Person-Centred Care Transformation in a Nursing Home for Residents with Dementia

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Person-centred care · Dementia · Nursing home

Abstract
Background: Conventional nursing homes in Singapore adopt an institutional and medical model of care with a focus on safety and risk management. As such, less regard is placed on upholding the dignity and autonomy of the resident, which compromises quality of care and the well-being of the resident. Today, person-centred care (PCC) has become synonymous with high-quality care that sustains the well-being and personhood of the care recipient. ***Objectives:*** To describe the model of PCC adopted by a nursing home, Apex Harmony Lodge (AHL), with a logic model and evaluate outcomes on residents' well-being, care quality, and staff attrition by comparing pre-PCC initiation (2015) to post-implementation (2016). ***Methods:*** Male residents in a 30-bed assisted living facility for persons with dementia in AHL were assessed using Dementia Care Mapping. Residents' well-being and staff attrition were measured before and after PCC implementation. ***Results:*** There were statistically significant improvements in resident well-being ($\Delta = 0.44$, $p = 0.029$), Positive Engagement Potential ($\Delta = 0.17$, $p = 0.002$), and Occupational Diversity ($\Delta = 0.12$, $p = 0.014$) in 2016. Withdrawal and Passive Engagement in the residents were reduced significantly as were Care Detractors. There was also a 55% reduction in staff attrition rates post-PCC. ***Conclusions:*** Post-PCC implementation, the outcomes indicate a superior quality of care, enhanced resident well-being, and better staff retention. The AHL PCC model could serve as a roadmap for other nursing homes aspiring to raise the quality of care and influence long-term care standards and regulations for policy makers and legislators.

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Introduction

Dementia afflicted 50 million people worldwide in 2018 and will exponentially rise to 152 million by 2050 [1]. Singapore, a rapidly ageing nation, will grow from 5.7 to 6.6 million people between 2017 and 2050 with 40% comprising seniors age >60 years [2]. An estimated 10% of seniors suffer from dementia, 3% live in nursing homes (NHs), and more are expected to do so given a lack of familial caregiving arrangements for seniors [3, 4]. Conversely, 50–60% of NH residents suffer from dementia [5].

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NHs in Singapore evolved as extensions of hospitals and operate on an institutional care model with dormitory-style facilities and emphasis on medical and custodial needs of the residents. The care ethos centres around safety where priority is accorded to risk management and residents have limited independence. Such care falls short of providing the milieu where human needs are holistically met and residents can continue to thrive despite the losses that accompany ageing.

A 2006 study of Singapore NH residents [6] found that approximately 30% had significant decline in function in 5 years. Depression in NH residents was 21% in a 2013 study [7], while a separate group of investigators reported >30% were discontented over not having their preferences met in food choices and daily routines [8]. Similar problems have been reported in NHs in the region with issues in activity restriction, a lack of relationships and individualized care, and challenges in maintaining a familiar home-like lifestyle [9, 10].

With rising expectations among increasingly affluent and educated seniors, there is impetus for NHs to look beyond institutional and medicalized care towards humanistic and holistic resident-centric care that affords greater agency. Such care aims to enhance well-being in residents by according them dignity and respect, and facilitates the confluence of medical and social facets of care.

Person-centred care (PCC) is a socio-psychological care approach that recognizes each person's unique identity, preferences, and needs. PCC prioritizes individual well-being through meaningful occupation and improving the quality of relationships between care provider and recipient [11]. Although persons with dementia (PWDs) experience deteriorating cognitive and functional abilities, their need for human interaction and participation in purposeful pursuits remains [12].

Kitwood [13] posited that care for PWDs should emphasize attending to human needs, including inclusion, occupation, and love. Operationally, the VIPS [11] captures the essence of PCC, which entails Valuing PWDs and those who care for them (V), treating PWD as unique Individuals (I), seeing the world from their Perspective (P), and providing a Social environment where PWDs can experience relative well-being (S). Today, PCC is synonymous with high-quality care and advocated by many healthcare organizations including the WHO [14].

