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Reliability and Validity of the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD

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Abstract

Purpose—The purpose of this study was to test the reliability and validity of the Care Plan Checklist for Evidence of Person-Centered Approaches for Behavioral and Psychological Symptoms Associated with Dementia (BPSD).

Procedures—This study used baseline data from the first cohort of a larger randomized clinical trial testing the implementation of the Evidence of Integration Triangle for BPSD (EIT-4-BPSD). Fourteen settings volunteered to participate, eight from Maryland and six from Pennsylvania and a total of 137 residents were recruited. In addition to completing the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD, assessments of depressive symptoms [Cornell Scale for Depression in Dementia (CSDD)], resistiveness to care (Resistiveness to Care scale) and agitation [Cohen-Mansfield Agitation Inventory (CMAI)] were also completed on each participant. Reliability was tested based on evidence of internal consistency and inter-rater

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reliability. Construct validity was tested using a Rasch measurement model to determine item fit and hypothesis testing using bivariate correlations. Item mapping was also performed.

Results—The majority of the sample was female (69%), Caucasian (69%), non-Hispanic (98%) and not married (78%). The mean age of the sample was 82.01 (SD=11.44). There was evidence of reliability based on internal consistency with a Cronbach alpha of 0.96 and inter-rater reliability with correlations between two evaluators of $r=0.93$, $p=.001$. There was evidence of validity of the scale based on item fit as the INFIT statistics and OUTFIT statistics were all within the acceptable range with the exception of the OUTFIT statistic for the item focused on sexually inappropriate behaviors. Lastly there was evidence of significant relationships between the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD and the CSDD ($r=0.38$, $p<.001$) and the CMAI ($r=0.44$, $p<.001$). There was not a significant relationship between resistiveness to care and scores on the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD ($r=-0.02$, $p=0.86$). There were 78 care plans that were so low in evidence of using appropriate interventions that they could not be differentiated.

Conclusions—There was sufficient evidence for the reliability and validity of the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD. Additional items should be considered to better differentiate those low on the Checklist for Evidence of Person-Centered Approaches for BPSD.

A number of pathophysiological, psychological and environmental mechanisms likely underlie BPSD¹⁻³. From a clinical perspective, BPSD have been conceptualized as expressions of un-met needs⁴ and are exhibited by up to 90% of residents with dementia^{2,5,6}. Close to 20% of residents in long term care facilities with dementia have behaviors that interfere with daily living⁷. BPSD contribute to poor quality of life, more rapid cognitive and functional decline and put residents at risk for inappropriate use of antipsychotics as well as other psychotropic medications (antidepressants, anxiolytics, sedative/hypnotics) and physical or environmental restraints that reduce function^{6,7}. The use of psychotropic medications among individuals with dementia is associated with a more rapid physical and cognitive decline than would otherwise be anticipated and use of these drugs has led to little or no improvement in BPSD^{6,7}.

Behavioral approaches have repeatedly been endorsed as the first line of treatment for BPSD^{8,9,10}. The Centers for Medicare & Medicaid has focused regulatory oversight on decreasing the use of inappropriate antipsychotics and increasing the use of patient-centered care approaches in long-term care settings. The goal is to ensure that care for residents with dementia is person-centered and assures optimal safety and quality of life¹¹. Despite all of these regulatory efforts nursing homes do not consistently utilize person-centered care plans¹².

Care Plan Requirements in Long Term Care

One way in which to improve the implementation of person-centered behavioral approaches for BPSD is through resident care planning in long-term care settings. Requirements for comprehensive person-centered care planning are detailed in 483.21 of the Regulatory Manual¹¹. Specifically, long-term care settings are required to develop and implement an

interdisciplinary care plan which provides effective and person-centered care. The plan of care should focus on reducing or eliminating inappropriate psychotropic medications and utilizing person-centered behavioral approaches such as those included in Table 1. Person-centered care requires a shift in the philosophy of care from a focus on custodial, task oriented approaches to care that facilitates autonomy, independence and quality of life of the residents. It involves a care model that upholds the older adults' humanity and works on the unique needs of the individual rather than institutional and biomedical goals¹².

