were used since some studies were not accessible.

INCLUSION AND EXCLUSION CRITERIA

The focus of this report is to give an overview of published and unpublished studies and to explore possible effects of the Sonas programme. All available studies of the Sonas programme were included: studies, reports and dissertations. However, studies, which did not report on the effect of the Sonas, programme, were not included.

Eight published and four unpublished studies were identified according to the inclusion - and exclusion criteria (figure 1).

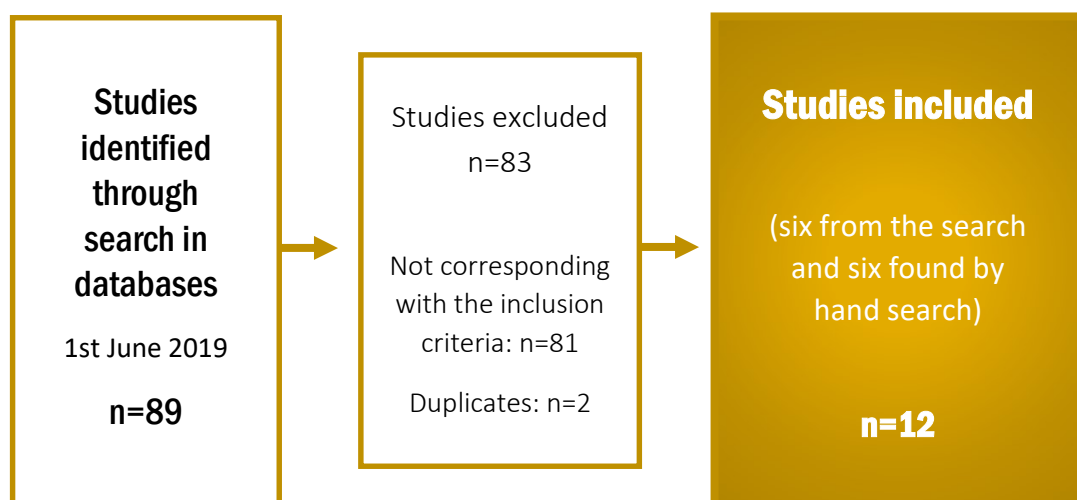


Figure 1 Flow diagram of studies on the Sonas programme

The Critical Appraisal Skills Program (CASP) (CASP, 2014) was used to assess the quality of the studies: one for the quantitative studies and one for the qualitative studies. This is a tool developed to assess the quality of studies (CASP, 2014). However, this assessment was not used for wither inclusion or exclusion of articles. There are two tools, one for quantitative studies and one for qualitative studies, consisting of 11 and 10 items, respectively. The tools evaluate the following properties of the studies: valid result of the review, what the findings are and if the result will have an impact clinically. Each item was rated potentially at low risk of bias (“Yes=1”), high risk of bias (“No=0) or unclear (“Can’t tell=X). We set the cut-off to ≥ 9 , representing high quality. There was a strong evidence of heterogeneity across studies, which can involve a risk of bias when reporting the result. The quality assessments of the individual studies, assessed by CASP, are presented in Table 2 and 3, respectively.

Table 2 Quality assessments of quantitative studies on the Sonas programme

First author, year	CASP criteria for quantitative studies											Total
	1	2	3	4	5	6	7	8	9	10	11	
Linehan (1996)	÷	÷	÷	÷	÷	÷	÷	÷	÷	÷	÷	0
Connors (2000)	+	÷	+	÷	÷	÷	+	÷	+	+	+	6
Connors (2001)	+	+	+	+	÷	÷	+	÷	+	+	+	8
Jackson (2003)	+	+	+	÷	+	+	+	÷	+	+	+	9
Hutson (2014)	+	+	+	÷	+	+	+	+	+	+	+	10
Strøm (2017)	+	+	+	÷	+	+	+	+	+	+	+	10
Dolan (2017)	+	+	+	÷	+	+	+	+	+	+	+	10
Strøm (2018)	+	+	+	+	+	+	+	+	+	+	+	11

