

## Post-Stroke Mood and Emotional Disturbances

Facilitating Recovery: Interprofessional Best Practices for  
Stroke Rehabilitation Workshop  
June 11, 2019



Justine Spencer, PhD, CPsych




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### Overview

What is Post-Stroke Depression (PSD)?

- Risk factors/predictors
- Impact of PSD
- Treatment and Management

Behavioural and emotional disturbances post-stroke

- Frontal lobe syndromes
- Cerebellar syndromes

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### PSD: Best Practice Recommendations

Education for primary care practitioners and healthcare providers

Identification – Assessment/screening with validated tools

Timely access to appropriate specialists for diagnosis

Process for monitoring

Timely access to treatment

Education and support (stroke survivor and family)

Care management following discharge




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### Prevalence of PSD

- Estimated that 33% of stroke survivors experience major depression
  - Likely an underestimation (e.g., under reporting, difficulty assessing, use of assessment tools)
- Typically peaks within 3 to 6 months
- Declines in prevalence after one year (50% of initial rates)
  - Spontaneous remission about 1 to 3 years post-stroke
- Can be chronic (i.e., more than 3 years post-stroke)

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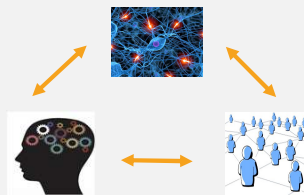
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### Mechanisms of PSD

- Many theories but evidence vague
- Three factors:
  - Biological mechanism
  - Social factors
  - Psychological stressors
- Biopsychosocial model




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### PSD Risk Factors

- Stroke severity
  - Physical disability
  - Impairment of activities of daily living
  - Cognitive impairment
- Prior diagnosis and/or treatment of depression
- Sex differences
- Lack of social support
- Location of stroke (?)




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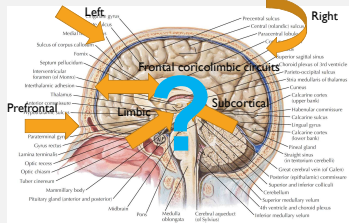
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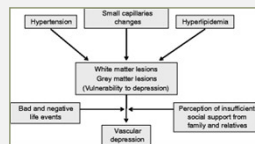
### PSD Risk Factors

- Location of stroke
- Left vs right?
- Cortical vs subcortical?



### PSD Risk Factors

- Age
- Vascular Depression
  - Considered subset of PSD
  - Later age of onset
  - Greater physical and cognitive impairment
  - Associated with Vascular Dementia
    - Small vessel ischemia
    - Progression of white matter hyperintensities
  - Poorer response treatment, more chronic, relapsing clinical course



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### Identifying PSD

- Difficult to differentiate PSD and grief-like reactions especially in first weeks after stroke
- Often underreported and/or not identified within inpatient and community settings
- Health professionals without specific psychiatric/psychological training

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### Identifying PSD

Depression and loss of interest in previously enjoyed activities

Changes in appetite (weight loss/gain)	Fatigue/loss of energy
Sleep disturbance (insomnia or hypersomnia)	Feelings of worthlessness and guilt
Psychomotor agitation or retardation	Changes in cognition
	Suicide ideation

Symptoms lasting at least two weeks

At least two symptoms but less than five - With depressive features

At least five symptoms – With major depression

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### Identifying PSD

- Standardized screening tools associated with significantly greater sensitivity
  - The Hospital Anxiety and Depression Scale (HADS), Geriatric Depression Scale (GDS), Patient Health Questionnaire (PHQ-9)
- Aphasia - Stroke Aphasic Depression Questionnaire Hospital (SADQ-H 10)

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**PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)**

How often have you been bothered by any of the following problems?

(Circle to indicate your answer below)

	Not at all Less than once a day	Several days a week	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Not appetite or overeating	0	1	2	3
6. Feeling not like yourself or that you are a failure or let your family down	0	1	2	3
7. Thinking about harming yourself, or that you are a burden or worrying others	0	1	2	3
8. Moving or speaking so slowly that other people could notice or so fast that other people could miss you	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING

Total Score: \_\_\_\_\_

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Scoring: 0-4 None 5-9 Mild to Moderate 10-14 Moderate to Severe 15-19 Moderately Severe 20-27 Severe

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**Stroke Aphasic Depression Questionnaire Hospital Version (SADQ-H 10)**

Please indicate how many days of the last 7 the participant has shown the following behaviours:

1. Did he/she have weeping spells?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
2. Did he/she have restless disturbed nights?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
3. Did he/she avoid eye contact when you spoke to him/her?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
4. Did he/she burst into tears?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
5. Did he/she indicate suffering from aches and pains?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
6. Did he/she get angry?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
7. Did he/she refuse to participate in social activities?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
8. Did he/she sit without doing anything?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
9. Did he/she keep him/herself occupied during the day?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week
10. Did he/she get restless and fidgety?	Every day this week	On 4-6 days this week	On 1-4 days this week	Not at all this week

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### Impact of PSD

- Functional recovery
  - Reduced motivation to work in rehabilitation
  - Sleep and appetite disturbances
- Activities of daily living
- Cognition
  - Lower scores on screens of cognitive ability
  - Attention (e.g., ability to sustain concentration during rehabilitation)
- Survival




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### Treatment and Management of PSD