The Checklist for Evidence of Person-Centered Approaches for BPSD in Care Plans

To objectively evaluate care plans with regard to use of person-centered behavioral approaches to BPSD the Checklist for Evidence of Person-Centered Approaches for BPSD in Care Plans was developed¹³. Behavior and psychological symptoms addressed included apathy, agitation, inappropriate/disruptive vocalizations, aggression, wandering, repetitive behaviors, resistance to care, and sexually inappropriate behaviors. These eight behaviors were considered as these are the behaviors that are most commonly noted and are generally unresponsive to pharmacological interventions¹⁴. Establishing a reliable and valid measure to evaluate whether or not care plans incorporate behavioral and person-centered approaches can help to optimize care, assure adherence to regulatory guidelines, and guide facilities in targeting residents that need revisions in care plans to better reflect behavioral and person-centered approaches. Further the assessment of care plans can help determine the need for staff education around use of behavioral and person-centered care approaches. The purpose of this study was to test the psychometric properties of the Checklist for Evidence of Person-Centered Approaches for BPSD in Care Plans.

Design and Setting

This study was approved by a University based Institutional Review Board and used baseline data from the first cohort of a larger randomized clinical trial testing the implementation of the Evidence of Integration Triangle for BPSD (EIT-4-BPSD). Settings were invited to participate in the study if they: 1. agreed to actively partner with the research team on an initiative to change practice; 2. had at least 100 beds; 3. identified a registered nurse, licensed practical nurse or certified nursing assistant to be an Internal Champion and work with the research team in the implementation process; and 4. were able to access email and websites via a phone, tablet or computer. Invitation letters were sent out to 100 long term care settings and 14 settings volunteered to participate, eight from Maryland and six from Pennsylvania.

Residents were eligible to participate if they: (1) were living in a participating nursing home; (2) were 55 years of age or older; (3) had a history within the past month of exhibiting at least one BPSD; (4) had cognitive impairment as determined by a score of 0–12 on the Brief Interview of Mental Status (BIMS)¹⁵; (5) were not enrolled in Hospice; and (6) were not in the long-term care setting for short-stay rehabilitation care. A list of all eligible residents was obtained from a designated staff member and residents were then approached with the goal of recruiting 12–13 residents per setting. After discussing the study with an eligible

resident, he/she was asked to complete the Evaluation to Sign Consent (ESC)¹⁶. Evidence of ability to sign consent was based on correct responses to all five items on the ESC. If decisional capacity to consent to participate was impaired, then assent was obtained from the resident and the legally authorized representative (LAR) was approached to complete the consent process. A total of 305 residents were approached and 137 were consented. The major reason for inability to consent was an unwillingness or inability to assent from the resident (n=141 residents, 46%). In addition, 5 (2%) residents refused to consent, 3 (1%) LARs refused to consent, 16 LARs were not reachable, and 3 individuals were not eligible due to being in Hospice or too young.

Procedure

All data collection was done by trained research evaluators with prior experience working with residents with moderate to severe cognitive impairment in long-term care settings and their caregivers. All descriptive and outcome measures were completed based on direct observation of the resident or input from the nursing assistant that was providing care to the resident on the day of testing. Additionally the evaluators reviewed participants care plans for evidence of person-centered approaches to BPSD.

Measures

Descriptive information for residents included age, race, gender, cognitive status and marital status. In addition to completing the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD, assessments of depressive symptoms, resistiveness to care and agitation were also completed on each participant.

The Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD included eight behaviors associated with BPSD to determine if there was evidence of person-centered care approaches to address these behaviors in the resident's care plan. Each consented resident's care plan was reviewed for the presence of one or more BPSD exhibited by that resident. For each BPSD exhibited by the resident, the evaluator determined whether there were appropriate approaches addressing these behavior(s). Either there were items in the care plan appropriately addressing these behaviors or there were not. If the item was not relevant (i.e., if the resident did not exhibit the behavior) this was marked as 'Not Applicable'. Scores ranged from 0 to 8, with 8 indicating that all eight behaviors were addressed and there was evidence of person-centered approaches. The Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD was initially pilot tested with a group of 21 nursing home residents from two nursing homes meeting the same inclusion and exclusion criteria as noted in this study. Inter-rater reliability of care plans among these 21 individuals was 97%¹³.

