Outline (BAP, APA guidelines)

- Fundamentals of patient management
  - Diagnosis
  - Access to services and the safety of the patient and others
  - Enhanced care
- Treatment of different phases of bipolar illness
  - Acute Manic or Mixed Episodes
  - Acute Depressive episode
  - Long term treatment
  - Treatment in special situations

Outline (BAP, APA guidelines)

- Fundamentals of patient management
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  - **Enhanced care**
- Treatment of different phases of bipolar illness
  - Acute Manic or Mixed Episodes
  - Acute Depressive episode
  - **Long term treatment**
  - Treatment in special situations

Enhanced care

Society/patient led innovation:

setting, sympathy, autonomy, self-management

Expert led innovation:

Psychoeducation

Psychotherapy

Drug treatment

Psychoeducation: Key ingredients

- A long term therapeutic alliance
- Knowledge about the illness
- Enhance adherence to treatment
  - Medicines
  - Life-style regularities
- Awareness and action plan for stressors
  - Symptom levels
  - Sleep
- The physical health risks

120 Bipolar Patients

Patients matched
by age and sex

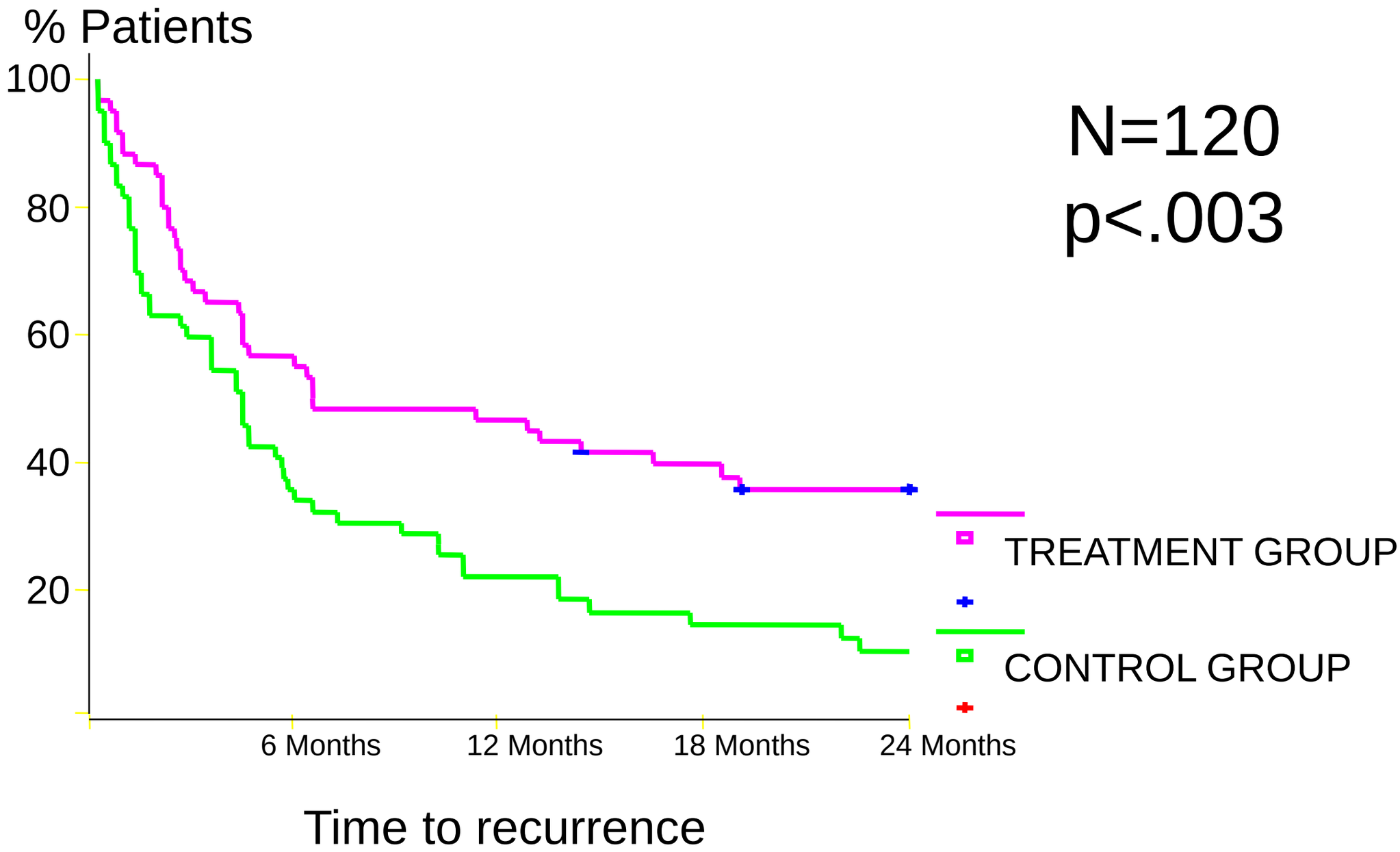
Control Group:
60 patients
Pharmacological Treatment
+
Non-structured
Group Intervention

Experimental Group:
60 patients
Pharmacological
Treatment
+
Psychoeducation

Treatment duration: 6 months
Follow-up: 2 years

Colom et al., Arch Gen Psychiatry, 2003; 60:402-407

Combination of Medication and Psychoeducation



N=120

p<.003

Colom et al., Arch Gen Psychiatry, 2003; 60:402-407

Long term management

- Expertise
  - —10,000 hours?
- Consistent psychological approach
  - —Psychoeducation not therapy
- Rational polypharmacy