When applied to long-term care, PCC is distinct from conventional NH culture, which is typically hierarchical, whereby decisions are based on the organization's priorities and implemented top-down. Instead, the PCC decen-

Table 1. Profile of residents

	2015 ($n = 28$)	2016 ($n = 30$)
RAF Category 1		
65–74 years old	0	0
>75 years old	1	0
RAF Category 2		
65–74 years old	3	5
>75 years old	11	15
RAF Category 3		
65–74 years old	3	5
>75 years old	10	5

tralizes decision-making based on the needs and preferences of residents, thereby fostering a greater sense of belonging and has been evidenced to improve care quality and residents' well-being [15]. The Green House Project [16], which upholds a PCC culture that emphasises quality of life, has reported enhanced outcomes in resident well-being and function, decreased hospitalizations, and use of psychotropics. Benefits were also seen in staff turnover and satisfaction [17].

In 1999, Apex Harmony Lodge (AHL) was the first purpose-built NH for PWDs in Singapore. Since 2015, it has partnered the local Alzheimer's Association to transform care by adopting an organizational-level implementation of PCC [18]. We herein describe the AHL model of dementia care and evaluate the outcomes on resident well-being and care quality with Dementia Care Mapping (DCM) in AHL's assisted living facility. We compared outcomes in the period prior to PCC inception (2015) to post-implementation (2016).

Methods

This is an observation cohort study in a 30-bed assisted living facility for male PWDs. Participants' characteristics are shown in Table 1. The Resident Assessment Form (RAF, Appendix 1) categorizes the residents based on their physical, custodial, and socio-psychological needs [19]. The majority of the participants were RAF Category 2 and 3. Twenty-one residents mapped in 2015 were re-mapped in 2016.

Intervention
The logic model conceived to facilitate PCC implementation is shown in Table 2.

i. Leadership
The whole organization, including senior management, underwent PCC training to reframe problems into opportunities and

Table 2. Logic model

Inputs	Activities (what we do)	Outputs (evidence)	Outcomes	Impact
1. Leadership (administration, direct care staff, external partners, human resource policies)	1. Identify practitioner-leaders 2. Strategic planning, external partners' engagement 3. Staff collaborate in implementing PCC 4. Establish staff recognition policies	1. Practitioner-leaders 2. PCC innovations 3. Staff recognition policies	1. Succession planning in place 2. Create robust ground knowledge 3. Staff values aligned with PCC culture	1. Deepen Strength-Based and Ability-Centred Care (ACC) application 2. A normalised and natural-ised life to maintain abled years in residents 3. Naturalised human capital building in PCC 4. A team of competent, confident, and passionate practitioners with an inspir-ing story for each resident 5. Ground-up knowledge and wisdom to build good prac-tices and create local models of PCC 6. An internalised PCC cul-ture
2. Activity-centred care (types of activities, engagement pro-cesses, programme partners, residents' family members, DCM)	1. Measure activities impact 2. Programmes nested in community (out-side NH) 3. Weekly visits by family members 4. Residents as contributing members of NH family 5. Family members carry out house chores during visit	1. Activities integrated into daily rou-tine 2. Structured programme attendance 3. Activity list tailored to each resi-dent's interest 4. Number of PEs and PDs during activities	1. Residents remain independent 2. Residents self-engage in activities 3. Increase resident engagement 4. Improve/maintain physical, cogni-tive, and social function	
3. Problem-solving processes (processes to understand resi-dents), Living Well Plan (LWP), input from geriatric psychiatrist	1. Multi-Disciplinary Team meeting (MDT) to profile resident and analyse challenging behaviour 2. Prioritise non-pharmacological approach-es 3. Geriatric psychiatrist's involvement	1. LWP for every resident 2. Behavioural Assessment Chart 3. Tracking of number of psychotropic medications 4. No physical restraint policy	1. Improve well-being of resident 2. Minimise the use of psychotropic medications 3. Zero physical restraints	
4. Environment (changes to physical environment, resi-dents' artworks)	1. Homely environment, e.g., furnishing, design and painting, organisation into spaces for activities 2. Visual cues to guide self-navigation 3. Sensory stimulation 4. Provision of music tailored to residents' preferences	1. Open access to the garden 2. Availability of different activity areas to cater to varied residents' needs 3. Residents' artwork and reminiscence items displayed as décor	1. Ease of navigation 2. Enable independence in personal care 3. Connectedness and meaning through reminiscence 4. Enhance social interactions	
5. Staff training and education (in-house training, external consultancy, supervision struc-ture, assessment tools)	1. Regular in-house training 2. Consultancy by external PCC experts 3. Establish supervision structure 4. Identify training needs	1. Quality of learning tracked 2. Improved DCM indicators 3. Inter-rater reliability protocol for assessment tools	1. Increased capability for care plan-ning 2. Make informed care plan decisions	

