Visual Cognitive Behavioural Intervention: A CBT Adaptation for People with Intellectual Disability and Mental Health Difficulties

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Definitions

Intellectual disability (ID)

means a significantly reduced ability to understand new or complex information and to learn and apply new skills (impaired intelligence). This results in a reduced ability to cope independently (impaired social functioning), and begins before adulthood, with a lasting effect on development (World Health Organisation, 2016)

Mental Illness (MI)

"…a clinically significant behaviour or psychological syndrome or pattern that occurs in an individual associated with present distress (e.g. painful symptom) or disability (i.e., impartment in one or more important areas of functioning) or with a significantly increased risk of suffering or death, pain, disability or an important loss of freedom (APA. 2013)

Dual Disability (DD)

When a person with an **intellectual disability experiences** a **mental illness**, this is then referred to as a **dual disability**. (DEACSI,014)

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**mental illness is referred to as mental health difficulty (MHD) in this presentation with the view that recovery and management are possible

Background

Consensus that people with ID have higher rates of MHD than their peers in the general population. Statistics vary. People with ID 35%, general population 20% (ABS. 2004; Bennett et al. 2004) 50% (Tonge, Einfeld and Mohr, 2010)

Lack of profile in policy and service provision - despite NDIS

Currently fall through the cracks of disability support system and mental health system

Lack of DD research, training, services & specialists

Huge cost to individual, parents/supporters and the community

Significance

Common themes –

- longer than average stays in hospital and recurrent re-admissions
- lack of appropriate accommodation after discharge from hospital
- atypical presentations
- increased social isolation
- deterioration of daily living skills
- increased incidences of State intervention

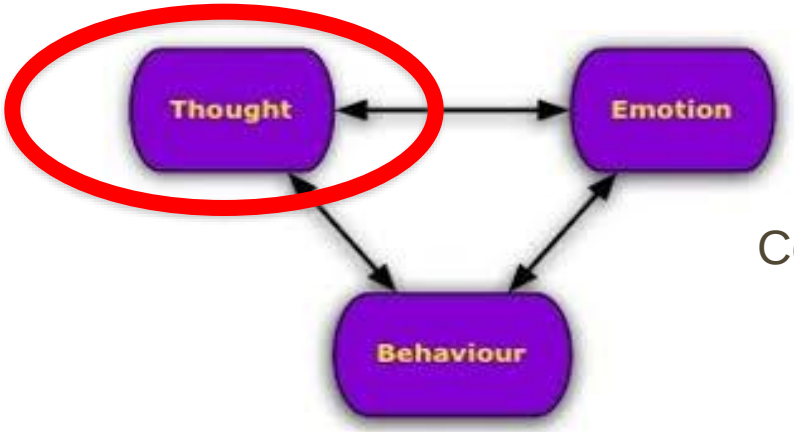
MHD symptoms seen as 'challenging behaviour'- managed with high use of pharmacological intervention despite concerns over side effects, dependency, 'diagnostic overshadowing', poly-pharmacy; off-label usage.

Positive Behaviour Support also used, not designed for MHD. PBS focuses on teaching skills and reducing environmental triggers, rather than challenging or changing thinking patterns.

What is CBT therapy

Beck (2011), defines CBT therapy as a treatment model that addresses:

*"**dysfunctional thinking** which **influences** the patients **mood and behaviour** is common to all psychological disturbances. When people learn to **evaluate their thinking** in a **more realistic** and adaptive way, they **experience improvement** in their emotional state and in their behaviour"* (p.3).