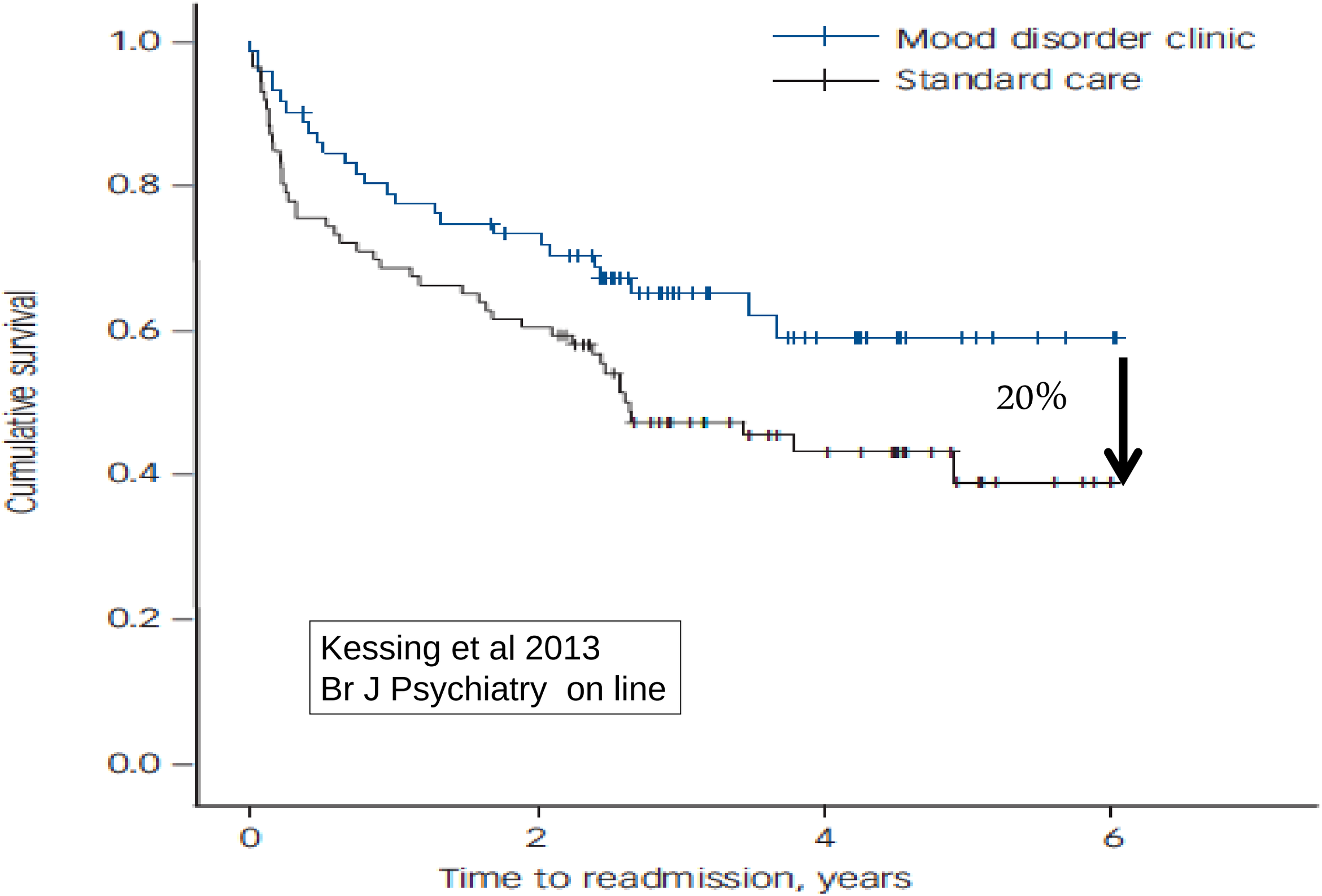
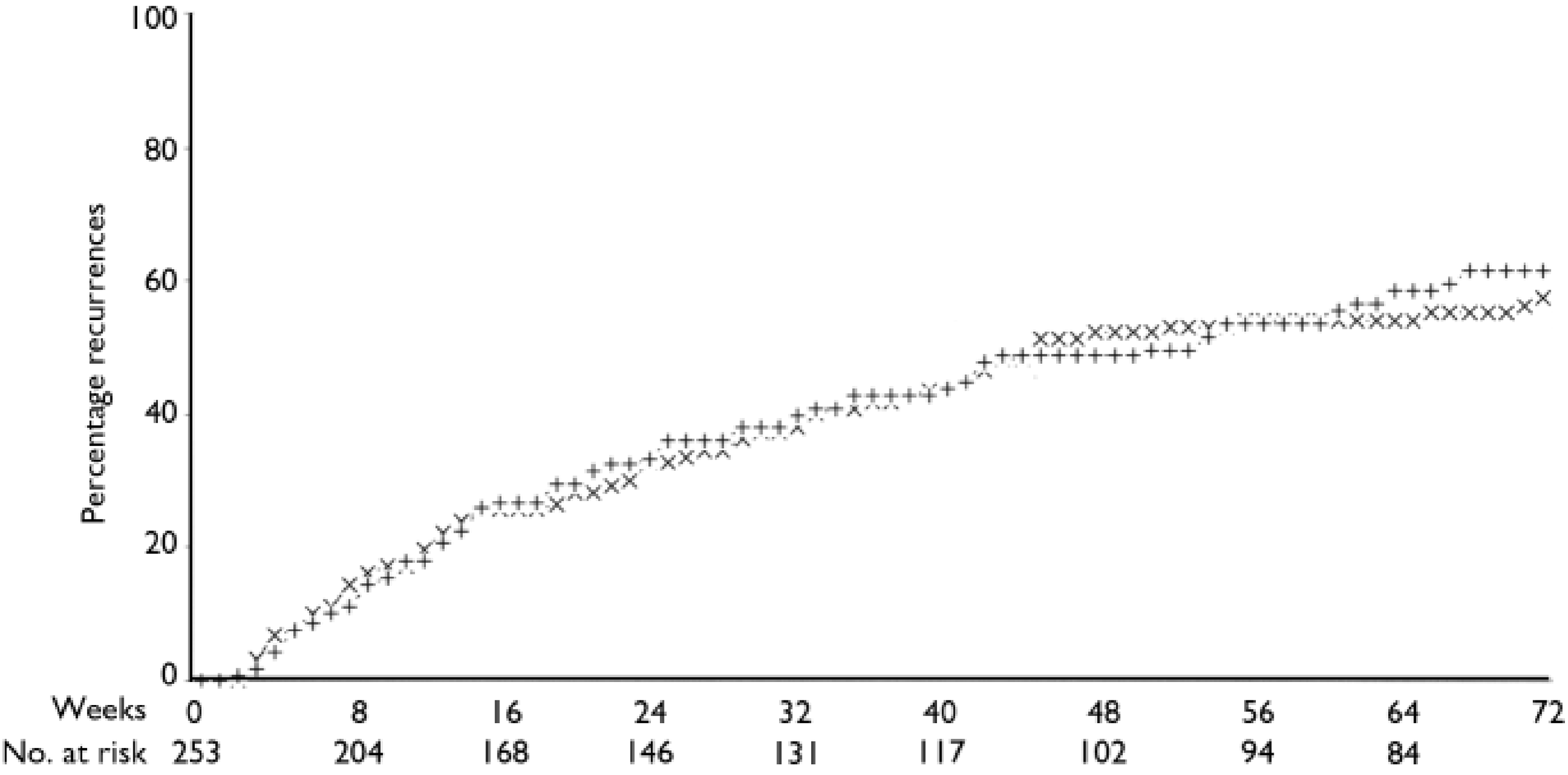


Fig. 1 Time to hospital readmission for patients treated in the mood disorder clinic *v.* standard out-patient care.

Enhance care through psychoeducation?

- Yes, but no
- Difficult ‘long term’ design: 2-5 year follow up!
- Group sessions of 1.5 hours x 19!
- Massive ‘syllabus’
- No evidence of what is either necessary or sufficient

BP-I: pragmatic CBT study



Scott et al 2006 Br J Psychiatry 188 313

Pills versus Psychological treatment

- Randomized
- Concealed
- Fair comparison – placebo, for example
- Double blind conditions
- Assess outcome blind to treatment
- Follow a pre-decided analysis plan

- Randomized
- Concealed
- (Fair comparison – wait list?)
- (Double blind conditions – not possible)
- (Assess outcome blind to treatment – needs care)
- Follow a pre-decided analysis plan

Pills versus Psychological treatment

Bias

- Sponsorship bias
- Design bias
- Publication bias
  - Excess positive studies
  - Negative studies with regulator
- The conclusions of the publication
- Professional prestige
- Financial motivation

- Allegiance bias
- Design bias
- Publication bias
  - Excess positive studies
  - No regulator
- The conclusions of the publication
- Professional prestige
- Financial motivation

Disclosures

- Grants Wellcome Trust
- Honoraria AstraZeneca, BMS, Lundbeck, Medscape, Otsuka, Servier, Takeda
- Shares P1vital
- Paid positions University of Oxford
- Advisory boards AstraZeneca, BMS, Cephalon Lundbeck, Medscape, Otsuka, P1Vital, Servier, Sunovion,Takeda

Long term treatment with medication

Prevention of relapse

Time to a new mood episode

Admission to hospital

suicide

NICE: Long term drug treatment

- Offer lithium as a first-line, long-term pharmacological treatment for bipolar disorder
- if lithium is ineffective, consider adding valproate
- if lithium is poorly tolerated, or is not suitable consider valproate or olanzapine instead or, if it has been effective during an episode of mania or bipolar depression, quetiapine.

