

The Meaning of Behaviors in Dementia/Neurocognitive Disorders

Dr. Atul Sunny Luthra

The Meaning of Behaviors in
Dementia/Neurocognitive Disorders
New Terminology, Classification, and
Behavioral Management
ATUL SUNNY LUTHRA



Luthra's Behavioral Assessment and Intervention Response (LuBAIR) Scale

ATUL SUNNY LUTHRA

MD MSc (Pharmacology) FRCPC

Associate Clinical Professor, McMaster University

**Research Scientist, Schlegel Research Institute for Aging, University of
Waterloo**

LuBAIR

Reference terminology

“A set of concepts and relationships that provide a common reference point for comparisons and aggregation of data.”

Classification system

“A systematic arrangement into classes or groups based on perceived common characteristics; a means of giving order to a group of disconnected facts.”

(Imel & Campbell, 2003).

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Terminology - Agitation

- **Cohen-Mansfield (2003): The presenting behavior is not labeled as “Agitation in Dementia” if any of the following clinical syndromes are present:**
 - **Psychosis**
 - **Individual’s emotional state or mood disorders**
 - **Delirium**
 - **Unmet needs**
- **Kaplan & Sadock (1995): “Severe anxiety associated with motor restlessness.”**
- **DSM-IV-TR (2000): “Excessive motor activity associated with a feeling of inner tension.”**

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Terminology – BPSD

- **Smith and Buckwalter (2005): “BPSD are non-cognitive characteristics of dementia. These symptoms include:**
 - **Agitation and aggression**
 - **Apathy and withdrawal**
 - **Anxiety**
 - **Irritability**
 - **Dysphoria and depression**
 - **Disinhibition**
 - **Delusions**
 - **Hallucinations and paranoia**
 - **As well as activities such as wandering, socially inappropriate behavior, and resistance to care”**
- **DSM-V (2013): Behavioral Symptoms in Major Neurocognitive Disorders**

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Terminology – Responsive Behaviors

- **Reflects a response to something negative, frustrating or confusing in the person’s environment.**
- **The term “responsive” behaviors places the reasons for behaviors “outside” of the persons rather than “within” the individual (“within” referring to biological processes).**
- **Persons with D / NCD chose this term with the reasoning that behavior is a means of communicating.**
- **To address behaviors and need to change physical or social aspects environment.**

(Dupuis et al., 2004)

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Classification:

???

Existing Models

Biological Model

- **Continuum of Agitation into Aggression**

Psychosocial Model

- **Needs-Driven, Dementia-Compromised Behaviors**

Future Direction

- **A new biopsychosocial (BPS) model for occurrence of behaviors in D / NCD titled:**
 - **Stage Congruent Responsive Behaviors (SCRB).**
- **A new classification system for SCRB.**
- **A new behavioral assessment tool:**
 - **Luthra's Behavioral Assessment and Intervention Response (LuBAIR) Scale.**

Variables to Consider

- **Biological Factors**
- **Psychological (Personal) Factors**
- **Social (Environmental) factors**

Understanding Behaviors

Biological Factors:

- **Stage of the Disease (with or w/o mental illness)**
- **Inherent Circadian Rhythms (CR)**
- **Innate Physiological Needs (IPN)**

Understanding Behaviors

Psychological (Personal) Factors:

- **Pre-morbid personality**
- **Psychological defense mechanisms**
- **Acquired Coping Strategies**

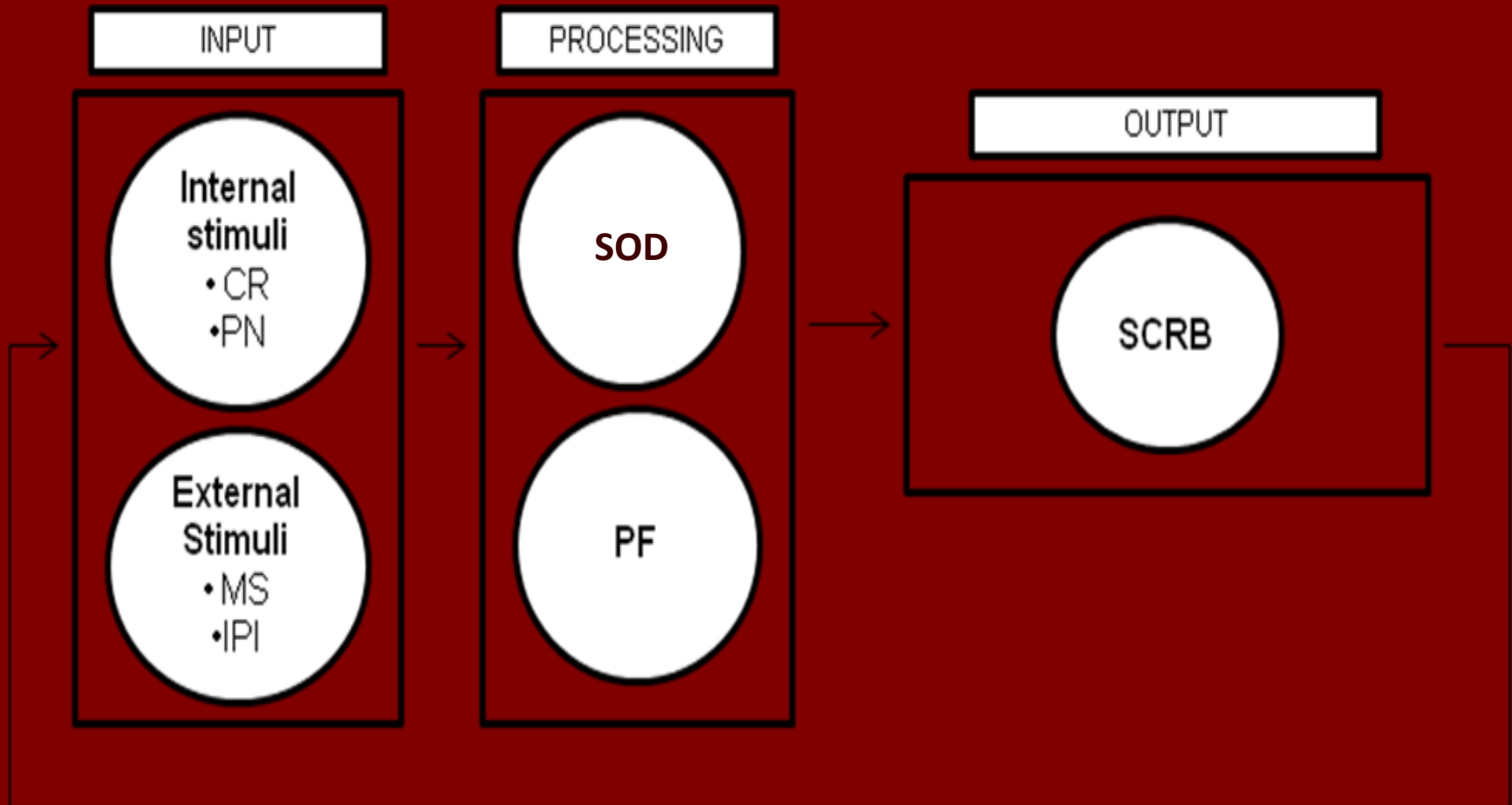
Understanding Behaviors

Social (Environmental) Factors:

