Translational Science and Social Work: Oxymoron or Opportunity?

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Can social workers do good research?

What is our science?

But here is my concern: as a profession do we do we have the motivation to define and lead in a science of social work?

Motivation is made up of intrinsic drive, cognitive factors, and environmental factors. I think the environment is ripe for us. But I want to start with our cognitive state as a profession.

Word pairs can tell us about our cognitive state. The “Huh?” factor in word pairs.

"Brockhurst has an M.B.A. from Harvard and a Ph.D. from Columbia, but everything he does is deeply rooted in the blues."

Word Pairs

Biology	Science
Physics	Science
Psychology	Science
Medical	Science
Medical	Practice

Word Pairs

Social work	Values
Social work	Practice
Social work	Science

So, why do we get the cognitive “Huh?” around a science of social work, even in our own profession.

I’d like to challenge the “huh”. I want you to go on a bit of a journey with me.

Start with rocket science story.

So, we deal with the most complex, most interesting problems. How can we do it without a science?

But, in terms of science and research, we have is a serious problem of self-definition:

Preamble to NASW Code of Ethics

The primary mission of the social work profession is to enhance human well-being and help meet the basic human needs of all people, with particular attention to the needs and empowerment of people who are vulnerable, oppressed, and living in poverty. A historic and defining feature of social work is the profession's focus on individual well-being in a social context and the well-being of society. Fundamental to social work is attention to the environmental forces that create, contribute to, and address problems in living.

Social workers promote social justice and social change with and on behalf of clients. "Clients" is used inclusively to refer to individuals, families, groups, organizations, and communities. Social workers are sensitive to cultural and ethnic diversity and strive to end discrimination, oppression, poverty, and other forms of social injustice. These activities may be in the form of direct practice, community organizing, supervision, consultation, administration, advocacy, social and political action, policy development and implementation, education, and research and evaluation. Social workers seek to enhance the capacity of people to address their own needs. Social workers also seek to promote the responsiveness of organizations, communities, and other social institutions to individuals' needs and social problems.

NASW Preamble (Cont'd)

The mission of the social work profession is rooted in a set of core values. These core values, embraced by social workers throughout the profession's history, are the foundation of social work's unique purpose and perspective:

service
social justice
dignity and worth of the person
importance of human relationships
integrity
competence.

This constellation of core values reflects what is unique to the social work profession. Core values, and the principles that flow from them, must be balanced within the context and complexity of the human experience.

Here is the problem of self-definition that we have:

In the entire Preamble to NASW COE, science is not mentioned once, and the word research appears once towards the end of the second paragraph.

In our core values we do not mention knowledge, empirically-based, science, or research.

In contrast, here is the first sentence of the preamble of the COE for the American Psychological Association:

“Psychologists are committed to increasing scientific and professional knowledge of behavior and people’s understanding of themselves and others and to the use of such knowledge to improve the condition of individuals, organizations, and society.”

Here is the brand of the American Psychiatric Association:

“Member driven, science based, patient focused”

- Why can’t we even mention science, and why is research a footnote?
- Science and social work, is that an oxymoron?
- Can we have a science of social work?
- Science requires core constructs, do we have them?

- Biopsychosocial
- Person-in-environment
- Services for change
- These are core constructs that have been our defining feature for decades. Other professions and sciences are beginning to embrace them.

- Can we have a science of social work?

- Since you asked me here I will use some of my own work to try to answer this question, and to challenge you as the core of the future of our field.

- State hospital experience in 70's and 80's
- Functional causes of serious mental illness: schizogenic mother or family. Functional/organic distinction.
- There have to be individual factors such as predispositions, genes, brain wiring issues that contribute to the cause and course of these serious mental illnesses.

Stress-diathesis models of etiology, gene-environment models of causation. These are more complex yet more realistic ways of examining the causes of mental illnesses like schizophrenia. (Botany example).

The environment (in-utero to social) triggers, shapes, facilitates, or prevents genetic events.

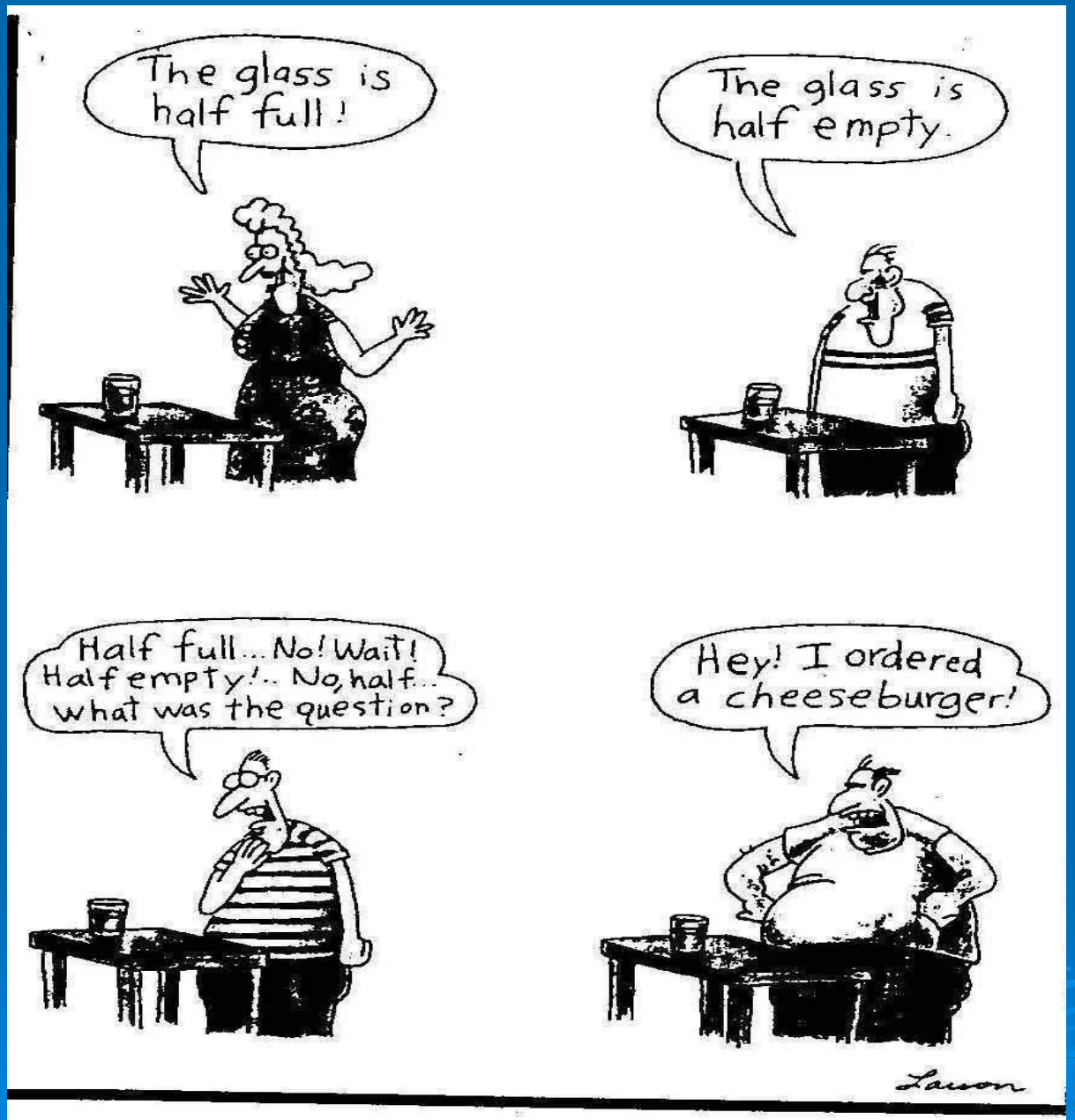
Genes are slaves to the environment.

