



Canadian  
Consortium for  
**Early Intervention  
in Psychosis**

# Relapse Following First Episode of Psychosis: Meaning, Prediction and Prevention



**Ashok Malla, MBBS, FRCPC, MRCPsych, DPM**

Professor Emeritus,  
Department of Psychiatry,  
McGill University  
*Montreal, QC*



# Disclosures

- Most research funding over the years obtained from public sources (CIHR, NIH, Grand Challenges Canada, Canada Research Chairs Program)
- No Industry Funding for research or for any other activity in the last 3 years



# Relapse: Definition

1. By definition this refers to psychotic symptoms only. Return of Psychotic Symptoms following complete remission (of psychotic symptoms)
2. Increase in Severity of Psychotic Symptoms from mild to moderate or severe resulting in impact on functioning
3. To Include (or not) other symptoms and behaviours (recurrence) such as, anxiety, depression, suicidal or aggressive behaviours, negative symptoms?



# Relapse: Rate, Predictors And Measurement

1. In general, 4 out of 5 persons will relapse within 5 years following FEP; 50% within two years (older data)
2. In EIS rates of relapse are lower (30% in 2 years based on research data); not clear if that is the rate for all EIS (outside research studies)
3. Established independent predictors of relapse: Medication non-adherence, premorbid adjustment, substance abuse, environmental stress (family and social) (Meta-analysis)
4. Our knowledge is derived from measurement of predictors and relapse through quantitative studies based on observations by clinicians



# Relapse: Predictors And Measurement: What Is Missing?

1. Patient perspective and experience: what came before relapse and what may have contributed to it.
2. Family perspective and experience of what was happening prior to relapse that may have contributed to relapse
3. Regular utility of measures such as Early Warning Signs (How often used?)
4. Solution: To measure the relative risk of impending relapse based on all key factors known already and those based on patient and family experiences



# **The Scale for Early Psychosis Relapse Risk Assessment (SEPRRA)**

# Demographics Information

<b>PATIENT NAME (Last, First)</b>			
<b>Assessment Date (DD/MM/YYYY)</b>		<b>Assessment Completed By:</b>	

## DEMOGRAPHICS AND CLINICAL INFORMATION

<b>Gender</b>	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other	<b>Date of Birth (DD/MM/YYYY)</b>	
<b>Employment Status</b>	<input type="checkbox"/> Unemployed <input type="checkbox"/> Part-time employment	<input type="checkbox"/> Full-time employment <input type="checkbox"/> Full-time student <input type="checkbox"/> Part-time student	<input type="checkbox"/> Volunteering <input type="checkbox"/> Other (specify):
<b>Education (highest level completed)</b>	<input type="checkbox"/> Less than high school <input type="checkbox"/> High school	<input type="checkbox"/> College/vocational degree or diploma <input type="checkbox"/> Bachelor's degree	<input type="checkbox"/> Master's degree <input type="checkbox"/> Doctoral degree
<b>Current living arrangement</b>	<input type="checkbox"/> Living independently	<input type="checkbox"/> Living with (specify):	