Cognitive Triad

Literature review

CBT preferred for general population. Much research. Some use visuals (children)

(Joseph & Chapman, 2013; Kendall & Hedtke, 2006)

Few studies use traditional CBT for people with DD:

- Issues with cognition, literacy, self regulation.
- Most studies focused on capacity to engage in CBT

(Oathamshaw & Haddock, 2006; Dagnan, Chadwick & Proudlove, 2000; Chadwick et al. 1999; Dunn et al. 1997)

Several researchers advocate for modified CBT for people with DD using:

- Pictures
- Simple text
- Break down steps
- Prompts

People with ID's learn best in context – in vivo (applied settings):

- with scaffolding
- error free learning to produce positive outcomes

(Curran, 2010; Hassiotis, et. al., 2012; Westwood, 2004;)

Conceptual framework

Beck and Vygotsky's theories underpin this research.

- **Beck** - deficit perspective - issue or problem within the individual that can be rectify via the therapy.
- **Vygotsky** - strength perspective - how people with ID's learn.
  - *'Positive differentiation'* - defined by existing and potential skills; capacity to learn, not deficits of their disability
  - *'Zone of Proximal Development'* – learn effectively with scaffolding assistance from others
- People with disabilities - modified alternatives to compensate (Gindis, 1999, p.338-9; Millswood, 2013)

Method and design

- **Single Case Research** using multiple baseline design – observe and measure changes before, during and after intervention
- **20-week intervention** - 2 x 60 minute sessions per week. People with ID require longer and more often (Taylor, Lindsay and Willner, 2008)
- **Two phases** - Phase 1- Behaviour (weeks 1-10), Phase 2 – Cognition (weeks 11-20)
- **Social validation interviews** – perception of effectiveness in everyday life from participants and supporters

PARTICIPANT CHARACTERISTICS

Participants	Gender	Age at time of intervention	ID functional range	Mental Health Diagnosis	Difficulty for self-management	Supporter
Niamh	Female	26	Mild	Depression	Anger with self-harm and suicide attempts	Partner
Raj	Male	51	Moderate	Schizophrenia with paranoia. Depression. Unresolved Grief	Anxiety	Case Manager
Rodney	Male	18	Mild	Anxiety Disorder. Chronic Depression. Unresolved Grief.	Anxiety with avoidance behaviour	House Manager
Connor	Male	30	Mild	Schizophrenia / Schizo-Affective Disorder. Borderline Personality Disorder	Anxiety with self-harm and suicide attempts	Developmental educator
Gyan	Female	26	Moderate	Generalised Anxiety Disorder. Panic Attacks	Anxiety	House Manager
Katherine	Female	22	Moderate	Depression	Anger with self-injury and property damage	Foster Parent

Core Components

- **Behaviour** – learn individualised management strategy (relaxation, rehearsal, etc.,), live settings, capture evidence of successful management with photos, make cards –to act as prompt, build on these with more ‘experiments’ (exposure, practice)
- **Photo elicitation** – use photos to explore and understand feelings, thoughts and mood.
- **Cognition** – unhelpful thoughts versus helpful thoughts (Hassiotis et al., 2012), ‘hot’ thought (Greenberger & Paesky, 1995)
- **Homework** – practice bring ‘evidence’ (photos) to researcher - had assistance from supporter initially, then independently

Method: Analysis

- **Randomisation** – case randomisation and start point randomisation
- **Statistical Analysis** –ExPRT Excel® Package of Randomization Tests 2.1 (Gafurov & Levin, 2016) newly developed for SCR –calculated significance and effect size. Hand calculated R-IRD for last 10 sessions
- **Visual inspection** – observation - graphs for frequency, trend and overlap - using Microsoft Excel®

Procedural Integrity

- **Interobserver agreement** – internal validity. Researcher and independent observer – result of study 93.83%
- **CBT MaGIC Fidelity Scale** – integrity. Observer. Result of study 98.15%

Results

Overall effect of intervention:

- reduction of MHD – ***medium effect***
- increase in SM - ***medium effect***

- not statistically significant but clinically significant. Ideal to have both clinical and statistical significance = robust and effective

(Cicchetti, D.V., Lord, C., Koenig, K. et al 2014: Sedgwick 2014).

- Clinical significance can change practices in applied settings and be beneficial to certain individuals, rather than to the population of people with DD.