-- Eric Kandel – 2000 Nobel Prize in Medicine

These complex scientific programs reflect core social work constructs: biopsychosocial, person-in-environment.

- In the treatment literature there is an analogous trend.

- For every psychosocial treatment that we have found that is effective with schizophrenia (e.g., ACT, Supported Employment, C-B Treatment for Positive Symptoms, Family Psychoeducation, Social Skills Training) there are huge within group variances in the treated group. So, while on average, the treatment group does better than the comparison group there is tremendous individual variation in how people respond to the treatment. We typically find that when we plot individual change trajectories, 60% improve and 40% stay the same or get worse. So, we need to understand the individual factors that are responsible for treatment responsiveness.



The four basic personality types

The following work is based on two grants:

Brekke, JS (P.I.) "Predicting Psychosocial Rehabilitation Service Outcomes." National Institute of Mental Health, R01 MH 53282

Brekke, JS (P.I.) "Biosocial Factors in Rehabilitation for Schizophrenia" National Institute of Mental Health, R24 MH 071794

Study Design

Participants (n=130) diagnosed with schizophrenia were recruited as they were admitted to four community-based psychosocial rehabilitation programs in urban Los Angeles. The programs were part of a county mandated mental health initiative and were designed to provide integrated and comprehensive rehabilitative services. The services provided included mental health treatment, housing services, social and vocational rehabilitation, substance abuse treatment, and 24-hour crisis response.

- Sites were selected on the basis of data showing that they were comprehensive service environments that yielded significant improvements in functional outcomes over time.

- There was no statistically significant differential attrition across the program sites. There were no statistically significant differences between the completers and non-completers on the critical variables, nor were there statistically significant differences across sites on those variables.

Measurement Protocol

Baseline	*6 mo*	*12 mo*
Functional	X	X
Neurocognition		X
Social Cognition		X
Days in treatment	XXXXXXXXXXXXXX	

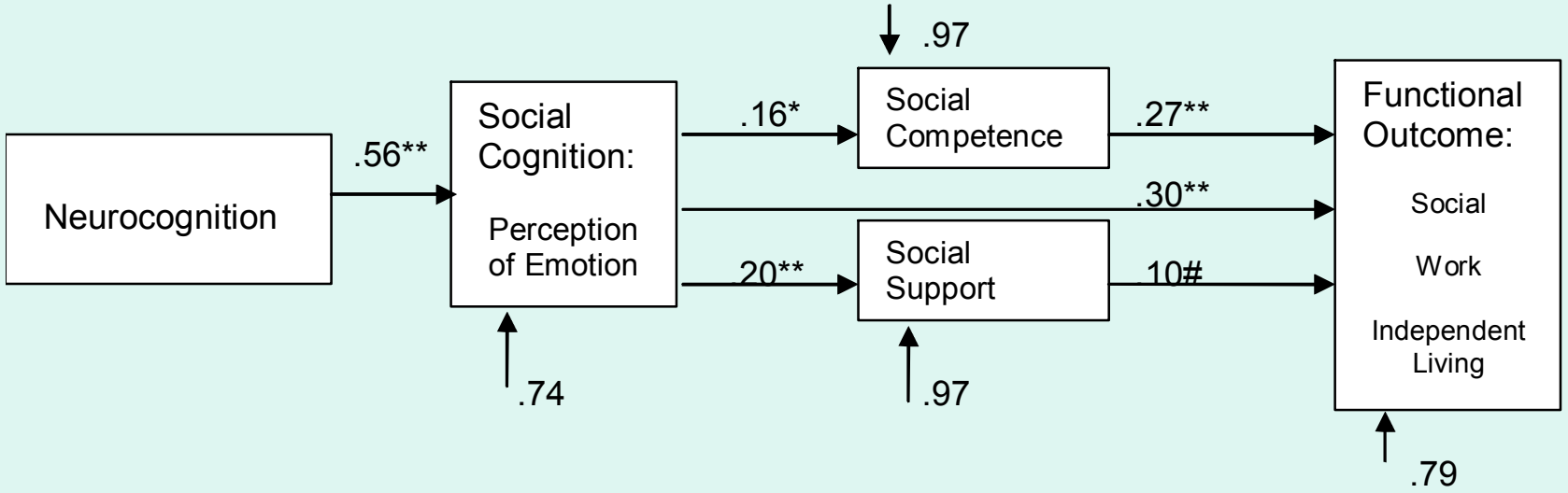
People with schizophrenia have been shown to have deficits in neurocognition (memory, attention, set shifting) and in social cognition (emotion recognition, social schemas, social attribution), and these are hypothesized to be building blocks for functional performance and outcome

Neurocognition and social cognition as predictors of psychosocial functioning in schizophrenia

Biosocial Model of Global Functional Outcome for Schizophrenia:

Cross-sectional Baseline Model

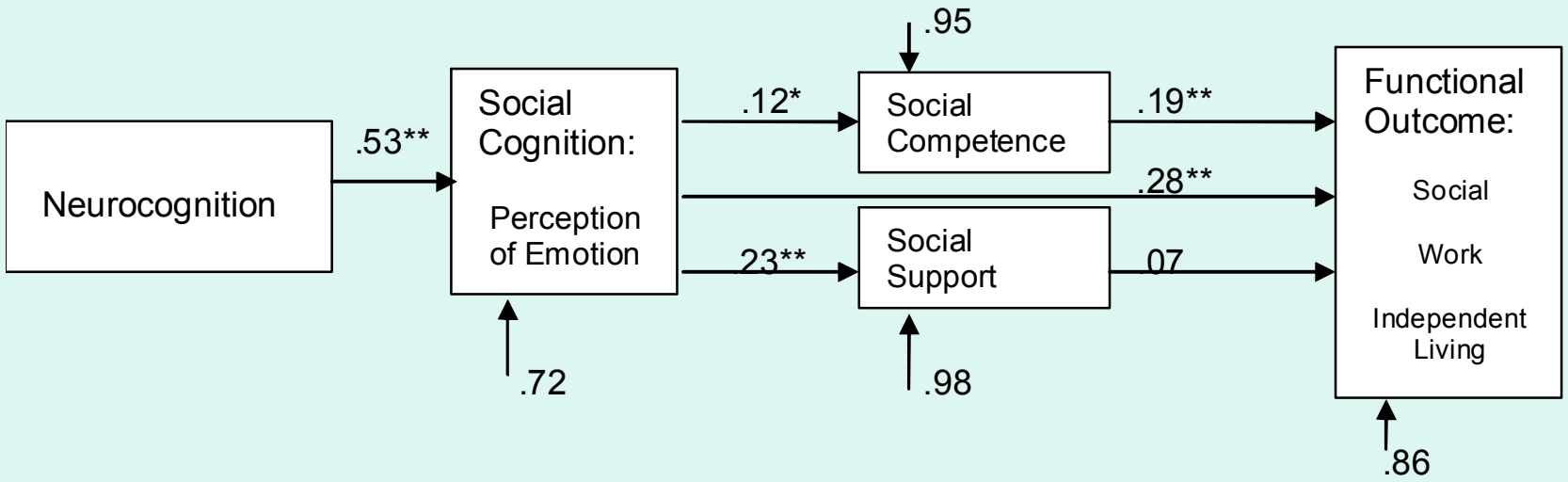
(Brekke et al., 2005)



