Medication Alliance:
15 years of adherence research

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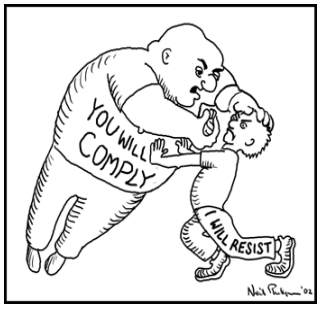


University of Wollongong

Overview of Presentation

- Clinician attitudes/beliefs & how they impact adherence efforts
- The development and validation of the Medication Alliance training program in persons with mental health problems
- Predicting nonadherence with people who are mental health inpatients
- Influence of carers on patient adherence
- Barriers to clinican efforts to enhance patient medication self management
- Diabetes medication adherence in people with mental health problems

The Perennial Problem of Treatment Adherence

- **Lifestyle and personal enhancement**
  - **Exercise, dieting, studying**
- **Management of chronic illness**
  - **Diabetes**
  - **Hypertension**
  - **Mental Illness**
- Broadly accepted that the clinician shares the responsibility for making the most of treatment options
- Medication Alliance has been predominantly about clinician training and is predicated on the principles of patient-centred care

Benchmark compliance rates:

Disease	Rates of noncompliance
Epilepsy	**30% to 50%**
Arthritis	**50% to 71%**
Hypertension	**40% (average)**
Diabetes	**40% to 50%**
Oral contraceptives	***8%***
HRT	**57%**
Asthma	**20%**

Sydney Morning Herald

News Review, **Weekend Edition,** November 16-17, 2002

QUOTES OF THE WEEK

"She didn't seem to want us there."

One of two **British mental health workers** who visited and chatted to a paranoid schizophrenic patient without realising she was dead.

What seems to influence treatment adherence

- Treatment factors
  - Complexity, Side-effects, Accessibility
- Patient factors
  - Insight, Cognitive Skills, "Motivation", Supports
- Therapist factors
  - Attitudes, Knowledge, Skills, Self-efficacy, Outcome Expectancy
- Relationship factors
  - Therapeutic Alliance (communication, shared goal setting, engagement)
- Complex interaction *not* just about the patient

Clinician Attitudes/Beliefs

- Byrne, M.K., Deane, F.D., & Coombs, T. (2005). Nurse's beliefs and knowledge about medications are associated with their difficulties using patient treatment adherence strategies. *Journal of Mental Health, 14(5),* 513-521
- Byrne, M.K., Sullivan, N.L., & Elsom, S.J. (2006). Clinician optimism: Development and psychometric analysis of a scale for mental health clinicians. *Australian Journal of Rehabilitation Counselling, 12(1)*: 11-20
- Byrne, M.K., Deane, F.P., & Caputi, P. (2008). Mental health clinicians' beliefs about medicines, attitudes and expectations of improved medication adherence in patients. *Evaluation and the Health Professions,31(4)*: 390-403

Attitudes Study 1

Byrne et al., (2005)

- How are knowledge and attitudes related to using standard clinical interventions?
- N = 64 mental health nurses
  - 42 female, 22 male
  - 59% Bachelors degree or higher
  - 41 inpatient, 23 community
  - Average mental health experience 14 years

Measures Attitudes Study 1

- Beliefs about Medicines Questionnaire (Horne & Weinman, 1999)
  - General Harm
  - General Overuse
- Knowledge of neuroleptic medications
  - 12 true/false questions
- Difficulty implementing adherence strategies
  - 33 commonly cited strategies for enhancing adherence
  - 3 themes: *Information/Education; Behavioural; Cognitive/Motivational*

Results Attitude Study 1

Difficulties Implementing Adherence Strategies (DIAS)	Knowledge	Beliefs
Total Difficulty	-.12 (ns)	-.19 (ns)
Information/educational strategies	**-.25 (.02)**	-.15 (ns)
Behavioural strategies	-.05 (ns)	-.03 (ns)
Cognitive/motivational strategies	-.04 (ns)	**-.23 (.03)**

Poor knowledge is associated with difficulties using information/education adherence strategies

Negative beliefs about medicines is associated with difficulty using cognitive/motivational approaches to adherence.