- **Milieu Structure**
- **Interpersonal Interactions**

New Model (SCRIB)

Stage Congruent Responsive Behaviors



Proposed Classification System

Proposed Classification System

Criteria proposed by Davis et al. (1997):

- 1. Identification of the target population.**
- 2. Construction of items into categories which adequately represent the domain.**
- 3. Definition of the purpose of the measure.**
- 4. Specification of the construct of the category or domain.**

Proposed Classification System

Identified Specific Theoretical Constructs:

- 1. Information Processing Theories.**
- 2. Motivational and Needs based Theories.**
- 3. Theories on Regulation of Emotions.**
- 4. Theories on Principles of Compliance and Aggression.**

Quality of Behaviors

As defined by LuBAIR:

- **Disorganized Behaviors**
- **Mis-Identification Behaviors**
- **Goal Directed Cognitions and Activities**
- **Vocal Behaviors**
- **Emotional Behaviors**
- **Fretful/Trepidated Behaviors**
- **Importuning Behaviors**
- **Apathy Behaviors**
- **Oppositional Behaviors**
- **Physically Aggressive Behaviors**
- **Sexual Behaviors**
- **Motor Behaviors**

Quality of Behaviors

Severity as defined by LuBAIR:

- **On the basis of individual behaviors' response to interpersonal interventions (IPI):**
 - **Mild → Sustained response to IPI.**
 - **Moderate → Un-sustained response to IPI.**
 - **Severe → No response to IPI.**

Luthra's-Behavioral Assessment and Intervention Response (LUBAIR) Scale

A.S. Luthra MD. (Copyright 2008) REVISED - AUGUST 2012.

DEFINITION OF SEVERITY

Ⓜ MILD (1)	BEHAVIORS RESPOND TO INTERVENTIONS (IPI) AND REMAIN STABLE ONCE IPI IS WITHDRAWN
Ⓜ MODERATE (2)	BEHAVIORS RESPOND TO IPI ONLY TO RELAPSE WHEN IPI IS WITHDRAWN
Ⓜ SEVERE (3)	BEHAVIORS DO NOT RESPOND TO IPI
Ⓜ NP	NOT PRESENT

DISORGANIZED BEHAVIORS

	<u>SEVERITY</u>			
Ⓜ APPEARING "VACANT" OR "LOST" IN FACIAL EXPRESSIONS, mental lethargy	1	2	3	NP
Ⓜ Disorganized thinking, unintelligible/garbled speech	1	2	3	NP
Ⓜ Rapid shifts in or incongruity of emotional states	1	2	3	NP
Ⓜ INAPPROPRIATE mixing of food or dressing of clothes and layering, smearing fecal matter	1	2	3	NP
Ⓜ Playing with things in the air, responding to auditory hallucinations, picking things from t	1	2	3	NP
Ⓜ Mental or Physical Lethargy or General Functional decline	1	2	3	NP

MISIDENTIFICATION BEHAVIORS

Ⓜ MISIDENTIFICATION OF PERSONS, PLACES, OBJECTS	1	2	3	NP
Ⓜ MISIDENTIFICATION OF SOUNDS, SMELLS, TASTES OR TOUCH	1	2	3	NP
Ⓜ MISIDENTIFICATION OF EVENTS OR OCCURRENCES	1	2	3	NP
Ⓜ MIS-PERCEPTION OR INTERPRETATION OF COMMENTS OR BEHAVIOURS OF OTHERS	1	2	3	NP

GOAL DIRECTED BEHAVIORS

Ⓜ <u>Goal-Directed Thinking:</u> e.g. I am going home today, I am going to the bank, I am getting married today, where can I pay my bills etc)	1	2	3	NP
Ⓜ <u>Goal-Directed Activities:</u> e.g. (rummaging, hoarding, rifling or emptying drawers; stripping of clothes, rearranging furniture or fixing items in milieu; stripping bedding or pulling curtains/fixtures on the walls; bed/chair exiting or exit seeking; intrusiveness or purposeful wandering (seemingly driven, 'on the go')	1	2	3	NP

VOCAL BEHAVIORS

Ⓜ EXPLOSIVE, ARGUMENTATIVE AND QUARRELSOME	1	2	3	NP
Ⓜ TALKING LOUD AND FAST, ACTING MANIC-LIKE	1	2	3	NP
Ⓜ YELLING AND SCREAMING TO GET THINGS DONE	1	2	3	NP
Ⓜ RATTLING BED RAILS/TABLE TOPS, PERSISTENT CALLING OUT FOR STAFF/FAMILY or 'PARENTS'	1	2	3	NP
Ⓜ MAKING STRANGE NOISES or MAKING REPETITIVE SOUNDS	1	2	3	NP

EMOTIONAL BEHAVIORS

Ⓜ APPEARING SAD, DESPONDENT OR TEARFUL	1	2	3	NP
Ⓜ EXPRESSION OF THEMES OF DESPAIR, MORBIDITY, GLOOMINESS AND SOMATIC COMPLAINTS	1	2	3	NP
Ⓜ MIMICKING OR MOCKING AND BEING DISMISSIVE	1	2	3	NP
Ⓜ SARCASTIC OR TEASING, DEROGATORY COMMENTS, BEING CRITICAL AND NEGATIVE OF OTHERS	1	2	3	NP
Ⓜ FEELING REJECTED OR INCREASED SENSITIVITY TO COMMENTS FROM OTHERS	1	2	3	NP