BAP: Long term drug treatment

- Should we disallow ‘relapse prevention studies’?
- Should we recognize high quality observational studies on important endpoints using quasi-experimental designs?

What measures in assessment of outcomes

- Traditionally in RCTs, rating scale scores, relapse 'events'
  - —Obvious weakness, subjectivity
- Long term studies highlight reliance on RCTs in evidence base
  - —'experiments', pre-market, enriched samples, irrelevant end-points
- (Criticism and nihilism)

What objective outcomes do we actually worry about?

- Death
- Suicide
- Violence
- Hospitalization

BMJ

BMJ 2013;346:f3646 doi: 10.1136/bmj.f3646 (Published 27 June 2013)

RESEARCH

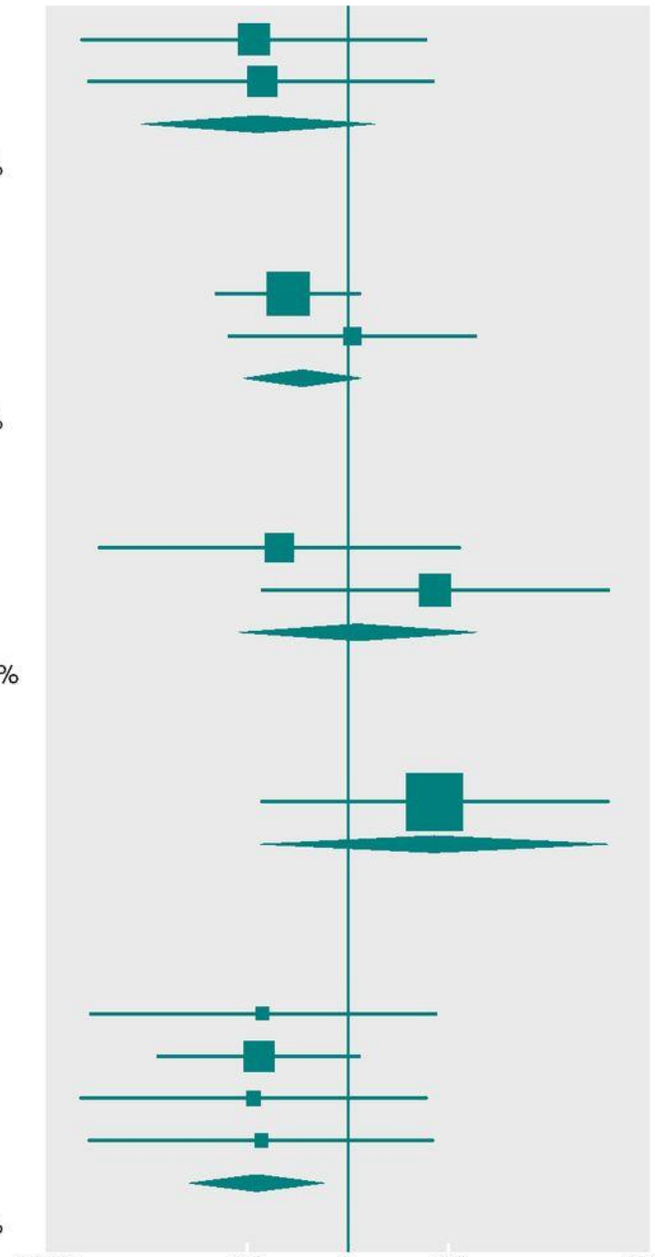
Lithium in the prevention of suicide in mood disorders: updated systematic review and meta-analysis

OPEN ACCESS

Andrea Cipriani *lecturer in psychiatry*[1 2], Keith Hawton *professor of psychiatry*[2], Sarah Stockton *senior information scientist*[2], John R Geddes *professor of epidemiological psychiatry*[2]

Cipriani A et al. BMJ 2013;346:bmj.f3646

Study	No of events/total: Lithium	No of events/total: Control	Peto odds ratio Fixed (95% CI)	Weight (%)	Peto odds ratio Fixed (95% CI)
Versus amitriptyline					
Glen 1984	0/57	1/50		49.9	0.12 (0.00 to 5.98)
Greil 1996	0/40	1/41		50.1	0.14 (0.00 to 6.99)
Subtotal	0/97	2/91		100	0.13 (0.01 to 2.05)
Test for heterogeneity: χ^2=0.00, df=1, P=0.95, I^2=0%					
Test for overall effect: z=1.45, P=0.15					
Versus carbamazepine					
Greil 1997a	1/87	5/88		74.7	0.26 (0.05 to 1.30)
Greil 1997b	1/52	1/58		25.3	1.12 (0.07 to 18.16)
Subtotal	2/139	6/146		100	0.37 (0.09 to 1.51)
Test for heterogeneity: χ^2=0.80, df=1, P=0.37, I^2=0%					
Test for overall effect: z=1.38, P=0.17					
Versus lamotrigine					
Calabrese 2003	0/121	1/221		47.8	0.21 (0.00 to 12.83)
Licht 2010	1/78	0/77		52.2	7.29 (0.14 to 367.67)
Subtotal	1/199	1/298		100	1.35 (0.08 to 22.91)
Test for heterogeneity: χ^2=1.49, df=1, P=0.22, I^2=33%					
Test for overall effect: z=0.21, P=0.84					
Versus olanzapine					
Tohen 2005	1/214	0/217		100	7.49 (0.15 to 377.68)
Subtotal	1/214	0/217		100	7.49 (0.15 to 377.68)
Test for heterogeneity: Not applicable					
Test for overall effect: z=1.01, P=0.31					
Versus placebo					
Bauer 2000	0/14	1/15		16.8	0.14 (0.00 to 7.31)
Lauterbach 2008	0/84	3/83		49.8	0.13 (0.01 to 1.27)
Prien 1973a	0/45	1/39		16.7	0.12 (0.00 to 5.91)
Prien 1973b	0/101	1/104		16.8	0.14 (0.00 to 7.02)
Subtotal	0/244	6/241		100.0	0.13 (0.03 to 0.66)
Test for heterogeneity: χ^2=0.01, df=3, P=1.00, I^2=0%					
Test for overall effect: z=2.47, P=0.01					



BMJ

Suicidal behavior during lithium and valproate medication for bipolar disorder: a register based study

Jie Song[1]; Arvid Sjölander[1]; Sarah E Bergen[1]; Henrik Larsson[1]; Mikael Landén[1,2]; Paul Lichtenstein[1]

1. Department of Medical Epidemiology and Biostatistics, Karolinska Institutet
2. Institute of Neuroscience and Physiology, The Sahlgrenska Academy at Gothenburg University