Questions Raised

- Is there a deficit in knowledge and training in medication adherence strategies?
- What specific attitudes are associated with use of adherence strategies?
  - How do staff attitudes relate to their
    - *efforts to enhance patient adherence?*
    - *expectations that adherence strategies will improve patient adherence?*

Attitudes Study 2
Byrne, Sullivan & Elsom (2006)

- General measure of mental health clinician optimism
- Convenience sample of 223 mental health clinicians
- 10 questions: originally scored on 7 point Likert scale
- Chronbach's = .68
- Three-factors reflecting (1) General Treatment Outcome Expectancy, (2) Personal Treatment Outcome Expectancy and (3) Pessimism.
- Used in subsequent research

1.	Mental health clinicians have the capacity to positively influence outcomes for people with mental disorders.	1	2	3	4	5
1.	There is little that can be done to help many people with mental disorders	1	2	3	4	5
1.	My contribution to positive outcomes is insignificant in comparison to other treatments, for example, medications	1	2	3	4	5
1.	I can make a positive difference to outcomes for most people with mental disorders	1	2	3	4	5
1.	Positive outcomes are directly related to the quality of mental health clinician skills and knowledge.	1	2	3	4	5
1.	There are always new skills and knowledge I can acquire to improve my work.	1	2	3	4	5
1.	The outcome of mental disorders is not significantly affected by clinician interventions.	1	2	3	4	5
1.	With my assistance most people with mental disorders will recover.	1	2	3	4	5
1.	Often there is little I can do to help people with their mental illness.	1	2	3	4	5
1.	Even the most challenging clients can benefit from my intervention.	1	2	3	4	5

Attitudes Study 3

(Byrne, Deane & Caputi, 2008)

- N = 292 clinicians
- Caseload 66% of patients psychotic, 85% of these on antipsychotics
- 45% non-adherent
- 65% female, Mean age – 42yrs
- Mean mental health exp – 13yrs
- Location
  - 39% inpatient
  - 56% community
- Profession
  - 63% nurses
  - 28% allied health
- 76% *No Adherence Training*

Medication Alliance Beliefs Questionnaire

- 19-items
- F/A yielded 5 factors (stable across extraction techniques) **α = .81**
  - **Adequacy/Self Efficacy (α = .83)** – the way that clinicians feel about the adequacy of their knowledge re adherence;
  - **Empathy (α = .60)** – the degree to which clinicians feel that they understand the issues experienced by people who are non-adherent;
  - **Pessimism** – **(α = .65)** the degree to which clinicians hold negative outcome expectancies about their work with people who have medication non-adherence issues;
  - **Work Satisfaction (α = .72)** – the extent to which clinicians expect to derive work satisfaction from engaging with people who are non-adherent;
  - **Self-esteem (α = .63)** – the clinicians' self-esteem in relation to working with people who have medication non-adherence issues.

Clinician Adherence Behaviour

"In general, to what extent do you actively try to enhance adherence?"

Regression on Medication Alliance Beliefs Questionnaire

- $F_{(5,260)} = 4.67$ $p < .001$ Adj. R square = .07

Adequacy/Self-efficacy scale significantly contributing to the solution

- $t_{(260)} = 3.62$ $p < .001$ $\beta = .24$

Clinician Outcome Expectancies

"To what extent do you expect that by using adherence strategies you will be able to improve patient medication adherence?"

- $F_{(5,258)} = 3.08$ $p < .01$ Adj. R square = .04

Both the Pessimism & Empathy scales significantly contributed to the solution

- Pessimism $t_{(258)} = 2.08$ $p < .05$ $\beta = .14$
- Empathy $t_{(258)} = -3.22$ $p < .001$ $\beta = -.21$

Conclusions of Studies 2 & 3

- Knowledge and attitudes are predictors of self-reported behaviour
- Lack of knowledge, perceived lack of self efficacy, general pessimism about treatment outcomes and lack of empathy for patients is likely to result in less effort to enhance adherence to treatment
- Most clinicians do not receive adequate support to develop adherence skills

Training Objectives

- Enhance staff knowledge, attitudes & outcome expectancies
- Enhance skills
- Support application of skills in practice