# Clinical Information

Current medication(s) prescribed for psychosis		<input type="checkbox"/> Oral (pills) <input type="checkbox"/> Long-acting Injection	<input type="checkbox"/> Not prescribed any antipsychotic medication <input type="checkbox"/> Other (specify):
Has there been any change to antipsychotic medication in last 12 weeks?		<input type="checkbox"/> No change <input type="checkbox"/> Increased dose <input type="checkbox"/> Decreased dose	<input type="checkbox"/> Switched <input type="checkbox"/> Stopped <input type="checkbox"/> Other (specify):
Current intervention(s) or treatment(s) offered to the patient		<input type="checkbox"/> None <input type="checkbox"/> Case management <input type="checkbox"/> Family psychoeducation	<input type="checkbox"/> Cognitive Behavioral Therapy (specify below) <input type="checkbox"/> Group interventions (specify below) <input type="checkbox"/> IPS <input type="checkbox"/> Other (specify below)
How long since the patient's first (index) psychotic episode?		_____ (# of months)	
Has the patient ever remitted from psychosis?		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Has the patient ever experienced relapse? (if 'No', go to Current CGI-Severity)		<input type="checkbox"/> No <input type="checkbox"/> Yes If yes, when was the last relapse? _____ (DD/MM/YYYY)	
How many relapse episodes has the patient experienced since first (index) episode?			
How many of the relapse episodes have occurred in the last 2 years?			
<b>Current CGI-SEVERITY</b> Considering your total clinical experience with this particular population, how mentally ill is the patient at this time?			
1 = Normal 2 = Borderline mentally ill 3 = Mildly ill 4 = Moderately ill	5 = Markedly ill 6 = Severely ill 7 = Among the most extremely ill patients	SCORE	
<b>Current CGI-IMPROVEMENT</b> Compared to the patient's condition at admission to your psychosis program this patient's condition is:			
1 = very much improved since initiation of treatment 2 = much improved 3 = minimally improved 4 = no change from baseline (the initiation of treatment)	5 = minimally worse 6 = much worse 7 = very much worse since the initiation of treatment	SCORE	

Clinical information

History of psychosis

Clinical Global Impression



# Reliability Analysis

Internal consistency	Interrater & Test-retest reliability
<p><b>Cronbach's alpha</b>            1(Excellent) &gt; .8            &gt; .8 (Good) &gt; .7            .7 (Acceptable) &gt; .6            &gt; .6 (Questionable), &gt; .5            &gt; .5 (Unacceptable)</p>	<p><b>Intraclass Correlation Coefficient</b>            (ICC[1,k]One-way random average measures)            1 (Excellent) &gt; .75            &gt; .75 (Good) &gt; .6            &gt; .6 (Fair) &gt; .4            &gt; .4 (Poor)</p>
<p><b>Spearman-Brown split-half reliability coefficient</b>            1(Good) &gt; .9            &gt; .8 (Adequate) &gt; .7            .7 (Acceptable) &gt; .6            &gt; .6 (Questionable), &gt; .5            &gt; .5 (Unacceptable)</p>	<p><b>Fleiss' kappa</b>            1(Almost perfect agreement) &gt; .8            &gt; .8 (Substantial agreement) &gt; .6            .6(Moderate agreement) &gt; .4            &gt; .4 (Fair agreement) &gt; .2            &gt; .2 (Slight agreement) &gt; .1            &gt; .1(Poor agreement) &gt; .0</p>



# Premorbid Adjustment Ratings

## School Adjustment

Internal consistency (Spearman-Brown)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.830	.951	.950

## Social Adjustment

Internal consistency (Spearman-Brown)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.694	.801	.914