(Sedgwick 2014).

EFFECTS OF INTERVENTION ON MENTAL HEALTH DIFFICULTY

Name	MHD baseline mean frequency and range	MHD intervention mean frequency and range	NAP	NAP effect size	Cohen's *d*	*d* Effect size
Niamh	2.25 (3-4)	1.67 (0-6)	0.39	Medium	-1.17	Large
Rodney	2.38 (1-10)	0.79 (0-6)	0.53	Medium	-0.52	Medium
Connor	1.57 (0-3)	0.80 (0-3)	0.44	Medium	-0.79	Medium
Gyan	2.38 (0-5)	1.57 (0-4)	0.20	Small	-0.39	Small
Katherine	2.44 (0-4)	1.33 (0-4)	0.43	Medium	-0.74	Medium
Average			**0.39**	**Medium**	**-0.72**	**Medium**

NAP = non-overlap of all pairs. Calculated by ExPRT 2.1

SELF-MANAGEMENT EFFECT USING CBI CARDS

Name	Baseline mean frequency	SM mean frequency and range	NAP	NAP effect size
Niamh	0.00 (0)	0.86 (0-3)	0.62	Medium
Rodney	0.00 (0)	0.21 (0-1)	0.21	Small
Connor	0.00 (0)	0.49 (0-2)	0.37	Medium
Gyan	0.00 (0)	0.21 (0-1)	0.21	Small
Katherine	0.00 (0)	0.40 (0-3)	0.31	Medium
Average			**0.34**	**Medium**

NAP = non-overlap of all pairs. Calculated by ExPRT 2.1

EFFECTS OF INDEPENDENT SELF-MANGEMENT USING ROBUST IMPROVEMENT RATE DIFFERENCE

	Baseline (N=5)		Intervention (N=10)		Counter	R-IRD	Effect
Name	Improved	Not improved	Improved	Not improved	balanced		
Niamh	0	4	10	0	0.0	1.00	Very Large
Rodney	0	6	2	7	3.5	0.02	Very small
Connor	0	7	2	1	0.5	0.76	Large
Gyan	0	8	4	5	2.5	0.41	Small
Katherine	0	9	4	6	3.0	0.37	Small
Average						**0.52**	**Medium**

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R-IRD used as ExPRT can not calculate Cohen's *d* for 'zero' value baseline.
Participants had no experience with CBI so all zero baselines.

Did the visual CBI reduce MHD symptoms or behaviours and increase SM for individual participants?

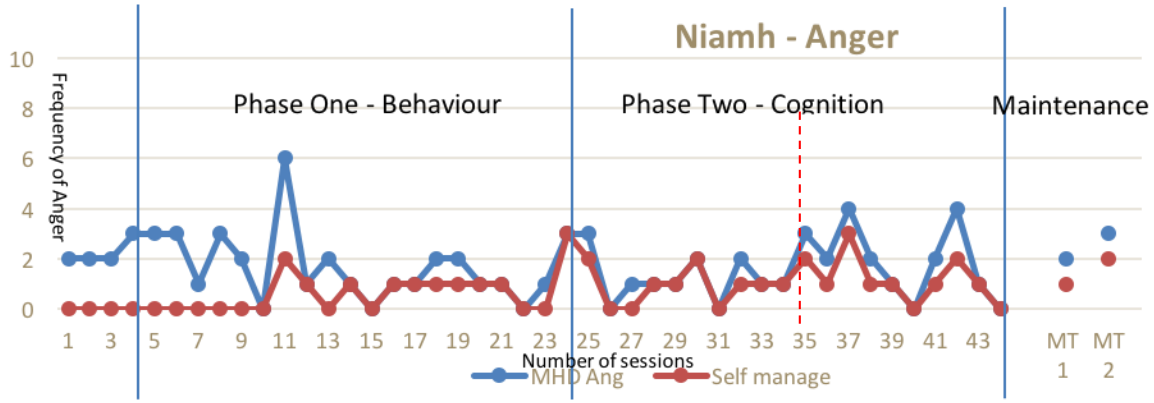
Improvement:

- **Niamh** (anger with self-harm) – slight reduction in MHD, increased SM
- **Connor** (anxiety with self-harm) - reduction in MHD, increased SM
- **Katherine** (anger with self-injury) **–** reduction in MHD, increased SM

No or limited improvement:

- **Rodney** (anxiety with avoidance) – reduction in MHD, no increased SM
- **Gyan** (anxiety) – limited reduction in MHD, no increased SM

Participant's Data



= last 10 independent session

MHD results
Baseline Mean = 2.25
MHD (Anxiety) Mean = 1.67
Baseline SD = 0.50
Effect Size *d* = -1.17
Effect Size NAP = 0.39

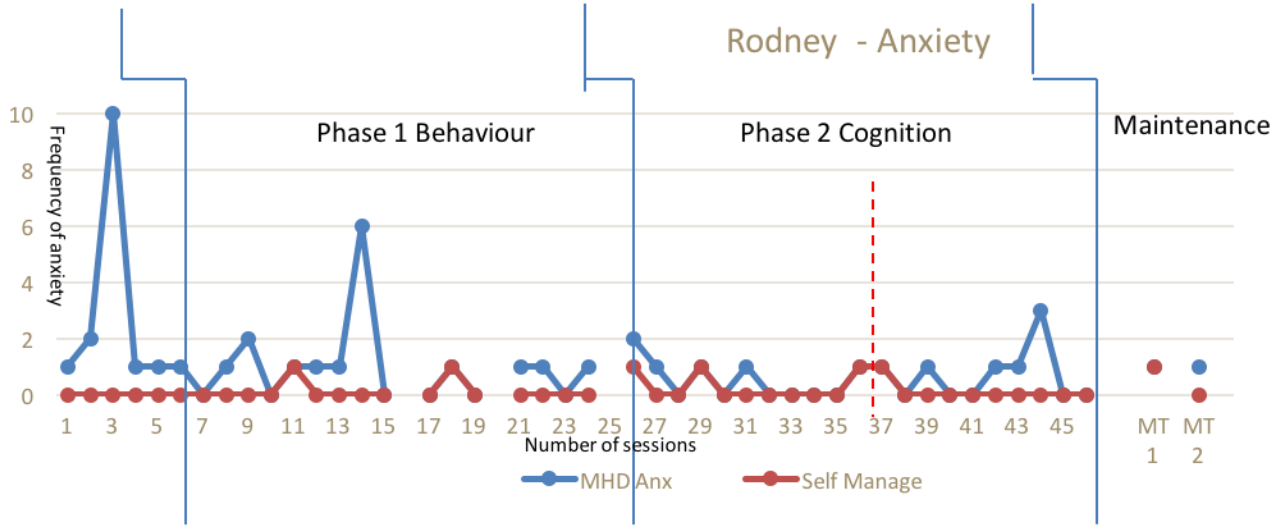
SM results
Baseline Mean = 0.00
SM (Anxiety) Mean = 0.86
Baseline SD = 0.00
Effect Size *d* = N/A
Effect size NAP = 0.62
R-IRD =1.00

Niamh (Anger with Self harm) improvement

still reactive, however has strategy to manage episodes.

- **frequency of use** – consistent use of CBI cards
- **individualisation of the intervention** – strategies for anger and self harm
- **functional level of disability** - mild
- **readiness (study rationale)** – engaged well
- **commitment to the intervention** – supporter consistent commitment.