Cognitive status was evaluated based on the Brief Interview of Mental Status (BIMS)¹⁵. The BIMS includes 3-item recall and orientation questions with total scores ranging from 0 to 15. Prior use of the BIMS established validity based on a correlation with criterion measures for cognition, there was a sensitivity of 0.83 and specificity of 0.91 and evidence of reliability with a kappa score of 0.95¹⁵.

Depressive symptoms were measured using the Cornell Scale for Depression in Dementia (CSDD)^{17,18}. CSDD is a 19 item survey that assesses depressive symptoms in individuals with dementia. Prior research has provided evidence of reliability and validity of the CSDD¹⁷⁻¹⁹. There was agreement in scoring of the CSDD between two psychiatrists ($k=0.6$) and internal consistency based on a Cronbach alpha of 0.84. There was evidence of validity based on a correlation between the total CSDD and the rank order of the Research Diagnostic Criteria measure of depression ($r=0.83$)¹⁷⁻¹⁹.

Aggressive and/or resistive behaviors during care activities was measured using the Resistiveness to Care Scale²⁰. To complete this measure participants are observed for 5 minutes during a care interaction and evaluated for evidence of any of 13 behaviors (e.g., turning away, pushing away, hitting, grabbing). The Likert scale responses include duration of the activity (<16 seconds, 16–59 seconds, 1–2 minutes or >2minutes) and intensity (mild, moderate and extreme). Prior testing of the scale provided evidence of content validity and reliability estimates with Cronbach alpha coefficients of 0.82 to 0.87 for internal consistency and good to excellent kappas. Criterion-related validity with observed discomfort and construct validity by factor analysis supported the proposed structure of the Resistiveness to Care Scale. Additional testing with individuals with dementia provided support for the reliability and validity of this scale²¹ with a Cronbach alpha of 0.84 and Rasch analysis showing the items fit the model based on INFIT and OUTFIT statistics and a DIF analysis showing no difference in resistance to care between male and female participants²¹. For the purposes of validity testing in the current study the measure was recoded such that the resistive behavior was or was not present and a total score of number of resistive behaviors calculated.

Agitated behaviors were measured using the 14-item Cohen-Mansfield Agitation Inventory (CMAI)^{22,23}. This is a survey of challenging behaviors commonly found in residents with dementia. The 14 item version CMAI uses a 5-point Likert scale to rate the frequency of behavioral symptoms^{23,24}. Prior use supported evidence of reliability and validity^{23,24}. Internal consistency (Cronbach's alpha) for the CMAI was found to be 0.86, 0.91, and 0.87 for the day, evening and night shift raters and inter-rater reliability ranged from correlations of 0.82 to 0.92^{23,24}. Validity was based on correlations between observations made by primary caregivers and the frequency with which residents manifested physically aggressive, physically non-aggressive and verbally agitated behaviors^{23,24}.

Data Analysis

Descriptive statistics were done to describe the sample using SPSS version 24.0. To evaluate the reliability and validity of the measure a Rasch analysis was done using the Winsteps statistical program and bivariate correlations were done to determine if there were associations between observed behavioral symptoms (e.g., depression, resistiveness to care) and the BPSD documented by staff in the resident care plan.

Reliability Testing

Testing of the internal consistency of the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD was based on the Rasch measurement model and item

reliability and the item separation reliability index²⁵. The item separation index defines how well items can be discriminated from one another on the basis of their difficulty and is analogous in interpretation to Cronbach alpha. The closer the reliability is to 1.0 the less the variability of the measurement can be attributed to measurement error. An equivalent to a Cronbach alpha of 0.70 was considered acceptable evidence of item reliability. Inter-rater reliability was also performed with an evaluation of the care plan done by a second evaluator.