continually refine practice. The leadership honours the good work of staff with processes to document learning, share good practices, and publish the work.

AHL provides individualized care, stresses the need to empathize with residents, and prioritizes positive social psychology with an environment that stresses human relationships. Each resident has a Living Well Plan (LWP) that captures his life history, personality, interests, and preferences. By knowing the residents intimately, staff are empowered to uphold residents' selfhood and customize care.

ii. Psychosocial Activities

Activities are tailored according to each resident's LWP and purposed to target his strengths and preferences to enhance well-being. Personalized activities are available and residents are also involved in vocational activities such as sweeping, changing bedsheets, and serving food. A variety of community-based programmes including working at worksites outside the NH and breakfast at neighbouring food centres are provided. These diverse activities enrich the residents' everyday life.

iii. Problem-Solving for Challenging Behaviour

A busy and engaged life at AHL reduces the occurrences of challenging behaviours in the residents. Should residents display any behaviours of concern, they are usually resolved respectfully given the close rapport built with staff and a deep understanding of the resident through daily interactions and the LWP.

iv. Environment

The facility underwent renovation to incorporate design features compatible with PCC. The living space adopts a 5-bed cluster configuration with an en suite bathroom. Post-renovation, bigger windows and balconies with unobstructed access to the outdoor garden are provided for each cluster. A cosy home-like environment was fashioned and the living area was carved out to enable increased interactions between residents, staff, and visitors. Activities are held closer to amenities such as washrooms, the dining area, and pantry to facilitate residents' independence.

v. Staff Training and Education

Systems are in place to support staff development through competency-based training and education about PCC, emphasizing the primacy of a social environment that values the residents. Sustainability is ensured by nurturing in-house PCC specialists to uphold care standards and update the training curriculum, including onboarding training for new staff.

To secure continuous improvement, staff trained in DCM regularly conduct care mapping to provide objective appraisals of the residents' quality of life [20] and the quality of care provided.

Instruments
Dementia Care Mapping
DCM is a multicomponent structured observation tool based on Kitwood's theory of personhood [13] which helps identify aspects of care culture that contribute to resident well-being or conversely, detract from well-being, which can be targeted for improvement.

Four coding frames are used: 1. Behaviour Category Coding (BCC), which represents the activity or behaviour the resident is engaged in. 2. Well-Being or Ill-Being (WIB) value, which represents the state of the resident's well- or ill-being during the time frame and is rated on a 6-point scale: –5, –3, and –1 representing disengagement and negative mood, +1, +3, and +5 representing positive engagement and mood. The score is aggregated to derive the overall WIB score for the resident. Coding frames 3 and 4 are Personal Detractors (PDs) and Personal Enhancers (PEs), respectively, which denote episodes when staff interact with residents in a way that either undermine or uphold their personhood.

Procedures
Prior to commencement of observation, the staff were instructed to perform their duties as they would on a typical day so that the residents' usual routines could be accurately mapped.