NB. One episode of self-harm between maintenance periods

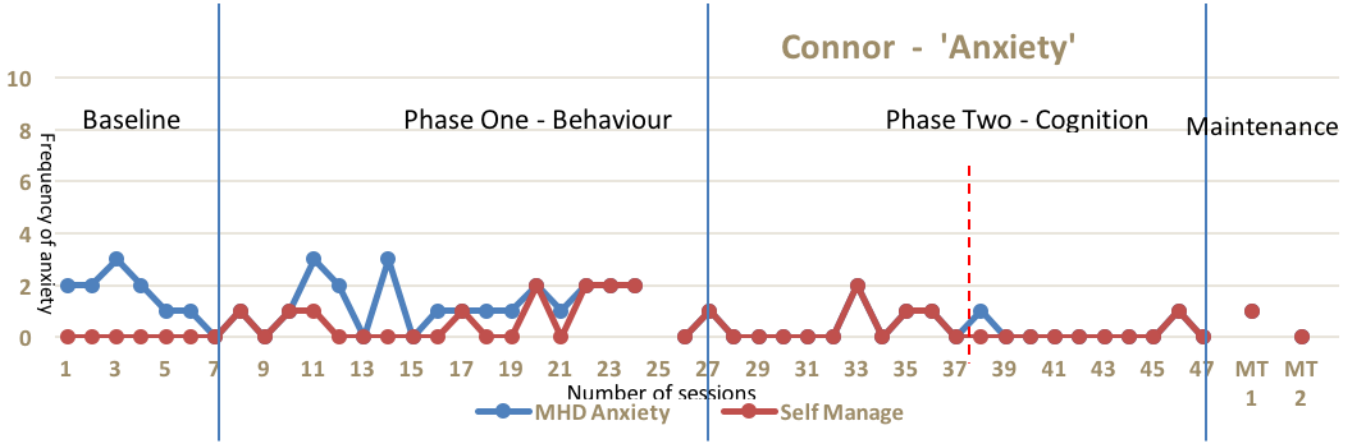


MHD
Baseline Mean = 2.67
MHD (Anger) Mean = 0.79
Baseline SD = 3.61
Effect Size *d* = -0.52
Effect Size NAP = 0.53

SM results
Baseline Mean = 0.00
SM (Anger) Mean = 0.21
Baseline SD = 0.00
Effect Size *d* = N/A
Effect Size NAP = 0.21
R-IRD =0.02

Rodney (anxiety) limited improvement

- **frequency of use** –did not use CBI cards (disliked them, preferred graded exposure internalised behavioural component?? Not cognitive).
- **Individualisation of the intervention**. Did not identify as having an ID, but could recognise triggers for MHD. Discreet phone app.
- **functional level of disability** (mild)
- **readiness** – wanted to manage anger to improve community participation to be like his peers.
- **commitment to the intervention**. Inconsistent support, but Rodney also reluctant.



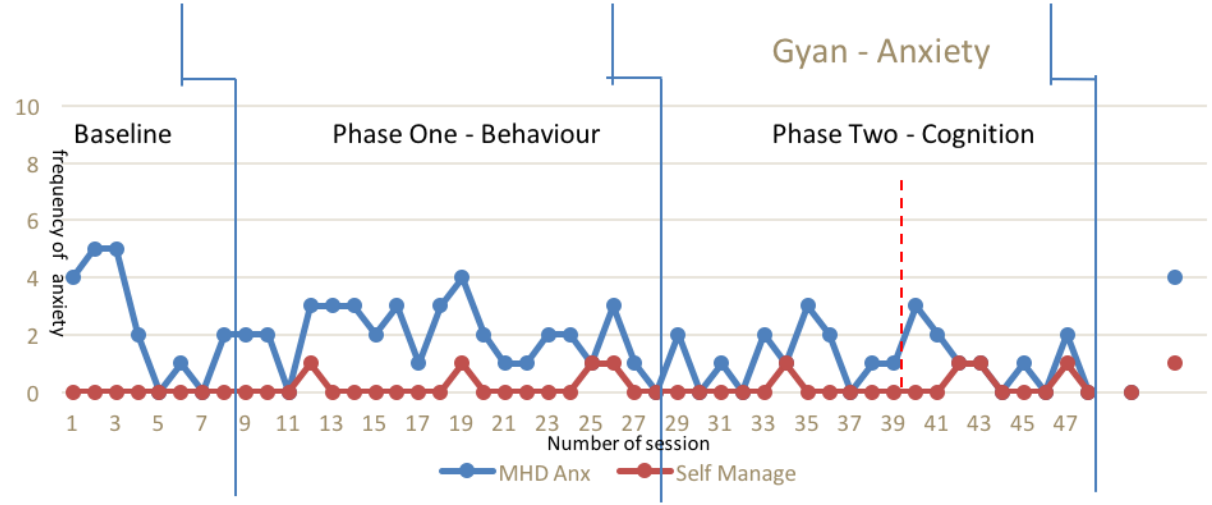
MHD results
Baseline Mean = 1.57
MHD (Anxiety) Mean = 0.80
Baseline SD = 0.98
Effect Size *d* = -0.79
Effect Size NAP = 0.44