Validity testing

Validity testing was based on construct validity of the measure and evidence that each item fit the data and was associated with the respective outcome. The Winsteps statistical program was used to establish item fit based on INFIT and OUTFIT statistics. INFIT and OUTFIT statistics were considered acceptable if they were between 0.4 and 1.6²⁵. An INFIT or OUTFIT value of less than 0.4 indicates that the item may not provide additional information beyond the rest of the items on the scale. An INFIT or OUTFIT value of greater than 1.6 indicates that the item may not define the same construct as the rest of the items in the instrument, is poorly written and thus may have been misunderstood by participants, or is ambiguous²⁶.

In addition to establishing item fit, item mapping was done using the Winsteps statistical program. Further support for the validity of the measure was based on evidence that the care plan items comprehensively addressed the concept of care plans for BPSD using person-centered care approaches. Lastly, validity testing for the Checklist for Evidence of Person-Centered Approaches for BPSD was evaluated based on convergent validity. It was hypothesized that scores on the Checklist for Evidence of Person-Centered Approaches for BPSD would be significantly associated with objective measures of resident agitation, resistiveness to care and depression as assessed by research staff. Bivariate correlations were used to test these associations and a significance level of $p < .05$ was used in all analyses.

Results

Sample descriptives are shown in Table 2. The mean age of the sample was 82.01 (SD=11.44) and the mean score on the BIMS was 4.14 (SD=3.50) indicating severe cognitive impairment. The mean depression score was 5.45 (SD=4.33) reflecting few depressive symptoms and the mean score of the Cohen-Mansfield agitation scale was 22.44 (SD 7.84) indicating low levels of agitation. There was little evidence of resistiveness to care with a mean of less than 1 (mean = .51, SD =1.68). The majority of the sample was female (69%), Caucasian (69%), non-Hispanic (98%) and not married (78%).

As shown in Table 3, approximately one third of the participants had apathetic behavior (30%), agitation (35%), aggressive behavior (31%), inappropriate or disruptive vocalization (39%), and wandering (26%) identified and appropriately addressed using a person-centered care approach within their care plan. The most frequently noted and addressed behavioral symptom was resistance to care (42%). Repetitive behavior (7%) and sexually inappropriate behavior (3%) were the least likely behaviors to be addressed in the care plans.

Reliability testing provided evidence of internal consistency with an item reliability of 0.96, which is equivalent to a Cronbach alpha. There was also support for inter-rater reliability with correlations between the two evaluators on the total score for the Checklist for Evidence of Person-Centered Approaches for BPSD of $r=0.93$, $p=.001$. Individual items were all significantly correlated as well and ranged from 0.74 on the item focused on agitation and 0.93 on the item focused on aggressive behavior.

There was evidence of validity of the scale based on item fit using a Rasch Analysis. The INFIT statistics and OUTFIT statistics were all within the acceptable range with the exception of the OUTFIT statistic for the item focused on sexually inappropriate behaviors. INFIT statistics ranged from 0.79 to 1.19 and OUTFIT statistics ranged from 0.80 to 1.48 with the exception of the sexually inappropriate behavior item being 3.28.

Item mapping showed that the easiest item to endorse or note as having been addressed using a person-centered care approach in the care plan was the item related to resistance to care. The next more difficult item to endorse was related to inappropriate or disruptive vocalization, the next more difficult item was agitation, then aggression, apathy, wandering, repetitive behavior and the most difficult item to endorse or find that it was addressed in the care plans was related to sexually inappropriate behavior. There were 78 care plans that were so low in evidence of using appropriate interventions that they could not be differentiated. There were no care plans that were so high in having appropriate person-centered care interventions in the care plan that they could not be differentiated. The items were well spread along the continuum of behaviors that require person-centered approaches for BPSD for care plans (e.g., agitation, aggression, resistiveness to care).