FRETFUL/TREPIDATION BEHAVIORS

Ⓜ FEARFUL OR SCARED FACIAL EXPRESSIONS	1	2	3	NP
Ⓜ ANXIOUS OR DISTRESSED FACIAL EXPRESSIONS	1	2	3	NP
Ⓜ CLINGY OR "LATCHES ON", RINGING OF HANDS, RUBBING FACE/BODY	1	2	3	NP
Ⓜ EXPRESSING WORRY, FEAR, FOREBODING OR CATASTROPHY	1	2	3	NP
Ⓜ HOARDING OR COLLECTING				

IMPORTUNING BEHAVIORS

Ⓜ PERSISTENTLY SEEKING REASSURANCE OR ASKING FOR ASSISTANCE	1	2	3	NP
Ⓜ BEHAVING IN WAYS FOR DEMANDS TO BE MET IMMEDIATELY	1	2	3	NP
Ⓜ SHADOWING STAFF, Being a pest and crowding personal space of HCP	1	2	3	NP
Ⓜ ATTENTION SEEKING OR 'MANIPULATIVE' BEHAVIOURS	1	2	3	NP

APATHY BEHAVIORS

Ⓜ INDIFFERENCE AND LACK OF CONCERN RE: SELF AND ENVIRONMENT	1	2	3	NP
Ⓜ LACK OF SELF-INITIATION, LOW SOCIAL ENGAGEMENT (INTER-PERSONAL INTERACTIONS AND LILIEU STRUCTURE) AND POOR PERSISTENCE	1	2	3	NP
Ⓜ EMOTIONAL INDIFFERENCE AND LACK OF EMOTIONAL REMORSE	1	2	3	NP

OPPOSITIONAL BEHAVIORS

Ⓜ NEGOTIATING AROUND CARE AND OTHER NEEDS	1	2	3	NP
Ⓜ WORKING AGAINST EVERYTHING THE CARE GIVER OR CARE PROVIDER IS ATTEMPTING WITH PATIENT	1	2	3	NP
Ⓜ EVASIVE TO DIRECTIONS FROM CARE GIVER or PROVIDER	1	2	3	NP
Ⓜ RESISTIVE TO CARE, MEDICATION OR MEALS OR OTHER DIRECTIONS	1	2	3	NP
Ⓜ BARRICADING AND TERRITORIALISM	1	2	3	NP

PHYSICALLY AGGRESSIVE BEHAVIORS

Ⓜ SELF-ABUSIVE				
Ⓜ PULLING, PUSHING, GRABBING	1	2	3	NP
Ⓜ KICKING, BITING, SCRATCHING, PUNCHING	1	2	3	NP
Ⓜ SPITTING, THROWING THINGS, BREAKING OBJECTS	1	2	3	NP

SEXUAL BEHAVIORS

Ⓜ VERBALLY SEXUAL (COMMENTS, GESTURES, INNUENDOS)	1	2	3	NP
Ⓜ PHYSICALLY SEXUAL (GRABBING BREASTS, BUTTOCKS ETC.)	1	2	3	NP
Ⓜ SELF STIMULATION	1	2	3	NP

MOTOR BEHAVIORS

Ⓜ ROAMING, STROLLING, WANDERING	1	2	3	NP
Ⓜ FIDGETY, ROCKING IN W/C, RESTLESS, AGITATED	1	2	3	NP
Ⓜ SEEMINGLY DRIVEN, "ON THE GO", W/C PROPELLING, CHAIR/BED EXITING	1	2	3	NP

FREQUENCY AND DURATION OF THE IDENTIFIED BEHAVIORS IS MEASURED BY TRANSFERRING BEHAVIORS TO DEMENTIA OBSERVATION SCALE (AKA Q - 30 MIN CHECK LIST)

Luthra's-Behavioral Assessment and Intervention Response (LUBAIR) Scale

A.S. Luthra MD. (Copyright 2008) REVISED - AUGUST 2012.

DEFINITION OF SEVERITY

- 👉 **MILD (1)** **BEHAVIORS RESPOND TO INTERVENTIONS (IPI) AND REMAIN STABLE ONCE IPI IS WITHDRAWN**
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	<u>SEVERITY</u>			
👉 APPEARING "VACANT" OR "LOST" IN FACIAL EXPRESSIONS, mental lethargy	1	2	3	NP
👉 Disorganized thinking, unintelligible/garbled speech	1	2	3	NP
👉 Rapid shifts in or incongruity of emotional states	1	2	3	NP
👉 INAPPROPRIATE mixing of food or dressing of clothes and layering, smearing fecal matter	1	2	3	NP
👉 Playing with things in the air, responding to auditory hallucinations, picking things from the air	1	2	3	NP
👉 Mental or Physical Lethargy or General Functional decline	1	2	3	NP

MISIDENTIFICATION BEHAVIORS

👉 MISIDENTIFICATION OF PERSONS, PLACES, OBJECTS	1	2	3	NP
👉 MISIDENTIFICATION OF SOUNDS, SMELLS, TASTES OR TOUCH	1	2	3	NP
MISIDENTIFICATION OF EVENTS OR OCCURRENCES	1	2	3	NP
👉 MIS-PERCEPTION OR INTERPRETATION OF COMMENTS OR BEHAVIOURS OF OTHERS	1	2	3	NP

GOAL DIRECTED BEHAVIORS

- 👉 Goal-Directed Thinking: e.g. I am going home today, I am going to the bank, I am getting married today, where can I pay my bills etc) 1 2 3 NP
- 👉 Goal-Directed Activities: e.g. (rummaging, hoarding, rifling or emptying drawers; stripping of clothes, rearranging furniture or fixing items in milieu; stripping bedding or pulling curtains/fixtures on the walls; bed/chair exiting or exit seeking; intrusiveness or purposeful wandering (seemingly driven, 'on the go')) 1 2 3 NP

VOCAL BEHAVIORS

👉	EXPLOSIVE, ARGUMENTATIVE AND QUARRELSOME	1	2	3	NP
👉	TALKING LOUD AND FAST, ACTING MANIC-LIKE	1	2	3	NP
👉	YELLING AND SCREAMING TO GET THINGS DONE	1	2	3	NP
👉	RATTLING BED RAILS/TABLE TOPS, PERISTENT CALLING OUT FOR STAFF/FAMILY or 'PARENTS'	1	2	3	NP
👉	MAKING STRANGE NOISES or MAKING REPETITIVE SOUNDS	1	2	3	NP