Table 3 Quality assessments of qualitative studies on the Sonas programme

First author, year	CASP criteria for qualitative studies										Total
	1	2	3	4	5	6	7	8	9	10	
Brown (1997)	÷	÷	÷	÷	÷	÷	÷	÷	÷	÷	0
Hamill (1998)	+	÷	÷	÷	÷	÷	÷	÷	÷	÷	1
Parrish (2005)	+	÷	÷	÷	+	÷	÷	÷	+	+	4
Dugmore (2012)	+	+	+	+	+	+	+	+	+	+	10

Published and unpublished studies on the Sonas programme are presented in Table 4.

PUBLISHED STUDIES

Of the eight published studies identified, five were quantitative and three qualitative. The sample size varied from 28 to 120 participants and the length of intervention period varied from seven weeks to 18 months. Some had one session a week some had two. The outcome differed between the studies; most used more than one outcome and a range of different scales were used (Table 4).

Table 4 Targeted outcomes for published studies

Studies	Communi- cation	Aggression /Agitation	Depressi- on/mood	Anxiety	QoL/ Well being	ADL	Cog- nition
Brown (1997)					x		
Parrish (2005)					x		
Dugmore (2012)	x		x				x
Jackson (2003)		x	x				x
Hutson (2014)	x	x	x	x	x		
Strøm (2017)	x						
Dolan (2017)	x	x			x	x	x
Strøm (2018)	x						

The first known study on the Sonas programme is an observation study carried out by Brown (1997). Behavioural signs of well-being were used as the outcome. Some positive changes in well-being, self-confidence, self-esteem and trust as well as improved alertness, happiness and relaxation were observed in the participants. QoL was reported to improve during sessions, whereas no benefit was found on agitation and aggression. However, the quality of this study was poor, with an unknown number of persons with dementia attending the Sonas sessions. No information was given regarding frequency of attendance of the Sonas sessions.

The second qualitative study was conducted in day hospitals and care wards by Parrish, Wilshaw, and Baker (2005), including 51 participants with dementia. A significant number of participants showed a positive change in well-being: 84% in day hospitals and 80% in care wards. This improvement in well-being was sustained for around 50% of the participants in each group for 30 minutes after the Sonas session. They became more animated, initiated conversation and sang after attending the Sonas sessions. A strength with this study is that

evidence was gathered from the perspective of the persons with dementia by using dementia care mapping (DCM). However, a limitation is the lack of a control group, and that the participants were only assessed once.

Dugmore (2012) assessed the effect of the Sonas programme from the perspective of seventeen Sonas Programme Licenced Practitioners (SPLPs) and other care home staff. Staff expressed that the Sonas programme had a number of positive, predominantly short-term, effects on the participants. Positive effects were reported in relation to mood, cognition, communication, interaction and activity. These positive effects were explained through the creation of a sense of familiarity, explicitly valuing each resident's personhood and gaining and maintaining participants' attention. Another important aspect of the Sonas programme was the impact on staff. They reported that the sessions enjoyable and gave them an improved job satisfaction. Further, it was reported that the Sonas programme could help staff get to know their residents better and improve their interaction with residents. The study demonstrated a strong methodological quality.

The first quantitative study was published by Jackson, Sterling, Russell, and Templeton (2003). Seventy-five participants in eleven different nursing homes were randomly selected to attend the Sonas group or a control group who received treatment as usual, for eight weeks. No overall statistically significant results were found between groups. An average decrease in non-aggressive physical agitation, as well as an increase in average aggression and verbally-agitated behaviour, was reported, although not statistically significant. However, a significant increase in depressive signs were found in the Sonas group. For the control group, no statistically significant differences between the pre- and post-test assessments were found. However, a slight decrease in aggressive behaviour and non-aggressive physically agitated behaviour, and a slight increase in cognitive deficit, verbally agitated behaviour and depressive signs, were reported. Nevertheless, based on observation notes it was reported that most participants found that attending the Sonas programme was an enjoyable activity.