Lastly there was evidence of significant relationships between the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD and the CSDD ($r=0.38$, $p<.001$) and the CMAI ($r=0.44$, $p<.001$). There was not a significant relationship between resistiveness to care and scores on the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD ($r=-0.02$, $p=0.86$).

Discussion

The findings from this study provide some support for the reliability and validity of the Care Plan Checklist for Evidence of Person Centered Approaches for BPSD. There was strong evidence for internal consistency and inter-rater reliability for the full score as well as each of the items. There was also some evidence for validity in that the INFIT items all fit the model. The one OUTFIT item that was larger than the acceptable mean square range for INFIT and OUTFIT statistics was the sexually inappropriate behaviors item. Poorly fitting OUTFIT statistics are less of a threat to measurement than poorly fitting INFIT statistics as they are meant to be outlier specific. In addition they are elevated when there are only a few responses endorsing the item. In the current sample there were only 4 care plans that addressed sexually inappropriate behaviors and this may be the cause of the high value. Given that exhibiting sexually inappropriate behaviors occurs in at least 7–25% of older adults with dementia and is particularly challenging to manage²⁷ we do not recommend removing it from the current scale.

There were 78 care plans that were so low in evidence of using appropriate interventions that they could not be differentiated. The addition of easier items to provide person-centered care approaches to manage BPSD would be useful to better differentiate those that are low in evidence of incorporating these approaches. Examples of easier items might be providing person-centered approaches to managing specific activities of daily living such as brushing teeth or combing hair or other behaviors associated with dementia such as altered sleep patterns or irritability.

Additional support for validity was based on significant correlations between the scores on the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD and actual behaviors of the resident, specifically depression and agitation. There was not a relationship between the scores on the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD and resistiveness to care. There was a discrepancy between observed resistiveness to care and inclusion of resistiveness to care in the care plans. Only 16% of the sample was noted to exhibit resistiveness to care but 42% of the sample had this behavior addressed in their care plans. It is possible that the brief observations done did not capture the behaviors of residents that might be considered resistiveness to care and/or that there were other care interactions and behaviors not included in the current resistiveness to care measure that should be considered (e.g., stiffening of the body). Alternatively it is possible that the staff were implementing the appropriately proposed interventions from the care plans to prevent resistiveness to care among the residents. Further it is possible that resistiveness to care interventions were routinely added to all of the care plans because this response to care interactions is so commonly noted among older adults with moderate to severe cognitive impairment.

The rates of the behavioral and psychological symptoms associated with dementia noted in this study were generally similar to those in other studies^{28–30}. Some studies have noted, however, higher rates of depression such that 30–92% of residents were noted to be depressed^{29,31}. Although we intentionally recruited individuals with a known history of having at least one behavioral or psychological symptom associated with dementia the rates of depressive symptoms, agitation and resistiveness to care based on comprehensive measures of these concepts indicated limited evidence of any of these symptoms. It is possible that caregivers reporting on residents are so accustomed to seeing these behaviors they do not consider them distressing or worthy of noting. Alternatively it is possible that the behaviors were just not noted during the testing timeframe and/or that there may be other indications of these behaviors that have not been included as items on any of the measures²⁸.

As noted in Table 3 we provided a description of some of the interventions that reflected evidence of using person-centered behavioral approaches to managing BPSD among residents in long-term care settings. It is possible, however, that there are others that should be included. Increasingly innovative interventions such as animal-assisted activities²⁹, Elder-Clowning³², the use of music therapy³³, or the use of social networks between residents and staff³⁴ have been implemented to address BPSD. It is possible that these types of innovative approaches within the care plans were not recognized by the evaluators as appropriate person-centered approaches to managing BPSD.