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☞	MIMICKING OR MOCKING AND BEING DISMISSIVE	1	2	3	NP
☞	SARCASTIC OR TEASING, DEROGATORY COMMENTS, BEING CRITICAL AND NEGATIVE OF OTHERS	1	2	3	NP
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👉	EXPRESSING WORRY, FEAR, FOREBODING OR CATASTROPHY	1	2	3	NP
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👉	LACK OF SELF-INITIATION, LOW SOCIAL ENGAGEMENT (INTER-PERSONAL	1	2	3	NP
👉	INTERACTIONS AND LILIEU STRUCTURE) AND POOR PERSISTENCE	1	2	3	NP
👉	EMOTIONAL INDIFFERENCE AND LACK OF EMOTIONAL REMORSE	1	2	3	NP

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👉	WORKING AGAINST EVERYTHING THE CARE GIVER OR CARE PROVIDER IS ATTEMPTING WITH PATIENT	1	2	3	NP
👉	EVASIVE TO DIRECTIONS FROM CARE GIVER or PROVIDER	1	2	3	NP
👉	RESISTIVE TO CARE, MEDICATION OR MEALS OR OTHER DIRECTIONS	1	2	3	NP
👉	BARRICADING AND TERRITORIALISM	1	2	3	NP

PHYSICALLY AGGRESSIVE BEHAVIORS

👉 **SELF-ABUSIVE**

👉 **PULLING, PUSHING, GRABBING**

1 2 3 NP

👉 **KICKING, BITING, SCRATCHING, PUNCHING**

1 2 3 NP

👉 **SPITTING, THROWING THINGS, BREAKING OBJECTS**

1 2 3 NP

SEXUAL BEHAVIORS

👉	VERBALLY SEXUAL (COMMENTS, GESTURES, INNUENDOS)	1	2	3	NP
👉	PHYSICALLY SEXUAL (GRABBING BREASTS, BUTTOCKS ETC.)	1	2	3	NP
👉	SELF STIMULATION	1	2	3	NP

MOTOR BEHAVIORS

☞ ROAMING, STROLLING, WANDERING	1	2	3	NP
☞ FIDGETY, ROCKING IN W/C, RESTLESS, AGITATED	1	2	3	NP
☞ SEEMINGLY DRIVEN, "ON THE GO", W/C PROPELLING, CHAIR/BED EXITING	1	2	3	NP

FREQUENCY AND DURATION OF THE IDENTIFIED BEHAVIORS IS MEASURED BY TRANSFERRING BEHAVIORS TO DEMENTIA OBSERVATION SCALE (AKA Q - 30 MIN CHECK LIST)

**LuBAIR Scale:
Reliability and
Validity Study**

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Objective:

Establish the *reliability* and *validity* of LuBAIR Scale in comparison to:

- 1. Cohen-Mansfield Agitation Inventory (CMAI)**
- 2. Behavioral Pathology – Alzheimer's disease (BEHAVE-AD)**

LuBAIR

Hypotheses:

1. **Has equivalent content, criteria and face *validity*.**
2. **Comparable *intra-* and *inter-rater reliability*.**
3. **Is less labor intensive.**
4. **Is more comprehensive in scope.**
5. **Categorizes behaviors into clinically meaningful categories.**

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Study Population

- **Residents with a D / NCD diagnosis.**
- **Seven (7) long term care facilities in Ontario, Canada.**
 - **Five (5) facilities in Hamilton, Ontario.**
 - **Two (2) facilities in Burlington, Ontario.**

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Inclusion Criteria:

- **MMSE score of 23 or less.**
- **Consent. Either patient or POA / SDM.**
- **Comprehension in English at a minimum of grade six level.**
- **Pittsburg Agitation Inventory (PAI):**
 - **Score of three (3) or higher = study group.**
 - **Score of two (2) or less = control group.**

(Rosen et al., 1994).

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Exclusion Criteria:

- **Potential transfer to another facility.**
- **MMSE score of more than twenty-three (23).**
- **Unable to comprehend study assessment tools.**
- **Unable or unwilling to consent.**

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Sample Size:

SurveyMonkey Inc. (1999-2015) program was used to calculate the sample size.

- **Confidence Interval → 5% changed to 7.5%**
- **Confidence level → 90%**
- **Sample size at 5% C.I. → 270**
- **Sample size at 7.5% C.I. → 120**
- **Study duration → January 2009 – September 2011**

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Sample Size:

Study group:

- **60 residents exhibiting BPSDs.**

Control group:

- **60 participants not exhibiting BPSDs.**

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Study Tools:

- **Mini-Mental State Exam (MMSE).**
- **Pittsburg Agitation Scale (PAI).**
- **LuBAIR Scale.**
- **Cohen-Mansfield Agitation Inventory (CMAI).**
- **Behaviors – Alzheimer’s Disease (BEHAVE-AD).**
- **Clinical Utility Survey (CUS).**

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Study Tools – Cont'd

Clinical Utility Survey (CUS):

Developed for this study:

(Q1) Less labor intensive.

(Q2) More comprehensive.

(Q3) Better able to categorize behaviors into clinically meaningful categories.

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Study Design - Reliability

Intra-rater Reliability:

- **Registered nurses (RN) completed LuBAIR on the same residents on separate occasions, two (2) weeks apart.**

Inter-rater Reliability:

- **A second group of RNs completed LuBAIR on the same respective participants.**

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Study Design - Validity

Content and Criteria

- **On the days RNs completed LuBAIR, they also completed CMAI and BEHAVE-AD with the participants.**
- **RNs then completed the CUS.**

Face

- **Four (4) geriatric specialists reviewed LuBAIR on :**
 - **Title**
 - **Layout**
 - **Ease of use**
 - **Content**

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Study Design - Survey

Clinical Utility Survey (CUS):

- All the RNs completed the CUS at the end of the study.

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Results - Reliability

Inter-Rater:

- **Correlations for 10 of the 12 categories were statistically significant.**
- **Two (2) categories which did not reach statistical significance were:**
 - **Misidentification behaviors**
 - **Fretful / Trepidated behaviors**

Results – Inter-Rater Reliability

Table 4: Inter-rater Reliability Coefficients

<u><i>Clinical Categories for LuBAIR</i></u>	<u><i>Intraclass Correlations (95% Confidence Intervals)</i></u>	<u><i>Significance (p value)</i></u>
Disorganized	.269 (.003 - .500)	.024*
Misidentification	.198 (-.073 - .441)	.075
Motor	.310 (.047 - .533)	<.0001*
Goal Directed	.476 (.240 - .659)	<.0001*
Vocally Disruptive	.472 (.235 - .657)	<.0001*
Emotional	.642 (.453 - .776)	<.0001*
Importuning	.430 (.184 - .625)	.001*
Fretful	.026 (-.242 - .291)	.425
Apathy	.271 (.004 - .501)	.023*
Oppositional	.445 (.203 - .637)	<.0001*
Physically Aggressive	.638 (.448 - .773)	<.0001*
Sexual	.436 (.191 - .630)	<.0001*

One-way random effects model where people effects are random. $\alpha = 0.05$.