Hutson, Orrell, Spector, and Dugmore (2014) conducted a randomized controlled trial (RCT) including 39 nursing home residents, of which 21 participated in the Sonas sessions twice a week over a period seven weeks and 18 in a control group, receiving treatment as usual (TAU). There were no statistically significant differences between the groups in relation to depression, anxiety, communication, QoL or behavioural disturbances at the end of the study period. However, there was some improvement for both the TAU and Sonas groups in relation to depression and anxiety, and interestingly the TAU group showed greater improvement than the

Sonas group. The study revealed that behaviour and mood also improved for both groups: the Sonas groups reported a greater improvement regarding negative behaviour than the TAU group. In relation to QoL, the mean Sonas scores improved whereas the TAU scores deteriorated during the eight weeks. Finally, the Sonas group showed less deterioration in communication compared with TAU group. The strength of this study was the inclusion of a control group and a relatively large sample size. However, some of the sessions were facilitated by only one member of staff, which could influence the outcome. The lack of adaptation of choice of music is another limitation.

The second RCT of the Sonas programme was conducted by Strøm, Engedal, Benth, and Grov (2017) which was the first conducted in Ireland. The study was carried out over a period of 24 weeks and included 120 people with moderate to severe dementia, divided into three groups: intervention group (Sonas), attention placebo (reading) and control group. No overall significant effect of the Sonas programme with regard to communication ability as measured by the HCS, was reported. However, an effect between the Sonas group and the reading group and between the Sonas group and the control group from T0 to T1 and T2 was found, as well as a significant improvement in communication in the Sonas group. Among people with severe dementia, the Sonas group scored significantly better on the HCS compared to the reading group after 12 weeks, but not after 24 weeks. The strength of the study is that it is the largest clinical trial examining the effect of the Sonas programme in Ireland, and that the study included an attention placebo group.

The second study conducted in Ireland of the Sonas programme was conducted by Dolan (2017). This was a single blind prospective controlled trial, including 28 patients with moderate dementia. They compared two group intervention approaches, Cognitive Stimulation Therapy (CST) and Sonas. No statistically significant changes in ADL were found as a result of participation in either the Sonas or CST group. However, results of phase one supported CST to a greater extent than Sonas with participants in the CST group showing significant changes in cognition, and communication. Both groups had significant changes in carer rated quality of life and occupational performance within a group setting.

To our knowledge, the latest study of the Sonas programme was a longitudinal secondary descriptive study, including 56 people with moderate to severe dementia who attended a 45-min Sonas group session twice a week for 24 weeks (Strøm, Šaltytė Benth, & Engedal, 2018). The aim of the study was to measure the impact of the Sonas programme on communication, assessed during the Sonas sessions, by the use of the Threadgold Communication Tool (TCT)

(Strøm, Engedal, & Grov, 2016). The result showed a significant non-linear trend in the TCT, with an increase in communication abilities during the first 16 weeks, regardless of the level of the residents' cognitive abilities. Thereafter it levelled out. No interaction was found between time and the frequency of attendances at Sonas sessions. Both verbal and non-verbal communication increased from the baseline, with nonverbal communication increasing quickly and verbal communication increasing marginally.

UNPUBLISHED STUDIES

Four unpublished studies of the Sonas programme were found, of which three were quantitative and one qualitative. The sample size varied from 24 to 64 participants, with a length of intervention period ranging from ten weeks to six months, and using different outcome measures (Table 5). One or two sessions were held weekly.