Medication Alliance

- Extended upon previous adherence intervention research
  - Kemp et al., (1996; 1998)
  - Gray et al., (2003; 2004)
- Not so much that the content of MA was new, but rather how it was put together and the focus on clinician attitudes and alliance with consumer

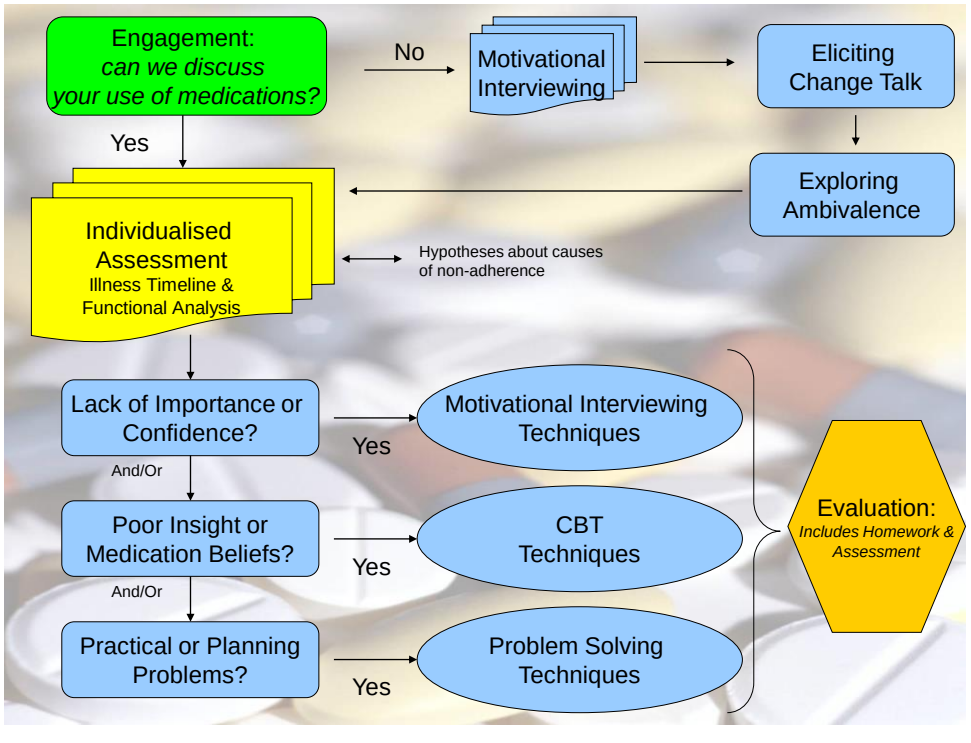
Recalling what seems to influence treatment adherence

- Treatment factors
  - Complexity, Side-effects, Accessibility
- Patient factors
  - Insight, Cognitive Skills, “Motivation”, Supports
- Therapist factors
  - **Attitudes**, Knowledge, Skills, Self-efficacy, Outcome Expectancy
- Relationship factors
  - Therapeutic Alliance (communication, shared goal setting, engagement)

ALL COVERED IN Medication Alliance

Training Agenda and Rationale

- **Background Issues**
  - Why is the taking of medication important
  - Language and misconceptions.
  - How do we know if people are taking medications
  - Why people don't take their medications
- **General Medication Alliance Skills (skills that support engagement)**
  - Normalizing Illness
  - Involving carers
- **Core activities in developing a Medication *Alliance***:
  - Empathy, Functional Analysis (Individualized Assessment), Illness Timeline and
  - Individualized Treatment,
- **Core skills in Medication Alliance Therapy**
  - Motivational Interviewing
  - Problem solving
  - CBT
- **Skills that Facilitate Effective Therapy**
  - Agenda setting
  - Homework
- **Additional Considerations**
  - Active therapeutic stance
  - Ethical behaviour/Risk assessment
- **Integration of core concepts**
- **Follow Up Coaching**
  - Relapse Prevention and Planning