Please indicate the score associated with the patient's adjustment in each section for every age group prior to the date of diagnosis <i>*Scores of the first interview can be used for subsequent assessments</i>					
CHILDHOOD (UP TO 11 YEARS)	VERY POOR - 4	POOR - 3	FAIR - 2	GOOD - 1	EXCELLENT - 0
SCHOOL	The child is failing all or almost all classes. There are continual discipline problems and truancy. Expelled from school	The child is failing some classes	The child is passing all classes with low grades and dislikes school. Frequent discipline problems are reported. The child may have been suspended.	The child receives above average grades and has a limited interest in school. Discipline problems are occasional, but there is no truancy.	The child receives to excellent grades and is interested in/participates in school. Only occasional discipline problems arise, if at all. No truancy is observed.
					SCORE
SOCIAL RELATIONSHIPS	The child avoids socializing with others and is very severely withdrawn. The child is isolated.	The child limits most social interactions, except on occasion. This child is severely withdrawn, but not isolated.	The child passively socializes with others without seeking social interactions and has no close friends. Friendships are limited to acquaintances only. The child is moderately withdrawn.	The child enjoys social activities while engaged and sometimes seeks social activities. Close friendships are limited but there are many acquaintances. The child is mildly withdrawn.	The child actively seeks social interactions and has many friends with several close friendships/best friends. The child is not withdrawn.
					SCORE
EARLY ADOLESCENCE (12 TO 15 YEARS)	VERY POOR - 4	POOR - 3	FAIR - 2	GOOD - 1	EXCELLENT - 0
SCHOOL	The adolescent is failing all or almost all classes. There are continual discipline problems and truancy. Expelled from school	The adolescent is failing some classes	The adolescent is passing all classes with low grades and dislikes school. Frequent discipline problems are reported. The adolescent may have been suspended.	The adolescent receives above average grades and has a limited interest in school. Discipline problems are occasional, but there is no truancy.	The adolescent receives to excellent grades and is interested in/participates in school. Only occasional discipline problems arise, if at all. No truancy is observed.
					SCORE
SOCIAL RELATIONSHIPS	The adolescent avoids socializing with others and is very severely withdrawn. The adolescent is isolated.	The adolescent limits most social interactions, except on occasion. The adolescent is severely withdrawn, but not isolated.	The adolescent passively socializes with others without seeking social interactions and has no close friends. Friendships are limited to acquaintances only. The adolescent is moderately withdrawn.	The adolescent enjoys social activities while engaged and sometimes seeks social activities. Close friendships are limited but there are many acquaintances. The adolescent is mildly withdrawn.	The adolescent actively seeks social interactions and has many friends with several close friendships/best friends. The adolescent is not withdrawn.
					SCORE



# Substance Use

Please indicate the score associated with the patient's use of each substance in the past 4 weeks				
0 - Not at all	1 - Every few weeks	2 - Once a week	3 - Several times a week	4 - At least once a day
<b>PART A</b>		<b>PART B</b>		
Caffeine (coffee/cola/energy drinks)		Amphetamines		
Medications(s) not prescribed to the patient		Cannabis		
Nicotine/Cigarettes		Cocaine		
Over the counter medication(s)		Hallucinogens (including PCP, LSD)		
Sedative/hypnotics/anxiolytics		Opioids		
Other		Alcohol		
		Other		
SCORE PART A		SCORE PART B		
		SCORE A + (2 X SCORE B)		

Internal consistency (Cronbach's alpha)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.552*	.969	.958

\*Low internal consistency was expected for this scale



# Medication Adherence (after)

In the past 4 weeks, how often did the patient...	Never	Rarely	Sometimes	Often	Always	
take antipsychotic medication as prescribed?	4	3	2	1	0	
ask to reduce or stop his/her medication?	0	1	2	3	4	
miss taking antipsychotic medicine?	0	1	2	3	4	
miss a dose of antipsychotic medicine due to adverse side effects?	0	1	2	3	4	
					<b>SCORE</b>	

Internal consistency (Cronbach's alpha)	Interrater reliability (ICC)	Test-retest reliability (ICC)
<b>.962</b>	n/a	n/a



# Family Support

Please rate the extent to which the patient agrees or disagrees with the following statements: (over the past 4 weeks)	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
family supports them as a person.	0	1	2	3	4
feels criticized by their family.	4	3	2	1	0
family supports their treatment.	0	1	2	3	4
					<b>SCORE</b>

Internal consistency (Cronbach's alpha)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.743	.958	.929



# Insight

Please rate the extent to which the patient agrees or disagrees with the following statements: (over the past 4 weeks)	Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
has a mental illness.	0	1	2	3	4
is aware of any consequences of illness	0	1	2	3	4
accepts why they are taking medication.	0	1	2	3	4
agrees that medication helps them.	0	1	2	3	4
					<b>SCORE</b>

Internal consistency (Cronbach's alpha)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.622	.843	.815



# Stress and Life Events

In the past 4 weeks, how often did the patient...	Never	Rarely	Sometimes	Often	Always
feel upset about something that happened?	0	1	2	3	4
feel upset about something that he or she couldn't control?	0	1	2	3	4
feel confident about his or her ability to cope with personal problems?	4	3	2	1	0
feel overwhelmed with difficulties?	0	1	2	3	4
				<b>SCORE</b>	