Table 5 Targeted outcomes for unpublished studies

Studies	Communi- -cation	Aggression/ Agitation	Depression/ mood	Anxiety	QoL/ Well being	ADL	Cognition
Linehan (1996)	X	X					X
Hamill (1998)	X						
Connors (2000)	X	X	X			X	X
Connors (2001)	X	X	X			X	X

A significant increase in purposeful activities, social interaction, verbal communication and independent functioning was reported in the Linehan and Birkbeck (1996) study of 24 participants, with participants attending Sonas sessions once a week over a three month period. However, no significant effect was reported on affect, interaction and cognition. There are a significant number of limitations to this study: no control group, no blinding, missing data, no information about when the assessment was carried out and the sessions facilitated by staff without training in the Sonas programme. There is an absence of pre-defined criteria to guide sample selection and an inconsistency in how the sessions were delivered, and a lack of clarity about whether or not participants had dementia.

In a qualitative study conducted by Hamill (1998) staff observed improvement in communication skills and an increase in self-confidence, whereas relatives reported that; “the person with dementia took more initiative in conversation and asked the odd question and was more bubbly”. The Sonas Programme Licensed Practitioner (SPLP) even reported some more use of words. However, this study has some serious methodological problems, including an unknown number of participants and lack of information about research design and analysis.

Some of these limitations were overcome in Connors (2000) study which included thirty-two persons with dementia or Parkinson’s disease. Three groups of eight participants were planned to attend a weekly Sonas sessions for six months (two periods of three months), facilitated by staff trained in the Sonas programme, with a control group of eight participants who had an informal chat. However, in three locations, the experiment group only received the Sonas programme for the first 3-4 weeks of the second period, while the control group experienced several disruptions in the last three months due to a national strike. Both factors are likely to have affected the study outcome. No significant effect was reported between groups, except from ADL. The result showed a significant improvement in the Sonas group in relation to cognition, depression and communication. Improved mood was reported in the control group, which might be attributable to the attention they received through the informal chat. Although having overcome some of the limitations of previous research, this study had a relatively small sample size and the participants were not randomized into groups. Furthermore, there was no direct statistical comparison between the experimental and the control groups.

In order to overcome some of the above limitations, Connors (2001) conducted another study where sixty-four participants were included: forty-eight assigned to experimental groups and sixteen to control groups. Although twenty-seven residents in the Sonas group had a diagnosis of dementia, none of the residents in the control group had a dementia diagnosis. The Sonas sessions were delivered twice a week over a six-month period. The overall result showed that those attending the Sonas sessions showed improvements in ADL, behaviour and cognition. Sonas had the greatest effect on those with dementia: improving cognition, activities of daily living and communication. No effect was observed on mood. The strengths of this study were: the larger sample, the fact that the researchers were blinded and the inclusion of a control group. However, unclear randomisation and the use of outcome measures with unknown psychometric properties are limitations with the study. People without dementia were included and no direct statistical comparison between the experimental and the control groups was used. In addition, an unclear method of randomization, gives the study some limitations.

SUMMARY

This review found evidence of a significant effect of the Sonas programme on communication ability among people with severe dementia. However, it is difficult to compare the outcomes of the studies as they vary in terms of sample size, length of intervention period, frequency and delivery. Furthermore, while there is training for people who wish to deliver the Sonas intervention, some studies involved the delivery of Sonas sessions by untrained staff. Some studies did include persons without dementia. A comparison is also difficult because several of the studies have methodological weaknesses and no measure used for adherence to the Sonas intervention.