Pilot of Training

Byrne et al., (2004) Aust & New Zealand J. of Psychiatry

- **23 Tasmanian mental health workers**

  Mean age 45.64 years

  Mean years worked in mental health 14.82

- **Significant improvements in:**
  - **Knowledge**
  - **Individual case formulation skills**
  - **Optimism**
  - **Attitudes (especially MABQ *Adequacy*)**
  - **Cognitive Behavioural Skills (blind rated from video samples)**

Implementation trial of *Medication Alliance*

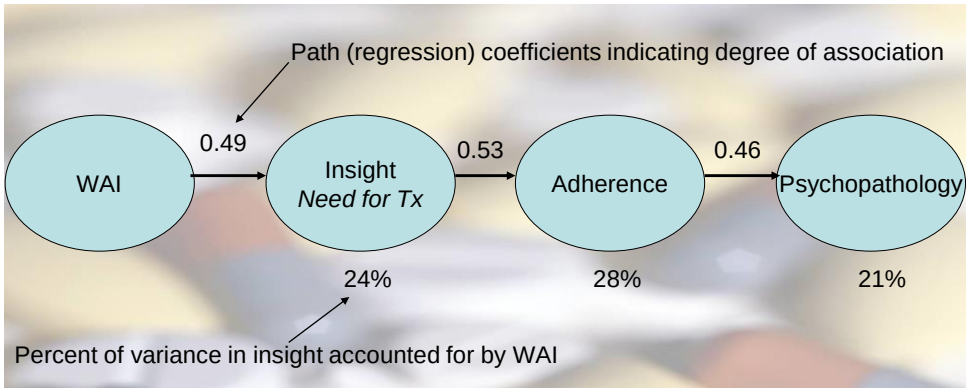
Byrne & Deane (2011)

- Data collected across12 months
  - Pre/post training, 6 and 12 months for clinicians
  - Baseline, 6 and 12 months for patients
- Full data set obtained for 33 clinicians and 38 patients
  - Significant improvements on clinician training variables (skills, knowledge and attitudes)
  - Significant improvements in the alliance, patient insight, patient psychopathology and clinician rated adherence
- Regression analyses identified clinician self efficacy as the key predictor of patient adherence and psychopathology

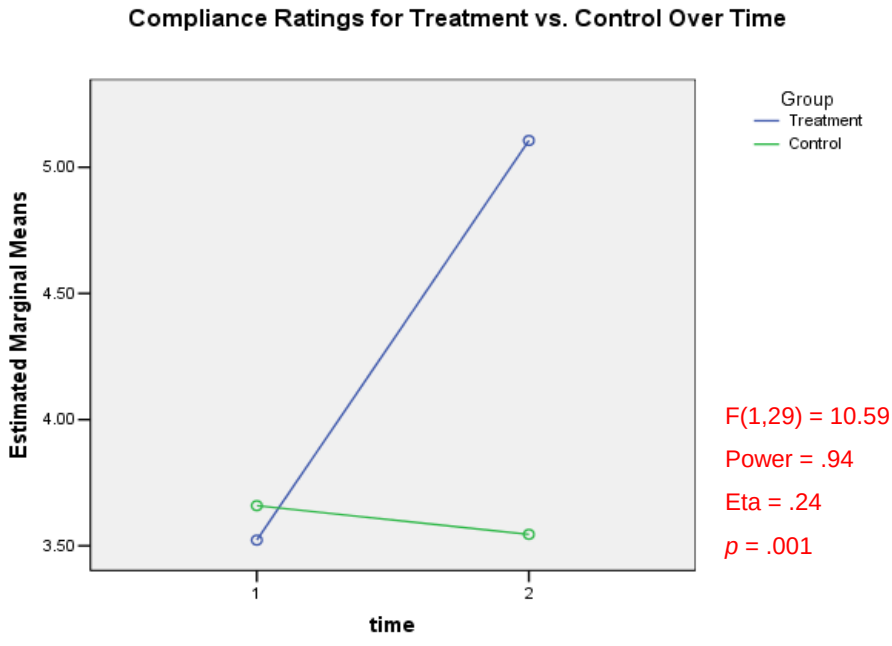
Predictive Model

- **Better attitudes and an enhanced commitment to work on adherence issues in a collaborative way should improve the therapeutic alliance.**
- **There should be a 'predictive chain of events' that explains how clinician changes lead to patient improvements**
- **It was hypothesised that alliance would result in an enhancement in the patient's perceived 'need for treatment', an insight variable. Such improvements were hypothesised to predict improvements in adherence.**
- **Given an improvement in adherence, it was further hypothesised that improved adherence would predict improvements in psychopathology.**