Two certified dementia care mappers were involved in both the 2015 and 2016 maps. Mapping was conducted in the morning, during lunch, and late afternoon over a representative period of 1–2 h in communal areas of the facility. Each resident's BCC and WIB value is recorded in every 5-min time frame.

Data Analysis
Statistical analyses were performed using SPSS (Windows version 22.0; IBM Corp, Armonk, NY, USA). Descriptive statistics of the time spent in activities and the states of well-being, including mean and standard deviation, were calculated for continuous data. Paired t test was used to compare the mean differences between the year 2015 and 2016, focusing on the outcomes WIB, occupational diversity, agitation/distress, withdrawn state, passive engagement, and PEs and PDs.

Results

Patterns of Activity Engagement by All Residents

A total of 1,430 five-minute-interval data and 1,590 five-minute-interval data were collected in 2015 and 2016, respectively. On average, each resident was mapped for 4 h in each year.

In 2015, the top 5 BCCs were watching or uninvolved (B), engaging in work-like activities (V), standing or walking (K), participating in leisure activities (L), and sleeping or dozing (N). Three out of the five (V, K, L) were rated high to highest in well-being potential. Comparatively, in 2016, the top 5 BCCs were V, L, B, eating or drinking (F), and K. Four out of the top five BCCs (V, L, F, K) were rated high to highest in achieving well-being potential. There was a significant reduction in B and N by 47% and 62%, respectively, in 2016 compared to 2015.

Well-Being and Activity Participation

There was a statistically significant improvement in aggregated resident WIB scores in 2016 compared to 2015. Twenty-one residents re-mapped in 2016 demonstrated higher WIB scores (Table 3), so were potential for
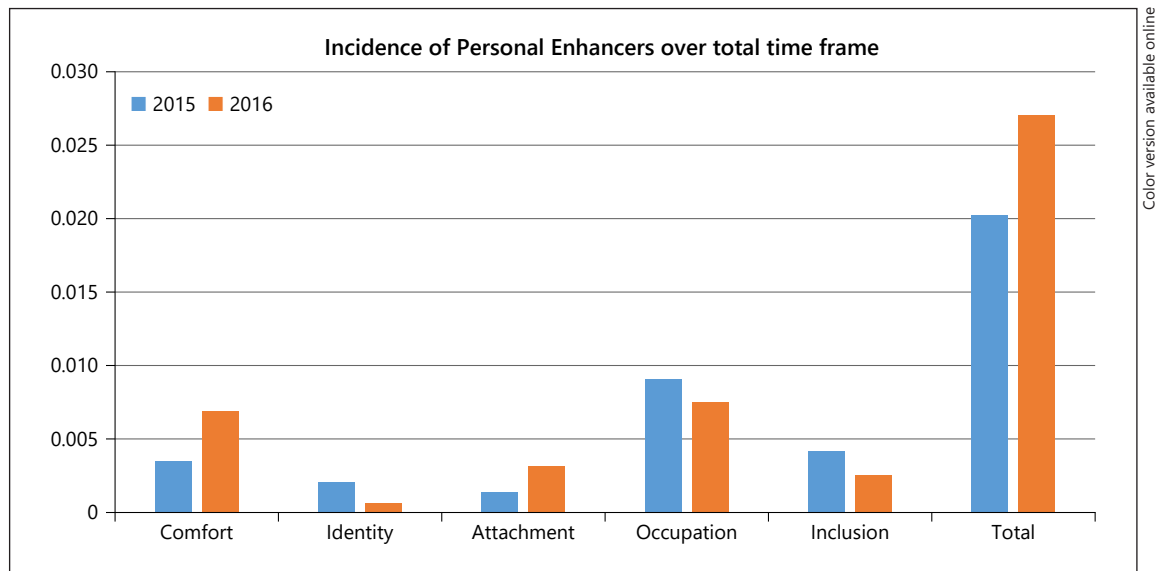
Fig. 1. Comparing incidences of Personal Enhancers over total time frame from 2015 and 2016.

