Supplementary material.

Characteristics and results of the included studies.

Article: Social interactions of persons with dementia living in special care units in long-term care: A mixed-methods systematic review.

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Table 3: Characteristics and results of included qualitative studies

Reference and country	Aim	Design	Setting	Data collection methods	Participants	Data analysis methods	Results (themes, categories)
Aasgaard, Landmark, Öresland, 2017 Norway	To explore healthcare professionals' experiences in sustaining relationships and enhancing social community in common spaces in special care units	Qualitative, descriptive design	1 special care unit (no further information given)	Focus-groups	15 healthcare professionals	Qualitative content analysis (Graneheim, Lundmann, 2004)	Themes: dilemmas between • knowing versus not knowing each other • safety versus unsafety • presence versus absence
Campo, Chaudhury, 2012, Canada	To explore key elements of physical and social environment that act as facilitators or barriers for social interaction in special care units	Ethnographic study	2 special care units (26/18 residents)	In-depth interviews, observations of residents	5 staff members, residents, n=not given.	Thematic analysis (Charmaz, 2006)	Key themes of social and physical factors supporting informal social interaction: • philosophy of care and role of care staff • resident group size • homelike character and ambiance • nursing station location • adequate seating and sightlines
Doyle et al., 2012 USA	To explore how people with dementia integrate into the social environment and social structures of special care units	Ethnographic study	1 special care unit (31 residents)	Interviews and observations	12 residents for interviews, number of staff members for interview not given, 31 residents for observations (Mean age=82.4, SD=7.6, 67.7%female, mean MMSE=14.7, SD=6.7, mean FAST=5.0, SD=1.0)	Social maps, individual and team coding with ongoing reviewing and discussion	Central pattern = nested social groups: factors influencing nested social group formation: physical and organizational environment, and continuity of nested social groups in different environmental contexts

Table 3: Characteristics and results of included qualitative studies (continued)

Reference and country	Aim	Design	Setting	Data collection methods	Participants	Data analysis methods	Results (themes, categories)
Moore, 1999 USA	To describe the social life found in the dining areas of a special care unit	Case study	1 special care unit (24 residents)	Nonparticipant observations, field notes, behavioural mapping	24 residents	Process of coding and memoing (Glaser, 1978)	Themes: • the mechanisms of dining • the freedom of free time • negotiating between talk and task • diagnosis of congruence in the dining area • reasons for dissonance
Moore, Verhoef, 1999 USA/the Netherlands	To evaluate social interaction understood as a global dimension of quality of life in a special care unit	Case study	1 special care unit (24 residents)	Nonparticipant observations, field notes, behavioural mapping, numerous scales	24 residents (Mean age=14.3, 91.7% female, mean MMSE=14.3, Katz Index of Activities of Daily living=most residents need assistance with bathing and one other function)	Grounded theory	Diagnosis: most of the residents' time in public spaces is spent in the dining area, not interacting; most time is spent in solo activities and sitting Recommendations: create congruent social spaces, homelike staff activities

Table 4: Characteristics and results of included quantitative studies

Reference and country	Aim	Design	Setting	Sample size and characteristics	Outcomes and measures	Time points	Relevant results
Abbott, Pachucki, 2017 USA	To examine associations between social network characteristics, cognitive function, and quality of life among residents of a special care unit	Cross-sectional study	1 special care unit for 16 residents	n=37 residents with dementia Residents of the special care unit in March 2011: n=10 (Mean age=89.2 years, SD=5.0, 80% female, mean MMSE=18.7, SD=5.1) Residents of the special care unit in March 2012: n=10 (Mean age=90.6 years, SD=4.6, 90% female, mean MMSE=19.8, SD=4.8) Residents of the special care unit in March 2013: n=17 (Mean age=88.5 years, SD=7.3, 88% female, mean MMSE 16.9, SD=6.5)	quality of life: one general question with a Likert-scale response format (1-5) Social networks: observations regarding size, frequency of nominations to others and from others (indegree, outdegree), reciprocated nominations, centrality	3 time points with different samples (1 time point per sample)	Approximately half of the ties sent or received were reciprocated No significant positive association between quality of life and social network characteristics Residents tended to be tied to residents of higher quality of life status (43.3%, n=13 personal networks), opposed to lower (30%, n=9 networks) or same (26.7%, n =8 networks)
Abbott, Selfcik, Haitsma, 2017 USA	To measure social interactions among residents with dementia of special care units and traditional nursing homes	Cross-sectional study	1 special care unit for 16 residents, 1 traditional nursing home	n=29 residents with dementia, 15 in special care unit (Mean age=88 years, SD=7.3, mean functional limitations=17.2, SD=8.5) 14 in traditional nursing home (Mean age=87 years, SD=9.7, mean functional limitations =23.6, 4.4)	Social interaction: observations regarding type, location, length, context, affect during interaction	One time point	Significantly more interactions in the afternoon (M=22.1 (SD=4.3) vs 11.3 (SD=8.7), p=0.02), interactions dedicated to re-direction in the morning M=7.5 (SD=7.1) vs. 1.5 (SD=3.4), p=0.01), interactions in the dining room in the morning (M=7.5 (SD=7.1) vs. 1.5 (SD=3.4), p=0.01) and in the afternoon (M=6.5 (SD=10.7) vs. 0.1 (SD=0.3), p=0.04) in special care unit residents
Abrahamson et al., 2012 USA	To assess the influence of cognitive impairment and special care unit placement on quality of life	Cross-sectional study	118 special care units (no further information given), 270 traditional nursing homes	n=13,107 residents with mild and moderate dementia 665 in special care units (Mean age=84.5 years, SD=9.1, 71.9% female, mean CPS=3.1, SD=0.5, mean ADL=13.1, SD=7.1) 12, 442 in traditional nursing homes (Mean age=83.0 years, SD=11.9, 69.0% female, mean CPS=1.9, SD=1.2, mean ADL=12.9, SD=7.8)	quality of life: 2007 Minnesota Resident Satisfaction Survey[a]	One time point	No significant association between special care unit residence and relationships