Assessed using Partial Least Squares (PLS), an alternative to Structural Equation Modelling (SEM) which does not have the strict assumptions regarding data distribution of SEM



- Total WAI predicts insight into the need for treatment
- Insight into the need for treatment predicts clinician ratings of adherence
- Clinician ratings of adherence predict levels of psychopathology

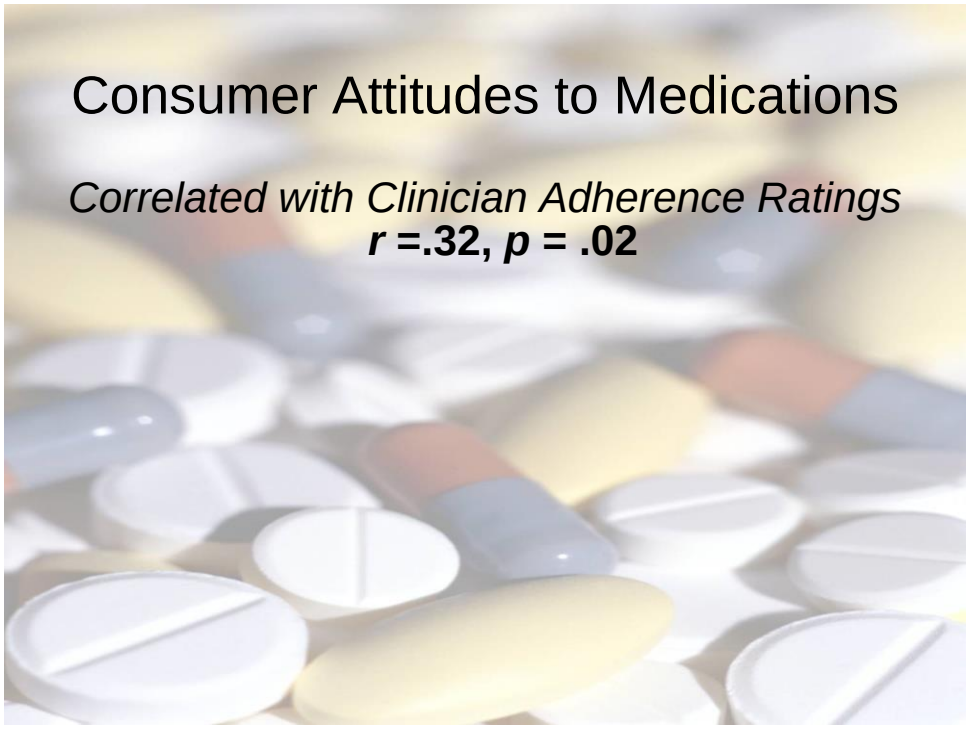


F(1,29) = 10.59

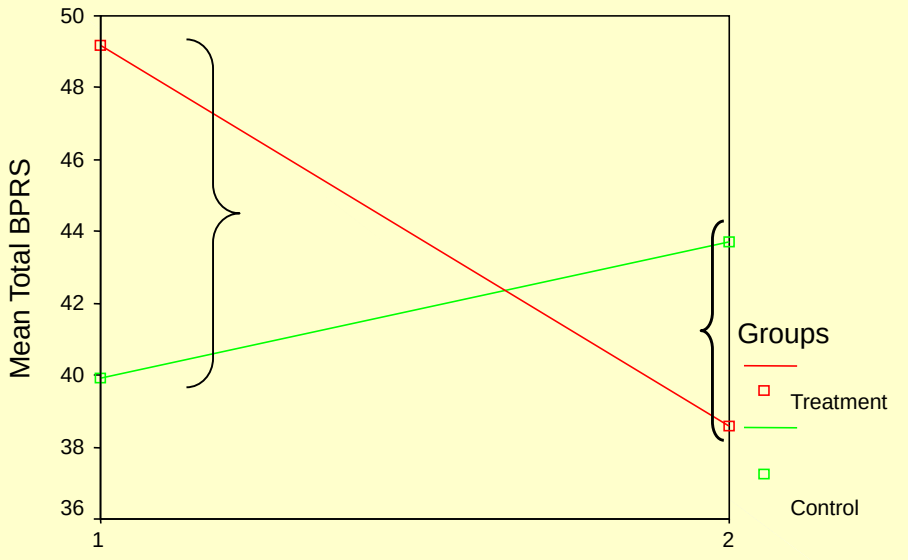
Power = .94

Eta = .24

p = .001



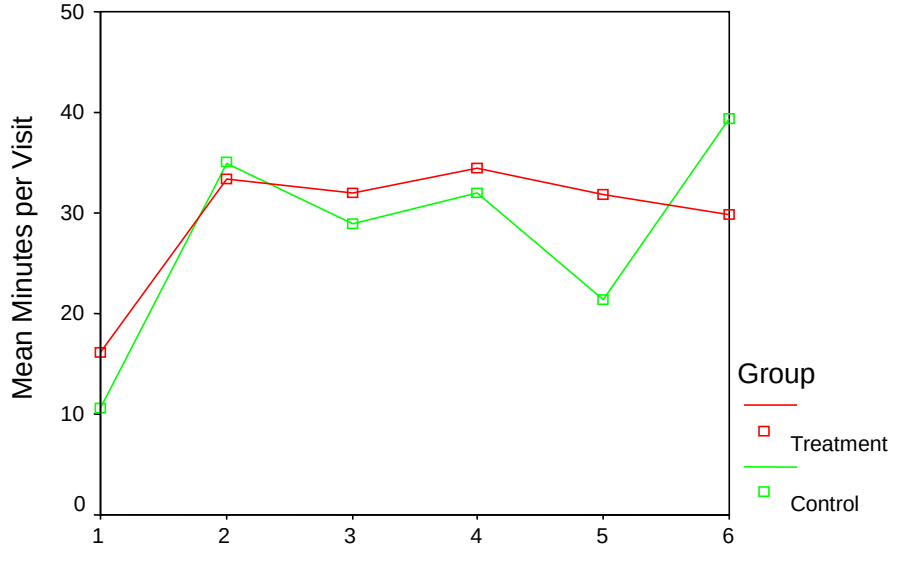
Total BPRS Rating for Treatment vs. Control



Correlation with HoNOS (T2)

r = .55, *p* = .03

Average Time Spent with Consumer per Month



Sample Comments from Consumers

- *We got to know each other a little better*
- *Helped me to focus better on these things* (personal goals in life)
- *(I) achieved a lot of personal goals*
- *She understands me more: got a grasp of my needs more than 12 months ago*
- *We got to know each other a bit better*