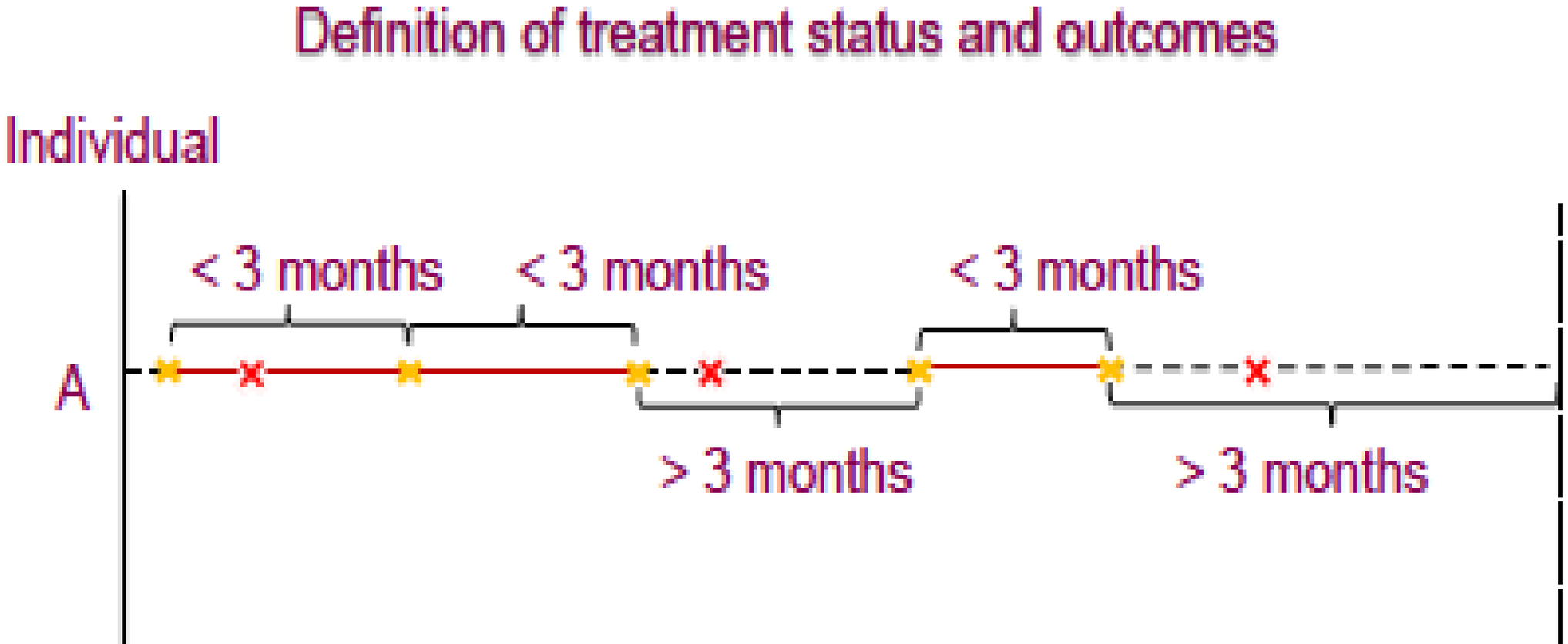
Presented as poster at ISBD, Toronto, 2015

In submission

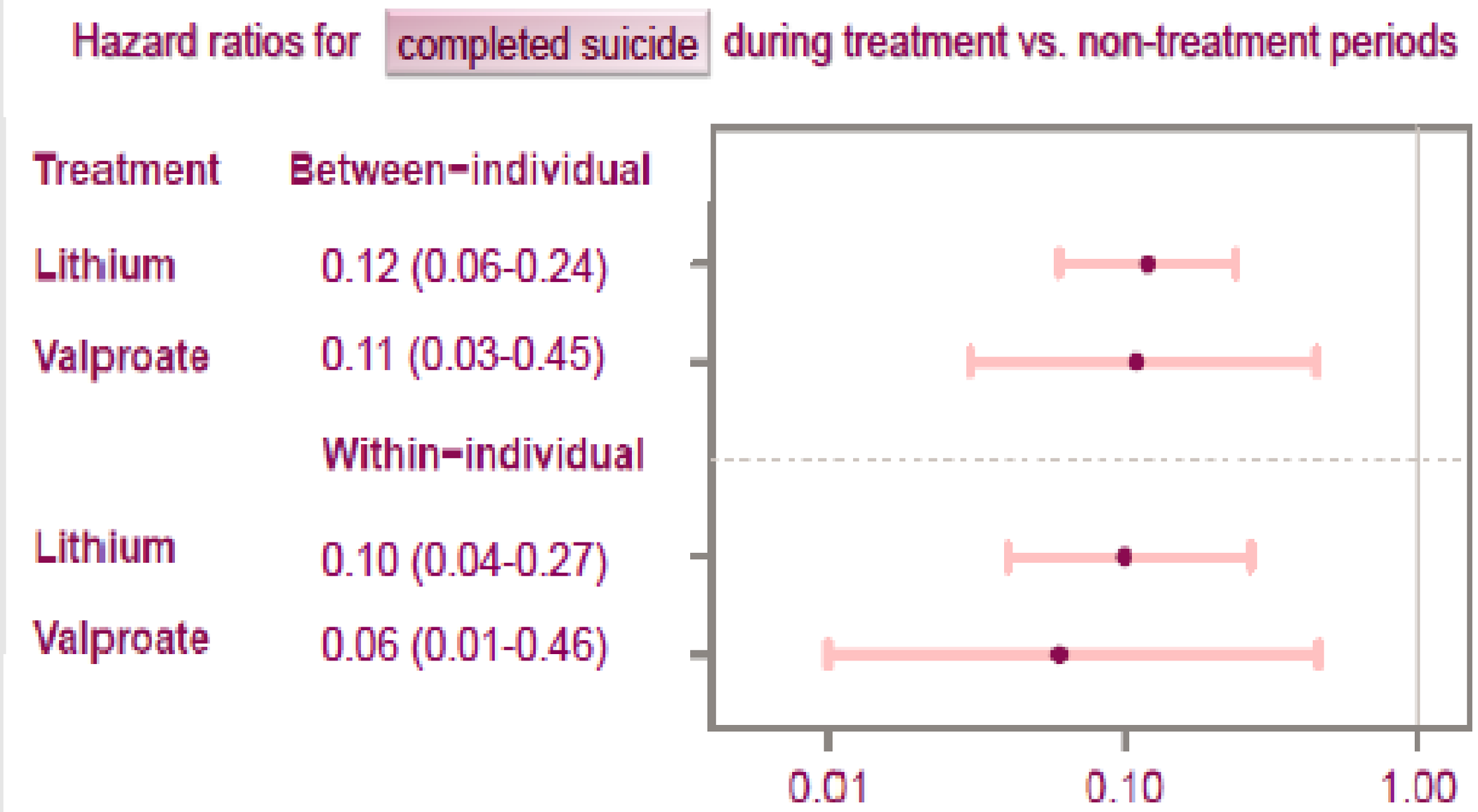
Naturalistic ‘quasi-experimental’ design

Exposures - treatment periods

- Defined using “**three-month cut off**”: if time interval between two dispensed prescriptions less than 3 months



Reduced rates of suicide during treatment



- Rate of completed suicide was reduced by ~90% during lithium or valproate treatment compared to periods without lithium or valproate

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Research paper

The rapid suicide protection of mood stabilizers on patients with bipolar disorder: A nationwide observational cohort study in Taiwan

Chia-Jui Tsai [a,b], Chin Cheng [c,d], Po-Han Chou [a,g], Ching-Heng Lin [e], Melvin G. McInnis [f], Chia-Li Chang [e], Tsuo-Hung Lan [a,e,g,h,*]

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Reduction of risk of suicide in recently diagnosed Bipolar disorder

Table 3
Risk of suicide and death in relation to use of lithium, divalproex or carbamazepine vs none-exposure[a].