Table 4: Characteristics and results of included quantitative studies (continued)

Reference and country	Aim	Design	Setting	Sample size and characteristics	Outcomes and measures	Time points	Relevant results
de Boer, Hamers, Zwakhalen, Tan, Beerens & Verbeek, 2017 The Netherlands	To investigate social interactions and engagement in activities of residents of green care farms, small-scale living facilities and traditional nursing homes	quasi-experimental study	5 green care farms (~8 residents in small-scale living facilities on a farm), 9 small-scale living facilities (8 residents), 4 traditional nursing homes (>20 residents/ ward)	n=115 residents with dementia 34 in green care farms (Mean age=82.1 years, SD=8.5, 68% female, mean S-MMSE=8, SD=6.7, mean Barthel Index=9, SD=5.7) 52 in small-scale living facilities (Mean age=85.5 years, SD=6.8, 87% female, mean S-MMSE=9, SD=6.9, mean Barthel Index=10, SD=5.7) 29 in traditional nursing homes (Mean age=82.6 years, SD=8.3, 62% female, mean S-MMSE=8, SD=7, mean Barthel Index=9, SD=6.6)	Social engagement and engagement in activities: MEDLO-tool[b] (observations)	Baseline and after 6 months	Significantly more active engagement (ES=0.9, p=0.014) and more social interaction (ES=1.1, p=0.010) in green care farm residents than in traditional nursing homes residents No significant differences between green care farm residents and residents of small-scale living facilities
de Boer, Hamers, Zwakhalen, Tan & Verbeek, 2017 The Netherlands	To compare quality of life and quality of care in green care farms, small-scale and traditional nursing homes	Cross-sectional study	5 green care farms (~8 residents in small-scale living facilities on a farm), 9 small-scale living facilities (8 residents), 4 traditional nursing homes (>20 residents/ ward)	n=115 residents with dementia 34 in green care farms (Mean age=82.1 years, SD=8.5, 68% female, mean S-MMSE=8.1, SD=6.7, mean Barthel Index=9.1, SD=5.7) 52 in small-scale living facilities (Mean age=85.5 years, SD=6.8, 87% female, mean S-MMSE=10.3, SD=5.7, mean Barthel Index=9.1, SD=6.9) 29 in traditional nursing homes (Mean age=82.6 years, SD=8.3, 62% female, mean S-MMSE=9.4 SD=6.6, mean Barthel Index=7.5, SD=7.0)	quality of life: QOL-AD[c] and QUALIDEM[d] Social engagement: RISE[e]	One time point	Significantly higher score in the QUALIDEM domain social relations (ES=0.8, p=0.042) in green care farm residents than in traditional nursing home residents No differences between green care farms and small-scale facilities

Table 4: Characteristics and results of included quantitative studies (continued)

