

Quality of Life and Quality of Care in Nursing Homes: Abuse, Neglect, and the Prevalence of Dementia



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Overview



- Background
- Impetus for current studies
 - NH Quality Effect on Impaired Residents
 - Abuse and Neglect in NHs
- Methods and measures
- Results and Conclusions
- Limitations



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Nursing Home Characteristics and Their Effect on Quality of Care for Residents with Cognitive Impairment



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Background



- Nursing homes serve high numbers of residents with severe cognitive impairment
 - Short-stay (rehab) vs. Long-stay residents
 - Number and severity of cognitive issues
- Dementia is a progressive disorder, and behavioral symptoms increase as cognitive functioning declines¹
 - Increase in diagnoses of Alzheimer's/other dementias
 - Dementia means longer time spent in NH setting

Background



- Increases in challenging behaviors, along with increases in length of stay, translates to increases in the need for long-term care services in nursing homes
 - "Behaviors" as a trigger for NH admission
 - Increased dementia = increase in "behaviors"
 - Other NH admission criteria still must be met

Measuring Quality



- Differences in quality of care
 - Deficiency citations (e.g., F-tags)
 - Reimbursement (Medicare/Medicaid) and profit status²
 - Consistency of staffing³
 - Use of antipsychotic medications⁴
- Highlights the need to identify how nursing home characteristics relate to the proportion of residents with cognitive impairment



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Impetus for Study



- Residents with behavioral symptoms are more likely to be admitted to nursing homes with a greater number of deficiency citations⁵
- Behavioral and psychological symptoms (dementia) are important factors in nursing home admittance⁶
- This study explores quality of care in nursing homes relative to the proportion of residents with severe cognitive impairment



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Methods



- 2007 Minimum Data Set (MDS)
- 2007 Online Survey, Certification, and Reporting (OSCAR) dataset
- Sample
 - Nationwide, free-standing nursing homes with 20 or more residents ($N = 14,395$)
 - Newly-admitted nursing home residents ($N = 1,545,223$)



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Measures



- Dependent variable
 - Total number of deficiency citations per nursing home during a survey
- Facility-level characteristics
 - Profit status, chain membership, nurse staffing levels, skilled care unit beds, occupancy rate, percent of residents with behavioral symptoms, Medicare and Medicaid reimbursement



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Measures



- Resident-level characteristics
 - Cognitive Performance Scale (CPS)⁷, age, sex, race, antipsychotic medications, antianxiety medications, antidepressive medications
 - CPS is based on the MDS dataset information
 - Comatose or not, daily decision-making skills, making self understood, short-term memory, eating self performance (dichotomous or Likert scale)
 - 0 = no impairment; 1-2 = mild impairment; 3-4 = moderate impairment; 5-6 = severe impairment

Analyses



- Initial descriptive analyses
- Ordinary least squares (OLS) regression
 - Average Cognitive Performance Scale score per nursing home as primary independent variable
 - Total number of deficiencies per nursing home as dependent variable
 - Resident-level and facility-level characteristics controlled for in analyses

Results

Table 1

Structural and Resident Characteristics Aggregated at the Nursing Home Level ($N = 14,395$)

Structural Characteristics	% or $M(SD)$
For-Profit	71.8
Chain Membership	55.5
Number of Beds	113.8 (64.3)
Occupancy Rate	0.8 (0.2)
Percent of Residents Receiving Medicaid	62.6 (20.5)
Percent of Residents Receiving Medicare	13.5 (11.2)
Total Deficiency Score (Scope and Severity)	48.4 (73.4)
Total Number of Deficiency Citations	7.3 (6.0)
Total Nurse Staff Hours Per Resident Day (HPRD)	3.7 (2.0)

Note. Results were calculated using data from the 2007 OSCAR and MDS datasets. Data to calculate the structural characteristics came from the OSCAR dataset and data to calculate resident characteristics came from the MDS dataset, with the exception of data for residents experiencing behavioral symptoms.



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Results

Table 1 (cont'd.)