** p < .01, * p < .05, # p <.10 (one-tailed)

Biosocial Model of Global Functional Outcome:

Predicting 12-Month Functional Outcomes (N=110)



** p < .01, * p < .05

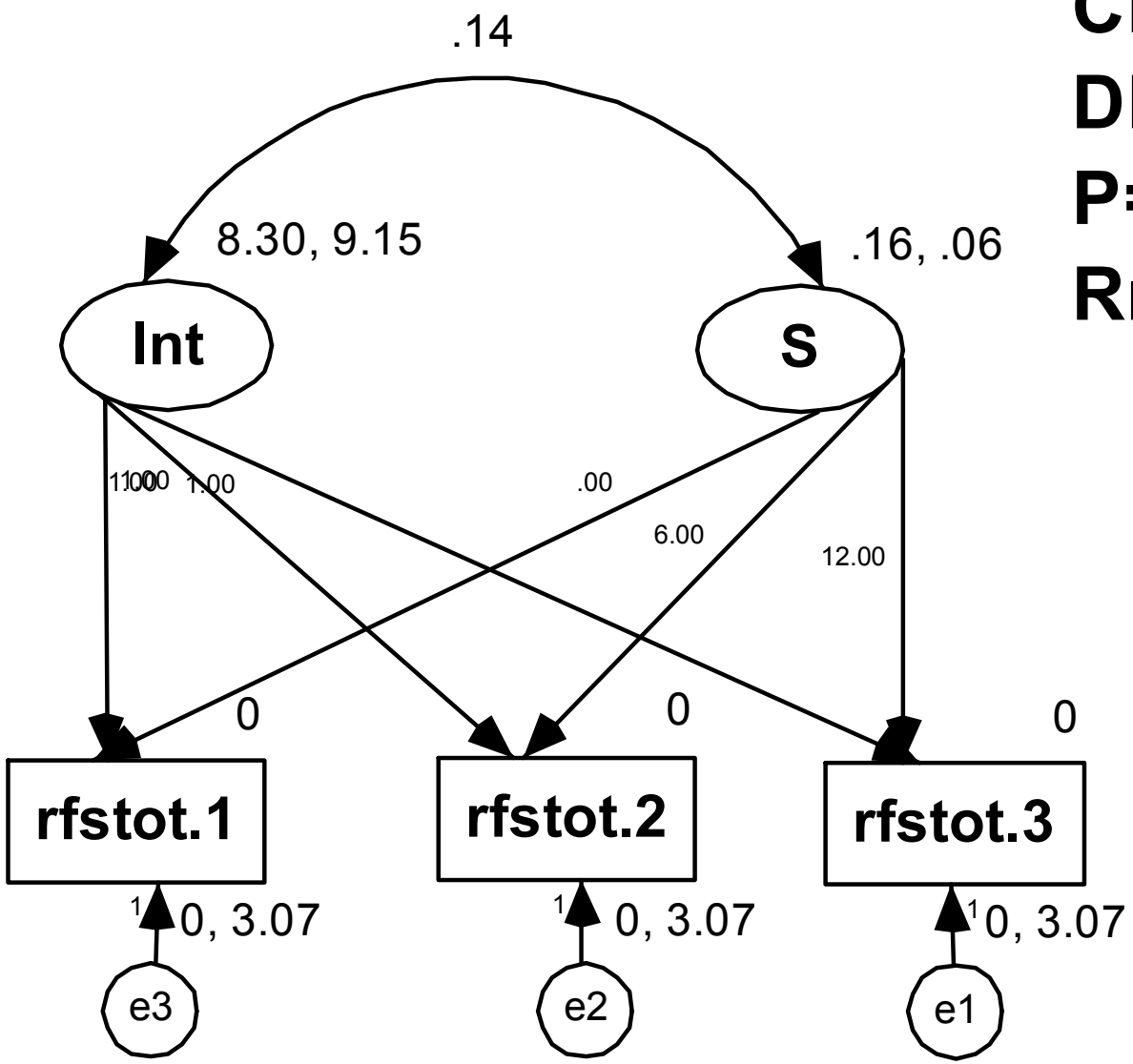
Brekke JS, Kay D, Kee K, Green, MF (2005). Biosocial pathways to functional outcome in schizophrenia. Schizophrenia Research 80/2-3: 213-225.

Now that we have a model of functional outcomes in schizophrenia, the next step was to predict rehabilitative change.

We investigated neurocognition, social cognition, and treatment intensity as predictors of functional change during psychosocial rehabilitation.

Brekke JS, Hoe M, Long J, Green MF (in press). How neurocognition and social cognition influence functional change during community-based psychosocial rehabilitation for individuals with schizophrenia. Schizophrenia Bulletin.

Functional outcome increases over 12 months. Statistically and clinically significant change.