Internal consistency (Cronbach's alpha)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.768	.961	.884





# Behaviour

In the past 4 weeks, Behaviour	No	Yes	If yes, please describe
did the patient have any experiences and/or changes in behaviour that are similar to the first episode of psychosis?	0	4	
were there any new experiences and/or changes in behaviour that are concerning to the patient?	0	4	
			SCORE

Internal consistency (Spearman-Brown)	Interrater reliability (Fleiss' kappa )	Test-retest reliability (Fleiss' kappa )
.539	.643	.106



# Early Warning Signs

Internal consistency (Cronbach's alpha)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.859	.969	.917

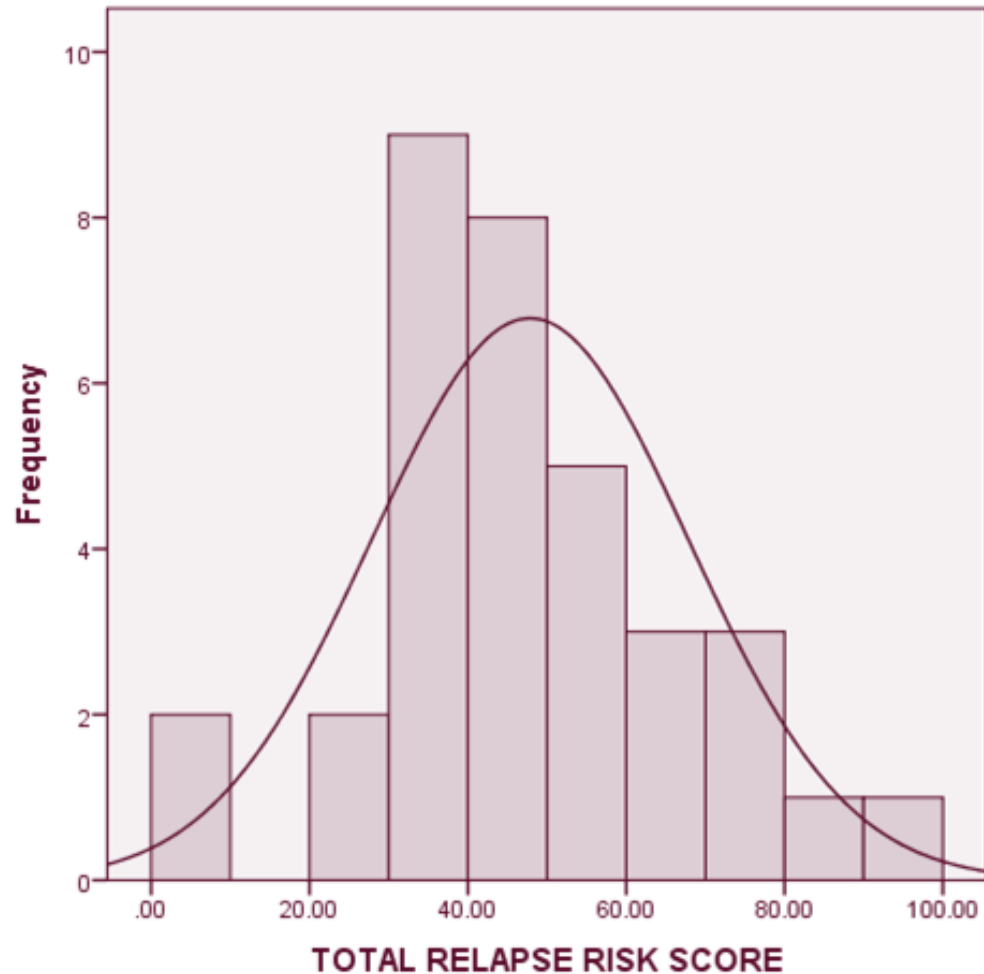
In the past 4 weeks, how often did the patient...	Never	Rarely	Sometimes	Often	Always
have anxiety?	0	1	2	3	4
have difficulty showing expression?	0	1	2	3	4
have a change in energy?	0	1	2	3	4
have impairment in role functioning?	0	1	2	3	4
have changes in mood?	0	1	2	3	4
have odd ideas (supernatural powers)?	0	1	2	3	4
neglect eating and taking care of self?	0	1	2	3	4
feel restless	0	1	2	3	4
have impaired sleep?	0	1	2	3	4
withdraw socially?	0	1	2	3	4
have thoughts of self-harm?	0	1	2	3	4
have difficulty functioning normally?	0	1	2	3	4
change his or her use of social media, internet, mobile technology?	0	1	2	3	4
feel using social media was a negative experience?	0	1	2	3	4
				<b>SCORE</b>	