- *I don't want the injection anymore but I am willing to give the oral a try*
- *(I) learned how to talk to doctors better.*
- *(Medication helped) me to get back out in the world doing stuff*
- *(The nurses) give me more incentive to do more*
- *Communication (with case manager) better*
- *I developed a greater understanding of my illness.*
- *I feel she understands me more – how I am feeling not my family.*

Summary

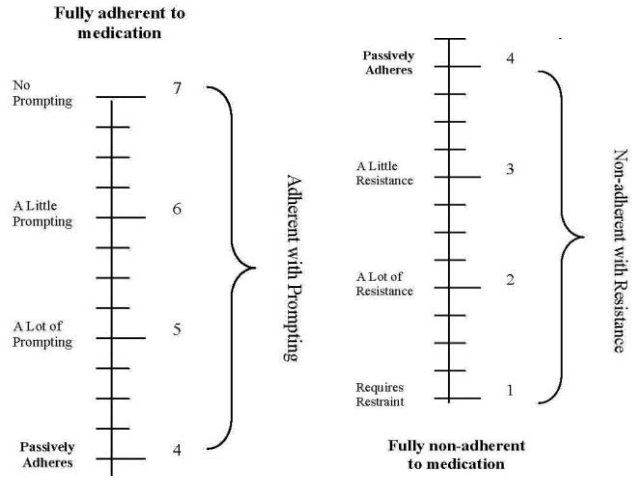
- **Most clinicians do not receive adequate training on how to enhance adherence**
- **Lack of knowledge, negative attitudes and poor self efficacy impact upon both behaviour and expectancies of clinicians**
- **Medication Alliance training *reliably* improves clinician skills, knowledge and attitudes**
- **Consumers supported by clinicians who have received medication alliance training appear to have improved treatment outcomes**
- **Further research is necessary to replicate these findings with a larger sample and to delineate the mechanisms of change**