Chisquare =2.245

DF =3

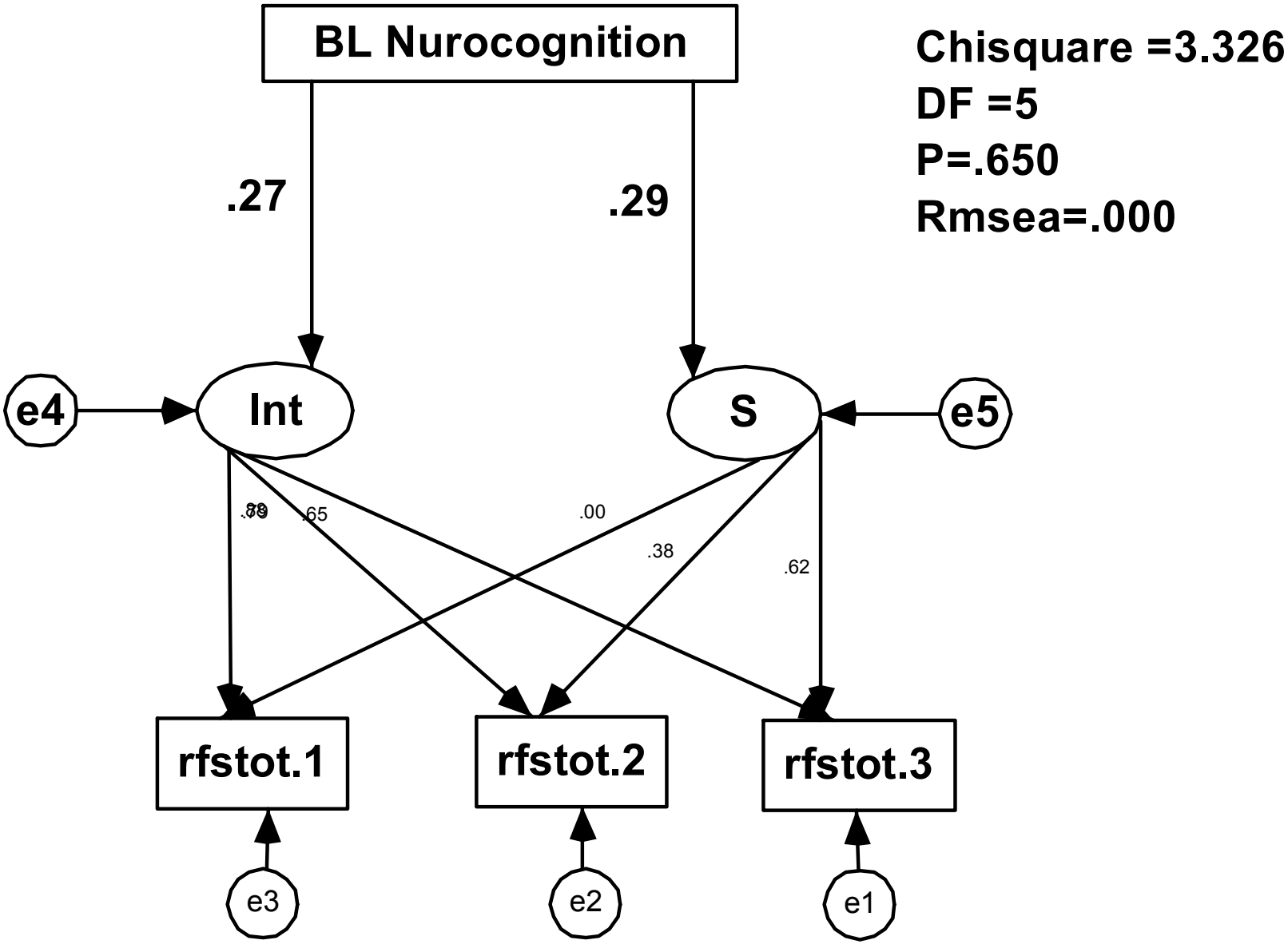
P=.523

Rmsea=.000

	Mean	C.R.	P
Slope	0.162	5.48	.000
Int	8.303	28.9	.000

	Variance	C.R.	P
S	0.056	3.78	.000
Int	9.152	6.35	.000

Neurocognition score at baseline predicts rate of improvement in functional outcome over 12 months.


BL Nurocognition
.27
.29
Chisquare =3.326
DF =5
P=.650
Rmsea=.000
e4
Int
S
e5
.65
.00
.38
.62
rfstot.1
rfstot.2
rfstot.3
e3
e2
e1

			Estimate	C.R.	P
S	<---	Neurocog	0.014	2.48	0.013
Int	<---	Neurocog	0.162	2.98	0.003

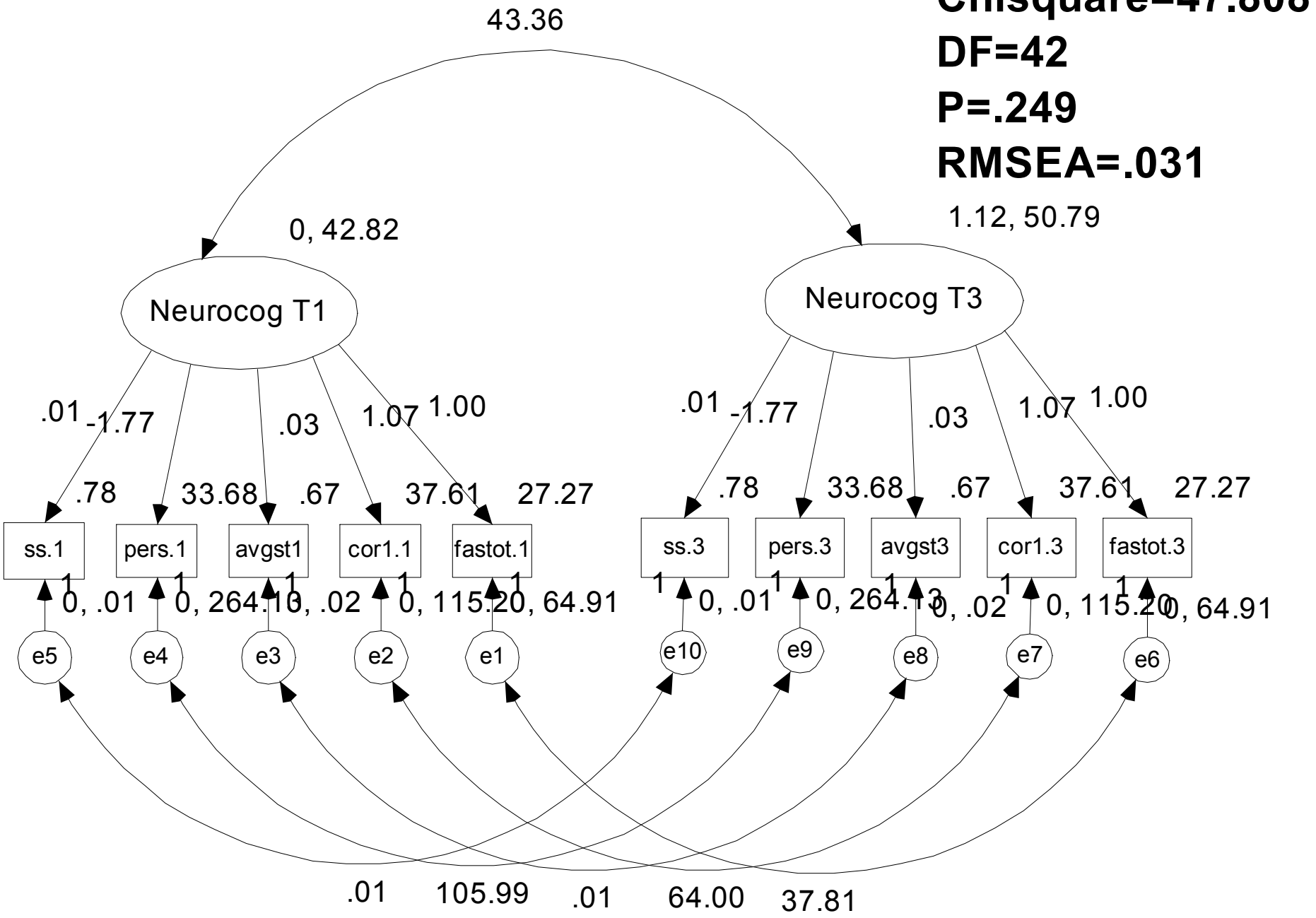
Days of treatment over 12 months predicts rate of functional improvement

			Estimate	C.R.	P
S	<---	Days Tx	0.00144	4.99	0.000
Int	<---	Days Tx	-0.01041	-1.80	0.07

Could there be change in neurocognition during participation in community-based rehabilitation?