Structural and Resident Characteristics Aggregated at the Nursing Home Level ($N = 14,395$)

Resident Characteristics	% or $M(SD)$
Age	77.2 (7.3)
Percent Female	62.5 (12.7)
Percent White	83.2 (22.6)
Percent of Residents with Diagnosis of Depression	30.9 (11.5)
Percent of Residents with Diagnosis of Dementia	23.8 (12.0)
Percent of Residents with Diagnosis of Alzheimer's	10.2 (8.9)
Percent of Residents Experiencing Behavioral Symptoms	29.6 (17.9)
Percent of Residents with Severe Cognitive Impairment ($CPS \geq 5$)	7.7 (8.8)

Note. Results were calculated using data from the 2007 OSCAR and MDS datasets. Data to calculate the structural characteristics came from the OSCAR dataset and data to calculate resident characteristics came from the MDS dataset, with the exception of data for residents experiencing behavioral symptoms.



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Results

Table 2

Newly-Admitted Nursing Home Resident Characteristics by Cognitive Impairment

	No Impairment (CPS = 0) (<i>n</i> = 626,504)	Mild Impairment (CPS = 1-2) (<i>n</i> = 441,674)	Moderate Impairment (CPS = 3-4) (<i>n</i> = 381,007)	Severe Impairment (CPS = 5-6) (<i>n</i> = 96,038)
Age, <i>M</i> (<i>SD</i>)	74.6 (13.1)	78.3 (12.9)	80.3 (11.8)	77.4 (15.5)
Female	65.4	62.6	61.1	61.3
Caucasian	83.9	83.0	81.1	73.8
Diagnosis of Depression	25.2	31.7	33.0	26.2
Diagnosis of Dementia	3.3	19.7	43.8	43.2
Diagnosis of Alzheimer's	0.6	4.8	17.9	26.4
Conversion to Long-Stay	16.0	29.0	39.3	42.7

Note. Data for calculations were derived from the 2007 OSCAR and MDS datasets. All values are percentages unless otherwise noted.

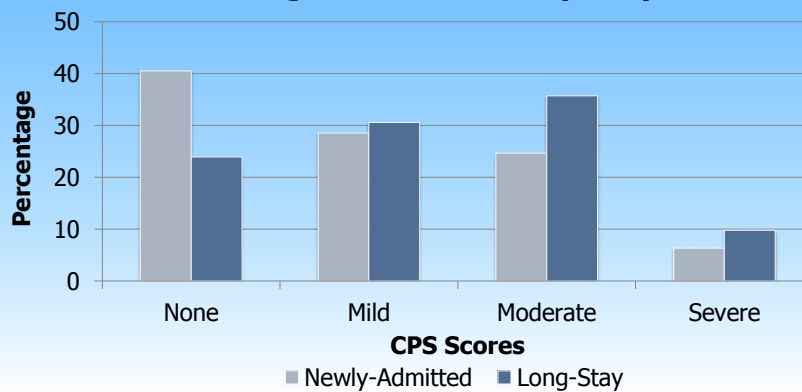


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Results

Figure 1. Cognitive Performance Scale (CPS) Scores for Newly-Admitted and Long-Stay Nursing Home Residents (2007)



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Results

Table 3

Ordinary Least Squares Regression Results of Predictors of Total Deficiency Citations

	β (SE)	p
Average CPS Score by Facility	-.31 (.130)	.018
Interaction: CPS Score and Profit Status	.07 (.155)	.638
Age	-.04 (.009)	< .001
Female	-.01 (.004)	< .001
White	-.02 (.003)	< .001
Occupancy Rate	-.58 (.311)	.060
Use of Antianxiety Medications	.002 (.004)	.695
Use of Antipsychotic Medications	.01 (.004)	.041
Use of Antidepressant Medications	-.01 (.004)	.052
Experiencing Behavioral Symptoms	-.005 (.003)	.129
Skilled Care Unit Beds	.01 (.004)	.001
Profit Status	.75 (.360)	.038
Chain Membership	.42 (.102)	< .001
Percent of Residents Receiving Medicaid	.01 (.003)	< .001
Percent of Residents Receiving Medicare	.005 (.005)	.344
Total Nurse Staffing HPRD	-.02 (.006)	.003

Note. HPRD = hours per resident day, CPS = cognitive performance scale. Data for regression analyses were derived from the 2007 OSCAR and MDS datasets.