# Reliability Analysis

Internal consistency	Interrater & Test-retest reliability
<p><b>Cronbach's alpha</b></p> <p>1(Excellent) &gt; .8            &gt; .8 (Good) &gt; .7            .7 (Acceptable) &gt; .6            &gt; .6 (Questionable), &gt; .5            &gt; .5 (Unacceptable)</p>	<p><b>Intraclass Correlation Coefficient</b>            (ICC[1,k]One-way random average measures)</p> <p>1 (Excellent) &gt; .75            &gt; .75 (Good) &gt; .6            &gt; .6 (Fair) &gt; .4            &gt; .4 (Poor)</p>
<p><b>Spearman-Brown split-half reliability coefficient</b></p> <p>1(Good) &gt; .9            &gt; .8 (Adequate) &gt; .7            .7 (Acceptable) &gt; .6            &gt; .6 (Questionable), &gt; .5            &gt; .5 (Unacceptable)</p>	<p><b>Fleiss' kappa</b></p> <p>1(Almost perfect agreement) &gt; .8            &gt; .8 (Substantial agreement) &gt; .6            .6(Moderate agreement) &gt; .4            &gt; .4 (Fair agreement) &gt; .2            &gt; .2 (Slight agreement) &gt; .1            &gt; .1(Poor agreement) &gt; .0</p>



# Relapse Risk Score



Internal consistency (Cronbach's alpha)	Interrater reliability (ICC)	Test-retest reliability (ICC)
.848*	.941	.958

\*Consistency between all items

Mean score	Minimum	Maximum	Standard deviation
48	4	98	20



# Using SEPRRA: What Do We Need To Do?

1. Need to validate it. It has conceptual and face validity. We need to use it extensively to provide data on **predictive validity** (the only kind of validity that matters in this case)
2. We have shown it meets all other criteria for a very good clinical scale with **excellent** properties on **inter-rater reliability, internal consistency, Test-retest reliability, Feasibility and ease of administration.**
3. There is no gold standard scale available against which to test its validity