Upward causation, downward causation.

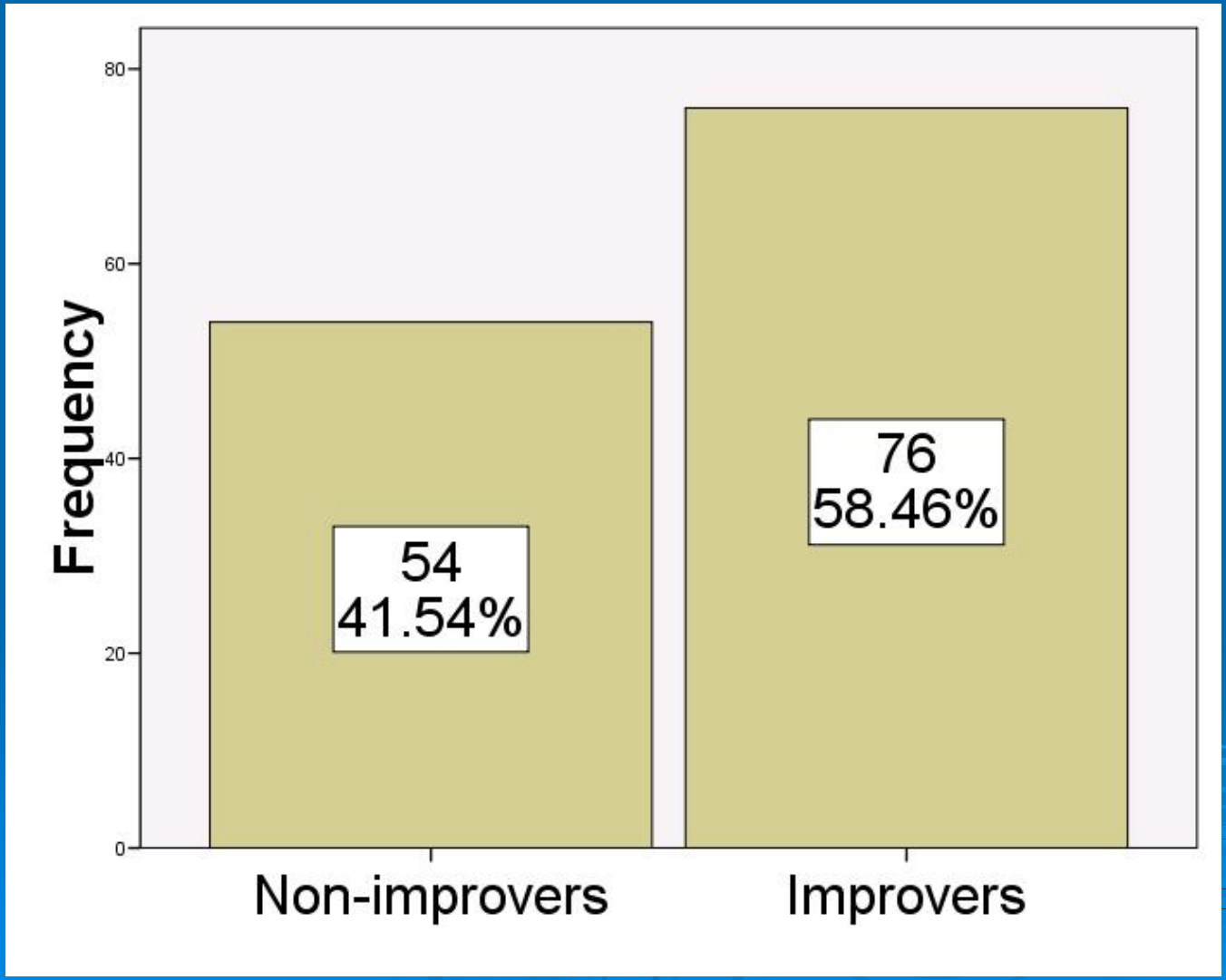
Neurocognition score at 12 months is significantly higher than at baseline.


Chisquare=47.808
DF=42
P=.249
RMSEA=.031
43.36
0, 42.82
1.12, 50.79
Neurocog T1
Neurocog T3
.01
-1.77
.03
1.07
1.00
.78
33.68
.67
37.61
27.27
ss.1
pers.1
avgst1
cor1.1
fastot.1
ss.3
pers.3
avgst3
cor1.3
fastot.3
1
0, .01
0, 264.10
0, .02
0, 115.20
0, 64.91
e5
e4
e3
e2
e1
e10
e9
e8
e7
e6
.01
105.99
.01
64.00
37.81

	Mean	C.R.	P
Nuerocog T3-T1	1.115	2.66	0.009

Is the rate of statistically significant functional outcome improvement associated with the presence of neurocognitive improvement over 12 months?