Conclusions



- Newly-admitted, cognitively impaired residents are frequently located in nursing homes that have:
 - A nonprofit status and are not members of chains
 - Lower numbers of deficiency citations
 - Large proportions of older, female, and Caucasian residents
 - Fewer residents receiving antipsychotic medications and more residents receiving antidepressant medications
 - Higher total nurse staffing levels
 - Lower proportions of residents receiving Medicaid

Limitations



- Cross-sectional data from 2007
 - Analyzing only newly-admitted residents and not following residents over the course of their stay
- Analyzed associations between cognitive impairment and nursing home characteristics, rather than causation of current placement
- The count of deficiency citations is only one aspect of quality of care in nursing homes

Questions?



The Nature of Abuse and Neglect in Nursing Homes: Patterns of Related Deficiency Citations



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Background



- Annual nursing home inspections examine facility practices to determine whether failure to deliver necessary care and services to residents occurred
 - Citation F224 issued if neglect is determined
- Nursing home (NH) citations for neglect (indicated by citation F224) account for approximately 3% of annual deficiency citations¹



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Background



- Staffing levels in NHs shown to significantly contribute to the quality of care for residents^{2, 3}
- Centers for Medicare and Medicaid Services (CMS) acknowledge potential for an “aggregation of failures” with neglect⁴
- Current study examines associated deficiency citations when a nursing home is cited for neglect



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Methods



- Data utilized from the Online Survey, Certification, and Reporting (OSCAR) database on nursing homes for years 2000 through 2010
- Baseline sample consisted of 14,822 free-standing nursing homes
 - Nursing homes were matched in each subsequent year through 2010 for the years of operation
- Initial selection of 30 deficiency citations (F-Tags) for analyses based on existing literature



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Methods



- Analysis:
 - Exploratory Factor Analysis (EFA) was used to identify parsimonious factors, both at individual years and aggregately (lowest factor loading at .4)
 - Once factors were found to be significant, variables in those factors (21 deficiency citations) were analyzed using a generalized estimating equation (GEE)⁵
 - GEE accounts for intrafacility variation over time and reduces error from repeated surveys (assessing the same facility's citations over eleven years)



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Results

Table 1

Generalized Estimating Equation Analysis Results for Variables Associated with Neglect Deficiency Citations (F224).

Deficiency Citation	β (SE)	OR [95% CI]	<i>p</i>
Incapacitated resident (F152)	0.61 (0.14)	1.84 [1.39, 4.42]	< .001
Resident refuses treatment (F155)	0.51 (0.11)	1.66 [1.34, 2.07]	< .001
Physical restraints (F221)	0.25 (0.05)	1.28 [1.15, 1.42]	< .001
Chemical restraints (F222)	0.82 (0.17)	2.26 [1.61, 3.17]	< .001
Clean bed and bath linens (F254)	0.60 (0.11)	1.82 [1.47, 2.24]	< .001
Comprehensive care plans (F279)	0.44 (0.04)	1.55 [1.43, 1.69]	< .001
Dependent resident ADLs decline (F312)	0.26 (0.05)	1.30 [1.18, 1.43]	< .001
Pressure sores (F314)	0.39 (0.05)	1.48 [1.35, 1.62]	< .001
Nutritional intake (F325)	0.30 (0.06)	1.35 [1.21, 1.50]	< .001

Note. SE = Standard error, OR = Odds ratio, CI = Confidence interval. Data for EFA and GEE analyses derived from the OSCAR 2007 dataset.



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Results

Table 1 (cont'd.)

Generalized Estimating Equation Analysis Results for Variables Associated with Neglect Deficiency Citations (F224).

Deficiency Citation	β (SE)	OR [95% CI]	<i>p</i>
Hydration (F327)	0.30(0.07)	1.34 [1.17, 1.54]	< .001
Unnecessary medications (F329)	0.34(0.05)	1.41 [1.28, 1.55]	< .001
Medication error rates \geq 5% (F332)	0.23(0.05)	1.26 [1.13, 1.40]	< .001
Significant medication errors (F333)	0.43(0.07)	1.54 [1.35, 1.76]	< .001
Sufficient nurse staffing (F353)	1.00 (0.06)	2.72 [2.40, 3.09]	< .001
Registered nurse staffing (F354)	0.56 (0.11)	1.74 [1.42, 2.16]	< .001
Resident call system (F463)	0.38(0.08)	1.46 [1.25, 1.72]	< .001
Facility medical director (F501)	0.91 (0.11)	2.48 [1.99, 3.08]	< .001
Quality assessment/assurance (F520)	0.81 (0.08)	2.25 [1.92, 2.64]	< .001