Variables	**Suicide events**		**Suicide death**		**All-cause mortality**	
	Hazard ratio (95% CI)	*p* Value	Hazard ratio (95% CI)	*p* Value	Hazard ratio (95% CI)	*p* Value
None	1.00	–	1.00	–	1.00	–
Lithium only	0.10 (0.06–0.15)	< 0.0001	–[b]	–	0.03 (0.03–0.05)	< 0.0001
Divalproex only	0.14 (0.11–0.19)	< 0.0001	0.09 (0.04–0.21)	< 0.0001	0.03 (0.03–0.04)	< 0.0001
Carbamazepine only	0.10 (0.07–0.16)	< 0.0001	0.10 (0.03–0.35)	< 0.0001	0.03 (0.04–0.07)	< 0.0001
Combination	0.13 (0.08–0.23)	< 0.0001	0.16 (0.04–0.72)	0.017	0.05 (0.02–0.05)	< 0.0001

[a] Adjusted for age, sex, medical comorbidities, and concomitant psychotropic drugs.
[b] No suicide death in the final prescription period of lithium.

Early in illness course, but cannot exclude confounding by ‘good compliance’

Effect of Medication on Rates of Psychiatric Hospitalization in Bipolar Disorder – A Register Based Study of Medication with Lithium, Anticonvulsants, and Atypical Antipsychotics in Sweden

Erik Joas[1], Alina Karanti[1], Paul Lichtenstein[2], Mikael Landén[1]

[1] University of Gothenburg, Department of Psychiatry and Neurochemistry, [2] Karolinska Institutet, Department of Medical Epidemiology and Biostatistics

Background

Bipolar disorder (BD) is a severe psychiatric disorder and preventing new episodes is a cornerstone of treatment. Randomized controlled trials (RCTs) have demonstrated efficacy of several drugs. The generalizability of these findings to effectiveness in general clinical practice is difficult as many studies use for example enriched designs or exclude patients with comorbid conditions. In observational studies the effect of medications is difficult to estimate since treatments are not given at random, this can be partly overcome by comparing periods with medication with periods of no medication within the same individual.

Aims

We aimed to study the effect of lithium, valproate, lamotrigine, carbamazepine, olanzapine and quetiapine on the rate of overall psychiatric hospitalization – the primary outcome – in a naturalistic setting. As secondary outcomes we analyzed hospitalizations due specifically to either manic-, depressive- or mixed episodes.

Method

Through a linkage of Swedish national registries we identified individuals with BD using a previously validated algorithm (Sellgren et al., 2011). Current medical users between 2006 and 2009 were defined by using series of dispense dates with no more than 92 days in-between. We also extracted information on inpatient care during the same period.

The effect of medication was assessed using cox regression. We used between- and within-individual models, by respectively using standard and stratified (by individual) cox-regression. The stratified cox-regression overcomes some of the problems arising from non-randomized drug administration in general clinical practice by controlling for non-time-varying effects.

We estimated the between-individual models with and without those never medicated during the study period. Only individuals medicated at some point were included in the within-individual analyses. All analyses were adjusted for age and previous time spent in inpatient psychiatric care. The between-individual analyses were also adjusted for sex. We also conducted post-hoc analyses comparing the effects of the medications (adjusted for multiple testing using false discovery rate).

Table 1. **Within-individual analyses** showing hazard ratios of the association between medication and psychiatric hospitalizations (excluding those never medicated during the study period) (N=25475)

	All psychiatric hospitalizations	Hospitalizations for (hypo-)mania	Hospitalizations for depression	Hospitalizations for mixed episodes
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Lithium	0.66* [0.63; 0.71]	0.56* [0.49; 0.65]	0.61* [0.54; 0.70]	0.56* [0.40; 0.79]
Valproate	0.72* [0.67; 0.79]	0.63* [0.52; 0.76]	0.73* [0.60; 0.89]	0.71 [0.48; 1.07]
Carbamazepine	0.94 [0.79; 1.12]	0.49* [0.29; 0.85]	0.97 [0.64; 1.48]	1.69 [0.61; 4.69]
Lamotrigine	0.79* [0.73; 0.84]	0.97 [0.77; 1.22]	0.71* [0.62; 0.82]	0.86 [0.56; 1.31]
Quetiapine	0.80* [0.73; 0.87]	0.72* [0.57; 0.90]	0.62* [0.51; 0.75]	0.86 [0.58; 1.29]
Olanzapine	0.76* [0.70; 0.82]	0.55* [0.46; 0.66]	0.78* [0.67; 0.91]	0.75 [0.50; 1.12]
Num. events	21502	4210	5958	969

* 1 outside the confidence interval

Results

We identified 35,182 individuals with BD (62% women) between 2006 and 2009. Almost three quarters (25 475, 72%) were users of any of the six drugs during the study period, lithium being the most prevalent (43%). Within-individual analyses (table 1) showed reduced rates of hospitalization when individuals were medicated with lithium, valproate, lamotrigine, olanzapine or quetiapine. Post-hoc analyses also showed that lithium had a stronger association than lamotrigine (HR= 0.84, p=0.003), quetiapine (HR= 0.83, p=0.003), olanzapine (HR= 0.88, p=0.022) and, carbamazepine (HR= 0.70, p=0.003).

Furthermore, medication with lithium, valproate, carbamazepine, quetiapine and quetiapine were associated with reduced rates of manic episodes. Medication with lithium, valproate, lamotrigine, quetiapine and olanzapine were associated with reduced rates of depressive episodes and lithium with reduced rates of mixed episodes. In contrast, the between-individual analyses (table 2 shows the analyses of those individuals medicated at some point during the study period) showed many positive associations between hospitalization and medication.

Table 2. **Between- individual analyses** showing hazard ratios of the association between medication and psychiatric hospitalizations (excluding those never medicated during the study period) (N=25475)

	All psychiatric hospitalizations	Hospitalizations for (hypo-)mania	Hospitalizations for depression	Hospitalizations for mixed episodes
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Lithium	0.68* [0.65; 0.71]	0.59* [0.53; 0.65]	0.67* [0.61; 0.73]	0.85 [0.69; 1.04]
Valproate	0.85* [0.79; 0.91]	0.76* [0.66; 0.88]	0.82* [0.72; 0.93]	1.25 [0.88; 1.76]
Carbamazepine	0.78* [0.67; 0.91]	0.53* [0.37; 0.77]	0.52* [0.40; 0.68]	1.03 [0.62; 1.70]
Lamotrigine	1.06 [1.00; 1.12]	0.52* [0.43; 0.61]	1.44* [1.31; 1.59]	1.21 [0.95; 1.53]
Quetiapine	1.41* [1.32; 1.51]	1.57* [1.32; 1.86]	1.45* [1.27; 1.64]	2.61* [2.00; 3.41]
Olanzapine	1.00 [0.94; 1.07]	0.89 [0.79; 1.01]	1.04 [0.93; 1.16]	1.46* [1.07; 2.00]
Lithium:Valproate		2.31* [1.77; 3.01]		
Lithium:Lamotrigine		2.63* [1.97; 3.52]		
Num. events	21502	4210	5958	969

* 1 outside the confidence interval

Conclusion

Our within-individual analyses suggest a protective effect of lithium, valproate, lamotrigine, olanzapine and quetiapine (and to a lesser extent carbamazepine) on rates of psychiatric hospitalization. These results corroborates a recent meta-analysis on the efficacy of maintenance treatment in bipolar disorder (Miura et al., 2014).The difference between- and within-individual analyses results underlines the importance of trying to control for confounding-by-indication in observational data. In addition, our within-individual analyses also suggest that lithium has a stronger protective effect than atypical antipsychotics. However, although we used within-individuals models, that controls for non time-varying covariates, the effects should be interpreted with caution as unaccounted time-varying factors could influence the results.