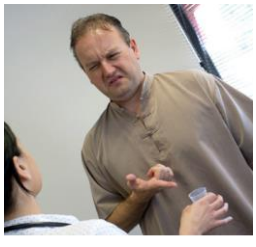
Extensions to MA

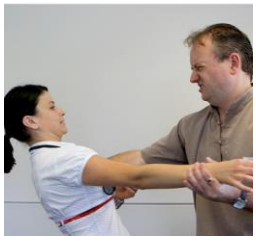
- Depressive Disorders
  - Feros, D.,L., Byrne, M.K., Deane, F.P., Meadows, G., Favilla, A., & Gray, J. (2010). Allied health clinicians' beliefs and attitudes about medication adherence in depressive disorders. *Journal of Evaluation in Clinical Practice, 16(6)*, 1361-1363
- Inpatient staff training:
  - Byrne, M.K., Willis, A., Deane, F.P., Hawkins, B., & Quinn, R. (2010). Training inpatient mental health staff how to enhance patient engagement with medications: Medication Alliance training and dissemination outcomes in a large US Mental Health hospital. *Journal of Evaluation in Clinical Practice, 16,* 114-120
- **Measurement of inpatient adherence *behaviours***:
  - Byrne, M.K., Deane, F.P., Willis, A., Hawkins, B., & Quinn, R. (2009). Preliminary Reliability of an Observer Rating Scale for Assessing Medication Adherence on Psychiatric Wards. *Journal of Evaluation in Clinical Practice, 15,* 246-251
  - Byrne, M.K., Deane, F.P., Murugesan, G., & Connaughton, E. (2014). Interrater reliability of the Observer Rating of Medication Taking (ORMT) scale in an inpatient mental health facility. *International Journal of Mental Health Nursing,* 23(6), 498-505
  - Sheerman, E. & Byrne, M.K. (in preparation). Staff ratings of psychiatric inpatient behaviour are associated with patient attitudes to medications: Establishing the construct validity of the Observer Rating of Medication Taking scale

Range of observed non-adherence behaviours

- Expressing verbal dissatisfaction with treatment
- Physically resisting attempts to administer medications
- Subtle signs of non-adherence







Dissemination

- Both the ORMT training and the Medication Alliance training exist in digital (on-line and video) form
- Research underway to see if MA delivered as a self-paced online program is as effective as traditional face-to-pace training

Are Carer attitudes toward medications related to self-reported medication adherence amongst people with mental illness?

Deane et al., (revision under review)

Background

- Families struggle to support people with mental illness to remain adherent to their medications
- Families are often distressed by the side-effects of psychotropic medications on their family member
- Families are often distressed by the effects of medication nonadherence on the mental health of their family member
- These conflicting experiences with medication are likely to create conflicting attitudes amongst family-carers

- We predicted that
  1. Family-carer attitudes would be related to consumer attitudes
  2. Family-carer attitudes would be related to consumer medication adherence
  3. Family-carer attitudes would predict medication adherence when controlling for consumer attitudes.

Participants and procedure

- Recruited from ARAFMI and Schizophrenia Fellowship through newsletters
- Return postage-paid questionnaires for both Carers and Consumers
- Total N = 113 respondents
- n = 68 Carers
  - n = 65 Family carers
    - (49 parents, 14 partners, 1 child and 1 sibling)
  - n = 45 Consumers
- N = 42 Family carer-Consumer dyads