Table 6. Published and unpublished studies on the Sonas programme

PUBLISHED STUDIES					
Author(s)	Design	Sample	Intervention	Outcome	Main findings
Year					
Country					
QUANTITATIVE STUDIES					
Jackson 2003 UK	RCT	75 nursing home residents with dementia	42 participated in one Sonas session per week for eight weeks. 33 in the control group received informal conversation, with similar degree of social contact.	<ul style="list-style-type: none"> • CMAI (short version) • RAGE • Cognitive Performance Scale • Depressive Signs Scale • Additional observations during the sessions. 	<p>No overall statistically significant effect between groups were found.</p> <p>In the Sonas group a significant increase in depressive signs were found, while no change in cognitive performance. However, an increase on aggression and verbally- agitated behaviour and decrease in non-aggressive physical agitation, were found, although not significant.</p> <p>In the control group no significant differences were found on any outcome.</p> <p>Qualitative data showed that attending the Sonas session was an enjoyable activity for most participants.</p>

<p>Hutson (2014) UK</p>	<p>Pilot RCT</p>	<p>39 nursing home residents with moderate to severe dementia</p>	<p>21 participated in two Sonas sessions per week for seven weeks. 18 in the control group received care as usual.</p>	<ul style="list-style-type: none"> • RAID • CSDD • NPI-Q • QoL-AD • HCS 	<p>No overall statistically significant effect between groups were found.</p> <p>Some improvement for both groups in relation to depression, anxiety, behaviour and mood.</p> <p>Quality of life increased for the Sonas group whereas this decreased for the control group. The Sonas group showed less deterioration in communication than the control group.</p>
<p>Strøm (2017) Ireland</p>	<p>RCT</p>	<p>120 nursing home residents with moderate to severe dementia</p>		<ul style="list-style-type: none"> • MMSE • HCS 	<p>No overall significant effect of the Sonas programme with regard to communication ability as measured by the HCS.</p> <p>However, an effect between the Sonas group and the reading group and between the Sonas group and the control group from T0 to T1 and T2 was found, as well as a significant improvement in communication in the Sonas group.</p> <p>Among people with severe dementia, the Sonas group scored significantly better on the HCS compared to the reading group after 12 weeks, but not after 24 weeks.</p>

<p>Dolan (2017) Ireland</p>	<p>A single blind prospective controlled trial</p>	<p>28 patients with moderate dementia.</p>	<p>Compared two group intervention approaches, Cognitive Stimulation Therapy (CST) and Sonas.</p> <p>13 in the Sonas group and 15 in the CST.</p>	<ul style="list-style-type: none"> • SMMSE • ADCS-ADL • HCS 	<p>Results of phase one supported CST to a greater extent than Sonas with participants in the CST group showing significant changes in cognition ($p=.032$), and communication ($p=.006$).</p> <p>Both groups had significant changes in carer rated quality of life (CST $p=.019$; Sonas, $p=.035$) and occupational performance within a group setting (CST $p=.005$, Sonas $p=.002$)</p> <p>No statistically significant changes in ADL as a result of either Sonas or CST group.</p>
<p>Strøm (2018) Ireland</p>	<p>A longitudinal secondary descriptive stud</p>	<p>56 people with moderate-to-severe dementia</p>	<p>Attended a 45-min Sonas group session twice a week for 24 weeks.</p>	<ul style="list-style-type: none"> • TCT • MMSE 	<p>The impact of the Sonas programme on communication showed a significant non-linear trend in the TCT, with an increase in communication abilities during the first 16 weeks, regardless of the level of the residents' cognitive abilities.</p> <p>Thereafter it levelled out. No interaction was found between time and the frequency of attendances at Sonas sessions. Both verbal and non-verbal communication increased from the baseline, with nonverbal communication increasing quickly and verbal communication increasing marginally.</p>