1.Sellgren, C., et al. "Validity of bipolar disorder hospital discharge diagnoses: file review and multiple register linkage in Sweden." *Acta Psychiatrica Scandinavica* 124.6 (2011): 447-453.

2.Miura, Tomofumi, et al. "Comparative efficacy and tolerability of pharmacological treatments in the maintenance treatment of bipolar disorder: a systematic review and network meta-analysis." *The Lancet Psychiatry* 1.5 (2014): 351-359.

Disclosure information: NOTHING TO DISCLOSE

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Effects of treatment on hospital admission

Joas et al 2016 Pharmacoepidemiology and Drug Safety 24, Supplement S1 600

	All psychiatric hospitalizations	**Manic episodes**	**Depressive episodes**	**Mixed episodes**
Lithium	0.66*	0.56*	0.61*	0.57*
	(0.62, 0.70)	(0.48, 0.65)	(0.53, 0.69)	(0.40, 0.81)
Valproate	0.72*	0.63*	0.72*	0.67
	(0.67, 0.79)	(0.52, 0.77)	(0.59, 0.88)	(0.45, 1.01)
Carbamazepine	0.93	0.50*	0.97	1.68
	(0.78, 1.10)	(0.29, 0.86)	(0.64, 1.47)	(0.60, 4.68)
Lamotrigine	0.79*	0.97	0.73*	0.83
	(0.73, 0.84)	(0.77, 1.22)	(0.63, 0.84)	(0.54, 1.30)
Quetiapine	0.82*	0.74*	0.65*	0.94
	(0.75, 0.89)	(0.58, 0.94)	(0.53, 0.80)	(0.62, 1.41)
Olanzapine	0.77*	0.55*	0.81*	0.76
	(0.71, 0.83)	(0.46, 0.66)	(0.69, 0.95)	(0.51, 1.14)
Num. events	23645	4383	6648	976

Table 7. Comparison with NICE guidelines: long-term treatment.

NICE	BAP
Offer lithium as a first line	Consider lithium as first-line treatment in adherent patients
If lithium is ineffective, consider adding valproate	If lithium alone is ineffective consider combination treatment (depression predominant: ADD lamotrigine, quetiapine or lurasidone to lithium; mania predominant: ADD valproate or a dopamine antagonist/partial agonist to lithium)
If lithium is poorly tolerated or unsuitable, consider valproate or olanzapine or (if acutely effective) quetiapine	If lithium is poorly tolerated or unsuitable, consider other options: valproate, dopamine antagonists/partial agonists
	Consider lamotrigine as monotherapy in bipolar II disorder when depression is the major burden
Within 4 weeks of resolution of symptoms, discuss .... whether to continue psychological or pharmacological treatment for bipolar depression or start long-term treatment	Consider the strategy for long-term treatment as patient recovers

Table 4. ***Comparison of emphasis in planning service provision for bipolar patients.*** The items where benefit is uncertain, or based on no formal evidence for bipolar disorder, are marked with an asterisk.

NICE	BAP
Access to early intervention for psychosis	Access to early intervention from experts in bipolar disorder (S). For mania, always consider admission to hospital or intensive community management (S)
Care programme approach*	Long-term specialist services with a consistent flexible alliance (S) with a specifically trained psychiatrist(S)
Continue in specialized service or integrated CMHT but offer those stable the option of a return to primary care*	
Discuss self-management and engagement	Help patient and carers recognize early signs of relapse
Intensive case management for those likely to disengage. Crisis management*	Disorganized patients need assertive management
Offer a structured psychological intervention	Consider offering enhanced psychological and social support
Offer family intervention	
Offer supported employment programme*	

Conclusions

- NICE limits clinician choice while proclaiming patient choice
- NICE promotes psychotherapy uncritically
- NICE supports an unsupportable status quo
- BAP doesn’t

So, event orientated

- Acute episodes, acute treatment
- Relapse prevention
- Suicide prevention

So, event orientated

- Acute episodes, acute treatment
- Relapse prevention
- Suicide prevention

- Ignores chronicity of real life
  - Depression, anxiety, sleep disturbance
- Not all bipolar patients are BP-I
- Limits treatment innovation/experimental medicine

Co-morbidity

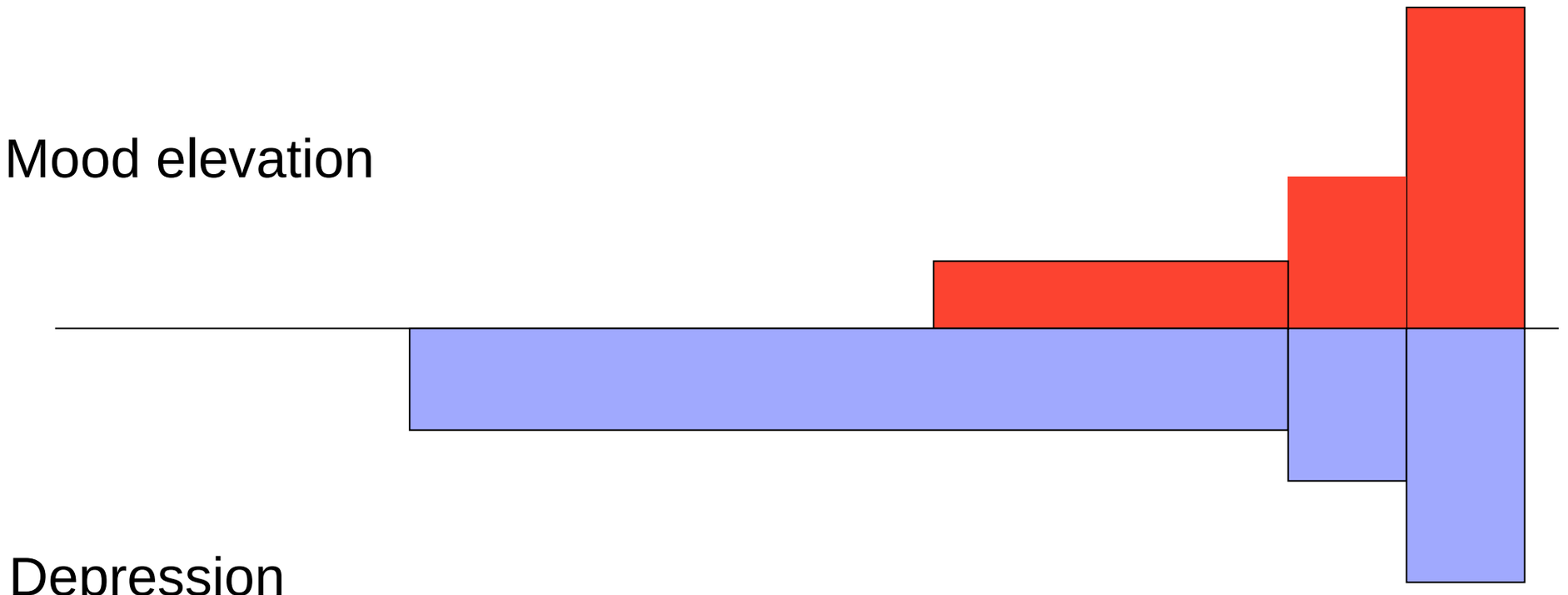
Prevalence of comorbidity with major depression