Table 3. Comparison of resident variables between 2015 and 2016

	2015 (mean ± SD)	2016 (mean ± SD)	Mean difference	*p* value [95% CI]
WIB	1.68±0.73	2.12±0.87	0.44	0.029 [0.05, 0.93]
Potential for positive engagement	0.66±0.22	0.83±0.15	0.17	0.002 [0.07, 0.27]
Occupational diversity	0.57±0.24	0.69±0.21	0.12	0.014 [0.03, 0.2]
Agitation distress	0.004±0.01	0.003±0.01	−0.001	0.664 [−0.001, 0.002]
Withdrawal	0.17±0.11	0.03±0.09	−0.14	<0.001 [−0.06, −0.19]
Passive engagement	0.20±0.16	0.13±0.11	−0.07	0.023 [−0.01, −0.14]

positive engagement and occupational diversity. Residents were less withdrawn and showed less passive engagement in 2016.

PEs and PDs

Provision of "comfort" doubled in 2016 compared to 2015 (shown in Fig. 1) where the incidences of "attachment" in 2016 were 2.25 times more. There was an overall increase in PEs, which contributed to higher resident well-being in 2016.

There were no incidences of undermining residents' "comfort" or "attachment" in 2016 relative to 2015 (shown in Fig. 2). There was a 3.3 times reduction in practices that undermined "inclusion" such as stigmatiz-

ing or ignoring. Thus, overall PDs were reduced in 2016 versus 2015.

Staff Turnover Rates

Twenty direct care staff resigned in 2015/2016 as compared to nine in 2016/2017, amounting to 55% reduction in staff turnover rates.

Discussion

AHL undertook the task of PCC transformation in 2015 and after a year into the journey, improved outcomes on care quality, patient well-being, and staff turn-
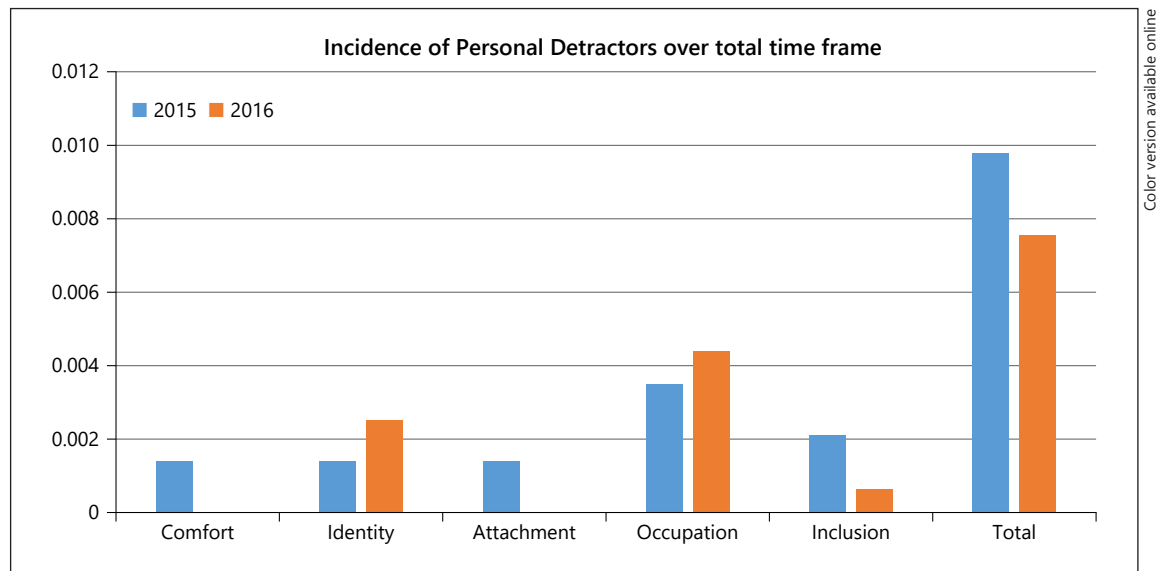
Fig. 2. Comparing incidences of Personal Detractors over total time frame from 2015 and 2016.

over were seen. As depicted in the logic model, investments into the staff, environment, care plans, and resident activities helped procure these outcomes.