* Significant findings ($p < \alpha = .05$)

LuBAIR

Results - Reliability

Intra-Rater:

- **Correlations for 8 of the 12 categories were statistically significant.**
- **Four (4) categories which did not reach statistical significance were:**
 - **Misidentification Behaviors**
 - **Fretful / Trepidated Behaviors**
 - **Apathy Behaviors**
 - **Sexual Behaviors**

Results – Intra-Rater Reliability

Table 5: Intra-rater Reliability Coefficients

<u><i>Clinical Categories for LuBAIR</i></u>	<u><i>Intraclass Correlations (95% Confidence Intervals)</i></u>	<u><i>Significance (p value)</i></u>
Disorganized	.502 (.206 - .715)	.001*
Misidentification	-.024 (-.352 - .311)	.554
Motor	.498 (.200 - .712)	.001*
Goal Directed	.481 (.178 - .701)	.002*
Vocally Disruptive	.595 (.329 - .774)	<.0001*
Emotional	.373 (.048 - .627)	.013*
Importuning	.472 (.167 - .695)	.002*
Fretful	-.035 (-.361 - .301)	.578
Apathy	.171 (-.169 - .476)	.160
Oppositional	.316 (-.016 - .587)	.031*
Physically Aggressive	.641 (.393 - .802)	<.0001*
Sexual	-.041 (-.367 - .295)	.592

One-way random effects model where people effects are random. $\alpha = 0.05$.

* Significant findings ($p < \alpha = .05$)

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Results – Validity

Content and Criteria :

- **Table 6 → Inter – scale correlation with 1st group of nurses.**
- **Table 7 → Inter – scale correlation with 2nd group of nurses.**
- **Correlation coefficients for both were found to be statistically significant at the 0.01 level (2-tailed).**

Results – Inter-scale Validity – Group 1

Table 6: Scale Cross-validation with Total Scores - Rater 1

	<u><i>LuBAIR</i></u>	<u><i>CMAI</i></u>	<u><i>BEHAVE-AD</i></u>	
<u><i>LuBAIR</i></u>	1	.764*	.782*	Pearson Correlation
	-	<.0001	<.0001	Sig. (2-tailed)
<u><i>CMAI</i></u>	.764*	1	.678*	Pearson Correlation
	<.0001	.	<.0001	Sig. (2-tailed)
<u><i>BEHAVE-AD</i></u>	.782*	.678*	1	Pearson Correlation
	<.0001	<.0001	-	Sig. (2-tailed)

* Correlation is significant at or below the 0.01 level (2-tailed).

N = 60

Results – Inter-scale Validity – Group 2

Table 7: Scale Cross-validation with Total Scores - Rater 2

	<u><i>LuBAIR</i></u>	<u><i>CMAI</i></u>	<u><i>BEHAVE-AD</i></u>	
<u><i>LuBAIR</i></u>	1	.643*	.575*	Pearson Correlation
	-	<.0001	<.0001	Sig. (2-tailed)
<u><i>CMAI</i></u>	.643*	1	.496*	Pearson Correlation
	<.0001	-	.001	Sig. (2-tailed)
<u><i>BEHAVE-AD</i></u>	.575*	.496*	1	Pearson Correlation
	.000	.001	-	Sig. (2-tailed)

* Correlation is significant at or below the 0.01 level (2-tailed).

N = 60

LuBAIR

Results – Validity

Content and Criteria :

- **Table 8 → Inter – rater correlation between the two groups.**
- **Correlation coefficients were found to be statistically significant at the 0.05 level (2-tailed).**

Results – Inter-rater Validity

Table 8: Rater Cross-validation with Total Scores

		<u>RATER 2</u>		
		<u>LuBAIR</u>	<u>CMAI</u>	<u>BEHAVE-AD</u>
<u>RATER 1</u>	<u>LuBAIR</u>	.320* p = .020 N _{R1} =53,N _{R2} =53	-	-
	<u>CMAI</u>	-	.394* p = .008 N _{R1} =53,N _{R2} =44	-
	<u>BEHAVE-AD</u>	-	-	.386* p = .010 N _{R1} =53,N _{R2} =44

* Correlation is significant at or below the 0.05 level (2-tailed).

N_{R1} = Participants assessed by Rater 1; N_{R2} = Participants assessed by Rater 2.

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Results – Validity

Content and Criteria :

- **Table 6 & 7: Inter-scale correlation coefficients were found to be statistically significant at the 0.01 level (2-tailed).**
- **Table 8: Inter-rater correlation coefficients were found to be statistically significant at the 0.05 level (2-tailed).**

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Results - Validity:

Face:

- **Title: LIBID → L-BID → LIBIDO → LuBAIR**
- **Layout: Acceptable to all.**
 - **Two specialists suggested a frequency measure.**
- **Ease of use: Not applicable (filled by front line staff).**
- **Content: More exhaustive in collecting behavior data.**

LuBAIR

Results – CUS:

Q1: Does LuBAIR Scale take less time to complete than other scales?

YES: 24% NO: 76%

Q2: Does LuBAIR Scale collect more information than other scales?

YES: 82% NO: 18%

Q3: Does LuBAIR Scale help you understand behaviors in a clinically meaningful way?

YES: 98% NO: 2%

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Discussion – General

– **Duration of study.**

– **Delay in submission of study manuscript.**

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Discussion – Reliability

Misidentification behaviors:

- **Unfamiliarity with terminology.**
- **Familiarity with delusions / hallucinations.**
- **Unable to conduct reliable and valid clinical interview.**

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Discussion – Reliability

Fretful / Trepidated behaviors:

- **Unfamiliarity with terminology.**
- **Absence of terminology → “anxiety symptoms”**

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Discussion – Reliability

Apathy behaviors:

- Commonly referred to as “depressed behaviors.”
- Conspicuous absence of terminology → “depression.”
- Definitions of “emotions” and “mood.”
 - Not interchangeable.
- Mood → difficult to measure duration criteria.