- Most stroke survivors who develop PSD do not receive treatment
  - Not identified by healthcare professionals
  - Not identified by family members/caregivers
  - Explained as understandable response to loss
- Treatment improves mood, physical recovery, cognitive functioning (e.g., memory, attention), language, ability to engage in activities of daily living
- Without treatment, PSD can persist

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### Treatment and Management of PSD

- Treatment via pharmacotherapy
  - Reduction of depressive symptomatology
- Consistently monitor response to treatment
  - Regular review
  - Occurrence of side effects
  - Adherence issues
  - Relapse




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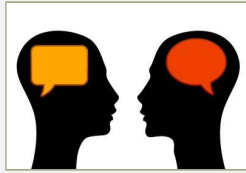
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### Treatment and Management of PSD

- Education
  - Symptomatology and course
  - Sense of control
  - Develop self-adjustment abilities/skills
  - Patient and family




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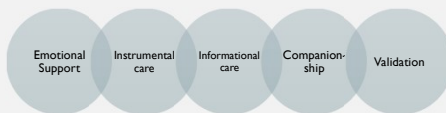
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### Treatment and Management of PSD

- Social support
  - Family, friends, treatment team, support groups
  - Protective factor for PSD
  - Amount and perception of social contact after stroke influences risk of developing PSD




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### Treatment and Management of PSD

- Social support
  - Patients supported by caregivers have significantly fewer symptoms of PSD and better functional outcomes
  - Emotional encouragement, help with compliance of therapeutic instructions
  - Social support interventions more successful when initiated early and with greater intensity
  - May be helpful at later stages (i.e., after discharge)
    - Adapting to life after stroke




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### Rehabilitation of Frontal Lobe Syndrome

- Phineas Gage
- Unable to return to work due to physical and behavioural changes
- Four years post-injury worked as long-distance stagecoach driver ("reasonable social recovery")
- Highly structured work/routine with clear sequence of tasks
- Similar techniques to rehabilitate WWII soldiers suffering from frontal lobe injuries (Alexander Luria)




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### Rehabilitation of Frontal Lobe Syndrome

- Challenging and individualized
- Reinforce, strengthen, or re-establish patterns of behaviour
- New patterns through compensatory strategies (internal and external)
- Structure, routine, consistency
- Behavioural scripts
  - Assessment of environment and triggers
  - Operant learning theory

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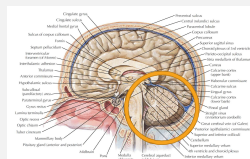
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### Cerebellum

- Historical functions
- Cerebellar damage in pigeons
- Motor control (ataxia)
- Coordination (dysmetria) and timing
- Balance
- Dysarthria




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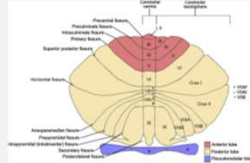
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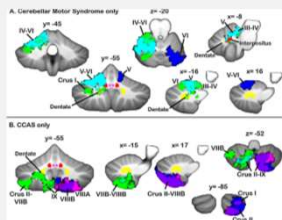
## Cerebellum

- Functional imaging studies and mapping
- More than half of the cerebellar cortex interconnected with association areas of cerebral cortex
- Cognition (attention, working memory, visuospatial, executive functioning)
- Emotion regulation (emotional processing, social cognition, emotional control)



Schmahmann, 2019

## Cerebellar Stroke



Schmahmann, 2019

## Cerebellar Cognitive Affective Syndrome

- Cognition
  - Executive functioning
    - Planning, mental flexibility, reasoning, working memory
  - Visuospatial skills (Visuospatial organization, memory)
  - Language (dysprosody, mild anomia, decreased fluency)
- Affect
  - Blunted affect or emotional dysregulation
  - Disinhibition
  - Impulsivity
  - Inappropriate behaviours

### Pseudobulbar Affect

- Emotional incontinence, emotionalism, lability, involuntary emotional expression disorder, etc.
- Inability to appropriately express emotional through verbal and non-verbal gestures
- Non-congruent to internal mood
- Exaggerated or inappropriate (e.g., laughing excessively at something not objectively funny)
- Unable to resist/control
- Episodes typically brief with return to baseline affect




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### Pseudobulbar Affect

- Prevalence difficult to estimate
  - Often misdiagnosed as other psychiatric conditions (e.g., depression, bipolar disorder)
  - Underreporting
  - Confusing terminology
- Estimated prevalence in stroke
  - 17% in acute phase (<1 month)
  - 20% in subacute phase (1 to 6 months)
  - 12% chronic phase (> 6 months)

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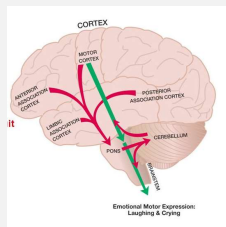
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### Pseudobulbar Affect

- Affective dysmetria
  - Involuntary affective motor displays
- Cerebellum communicates with cortical association areas
  - Adjusts response to appropriate social contexts
- Cerebellar "emotional control centre" – undershooting and overshooting targets




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**Pseudobulbar Affect**



It's a struggle to not have other people think I'm crazy! I'll just burst out laughing and crying. I don't understand how you can be so happy...and then bawling

You'll be somewhere and standout. You're different and other people look at you differently

[www.pbainfo.org](http://www.pbainfo.org)

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**Pseudobulbar Affect**

- Tremendous psychosocial burden for patients and caregivers
  - Self-reported poorer quality of life
  - Higher unemployment rate
  - Caregiver distress
  - More likely to be housebound
  - Deterioration of social relationships (e.g., high divorce rates)

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