SM results
Baseline Mean = 0.00
SM (Anxiety) Mean = 0.49
Baseline SD = 0.00
Effect Size *d* = N/A
Effect Size NAP = 0.37
R-IRD = 0.76

Connor (anxiety) improvement

- **frequency of use -** used CBI regularly.
- **Individualisation of the intervention**. Lots of photos to assist
- **functional level of disability** – mild
- **readiness** – wished to engage in social activities but anxiety precluded this.
- **commitment to the intervention**. DE good, staff inconsistent, Connor able to understand how thinking affected mood, ‘hot’ thought.

Week 14 hospitalisation - SSRI up

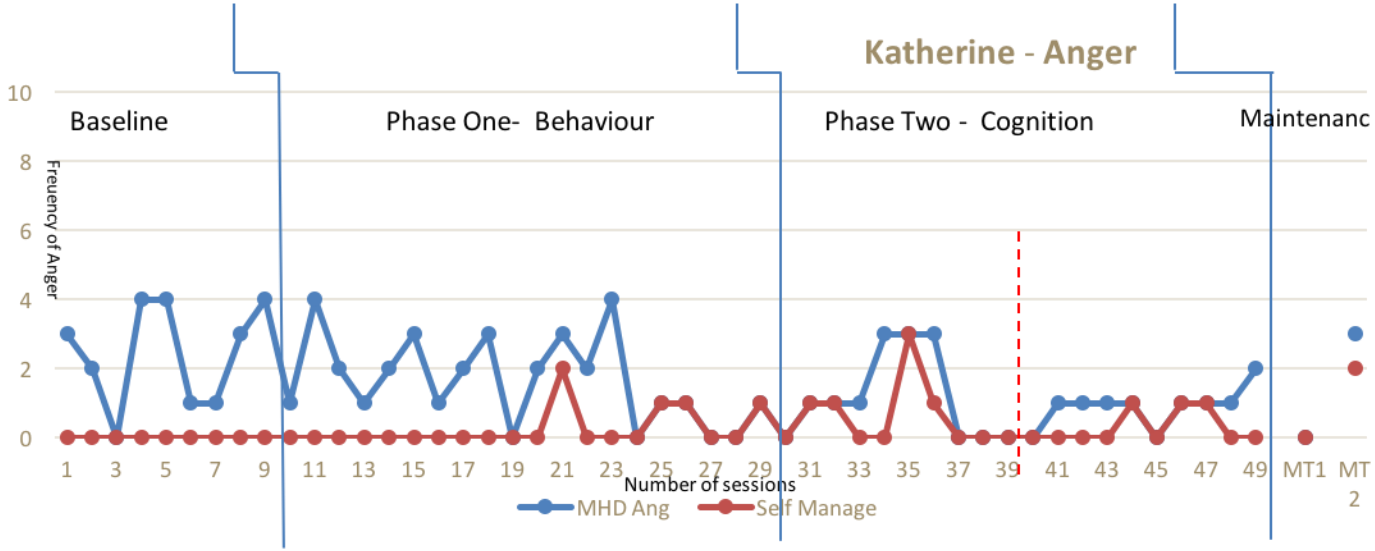


MHD results
Baseline Mean = 2.38
MHD (Anxiety) Mean = 1.57
Baseline SD = 2.07
Effect Size *d* = -0.39
Effect Size NAP = 0.20