Measures

- Drug Attitude Inventory (DAI, Hogan et al., 1983) 10 True-False items
  - *Medications make me feel tired and sluggish*
  - *My thoughts are clearer on medication*
- Scored +1 for positive attitude and -1 for negative attitude. Scores range from -10 to +10
- Current study M = 2.33 (SD = 6.28) N = 40
- In outpatient samples with Schizophrenia means scores from:
  - 2.28 (SD = 3.88) Japan (Taira et al., 2006)
  - 1.49 (SD = 5.98), N = 51 NSW Community MH Patients with Psychosis Non-adherent (Byrne et al., 2010)

Measures

- Beliefs about Medicines Questionnaire (General)
  (Horne, Weinman & Hankins, 1999)
  - 8 items rated from (1) Strongly disagree to (5) Strongly agree
  - General Harm: *Medicines do more harm than good*
  - General Overuse: *If doctors had more time with patients they would prescribe fewer medicines*
- Medication adherence
  - Kemp et al. (1996) rating scale, 7-point Likert scale
  - Brief Adherence Rating Scale (Byerly et al., 2008), 4 items assessing different aspects of adherence

Results

- Consumer/Carer ratings of adherence:
  - Bars (r = 0.61)
  - Kemp (r = 0.67)
- Consumer/Carer medication attitudes
  - DAI (r = 0.72)
  - BMQ (r = 0.66)
- Discrepancy between consumer and carer attitudes predicted reduced adherence (less so for BMQ) over and above consumer attitudes alone
- Concordant attitudes predicted adherence/non adherence
- Conclusion: carers need to be involved in adherence interventions such that clinicians need to address their attitudes as well as those of the consumer

Risk Aversion

- Mental Health policies in Australia, Canada and the UK strongly support the implementation of recovery-oriented approaches to health care (Hungerford & Fox, 2014).
- However risk aversion acts to impede the implementation of recovery-oriented approaches (Heller, 2015).
- Mental health clinicians perceive ‘risk’ as associated with danger, and risk assessment is focused on violence, self-harm, suicide, vulnerability, and self-neglect (Langan, 2008). As such, risk management protocols focus on preventing negative outcomes based on the risk assessment (Sykes, Brabban, & Reilly, 2015).

Risk aversion

- Engaging in recovery often involves the patient taking risks in order to move toward increased independence through reduced levels of restriction and support. Mental health service adherence to risk prevention protocols act to dissuade the patient from taking risks, and therefore limits opportunities for recovery (Tickle, Brown, & Hayward, 2012), and to a person's rights to self determination (Davidson & Roe, 2007).
- Clinician risk aversion may act as an impediment to the application of adherence programs such as MA.

New research

- The Perceived Risk Questionnaires (PRQ – Goff, Deane, Pullman, Sommer, and Lim – under review). The PRQ (40) is a 9-item self report measure of mental health providers' risk aversion, specifically their willingness to support consumers in positive risk taking in the pursuit of chosen goals.
- 6-point likert scale (eg 'If a consumers goal is too risky, I will discourage it, even if they wish to pursue it').
- High score is more risk averse (range 9 to 54)
- Internal consistency, Conbach alpha of .88.

New research

- 20 clinicians working specifically with patients known to be non adherent and frequently being readmitted
- As part of MA training, also given WAI-Short (12 items)
- Risk scores did not change via MA training
  - M-pre 29.30 (7.21) vs M-post 31.35 (5.69) $p = .148$
- WAI was negatively correlated with Risk
  - $R = -.39$, $p < .043$
- Few gains from MA training overall
- Clinicians still viewed risks in terms of harms and dangers before and following training
- How do we factor risk aversion into MA training?

Commencing research

- **Responding to Non-adherence to Type 2 Diabetes Mellitus medications within a Severe Psychiatric Population**

- Individuals with a schizophrenia spectrum disorder taking antipsychotic medication are at an increased risk (10-30% higher) of developing Type 2 Diabetes Mellitus (T2DM) (Gorcynski, Patel, & Ganguli, 2017).
- Receive less than optimal attention in relation to diabetes education, treatment for hypertension and glycemic control (Domino et al., 2014).
- Meta-analysis found that individuals who were adherent to antipsychotic medication were also likely to adhere to diabetes medication (Gorcynski, Patel, & Ganguli, 2017).
- Can an intervention to enhance diabetes health literacy and adherence also influence anti-psychotic adherence?

The end???

- Always interested in research collaboration ☺
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