Study Limitations and Conclusion

This study was limited by including a relatively small group of older adults from two states that consented to participate in a dissemination and implementation study that focused on helping staff to incorporate person-centered behavioral interventions for BPSD into routine care. The measures used in this study were reliable and valid measures of the noted behaviors and symptoms, however they were based on recall on the part of the staff/proxy and thus may have been biased. As noted there may have been omissions of the behaviors. Despite these limitations there was sufficient evidence for the reliability and validity of the Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD. Ongoing research is needed to continue to assure that care plans are person-centered and match resident behaviors and needs by implementing behavioral interventions that best address BPSD. While many of these behaviors such as resistiveness to care or agitation may be perceived by staff as expected and anticipated given the resident's cognitive status, they may impair the quality of life of the resident and should be addressed so that they can be prevented or decreased. Education alone may be insufficient for improving the quality of care plans as noted in a recent study testing the implementation of an Education Toolkit informed by the Aged Care Funding Instrument and pilot tested in five facilities³⁵. Innovative approaches that include role modeling and verbal encouragement and ongoing mentoring and motivating may be needed to change care planning behavior among staff¹³³⁶. The Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD provides a tool to objectively measure and evaluate the appropriateness of care plans with regard to management of BPSD using person-centered care approaches for residents in long term care settings.

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Table 1**Person-Centered Behavioral Approaches to Management of BPSD**

Type of Approach	Description of Interventions
Sensory Stimulation	<ul style="list-style-type: none"> Music therapy Snoozelen Multisensory Stimulation Rooms White Noise Light therapy Aromatherapy Massage and light touch therapy Pet therapy/petting Art therapy
Cognitive-behavioral Management and Cognitive-emotional Therapy	<ul style="list-style-type: none"> Habit training Communication training Cognitive behavioral therapy and positive reinforcement Reminiscence therapy Simulated presence therapy Validation therapy
Structured Activity	<ul style="list-style-type: none"> Scheduled activities throughout the day Exercise class Recreational activities Group and individual activities Meaningful volunteer activities (e.g., setting the table for meals)
Social contact	<ul style="list-style-type: none"> Animal assisted therapy One-on-one therapy Simulated presence therapy
Environmental Modifications	<ul style="list-style-type: none"> Open areas for ambulation/wandering Gardens and natural environments Reduced stimulation units Reduced and special lighting Restraint free environment
Clinically-oriented	<ul style="list-style-type: none"> Pain management Comprehensive assessment Delirium recognition and management Restraint removal – both chemical and physical
Staff training approaches	<ul style="list-style-type: none"> Communication techniques (person-centered vs. task oriented) Person-centered bathing – time and technique preferences Oral care training to optimize self-care activities Assessment of resident needs (e.g., pain, hunger) Management of acute presentations of BPSD

Type of Approach	Description of Interventions
	Appropriate talk and touch Use of distraction

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Table 2

Description of Sample (N= 137)

	N(%)	Range	Mean	SD
Cornell Depression Scale		.00 – 19.00	5.45	4.33
Age		55.00 – 102.00	82.00	11.43
Cohen-Mansfield Agitation Scale		14.00 – 50.00	22.44	7.84
Resistiveness to Care Scale (frequency)		.00 – 14.00	.51	1.68
Brief Interview for Mental Status		0–15	4.14	3.50
Gender				
Male	42(31%)			
Female	95(69%)			
Race				
White	94(69%)			
Black	42(30%)			
More than 1 race	1(1%)			
Marital Status				
Never married	29(22%)			
Married	25(18%)			
Widowed, divorced, separated	75(56%)			
Unknown	6(4%)			

Table 3

Care Plan Checklist for Evidence of Person-Centered Approaches for BPSD: Frequencies of Behaviors Addressed in Care Plans (N=135)