SM results
Baseline Mean = 0.00
SM (Anxiety) Mean = 0.21
Baseline SD = 0.00
Effect Size *d* = N/A
Effect Size NAP = 0.21
R-IRD =0.41

Gyan (anxiety) limited improvement

- **frequency of use** – low use of CBI
- **Individualisation of the intervention** –not individualised sufficiently. Social component to seeking assistance from lots of people, conflicting advice which increased anxiety.
- **functional level of disability** - moderate
- **readiness** – manage feelings of uncomfortable feelings of anxiety
- **commitment to the intervention** – mixed. lack of photos. Did not use CBI for generalised anxiety disorder (GAD). Independently used CBI for effective SM of panic attacks (session 42 & 43). GAD more subtle/uncomfortable, PA intense and readably identifiable.



MHD results
Baseline Mean = 2.44
MHD (Anxiety) Mean = 1.33
Baseline SD = 1.51
Effect Size *d* = -0.74
Effect Size NAP = 0.43

SM results
Baseline Mean = 0.00
SM (Anxiety) Mean = 0.21
Baseline SD = 0.00
Effect Size *d* = N/A
Effect Size NAP = 0.31
R-IRD =0.37

Katherine (anger) improvement

- **frequency of use** - did not use card until session 21 (“babyish with photos”) but thereafter decrease reactivity and used cards regularly. Effective in reduced episode of rage.
- **Individualisation of the intervention** – individualised to use coloured text only and sight word training.
- **functional level of disability** - moderate
- **readiness** – *required* to retain employment and accommodation. May have impacted on readiness, but didn’t.
- **commitment to the intervention** – good commitment

Discussion

Factors influencing outcomes – all may be interrelated

- frequency of use
- Individualisation of the intervention
- functional level of disability
- readiness
- commitment to the intervention

Limitations of study

Literature - People with ID reliant on other people. Intervention design built around participant, supporters and SDM framework, but socially isolated, thus used staff

- Missing data which was at times retrospective collected (integrity)
- Insufficient photographs/practice outside session with researcher. Need to embed/internalise intervention
- staff lack of understanding of how MHD impacts on individual

Sample size - small sample

External validity – needs further studies to create external validity

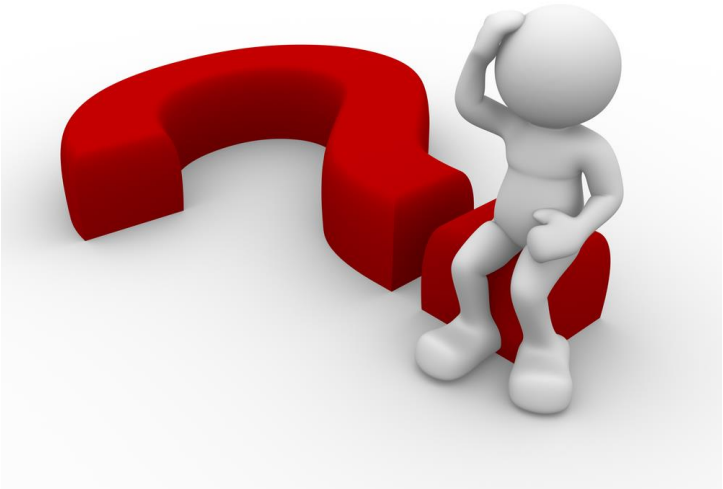
Researcher bias - embedded in intervention - offset with fidelity measure