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Discussion – Reliability

Sexual behaviors:

- **Personal and societal values.**
- **Timelines (as the facts are collected).**

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Discussion – CUS

- **Different layout.**
- **Extensive conceptual understanding needed.**
- **Need for repetition of learning.**

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Conclusion:

- **Comparable inter - / intra - rater reliability.**
- **Comparable Content and Criteria Validity.**
- **More comprehensive.**
- **Able to categorize behaviors into clinically meaningful categories.**

The Meaning of Behaviors in Dementia/Neurocognitive Disorders

Dr. Atul Sunny Luthra

The Meaning of Behaviors in
Dementia/Neurocognitive Disorders
New Terminology, Classification, and
Behavioral Management
ATUL SUNNY LUTHRA



LuBAIR

References

Cohen-Mansfield, J. (1995). Assessment of disruptive behavior/agitation in the elderly: function, methods, and difficulties. *Journal of Geriatric Psychiatry and Neurology*, 8, 52–60.

Folstein, M.F., Folstein, S.E., & McHugh, P.R. (1975). Mini-mental state: A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12, 189-198.

Luthra, A.S. (2014). *The Meaning of Behaviors in Dementia/Neurocognitive Disorders: New Terminology, Classification, and Behavioral Management*, 1st Edition. Champaign, IL: Common Ground Publishing.

Reisberg, B., Auer, S. R., & Monteiro, I. M. (1997). Behavioral Pathology in Alzheimers Disease(BEHAVE- AD) Rating Scale. *International Psychogeriatrics*, 8, 301-308. doi: 10.1017/S1041610297003529.

Rosen, J., Burgio, L., Kollar, M., & Cain, M. (1994). The Pittsburgh Agitation Scale: A user-friendly instrument for rating agitation in dementia patients. *The American Journal of Geriatric Psychiatry*, 2, 52 – 59. doi: 10.1097/00019442-199400210-00008.

Classification of Behaviors in Dementia/NCDs based on Principles of Compliance and Aggression

ATUL SUNNY LUTHRA

MD MSc (Pharmacology) FRCPC

Associate Clinical Professor, McMaster University

**Research Scientist, Schlegel Research Institute for Aging,
University of Waterloo**

Luthra's-Behavioral Assessment and Intervention Response (LUBAIR) Scale

A.S. Luthra MD. (Copyright 2008) REVISED - AUGUST 2012.

DEFINITION OF SEVERITY

⊕ MILD (1)	BEHAVIORS RESPOND TO INTERVENTIONS (IPI) AND REMAIN STABLE ONCE IPI IS WITHDRAWN
⊕ MODERATE (2)	BEHAVIORS RESPOND TO IPI ONLY TO RELAPSE WHEN IPI IS WITHDRAWN
⊕ SEVERE (3)	BEHAVIORS DO NOT RESPOND TO IPI
⊕ NP	NOT PRESENT

DISORGANIZED BEHAVIORS

	<u>SEVERITY</u>			
⊕ APPEARING "VACANT" OR "LOST" IN FACIAL EXPRESSIONS, mental lethargy	1	2	3	NP
⊕ Disorganized thinking, unintelligible/garbled speech	1	2	3	NP
⊕ Rapid shifts in or incongruity of emotional states	1	2	3	NP
⊕ INAPPROPRIATE mixing of food or dressing of clothes and layering, smearing fecal matter	1	2	3	NP
⊕ Playing with things in the air, responding to auditory hallucinations, picking things from t	1	2	3	NP
⊕ Mental or Physical Lethargy or General Functional decline	1	2	3	NP

MISIDENTIFICATION BEHAVIORS

⊕ MISIDENTIFICATION OF PERSONS, PLACES, OBJECTS	1	2	3	NP
⊕ MISIDENTIFICATION OF SOUNDS, SMELLS, TASTES OR TOUCH	1	2	3	NP
⊕ MISIDENTIFICATION OF EVENTS OR OCCURRENCES	1	2	3	NP
⊕ MIS-PERCEPTION OR INTERPRETATION OF COMMENTS OR BEHAVIOURS OF OTHERS	1	2	3	NP

GOAL DIRECTED BEHAVIORS

⊕ <u>Goal-Directed Thinking:</u> e.g. I am going home today, I am going to the bank, I am getting married today, where can I pay my bills etc)	1	2	3	NP
⊕ <u>Goal-Directed Activities:</u> e.g. (rummaging, hoarding, rifling or emptying drawers; stripping of clothes, rearranging furniture or fixing items in milieu; stripping bedding or pulling curtains/fixtures on the walls; bed/chair exiting or exit seeking; intrusiveness or purposeful wandering (seemingly driven, 'on the go')	1	2	3	NP

VOCAL BEHAVIORS

⊕ EXPLOSIVE, ARGUMENTATIVE AND QUARRELSOME	1	2	3	NP
⊕ TALKING LOUD AND FAST, ACTING MANIC-LIKE	1	2	3	NP
⊕ YELLING AND SCREAMING TO GET THINGS DONE	1	2	3	NP
⊕ RATTLING BED RAILS/TABLE TOPS, PERSISTENT CALLING OUT FOR STAFF/FAMILY or 'PARENTS'	1	2	3	NP
⊕ MAKING STRANGE NOISES or MAKING REPETITIVE SOUNDS	1	2	3	NP

EMOTIONAL BEHAVIORS

⊕ APPEARING SAD, DESPONDENT OR TEARFUL	1	2	3	NP
⊕ EXPRESSION OF THEMES OF DESPAIR, MORBIDITY, GLOOMINESS AND SOMATIC COMPLAINTS	1	2	3	NP
⊕ MIMICKING OR MOCKING AND BEING DISMISSIVE	1	2	3	NP
⊕ SARCASTIC OR TEASING, DEROGATORY COMMENTS, BEING CRITICAL AND NEGATIVE OF OTHERS	1	2	3	NP
⊕ FEELING REJECTED OR INCREASED SENSITIVITY TO COMMENTS FROM OTHERS	1	2	3	NP

FRETFUL/TREPIDATION BEHAVIORS

⊕ FEARFUL OR SCARED FACIAL EXPRESSIONS	1	2	3	NP
⊕ ANXIOUS OR DISTRESSED FACIAL EXPRESSIONS	1	2	3	NP
⊕ CLINGY OR "LATCHES ON", RINGING OF HANDS, RUBBING FACE/BODY	1	2	3	NP
⊕ EXPRESSING WORRY, FEAR, FOREBODING OR CATASTROPHY	1	2	3	NP
⊕ HOARDING OR COLLECTING				