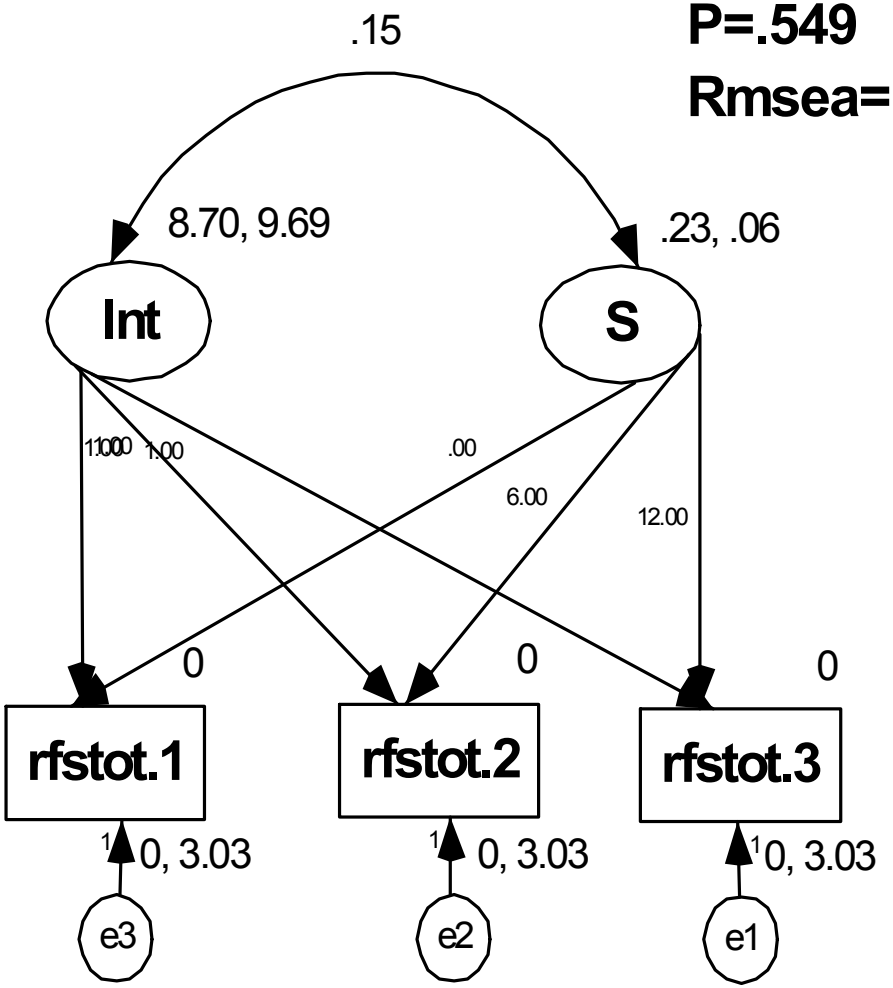
% of sample by neurocognitive change

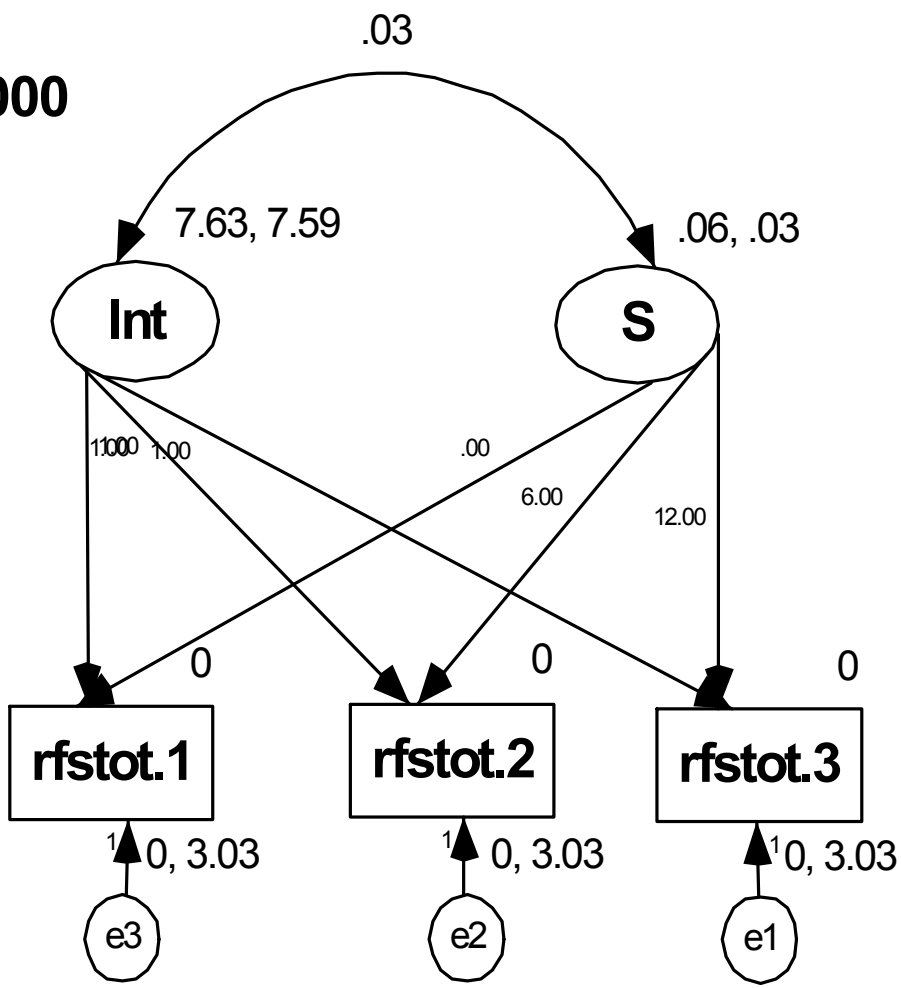


NC Improvers

NC Non-improvers

Chisquare =5.918
DF =7
P=.549
Rmsea=.000





NC Improvers

	Mean	C.R.	P
S	0.226	5.839	0.000
Int	8.701	23.472	0.000

	Variance	C.R.	P
S	0.062	3.240	0.001
Int	9.686	5.164	0.000

NC Non-improvers

	Mean	C.R.	P
S	0.063	1.500	0.134
Int	7.627	17.403	0.000

	Variance	C.R.	P
S	0.033	1.877	0.061
Int	7.592	3.769	0.000

- Significant rate of functional enhancement in the NC improver group, large effect size.
- Non-significant rate of functional change in the NC non-improver group.
- The group that had statistically significant cognitive improvement over 12 months showed a rate of improvement in functional outcomes that was over 350% greater than in the non-improver group (slope beta = .06 vs .23).

Could intensity of treatment be related to the improvement in neurocognition?

	N	Mean Days t x.	SD
Non Improver	54	85.3	60.6
Improver	76	90.7	52.2

t= -.54; P > .5

No difference in days of treatment for NC improvers or non-improvers

"Would you please elaborate on 'then something bad happened'?"

Does neurocognitive improvement relate to the strength of the relationship between days treated and rate of functional enhancement?

Neurocog Improvers (n=76)

	estimate	CR	p
days tx ----> functional slope	.0024	5.38	.000

Nuerocog Non-improvers (n=54)

	estimate	CR	p
days tx ----> functional slope	.00059	1.46	.14

Improvers and non-improvers have the same intensity of treatment, but…..