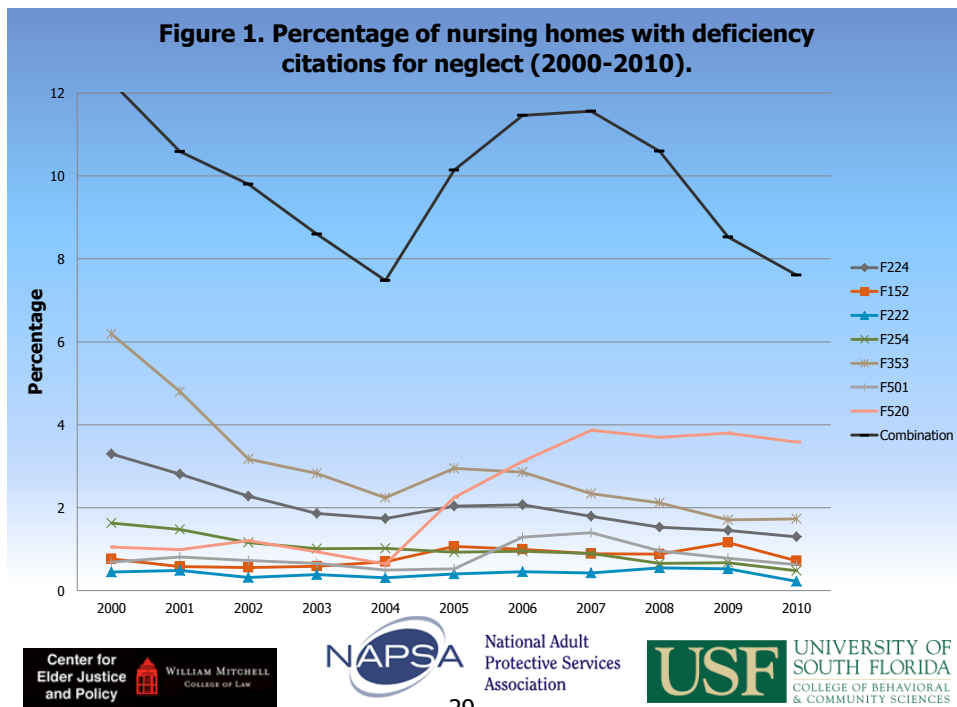
Note. SE = Standard error, OR = Odds ratio, CI = Confidence interval. Data for EFA and GEE analyses derived from the OSCAR 2007 dataset.



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Results

Table 2

Generalized Estimating Equation Analysis Results for Variables Associated with Abuse Deficiency Citations (F223).

Deficiency Citation	β (SE)	OR [95% CI]	<i>p</i>
Incapacitated resident (F152)	0.12 (0.20)	1.12 [0.75, 1.68]	.570
Resident refuses treatment (F155)	0.50 (0.13)	1.65 [1.28, 2.12]	< .001
Physical restraints (F221)	0.45 (0.06)	1.56 [1.39, 1.76]	< .001
Chemical restraints (F222)	0.52 (0.21)	1.68 [1.10, 2.55]	< .001
Clean bed and bath linens (F254)	0.18 (0.15)	1.20 [0.90, 1.61]	.220
Comprehensive care plans (F279)	0.44 (0.05)	1.56 [1.41, 1.73]	< .001
Dependent resident ADLs decline (F312)	0.24 (0.06)	1.27 [1.13, 1.42]	< .001
Pressure sores (F314)	0.40 (0.06)	1.48 [1.34, 1.66]	< .001
Nutritional intake (F325)	0.29 (0.07)	1.33 [1.17, 1.52]	< .001

Note. SE = Standard error, OR = Odds ratio, CI = Confidence interval. Data for EFA and GEE analyses derived from the OSCAR 2007 dataset.

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Results

Table 2 (cont'd.)

Generalized Estimating Equation Analysis Results for Variables Associated with Abuse Deficiency Citations (F223).