Item	Description	Present	Not Present	Not Applicable
Apathetic Behavior	<p>a. Inclusion of resident preferences in facilitating daily activity (e.g., inclusion of pets; holiday related activities)</p> <p>b. Use of function focused care approaches during personal care interactions</p>	40 (30%)	60(44%)	35(26%)
Agitation	<p>a. Inclusion of person's preferences for activity/ distraction</p> <p>b. Guidelines for how to communicate during care and other interactions.</p> <p>c. Use of environmental preferences (e.g., appropriate levels of stimulation)</p> <p>d. Guidelines for how to provide care in a way that will decrease agitation (e.g., timing, location, temperature of water, etc.)</p> <p>e. Plan for care approaches when agitation does occur</p>	47(35%)	59(44%)	29(21%)
Inappropriate or disruptive vocalization	<p>a. Use of person's preferences for distraction and to avoid boredom.</p> <p>b. Guidelines for how to communicate during care and other interactions when being disruptive</p> <p>c. C. Use of environmental preferences (e.g., appropriate levels of stimulation) to avoid disruptive vocalizations</p> <p>d. D. Guidelines for how to provide care in a way that will decrease disruptive vocalizations (e.g., timing, location, temperature of water)</p> <p>e. Plan for care approaches when disruptive vocalizations are occurring</p>	52(39%)	56(42%)	26(19%)
Aggressive behavior	<p>a. Use of person's preferences for activity/distraction and to avoid boredom.</p> <p>b. Guidelines for how to communicate during care and other interactions to avoid aggressive behavior.</p> <p>c. C. Use of environmental preferences to prevent aggressive behavior (e.g., appropriate levels of stimulation, open areas for walking/physical activity, avoidance of crowded areas).</p> <p>d. Guidelines for how to provide care in a way that will prevent or decrease aggressive behavior (e.g., timing, location, temperature of water)</p> <p>e. Plan for care approaches when aggressive behavior does occur.</p>	42(31%)	56(42%)	36(27%)
Wandering	<p>a. Use of person's preferences for activity to avoid boredom and prevent wandering.</p> <p>b. Safety plan in careplan to allow for safe wandering (e.g., access to locked open area).</p>	35(26%)	52(39%)	48(35%)

Item	Description	Present	Not Present	Not Applicable
	c. Plan to assure that personal needs are met (e.g., that the individual eats and drinks; has rest periods)			
Repetitive behavior	<p>a. Use of person's preferences for activity/distraction to avoid boredom</p> <p>b. Guidelines for how to communicate during care so that function is optimized and repetitive behavior redirected</p> <p>c. Use of environmental preferences (e.g., appropriate levels of stimulation) to prevent repetitive behaviors</p> <p>d. Guidelines for how to provide care in a way that will optimize function and include individual in care activity yet avoid repetitive behavior.</p> <p>e. Plan for care approaches when repetitive behavior is occurring</p>	9(7%)	61(45%)	65(48%)
Resistance to care (personal care; medications, etc.)	<p>a. Use of person's preferences related to personal care (e.g., bathing time preferences, type of bathing, ways to facilitate medication administration)</p> <p>b. Use of function focused care approaches during all care interactions</p> <p>c. Use of environmental preference (e.g., private areas for personal care; warm bath; pleasant dining areas).</p> <p>d. Plan for care approaches when resistance does occur</p>	57(42%)	44(32%)	34(25%)
Sexually inappropriate behaviors	<p>a. Use of physical environment and personal clothing options to prevent inappropriate behaviors.</p> <p>b. Plan for specific caregivers to work with the individual and ways in which to provide care interactions that will decrease risk of inappropriate behaviors.</p> <p>c. Use of preferences for activities to provide distraction and avoid boredom and facilitate physical activity.</p> <p>d. Plan for how to react/communicate and respond to episodes of inappropriate sexual behavior.</p>	4(3%)	60(44%)	71(53%)

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Table 4

INFIT and OUTFIT Statistics for the Checklist for Evidence of Use of Person-Centered Care Approaches to Manage BPSD in Care Plans

Item	INFIT MNSQ (ZSTD)	OUTFIT MNSQ (ZSTD)
Apathetic Behavior	1.35(2.9)	1.48 (2.8)
Agitation	.87(-1.3)	.80(-1.5)
Inappropriate or disruptive vocalization	.79(-2.3)	.80(-1.5)
Aggressive behavior	.81(-1.8)	.68(-2.4)
Wandering	.97(-2.0)	.99(0.00)
Repetitive behavior	1.09(.40)	1.05(.30)
Resistance to care (personal care; medications, etc.)	1.04(.50)	.94(-.30)
Sexually inappropriate behaviors	1.19(.60)	3.28(1.90)