# RELAPSE Following FEP

DATA FROM NFLD: DAVE LUNDRIGAN

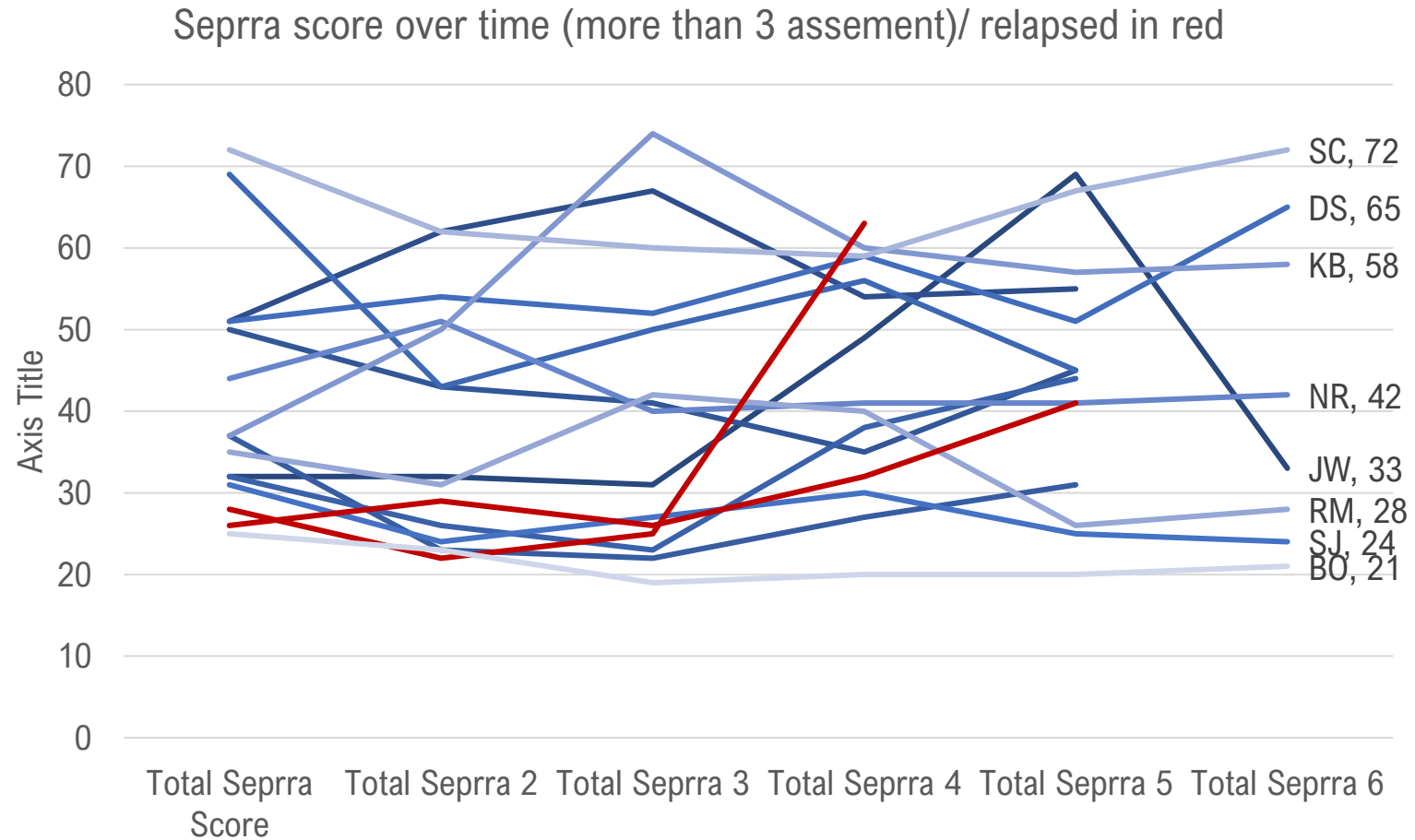


# SEPRRA and CGI

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
CGI assessment 1	22	1	4	2.333	1.065
Seprra score assessment 1	22	1	72	40.95	16.114
CGI assessment 2	17	1	4	2.18	1.074
Seprra score assessment 2	17	22	74	41.18	16.349
CGI assessment 3	16	1	4	2.13	0.957
Seprra score assessment 3	16	19	74	40.56	17.037
CGI assessment 4	15	1	4	2.13	0.990
Seprra score assessment 4	15	20	63	44.20	13.842
CGI assessment 5	14	1	4	2.14	1.027
Seprra score assessment 5	14	20	69	44.07	15.046
CGI assessment 6	8	1	4	2.50	0.926
Seprra score assessment 6	8	21	72	42.88	19.715



# First Steps Towards Validation



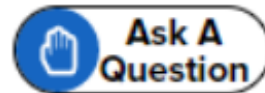




Canadian  
Consortium for  
**Early Intervention  
in Psychosis**

## Questions?

**To submit a question please use the “Ask A Question”  
button on the top right of your screen.**





Canadian  
Consortium for  
**Early Intervention  
in Psychosis**

**To attend the next presentation, please click the  
“Plenary Presentation” link in the agenda below your video player.**