QUALITATIVE STUDIES					
Brown (1997) UK	Observation study	Groups of eight confused or socially isolated clients	Attended weekly Sonas sessions, some up to 18 months.	<ul style="list-style-type: none"> Behavioural signs of well-being 	A general improvement in alertness, happiness, relaxation and QoL was observed in some participants.
Parrish et al. (2005) UK	Evaluation study	51 residents with dementia in two care facilities: 31 in the day hospital and 20 in a ward.	All attended a 45 minutes Sonas sessions up to one year.	<ul style="list-style-type: none"> DCM (observation every 2 ½ minute for 45 minutes before each Sonas session and continue for 30 minutes afterwards) WIB 	<p>A significant number of participants in all settings showed a positive change in well-being</p> <p>Day hospital: 84% showed improvement in WIB scores during the sessions</p> <p>Care wards: 80% showed improvement in WIB</p>
Dugmore 2012 UK	Semi-structured interviews	17 care home staff			<p>Impact on residents</p> <p>Staff expressed that the Sonas programme can have a number of positive, predominantly short-term, effects on participants: mood, cognition, communication and interaction, and levels of participation.</p> <p>Impact on staff</p> <p>Found the session enjoyable and an improved job satisfaction.</p> <p>The Sonas programme could help staff to get to know their residents better and improve their interaction with residents.</p>

UNPUBLISHED STUDIES					
QUANTITATIVE STUDIES					
Linehan and Birkbeck (1996) Ireland	Repeated measure design	24 participants	Participants attended weekly Sonas sessions delivered over a three-month period.	<ul style="list-style-type: none"> • MMSE • Confusion Symptoms Checklist • The adaptive Behavior Scale • HCS • 2 observational scales to assess potential change. 	<p>Significant increase in purposeful activity, social interaction, verbal communication, and independent functioning.</p> <p>However, no significant improvement were reported in affect, interaction, or cognition.</p>
Connors (2000) Ireland	Experimental cross-over design	32 patients with dementia in three hospitals	<p>Three groups of eight patients attended Sonas sessions once a week for six months</p> <p>A control group of eight patients attended an informal chat for three months and then attended the Sonas sessions for three months.</p>	<p>Assessed at three times points: at baseline (T0) 3 months (T1) and 6 months (T2)</p> <ul style="list-style-type: none"> • MMSE • GDS • The Baumgarten Dementia Rating Scale • The Blessed-Roth Scale • HCS • Communication behaviour • Video 	<p>No significant effect was shown between groups, except an improvement in ADL.</p> <p>The results show a significant improvement in the Sonas group regarding: cognition, depression, communication.</p> <p>The control group showed a significant improvement regarding depression.</p>

Connors (2001) Ireland	RCT Cross-over design	64 patients with dementia and other communication difficulties, in three hospitals	48 participated in Sonas sessions twice a week for six months. 16 in the control group received informal chat in groups of eight for three months and then the Sonas sessions twice a week for three months.	<ul style="list-style-type: none"> • MMSE • GDS • The Baumgarten Dementia Rating Scale • The Blessed-Roth Scale • HCS 	<p>Between groups</p> <p>No significant difference between groups on any outcome variable at any time.</p> <p>Within groups</p> <p>Significant increase in the Sonas group regarding cognition and reduction in behaviour disturbances and ADL whereas no significant changes were reported in the control group.</p>
QUALITATIVE STUDIES					
Hamill (1998) Ireland	Qualitative pilot project	Four residential care units Number of participants unknown	Sonas sessions twice a week for 10 weeks	<ul style="list-style-type: none"> • Observation 	<p>Staff observed improvement in communication skills, and an increase in self-confidence.</p> <p>Relatives reporting; taking initiative in conversation, asking the odd question and more bubbly.</p> <p>SLP reported some more use of words.</p>

ADCS-ADL (Activity of Daily Living): CMAI (Cohen-Mansfield Agitation Inventory): CSDD (Cornell Scale for Depression in Dementia): DCM (Dementia care mapping), GDS (Geriatric Depression Scale): HCS (Holden Communication Scale): MMSE (Mini-Mental State Examination): NPI-Q (Neuropsychiatric Inventory): QoL (Quality of life): QoL-AD (Quality of life in Alzheimer's Disease): RAGE (Rating Scale for Aggressive Behaviour in the Elderly): RAID (Rating Anxiety in Dementia): SMMSE (Standardised Mini-Mental State Examination), WIB (Well-or-Ill-Being).

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