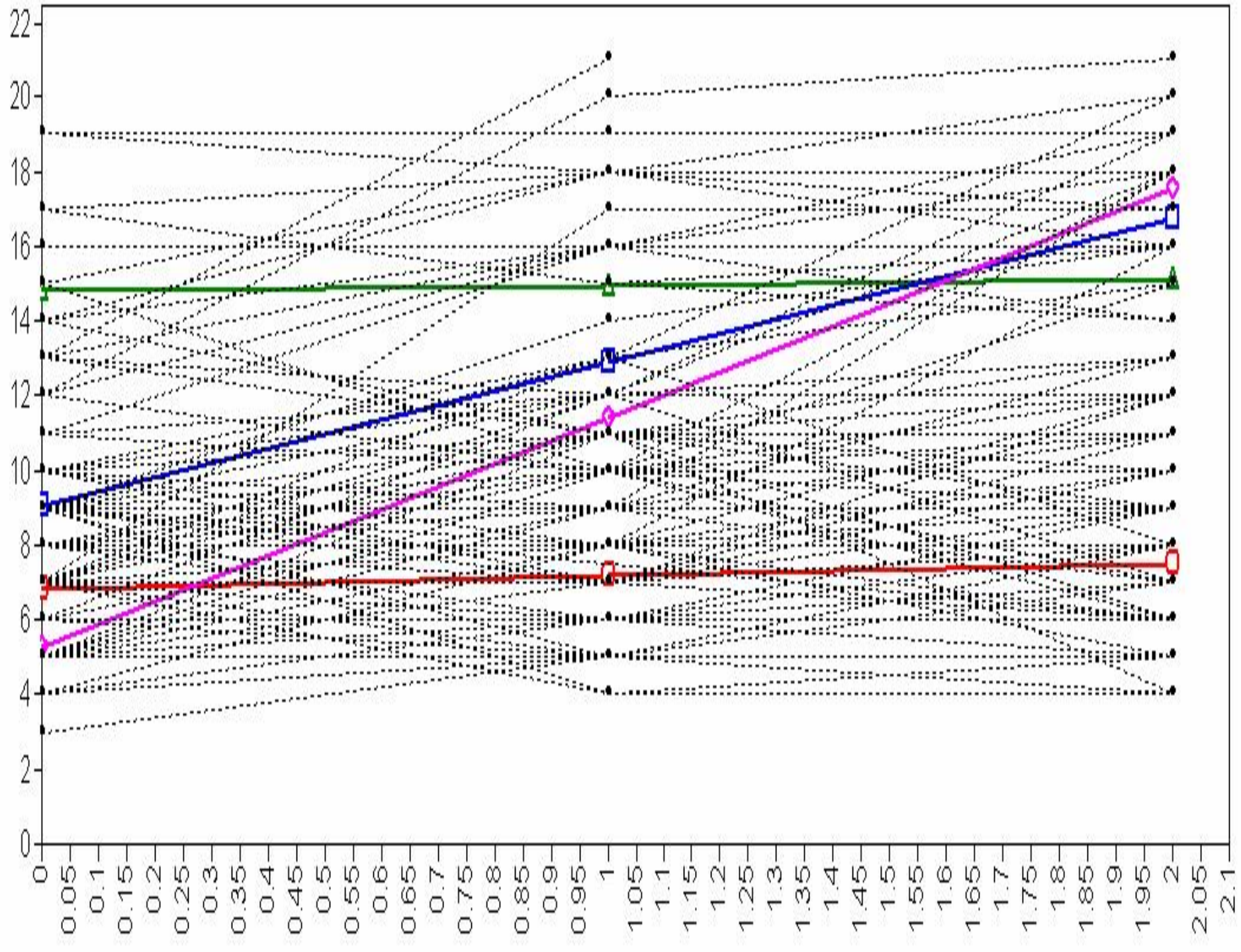
Neurocognitive improvers showed a very strong relationship between days of treatment and rate of functional improvement, non-cognitive improvers showed no significant relationship between days of treatment and functional improvement.

This represents a powerful person-environment interaction in that neurocognitive improvement moderates (or activates) the relationship between days of treatment and rate of functional improvement.

So, who are the neurocognitive improvers?

What distinguishes them from non-improvers?

Can we facilitate neurocognitive improvement?


22
20
18
16
14
12
10
8
6
4
2
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95
1
1.05
1.1
1.15
1.2
1.25
1.3
1.35
1.4
1.45
1.5
1.55
1.6
1.65
1.7
1.75
1.8
1.85
1.9
1.95
2
2.05
2.1

While you are a PhD student, get the most sophisticated methodological and data analytic training you can. It defines the questions you can formulate, and defines the science you can launch.

For BSW and Master's students: always ask what the best science tells us about the concepts and techniques you are being taught. Create a demand for the best knowledge.

This program represents three of our core scientific constructs in social work:

1) Biopsychosocial Model

2) Person-environment Interaction

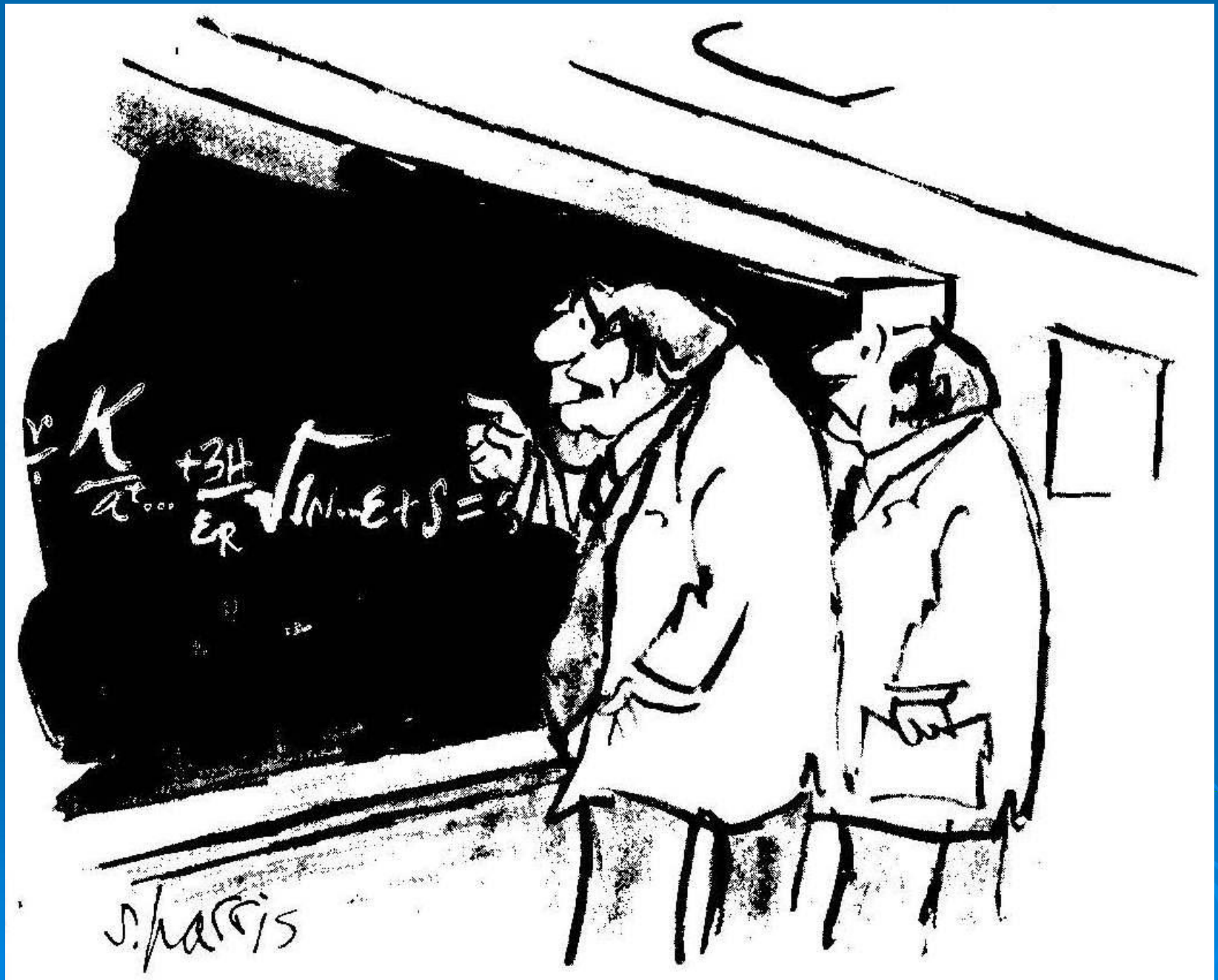
3) Usual Care Services for Change

In the time remaining I would like to emphasize a new science that is available for social work to step into: Translational Science as defined by NIH.