Angst et al *Am J Psychiatry 2010; 167:1194–1201*

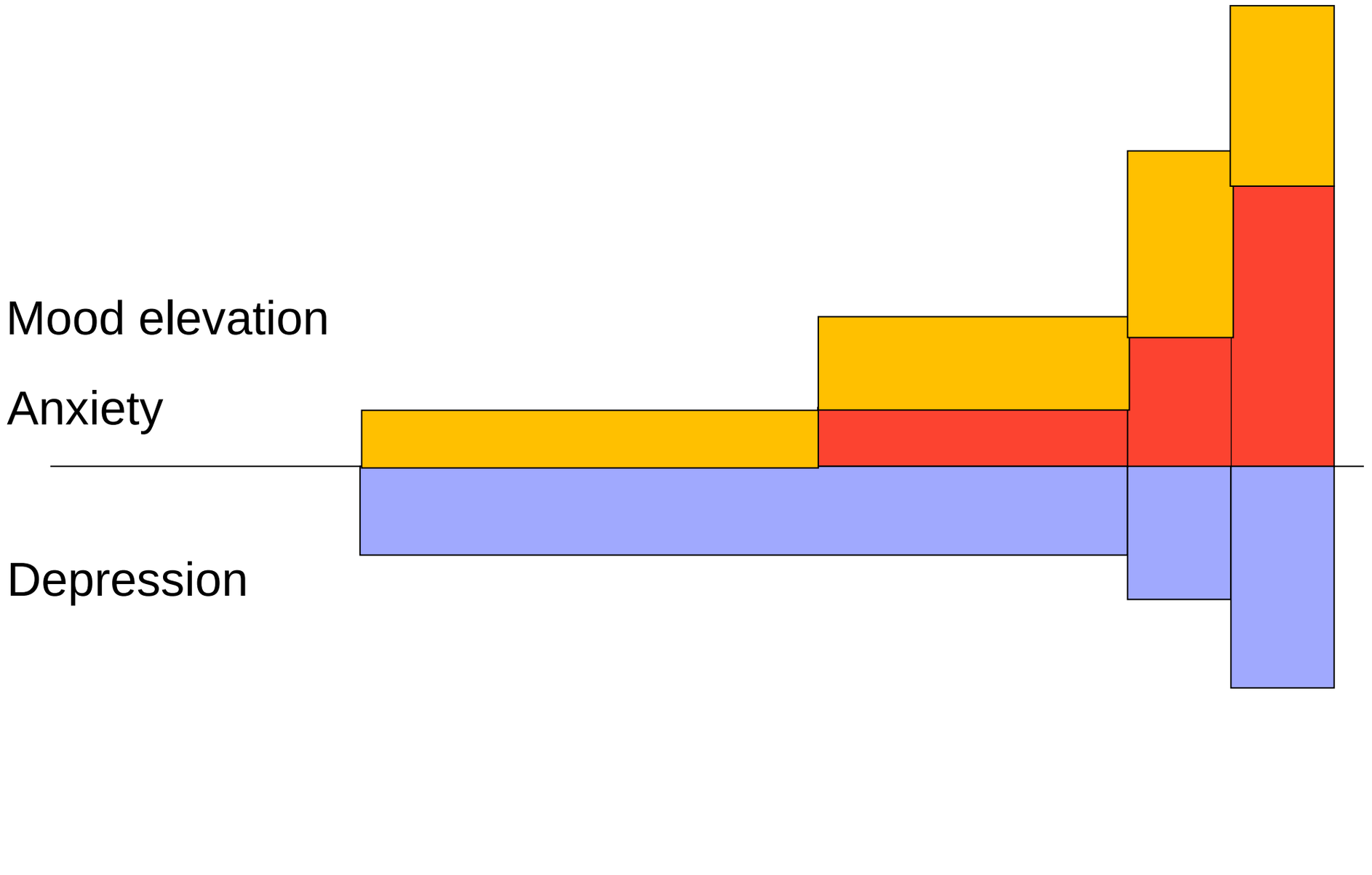
TABLE 3. Clinical Correlates and Impact of Mood Disorder Spectrum Subgroup in the National Comorbidity Survey Replication (N=5,692)

	Major Depression With Mania		Major Depression With Hypomania		Major Depression With Subthreshold Hypomania		Major Depression Only		Major Depression With Hypomania vs. Major Depression With Subthreshold Hypomania		Major Depression With Subthreshold Hypomania vs. Major Depression Only	
Measure	%	SE	%	SE	%	SE	%	SE	Odds Ratio	95% CI	Odds Ratio	95% CI
Treatment for mood disorders												
Lifetime	86.2	3.3	81.2	3.9	64.9	2.4	64.8	1.8	2.4*	1.4–4.0	1.0	0.8–1.4
Past 12 months	67.7	8.8	46.3	5.4	38.8	3.9	38.3	2.3	1.7*	1.2–2.4	1.2	0.9–1.5
Comorbidity disorders (lifetime)												
Anxiety	87.1	4.8	82.6	3.3	72.2	2.8	52.6	1.7	1.9*	1.2–3.0	2.3*	1.8–3.0
Substance use	63.9	4.6	41.8	3.7	35.3	2.3	18.0	1.5	1.4	1.0–2.0	2.3*	1.7–3.1
Behavioral problem	69.0	5.5	50.4	5.1	41.1	2.1	19.2	1.0	1.7*	1.1–2.6	2.3*	1.8–2.9
Suicide attempts (lifetime)	66.1	7.1	50.2	6.7	40.7	3.3	31.2	3.2	1.5	0.9–2.7	1.4	1.0–2.1
Role impairment indicated on the Sheehan Disability Scale (past 12 months)												
Severe	94.3	3.8	91.9	3.8	67.1	4.0	61.5	2.3	5.6[a]*	2.0–16.2	1.3[a]	0.9–1.9
Moderate	5.7	3.8	7.0	3.6	24.7	3.7	27.6	2.2				
Mild	NA	NA	1.1	1.2	6.2	1.8	7.8	1.3				
None	NA	NA	NA	NA	2.0	1.1	3.1	0.8				