Reference and country	Aim	Design	Setting	Sample size and characteristics	Outcomes and measures	Time points	Relevant results
de Rooij et al., 2012 The Netherlands	To examine effects of small-scale living on residents with dementia compared with traditional nursing homes	Prospective cohort study	5 long-term care settings with 12 small-scale living units (no further information given) and 4 traditional nursing homes	n=179 residents with dementia (81 in traditional nursing homes, 98 in small-scale living facilities) 51 in small-scale living facilities in the Netherlands (Mean age=84.5 years, SD=5.9, 80% female, mean S-MMSE=7.6, SD=6.3, mean Barthel Index=8.6, SD=5.6) 51 in traditional nursing homes in the Netherlands (Mean age=84.0 years, SD=5.1, 67% female, mean S-MMSE=5.0, SD=5.6, mean Barthel Index=5.3, SD=4.9) 47 in small-scale living facilities in Belgium (Mean age=84.5 years, SD=7.0, 89% female, mean S-MMSE=6.1, SD=5.6, mean Barthel Index=8.6, SD=4.7) 30 in traditional nursing homes in Belgium (Mean age=89.1 years, SD=5.7, 83% female, mean S-MMSE=8.1, SD=8.1, mean Barthel Index=5.9, SD=5.6)	quality of life: QUALIDEM[d] Social engagement: RISE[e]	Baseline, after 6 and 12 months	Significantly higher means aggregated over time in special care units in the Netherlands in the domain social relations (M=8.3, p<0.001), and social engagement (RISE, M=2.4, p<0.01)
Kok et al., 2018 The Netherlands	To examine the effects of a small-scale special care unit compared to a large-scale special care unit on quality of life of residents with dementia	Quasi-experimental study	2 large-scale special care units (20-30 residents/ward), residents of one of these moved to small-scale facilities (7-8 residents/ward)	n=145 residents with dementia 77 in small-scale special care units (Mean age=83.4 years, SD=6.1, 69% female, mean Global Cognitive Function=8.7, SD=6.5) 68 in large-scale special care units (Mean age=82.8 years, SD=7.6, 72% female, mean Global Cognitive Function=8.4, SD=6.5)	quality of life: QUALIDEM[d]	Baseline, after 3 and 6 months	No significant differences and only small effects between small-scale special care units and large-scale special care units in all QUALIDEM subscales

Table 4: Characteristics and results of included quantitative studies (continued)

Reference and country	Aim	Design	Setting	Sample size and characteristics	Outcomes and measures	Time points	Relevant results
Morgan-Brown et al., 2013 Ireland	To compare social engagement and interactive occupation of residents in two Irish nursing home units for people with dementia before and after implementing household environments	Cross-sectional study	2 special care units with household environments (18 residents), control group: the same special care units before implementing the household environments (17/18 residents)	n=71 residents with dementia 35 in the traditional model unit 36 in the household model unit	Social engagement and interactive occupation: observations using ATOSE[f]	T1 - residents before implementing household environment T2 - other residents after implementation of household environment (time between T1 and T2 not given)	Significant higher social engagement in the household model units (M=57.9 years, SD=22.1) than in traditional model units (M=25.8 years, SD=12.5; p<0.001)
van der Zon et al., 2018 The Netherlands	To assess the course of quality of life over 2 years in residents of dementia special care units	Observational longitudinal study without control group	9 nursing homes with 14 dementia special care units (no control group, no further information given)	n=290 residents with dementia (Mean age=83.2 years, SD=7.1, 76.2% female, mean MMSE=7.1, SD=6.5, mean ADL – 4 Items of Section G InterRAI Long-term Care Facility Version=14.3, SD=7.8)	quality of life: QUALIDEM[d]	Baseline, after 6, 12, 18 and 24 months	Significant increase/year in the subscales care relationship (0.5 points, p=0.002), social isolation (0.3 points, p=0.004), Significant decline/year in the subscale social relations (-1.1 points, p<0.001)

Table 4: Characteristics and results of included quantitative studies (continued)