Deficiency Citation	β (SE)	OR [95% CI]	<i>p</i>
Hydration (F327)	0.37 (0.09)	1.04 [0.87, 1.24]	.690
Unnecessary medications (F329)	0.44 (0.06)	1.55 [1.40, 1.74]	< .001
Medication error rates \geq 5% (F332)	0.31 (0.06)	1.37 [1.21, 1.55]	< .001
Significant medication errors (F333)	0.26 (0.08)	1.29 [1.09, 1.52]	< .001
Sufficient nurse staffing (F353)	0.70 (0.08)	2.02 [1.71, 2.38]	< .001
Registered nurse staffing (F354)	0.28 (0.14)	1.32 [1.01, 1.74]	.046
Resident call system (F463)	0.37 (0.10)	1.44 [1.20, 1.74]	< .001
Facility medical director (F501)	0.96 (0.13)	2.62 [2.03, 3.40]	< .001
Quality assessment/assurance (F520)	0.66 (0.10)	1.93 [1.59, 2.34]	< .001

Note. SE = Standard error, OR = Odds ratio, CI = Confidence interval. Data for EFA and GEE analyses derived from the OSCAR 2007 dataset.

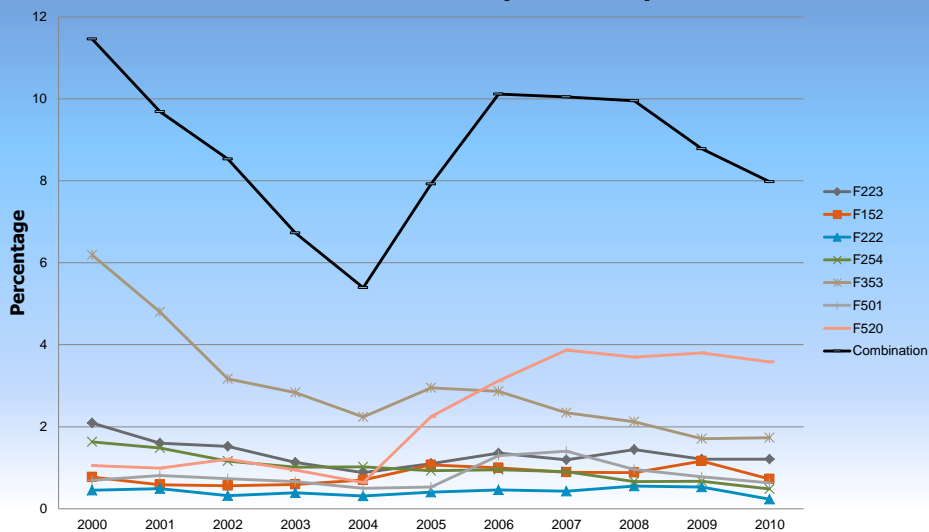


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Figure 2. Percentage of nursing homes with deficiency citations for abuse (2000-2010).



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Discussion



- Neglect of residents can indicate systemic problems, not merely maltreatment of only one individual in one area or in one incident
- Sufficient CNA/RN staffing levels, and leadership in nursing homes, has an impact on the prevalence of abuse and neglect
 - More significant in considerations of abuse citations than in neglect citations



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Discussion



- Dementia increases resident vulnerability
 - Incapacitated residents may be unable to advocate for themselves or assert an objection when care or services are not provided
 - Residents with dementia often have less family involvement, fewer “eyes” on their care
- Keeping a focus on quality improvement matters, too



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Conclusions



- The “true” nature of abuse and neglect in nursing homes cannot be sufficiently analyzed using F223 and F224 alone
- Given the sample size and accounting for intrafacility variation, comprehensive approaches to addressing nature of neglect in nursing homes can be developed
 - Further research into warning signs and predictors



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Conclusions



- This study might suggest new guidance for surveyors and administrators on associated deficiencies and neglect
- Revisions should be made to the survey guidelines
 - Cross-references for certain deficiency citations
 - Adding a citation to split neglect and misappropriation of resident property (allow for better analyses)



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Limitations



- Nationwide data/analyses do not take into account state-specific or regional variation
- Issues in using F224 (e.g., exploitation)
- Associated citations with abuse and neglect analyzed, not causation or directionality
- Future studies ideally should analyze any linkage between issued citations for a specific event or specific resident



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Questions?



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