IMPORTUNING BEHAVIORS

⊕ PERSISTENTLY SEEKING REASSURANCE OR ASKING FOR ASSISTANCE	1	2	3	NP
⊕ BEHAVING IN WAYS FOR DEMANDS TO BE MET IMMEDIATELY	1	2	3	NP
⊕ SHADOWING STAFF, Being a pest and crowding personal space of HCP	1	2	3	NP
⊕ ATTENTION SEEKING OR 'MANIPULATIVE' BEHAVIOURS	1	2	3	NP

APATHY BEHAVIORS

⊕ INDIFFERENCE AND LACK OF CONCERN RE: SELF AND ENVIRONMENT	1	2	3	NP
⊕ LACK OF SELF-INITIATION, LOW SOCIAL ENGAGEMENT (INTER-PERSONAL INTERACTIONS AND LILIEU STRUCTURE) AND POOR PERSISTENCE	1	2	3	NP
⊕ EMOTIONAL INDIFFERENCE AND LACK OF EMOTIONAL REMORSE	1	2	3	NP

OPPOSITIONAL BEHAVIORS

⊕ NEGOTIATING AROUND CARE AND OTHER NEEDS	1	2	3	NP
⊕ WORKING AGAINST EVERYTHING THE CARE GIVER OR CARE PROVIDER IS ATTEMPTING WITH PATIENT	1	2	3	NP
⊕ EVASIVE TO DIRECTIONS FROM CARE GIVER or PROVIDER	1	2	3	NP
⊕ RESISTIVE TO CARE, MEDICATION OR MEALS OR OTHER DIRECTIONS	1	2	3	NP
⊕ BARRICADING AND TERRITORIALISM	1	2	3	NP

PHYSICALLY AGGRESSIVE BEHAVIORS

⊕ SELF-ABUSIVE				
⊕ PULLING, PUSHING, GRABBING	1	2	3	NP
⊕ KICKING, BITING, SCRATCHING, PUNCHING	1	2	3	NP
⊕ SPITTING, THROWING THINGS, BREAKING OBJECTS	1	2	3	NP

SEXUAL BEHAVIORS

⊕ VERBALLY SEXUAL (COMMENTS, GESTURES, INNUENDOS)	1	2	3	NP
⊕ PHYSICALLY SEXUAL (GRABBING BREASTS, BUTTOCKS ETC.)	1	2	3	NP
⊕ SELF STIMULATION	1	2	3	NP

MOTOR BEHAVIORS

⊕ ROAMING, STROLLING, WANDERING	1	2	3	NP
⊕ FIDGETY, ROCKING IN W/C, RESTLESS, AGITATED	1	2	3	NP
⊕ SEEMINGLY DRIVEN, "ON THE GO", W/C PROPELLING, CHAIR/BED EXITING	1	2	3	NP

FREQUENCY AND DURATION OF THE IDENTIFIED BEHAVIORS IS MEASURED BY TRANSFERRING BEHAVIORS TO DEMENTIA OBSERVATION SCALE (AKA Q - 30 MIN CHECK LIST)

OPPOSITIONAL BEHAVIORS

👉	NEGOTIATING AROUND CARE AND OTHER NEEDS	1	2	3	NP
👉	WORKING AGAINST EVERYTHING THE CARE GIVER OR CARE PROVIDER IS ATTEMPTING WITH PATIENT	1	2	3	NP
👉	EVASIVE TO DIRECTIONS FROM CARE GIVER or PROVIDER	1	2	3	NP
👉	RESISTIVE TO CARE, MEDICATION OR MEALS OR OTHER DIRECTIONS	1	2	3	NP
👉	BARRICADING AND TERRITORIALISM	1	2	3	NP

PHYSICALLY AGGRESSIVE BEHAVIORS

☞ **SELF-ABUSIVE**

☞ **PULLING, PUSHING, GRABBING**

1 2 3 NP

☞ **KICKING, BITING, SCRATCHING, PUNCHING**

1 2 3 NP

☞ **SPITTING, THROWING THINGS, BREAKING OBJECTS**

1 2 3 NP

Oppositional Behaviors

Principles of Compliance

Oppositional Behaviours (OB)

- **Benoit (2006). Refusal to care, to eat or to co-operate.**
- **Ornstein (2012) Used in context of;**
 - **Agitation**
 - **Psychosis**
 - **Apathy**
 - **Aggression**

Principles of Compliance

Oppositional Behaviours (OB)

Developmental Psychology (Greenspoon 1992)

Verbal and Non-Verbal Expressions of 'NO'

- Sense of Identity**
- Self Regulation**
- Independence**

Principles of Compliance

Oppositional Behaviours (OB)

Compliance

- **Appropriate following of any instruction to perform a specific response.**
- **Within a reasonable and designated time.**

(Schoen, 1983)

Principles of Compliance

Oppositional Behaviors (OB)

Non-Compliance

- Refusal to initiate or complete a request made by another person.**

(Forehand and McMahon, 1981)

Principles of Compliance

Oppositional Behaviors (OB)

Interactional Process

- **Bi-directional relationship between the person receiving a command and the person delivering the command.**
- **INTERACTIONAL UNIT**
- **Forms a conceptual basis to development and sustenance.**

Oppositional Behaviors (OB)

Negotiation:

- **Person attempts to modify the nature / conditions of the command**

Passive Non-Compliance:

- **Person does not acknowledge directions given to them**

(Kuczynski & Kochanska, 1990)

Oppositional Behaviours (OB)

Simple Non-Compliance

- **Person appears to acknowledge commands but refuses to comply.**
- **No associated hostility / anger.**

Direct Defiance:

- **Above two steps accompanied by hostility / anger.**

Oppositional Behaviours (OB)

Factors influencing Interactions

- **Level of Intellectual Functioning**
- **Level of developmental sophistication**

Oppositional Behaviours (OB)

Interactional unit in Dementia Care

- Husband and wife unit**
- Regresses with advancement of dementia**
- Mirrors parent-child unit**

Oppositional Behaviours (OB)

Interactional unit in Dementia Care

- Parent-Child unit**

- Reverses with advancement of Dementia**

Oppositional Behaviors

Symptoms of the Domain

Negotiation:

- Observed in early stages of impairment in patients with higher level of intellectual function / developmental sophistication**
- Patient negotiates around care and other needs**
- If unsuccessful, patient works against HCP**