Some assumptions

1. If we define human services to include mental health, drugs and alcohol, corrections, children's services, and psychosocial aspects of health care, social workers provide more services than psychology and psychiatry combined.
2. So, social work is where the treatment action is.
3. We are committed to providing competent services, we have great ideas, but we have not succeeded in integrating findings from the best science into our services.
4. We are not alone in that, but given our size, it is not acceptable.

Several recent national reports have noted with alarm that there is a 20-year gap between knowledge generated from our best clinical research and the utilization of that knowledge in our health and mental health care sectors (DHHS, 1999; Institute of Medicine, 2000; New Freedom Commission on Mental Health, 2003). This means that our health and mental health care practitioners in usual care settings are lagging almost two generations behind the science that should be informing their practice. What should we do?

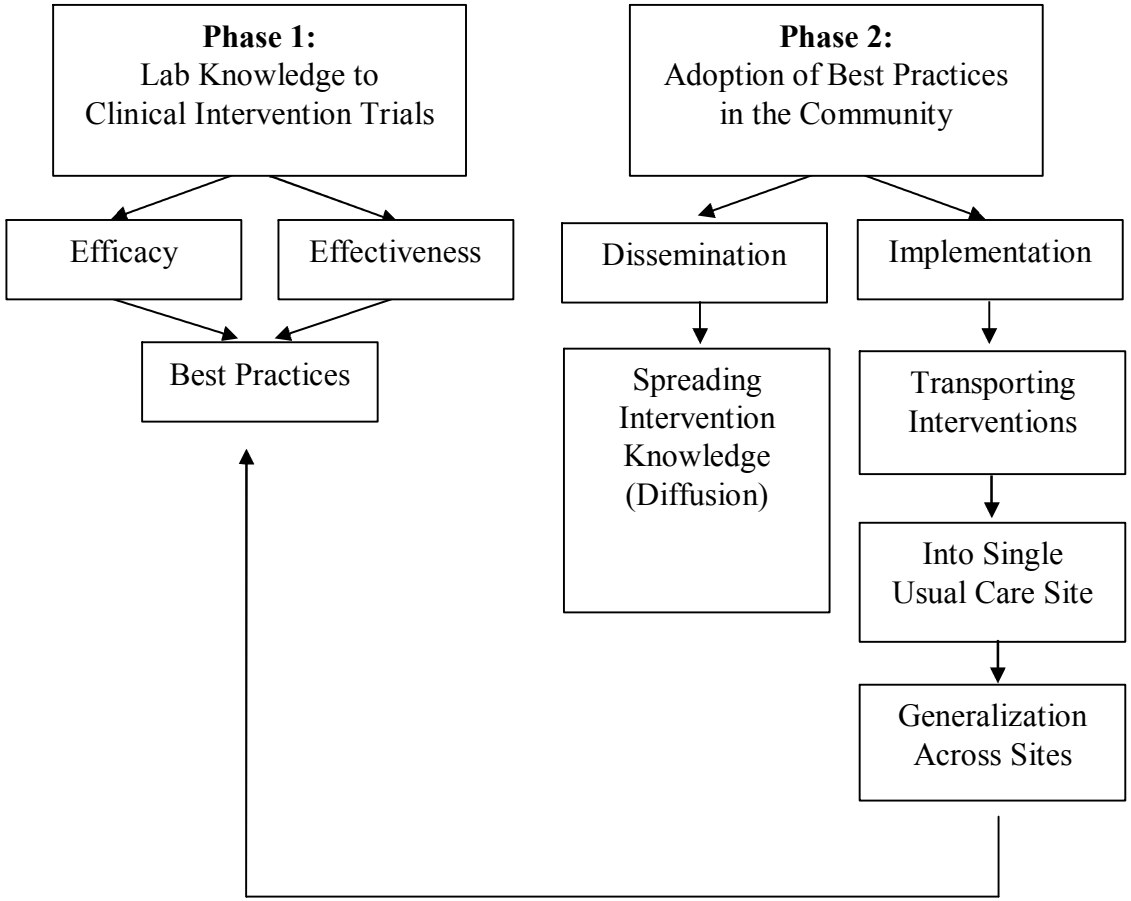


"Very creative. Very imaginative. Logic . . . *that's* what's missing."

- The goal of translational science in mental health is to speed the use of findings from our best science into usual care settings, and to build partnerships between research and practice constituencies that will increase the clinical relevance of mental health research (DHHS, 2006). There are two phases to translational science.

Conceptual Model for Translational Research

Brekke et.al, 2007



Phase 1 includes moving knowledge from basic science to more applied clinical usage in human studies including efficacy and effectiveness trials of clinical interventions.

Phase 2 translation concerns research aimed at enhancing the adoption of best practices into community service settings.

In response to this dilemma, the National Institute of Mental Health developed an initiative to bring mental health researchers and community-based service providers together to build research infrastructures that can be used to bridge the gap between research and practice. The initiative is called the:

INTERVENTIONS AND PRACTICE RESEARCH INFRASTRUCTURE PROGRAM (IP-RISP).

IP-RISP: Biosocial Factors in Rehabilitation for Schizophrenia

Principal Investigator: John Brekke, Ph.D. (USC)

Co-Principal Investigator: Laura Pancake, LCSW (Portals)

Co-Principal Investigator: Robert Kern, Ph.D. (UCLA)

This IP-RISP will address four practice-research aims and two infrastructure aims over a five-year period.

The four practice-research aims are:

1). To introduce knowledge on functional outcomes and psychobiological factors to practitioners and consumers of psychosocial rehabilitation services at Portals;
2). To partner with agency clinicians and consumers in adapting, infusing, and transporting psychosocial intervention strategies for the remediation of psychosocial and psychobiological deficits into existing rehabilitation services;
3). To partner with agency clinicians and consumers in implementing controlled pilot research on whether targeted psychobiological service elements increase the effectiveness of psychosocial rehabilitation services in the community by improving consumer outcomes;
4). To facilitate the sustainability of the new service configurations by incorporating consumer, practitioner, and administrator perspectives.

The two infrastructure aims are:

5). To develop a shared university/agency infrastructure consisting of a database and shared clinical-research personnel; specifically: a) To increase the clinical utility of an existing database used to measure consumer outcomes in a community psychosocial rehabilitation setting; and b) To train and support clinical-research personnel who will participate in both clinical and research agendas at the community service setting.

6). To build a platform for ongoing psychobiological data collection consisting of an agency-based laboratory for assessing and measuring relevant psychobiological variables such as neurocognition, social cognition, and psychophysiological responsivity.

The opportunity is here. The field of human services is waking up to the need for translational science.

This is science that social work is ideally suited for.

We can be and should be the leaders in translational science.

It is time for us to get our collective mind together and begin to define our science, and to join implementation science. Our clients deserve it, our society deserves it, and we owe it to them.

Thanks. It has been an honor.