Embracing PCC at every level of the organization empowered staff to re-invent care with the new priorities of enhancing residents' well-being, autonomy, and independence. Both classroom and on-the-job training afforded opportunities for role-modelling as an essential component of in-house learning. Having practitioner-leaders steeped in PCC function as mentors and motivators allowed staff to continuously innovate and adapt to the changing needs of the residents, and share strategies that worked. This translated to an increase in the PEs "comfort" and "attachment" with no PDs in these same domains. There was also a 3.3 times reduction in the PDs related to a lack of "inclusion" in stigmatizing and ignoring practices post-intervention. These improvements could be attributed to staff being better able to understand, empathize, and communicate with the residents, thereby providing the social milieu founded on relationships to help residents thrive.

The incorporation of meaningful activities into the residents' routines promotes their well-being. It prevents disability [21], which is germane to good care and outcomes [22]. A culture of individualized care, coupled with increased opportunities for meaningful occupation, enhanced the residents' experience as seen in the higher WIB values. There was also increased potential for positive engagement and occupational diversity in 2016. There was a significant reduction in withdrawal and passive engagement in 2016 as compared to 2015 with an overall decrease in the number of PDs, reflecting a better quality of care post PCC implementation. The findings were further validated in 21 of the same residents who were re-mapped in 2016, 1 year post PCC implementation. These residents' WIB scores were higher in 2016, demonstrating the benefits of PCC intervention in improving their well-being.

These findings support Kitwood's hypothesis that positive interpersonal relationships and an augmented care environment can avert the disabling effects of dementia and foster enhanced well-being [13]. Conceivably, the provision of an inclusive and home-like environment which allowed greater resident autonomy and independence in activities of daily living helped to maintain their personhood, which facilitated enhanced physical and overall well-being [23]. The use of LWPs provided a deep understanding of each resident and afforded personalized care that upheld his identity and dignity, which are salient to securing well-being.

A few studies [24–26] have identified a positive effect of PCC on agitation among PWD. Our findings, however, demonstrated a non-significant reduction in agitation. Although agitation is one of the most common neuropsychiatric symptoms in PWD, it is often a response to spe-

Ho et al.

cific care events. We postulate that as DCM observes the residents' behaviour in general rather than in relation to specific events such as during personal care when agitation is more likely to occur, the results may not accurately reflect the actual situation. Moreover, agitation scores were already low in this group of residents prior to PCC implementation.

High staff turnover in NHs is known given generally poor job satisfaction and heavy workloads without commensurate remuneration. The finding of a 55% reduction in staff attrition is noteworthy and consistent with extant literature that shows PCC not only improves the residents' well-being but also has desirable outcomes in improved staff satisfaction and reduction in turnover [27]. The emphasis on nurturing relationships in PCC could have salutary effects on staff satisfaction and retention, notwithstanding the benefits that gratification brings when staff see the residents thriving and not merely surviving.

Our study has several limitations. First, it comprises a modest sample in an assisted living facility comprising only male residents; thus, generalizability and robustness of the findings may be limited. Second, information on dementia severity was lacking, which could be an important consideration in assessing the impact of PCC, especially its relative effects between Category 2 and 3 residents. Third, there was a difference in the overall profile of the residents between the two time periods compared, which could impact the outcomes in resident well-being and function. Finally, the hours mapped per resident may be not be adequate or representative enough to gain a broader and more holistic impression of the residents' entire experience.