Reference and country	Aim	Design	Setting	Sample size and characteristics	Outcomes and measures	Time points	Relevant results
Verbeek et al., 2010 The Netherlands	To investigate the effects of small-scale living compared with regular care in nursing homes on residents' quality of life	Prospective cohort study	28 small-scale living facilities (<9 residents per house, a joint household, small fixed team of caring staff), 21 regular wards (nursing home wards with at least 20 residents per ward)	n=259 residents with dementia 124 in small-scale living facilities (Mean age=82.4 years, SD=7.9, 80% female, mean MMSE=11.1, SD=7,0, mean Activities of Daily Living-Hierarchy Scale=3.1, SD=1.7) 135 in regular wards (Mean age=83.1 years, SD=6.5, 70% female, mean MMSE=10.5, SD=6.6, mean Activities of Daily Living-Hierarchy Scale=3.3, SD=1.4)	quality of life: QUALIDEM[d]	Baseline, after 6 and 12 months	No significant differences for all subscales and the total score of QUALIDEM for group by time analysis
Weyerer et al., 2010 Germany	To compare quality of life and quality of care in special dementia care and traditional integrative dementia care	Cross-sectional study	28 special care units (no further information given), 11 traditional nursing homes	n=1167 residents with dementia 594 in special care units (Mean age=84.4 years, SD=7.7, 84.0% female, median Dementia Screening Scale=11, median Barthel Index=30) 573 in traditional nursing homes (Mean age=84.2 years, SD=8.5, 78.9% female, median Dementia Screening Scale=9, median Barthel Index=25	quality of life: Social contacts (resident to resident, resident to nursing staff, visits by family and friends) and the Modified apparent emotion scale[g]	One time point	Significantly more social contact with staff (OR=0.6, 95% CI 0.4-0.9, p<0.05)
Wood et al., 2005	To characterise general behaviour patterns of residents' uses of social and physical affordances and to determine the prevalence of certain activity situations	Cross-sectional study	1 special care unit (7 residents, dedicated staff for the unit, homelike décor, common area of kitchen, living room, activity space and outdoor area, restraint-free policy)	n=7 residents with dementia (Mean age=81, 57% female)	Activity situations including social affordances: Activity in Context and Time[h] (observations)	one time point	Significant associations among social interactions with staff and daily activities: Television (n=397 observations, G=-0.6, SE=0.2, p=0.047), basic activities of daily living (n=34 observations, G=0.9, SE=0.0, p=0.016) Significant associations among social interactions with others and daily activities: Meal/snack times (n=301 observations, G=-0.8, SE=0.1, p=0.016), activity groups (n=117 observations, G=-0.6, Se=0,2, p=0.031), basic activities of daily living (n=34, G=-0.7, SE=0.3, p=0.031)

Table 4: Characteristics and results of included quantitative studies (continued)

Reference and country	Aim	Design	Setting	Sample size and characteristics	Outcomes and measures	Time points	Relevant results
Wolf-Ostermann et al., 2012 Germany	To compare resident characteristics of shared-housing arrangements and special care units and to examine the development of psychosocial health status (including quality of life) over 1 year	Prospective cohort study	89 shared-housing arrangements (small-scale living apartments in normal houses - disconnected from residential facilities and served by community care services), 23 special care units (only for people with dementia, no further information given)	n=56 new residents with dementia 34 in shared-housing arrangements (Mean age=83.4 years, SD=8.1, 91.2% female, mean MMSE=14.2, SD=7.6, mean Barthel Index=50.3, SD=25.1) 22 in special care units (Mean age=81.2 years, SD=10.4, 54.5% female, mean MMSE=11.9, SD=6.6, mean Barthel Index=53.0, SD=27.1)	quality of life: QUALIDEM	Baseline, after 6 and 12 months	Significant group difference in the subscale care relationship in the interaction with time (p=0.017) indicating higher scores in residents of shared-housing arrangements No other significant group differences in interaction with time; over the one-year period, improvements in many subscales in shared-housing arrangements and special care unit, with slightly higher improvements in more subscales in shared-housing arrangements

[a] 2007 Minnesota Resident Satisfaction Survey: domains are comfort, activity, privacy, environment, individuality, autonomy, relationship, good mood; subscales range from 1 to 100, except mood - ranges from 0-9, high scores indicate higher QoL

[b] Maastricht Electronic Daily Living Observation tool (MEDLO-tool): assesses the following aspects 1A) the activity performed by the participant or occurring in his/her vicinity (1B) the engagement in the activity, 1C) the level of physical activity during the activity, 2) the physical environment and 3) the level of social interaction during the activity

[c] Quality of Life - Alzheimer's Disease scale (QoL-AD): 13 items, ranges from 13 to 52, high scores indicate higher QoL

[d] QUALIDEM: subscales are care relationship (range 0-21), positive affect (0-18), negative affect (0-9), restless tense behavior (0-9), positive self-image (0-9), social relations (0-18), social isolation (0-9), feeling at home (0-12) and having something to do (0-9), total score is sometimes calculated, higher scores indicate higher QoL

[e] Revised Index for Social Engagement (RISE): 6 items, ranges form 0 to 6, higher scores indicating higher social engagement

[f] Assessment Tool for Occupation and Social Engagement (ATOSE): categories are "engaged" (interactive occupation, social engagement) and "non-engaged" (eyes closed, non-interactive, self-stimulation and agitation)

[g] Modified apparent emotion scale: the frequency of the following expressions of emotions are assessed: interest, pleasure, anger and anxiety

[h] Activity in Context and Time (ACT): domains are activity situations, physical affordances, social affordances, positive behaviour: gaze, positive behaviour: position and movement, positive behaviour: conversational exchanges, positive behaviour: participation in tasks and activities, problematic behaviours: agitation, behavioural distress, or resistance to care, apparent affect