Oppositional Behaviors

Symptoms of the Domain

Passive non-compliance:

- Observed in patients with lower level of intellectual function / developmental sophistication**
- Patient act as if they are not hearing direction**
- Patient is evasive to commands**

Oppositional Behaviors

Symptoms of the Domain

Simple non-compliance:

- Observed in patients with even lower level of intellectual function / developmental sophistication**
- Acknowledging direction but refusing to comply but no anger / hostility**
- Patient is resistive to care, medications, meals, commands**

Oppositional Behaviors

Symptoms of the Domain

Direct defiance:

- Observed in patients with the lowest level of intellectual function / developmental sophistication**
- Acknowledges --→ Refuses -→ Emotions**
- Patient acts territorial / barricades self**
- Progresses to vocal and physically aggressive behavior**

Oppositional Behaviours (OB)

Symptoms of the Category

- **Negotiating around care and other needs**
- **Working against every thing CG does**
- **Evasive to Directions**
- **Resistive to all Directions**
- **Barricading or territorialism**

Oppositional Behaviors

Purpose of Measure

- **Alert HCP to ‘bi-directional’ dynamic interaction between patient and them**
- **HCP verbal / non-verbal expressions and commands influence state of ‘homeostasis’**
- **Alert HCP to range of non-compliant actions patient may exhibit**
- **Care Planning in accordance with individualized responses**

Oppositional Behaviors

Care Approach

- **Patient-centered, individualized approach to management is required**
- **Develop care plans which address each identified level of non-compliance exhibited by patient**
- **Focus on preserving homeostasis in patient milieu**

Physically Aggressive Behaviors

Physically Aggressive Behaviors

Definition:

- **An overt act, involving the delivery of noxious stimuli to (but not necessarily aimed at) another organism, object or self, which is clearly accidental.**

Physically Aggressive Behaviors

Symptoms in the Literature

- **Physical aggression**
- **Aggressive resistance**
- **Physical threats,**
- **Verbal aggression**
- **Refusal to speak**
- **Destructive behavior**
- **General irritability**

Principles of Aggression

Conceptual Models

- **Biological:**

- **Genetic predisposition, changes in physiological function**
- **Various disease states may cause change in brain function**
- **Changes in neurotransmitter function causes aggression**

- **Behavioral:**

- **Classical / operant conditioning**
- **Aggression is a learned behavior**
- **Variables in milieu reinforce / attenuate the behavior**

Principles of Aggression

Conceptual Models

- **Cognitive:**
 - Mental processing of information (memory, thinking, language, problem-solving, decision-making)
 - Impairment leads to aggression
- **Evolutionary:**
 - Behavior evolved as a form of “defense against attack”
 - Aids in survival and reproduction
- **Cross-cultural:**
 - Different cultures influence perspective on aggression
 - Cultures may differ in behavior frequency

Physically Aggressive Behaviors

Alternative Models

Instrumental Aggression:

- Based in reward-consequence paradigm**
- Process of systematic thinking (benefits / rewards)**

Physically Aggressive Behaviors

Alternative Models

Hostile Aggression:

- **“Frustration-Aggression theory”** – Dollard et al (1939)
 - **Blocked goal attainment → frustration → aggression**

Physically Aggressive Behaviors

Alternative Models

Hostile Aggression:

- **Emotional response to provocation / negative feelings**
 - **Berkowitz (1989)**
- **Internal / external perturbations**
 - **Negative feelings**
 - **Aggression**

Physically Aggressive Behaviors

Hostile Aggression

- **Hierarchy of Needs** (Maslow 1943):
 - **Physiological**
 - **Security**
 - **Belongingness**
- **Perceived “blocked” needs**
 - **Negative emotions of anger / discontentment**
 - **Direct Defiance**
 - **Physically Aggressive Behaviors**

Physically Aggressive Behaviors

Symptoms

- **Pulling, pushing, grabbing**
- **Kicking, biting, scratching, punching**
- **Spitting, throwing things, breaking objects**
- **Self-abuse / mutilation**

Physically Aggressive Behaviors

Purpose of Measure

- **Alert HCPs of “interactional unit.”**
- **Alert HCPs to identify perceived discrepancy.**
- **Alert HCPs of perceived blockage.**
- **Alert HCPs of emotional responses.**
 - **Anger and discontentment.**

Physically Aggressive Behaviors

Purpose of Measure

Pushing, pulling, grabbing:

- **Direct defiance**
 - **Persistence of Noxious Stimuli**
 - **Behaviors**
- **Goal of behavior is extinguishing perceived noxious stimuli.**
- **Emergence of Vocal Behaviors – Aggressive Type.**
 - **Defensive Mode.**
 - **“Shot across the bow”**

Physically Aggressive Behaviors

Purpose of Measure

Self-Abuse:

- **Based in Primary Emotion of Anger & Discontentment**
- **Out of proportion responses.**
 - **Low threshold, high amplitude, long duration.** (Donegan et al (2003))
- **“Dysphoric Episodes”** (Starcevic 2007)
 - **Irritable – Quarrelsome – Destructive Syndrome**
- **Turned onto oneself.**

Physically Aggressive Behaviors

Purpose of Measure

Spitting, Throwing Things, Breaking Objects:

- **Irritable – Quarrelsome – Destructive Syndrome.**
- **Turned outwards.**

Physically Aggressive Behaviors

Purpose of Measure

- **Oppositional Behaviors**

- **Vocal Behaviors Aggressive Type**

- **Physically Aggressive Behaviors**

Physically Aggressive Behaviors

Care Approach

- **Assess from all perspectives and determine whether behavior is instrumental / hostile**
- **If instrumental:**
 - **Assess if patient can understand consequences of actions and develop appropriate interventions**
- **If hostile:**
 - **Identify how HCP role / environment acts as an impediment to patient's goal attainment**
 - **Develop behavioral interventions around mitigating / eliminating goal impediments**

Behaviors of Dementia/NCD

As defined by LuBAIR:

- **Disorganized Behaviors**
- **Misidentification Behaviors**
- **Apathy Behaviors**
- **Goal Directed behaviors**
- **Motor Behaviors**
- **Importuning Behaviors**
- **Emotional Behaviors**
- **Fretful/Trepidated Behaviors**
- **Vocal Behaviors**
- **Oppositional Behaviors**
- **Physically Aggressive Behaviors**
- **Sexual Behaviors**

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