Conclusion

While healthcare in general has seen quantum leaps in quality and productivity over the years, progress in long-term care has comparatively been in the doldrums especially in this part of the world. With advancing cohorts of educated seniors with more sophisticated needs, there is clearly an impetus to move towards progressive models of long-term care to better cater to our seniors, especially those with dementia, who form a significant proportion.

AHL has been a forerunner in the endeavour to reinvent care and these preliminary outcomes have shown promise in attaining a superior quality of care, enhanced resident well-being, and better staff retention. The logic model delineates how specific changes could have affected the outcomes. It is hoped that the AHL PCC model can serve as a roadmap for other NHs and hold sway over long term care standards and regulations for policy makers and legislators.

Statement of Ethics

Ethics approval was granted by the National University of Singapore Institutional Review Board (reference S-17-188) with a waiver of consent as the study was of minimal risk and does not adversely affect the rights and welfare of the residents, whose anonymity was preserved. Observation of the residents with the DCM tool would not be possible practically as they might behave differently if they knew they were observed.

Conflict of Interest Statement

The authors have no conflict of interest to declare.

Author Contributions

Peiyan Ho analysed and interpreted the data and drafted and revised the manuscript. Chin Yee Cheong interpreted the data and revised the manuscript. Shiou Liang Wee conceived the study, interpreted the data, and revised the manuscript. Siew Pei Ong collected and interpreted the data and revised the manuscript. Carol Fusek conceived the study, acquired the data, and reviewed the manuscript. Philip Yap conceived the study, interpreted the data, and revised the manuscript. All authors gave approval for the final version of the manuscript.

Appendix

Resident Assessment Form

Resident Assessment Form (for nursing home resident) (to be completed by nurse, nurse case manager or doctor)				
Name:			NRIC No:	
Rating	A	B	C	D
Q1 Mobility (Guide Bk Pg 1)	Independent	Requires some assistance (physical/ assistive device)	Requires frequent assistance/turning in bed	Requires total physical assistance
	0	3	10	16
Q2 Feeding (Guide Bk Pg 2)	Independent	Requires some assistance	Requires total assistance	Tube-feeding
	0	3	10	10
Q3 Toileting (Guide Bk Pg 3)	Independent	Requires some physical assistance	Requires commodes/ bedpans/urinals	Incontinent and totally dependent
	0	3	8	16
Q4 Personal grooming and hygiene (Guide Bk Pg 4)	Requires no assistance	Requires assistance for some activities/ supervision	Requires assistance for all activities	Bed/trolley bathing
	0	2	4	6
Q5 Treatment (Guide Bk 5–6)	Daily medication Oral/topical: 1 pt	Daily medication Oral/topical: 1 pt Injection: 2 pts	Daily medication Oral/topical: 1 pt Injection: 2 pts Physiotherapy: 4 pts	Daily medication Oral/topical: 1 pt Injection: 2 pts Physiotherapy: 4 pts Sp*procedures @ 1 pt/ 5 min
Q6 Social and emotional needs (Guide Bk Pg 7)	Nil	Occasionally	Often	Always
	0	1	2	3
Q7 Confusion (Guide Bk Pg 8–9) • loses way • loses things • disorientated	Nil	Occasionally (1–3 times a week)	Often (4–6 times a week)	Always (daily)
	0	3	8	10
Q8 Psychiatric problems (Guide Bk 10–11) • hallucination • delusions • anxiety • depression	Nil	Mild interference in life	Moderate interference in life	Severe interference in life
	0	2	4	6
Q9 Behaviour problem (Guide Bk Pg 12–13) • restless • disruptive • absconds • uncooperative	Nil	Occasionally (1–3 times a week)	Often (4–6 times a week)	Always (daily)
	0	3	10	16
Total points		**Category** 1 2 3 4 (circle)		

*Sp – special   #Pt – points

Category 1	<6 pts	Category 1	7–24 pts
Category 3	25–48 pts	Category 4	>48 pts

Ho et al.

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