Conclusions

- **Further research on this visual CBI** - replication of this study, report modifications made, electronic versions delivered on mobile phones or other technologies, in various applied settings, research into staff perceptions.
- **Staff training** – critical to understand the effects of DD, the atypical presentations, including challenging behaviour, and the effective management of MHD. Utilise human rights perspective
- **individuals goals or dreams** - for motivation and engagement (via SDM), rather than capacity or readiness tools. Limited supporters pool – participants had impoverished social networks.
- **Interventions need to be adequately resourced** (Dowse, Wiese & Smith, 2016)

Thank you

Any questions



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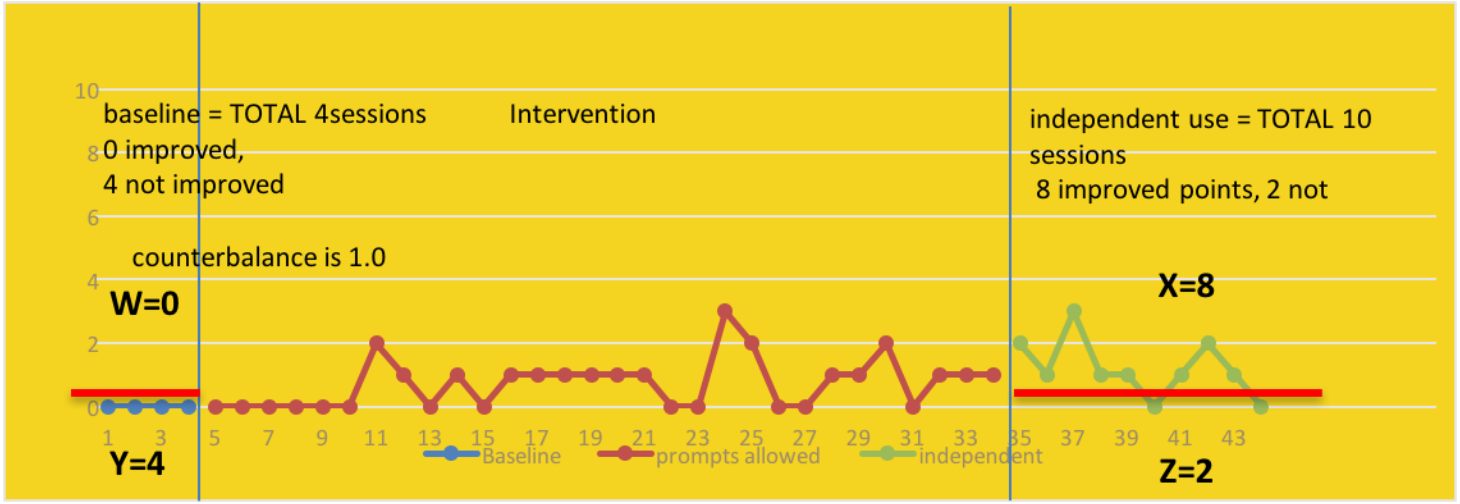
R-IRD procedure



** counterbalance is the number of data points not improved in the independent use (quadrant Z) divided by 2. In this case 2.0/2 =1.0. The counterbalanced amount is applied to the number of not improved in the baseline improved (quadrant W).

W + counterbalance/ Y =
0 + 1 =1 / 4 =0.25

X+Z/counterbalance
8 + 1=9 / 10= 0.9

R-IRD = X – W
0.9- 0.25=**0.65**

- The steps required for the R-IRD is the removal of overlapping data points from both baseline and independent (last 10 sessions) self-management. Followed by the development of four quadrants of W, X, Y, Z (W = baseline not improved, X = independent SM not improved, Y =baseline improved, Z= independent SM improved). From this the values of quadrants must be balanced with overlapping data points so that the total number of data points in each of the baseline and independent SM phases is the same as the total number of original data points.

- effect size ranges are as follows: small effects: 0–0.50; medium effects: 0.50-0.70; large effect: 0.70 and higher–1.0

(Parker, Vannest & Brown, 2009)