Mood disorder: types of episode



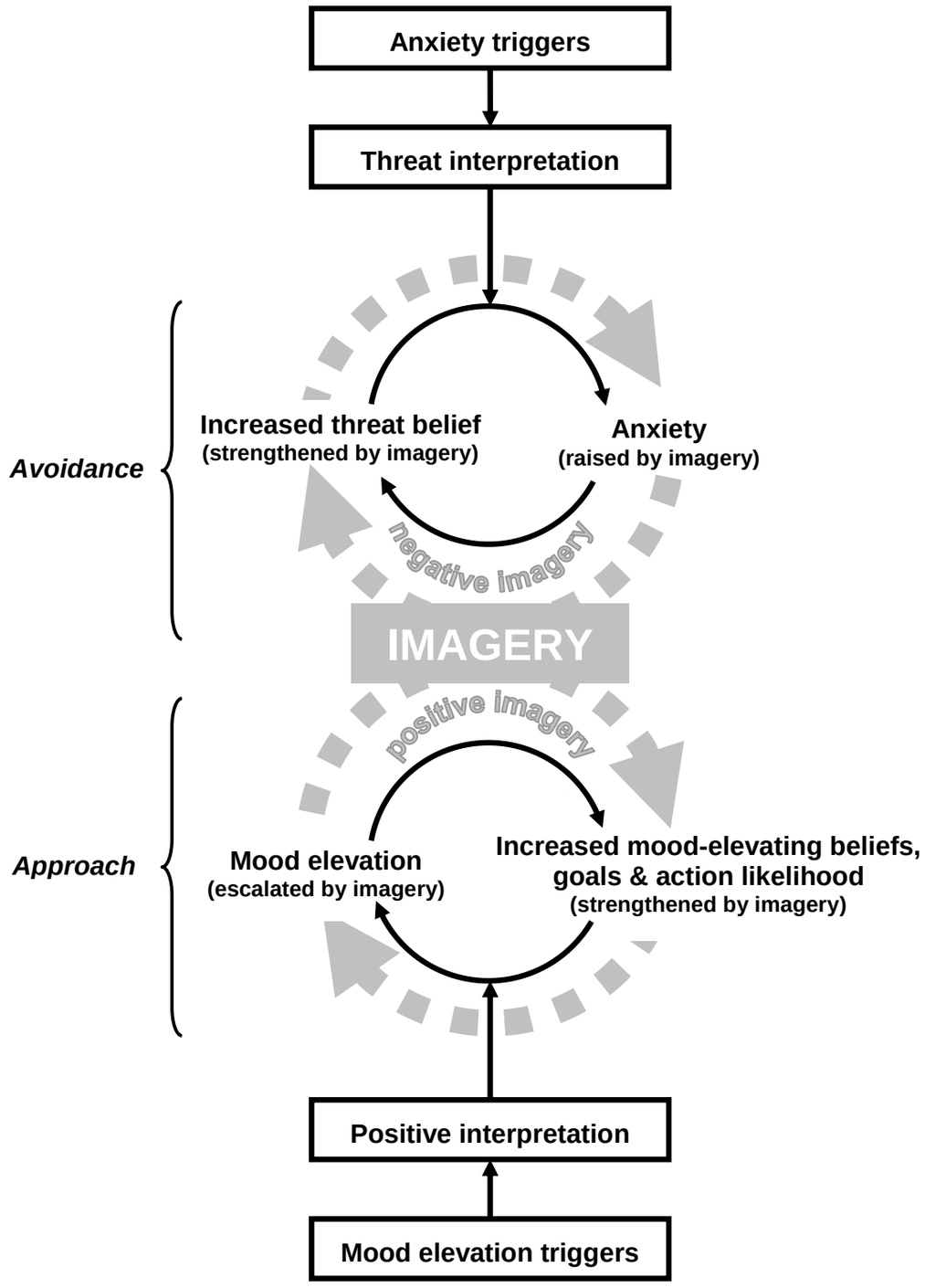
Diagnosis of Mood disorder: types of episode



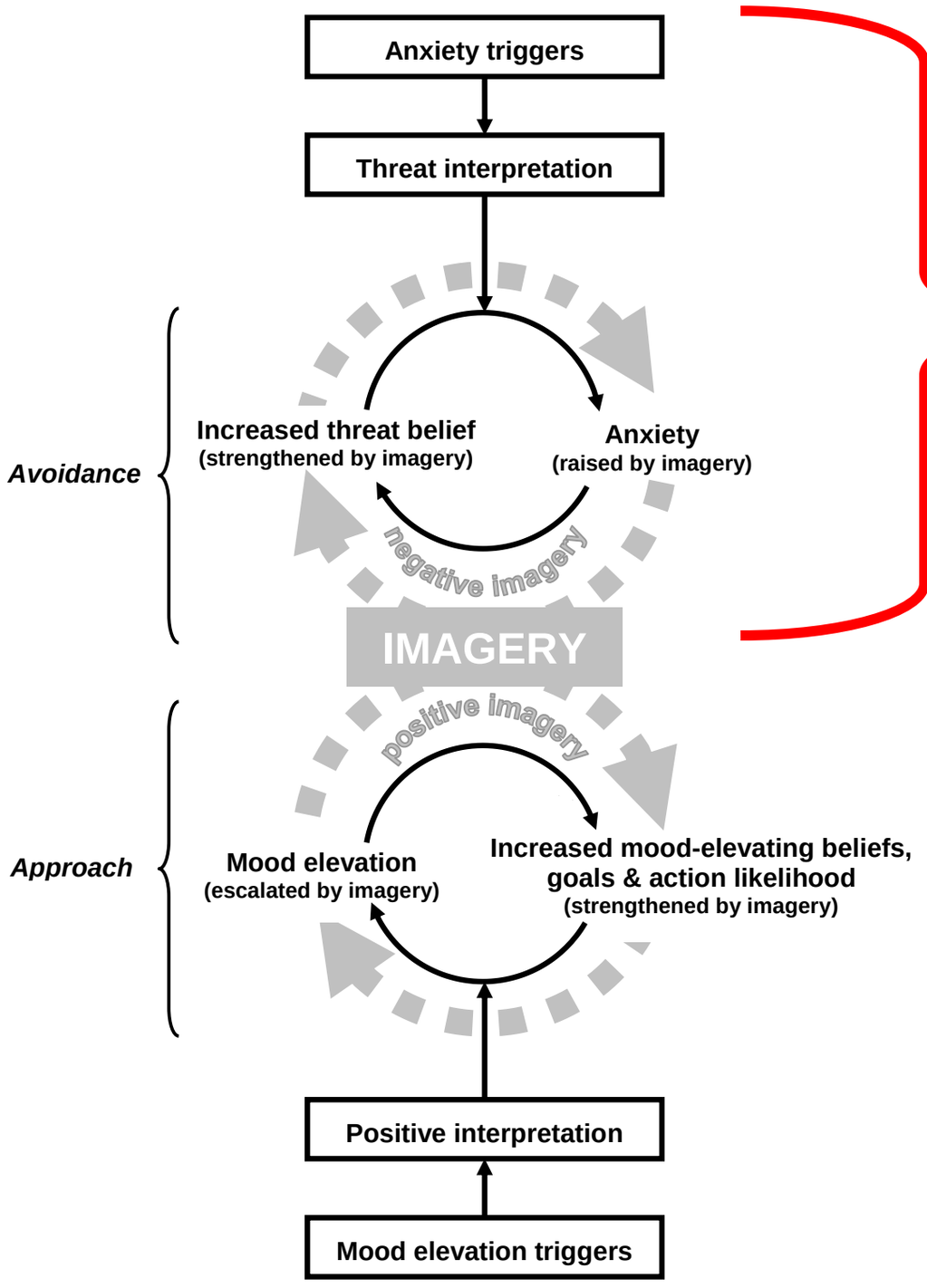
Association with anxiety

- Is mental imagery an emotional amplifier in bipolar disorder
- Emily Holmes, John Geddes, Francesc Colom, Guy M. Goodwin, *Behaviour Research and Therapy 46 (2008) 1251–1258*
- Expression of Cognition/emotion
  - *Thoughts, words, ideas*
  - *Images*

Holmes, Geddes, Colom & Goodwin (2008), *BRAT*



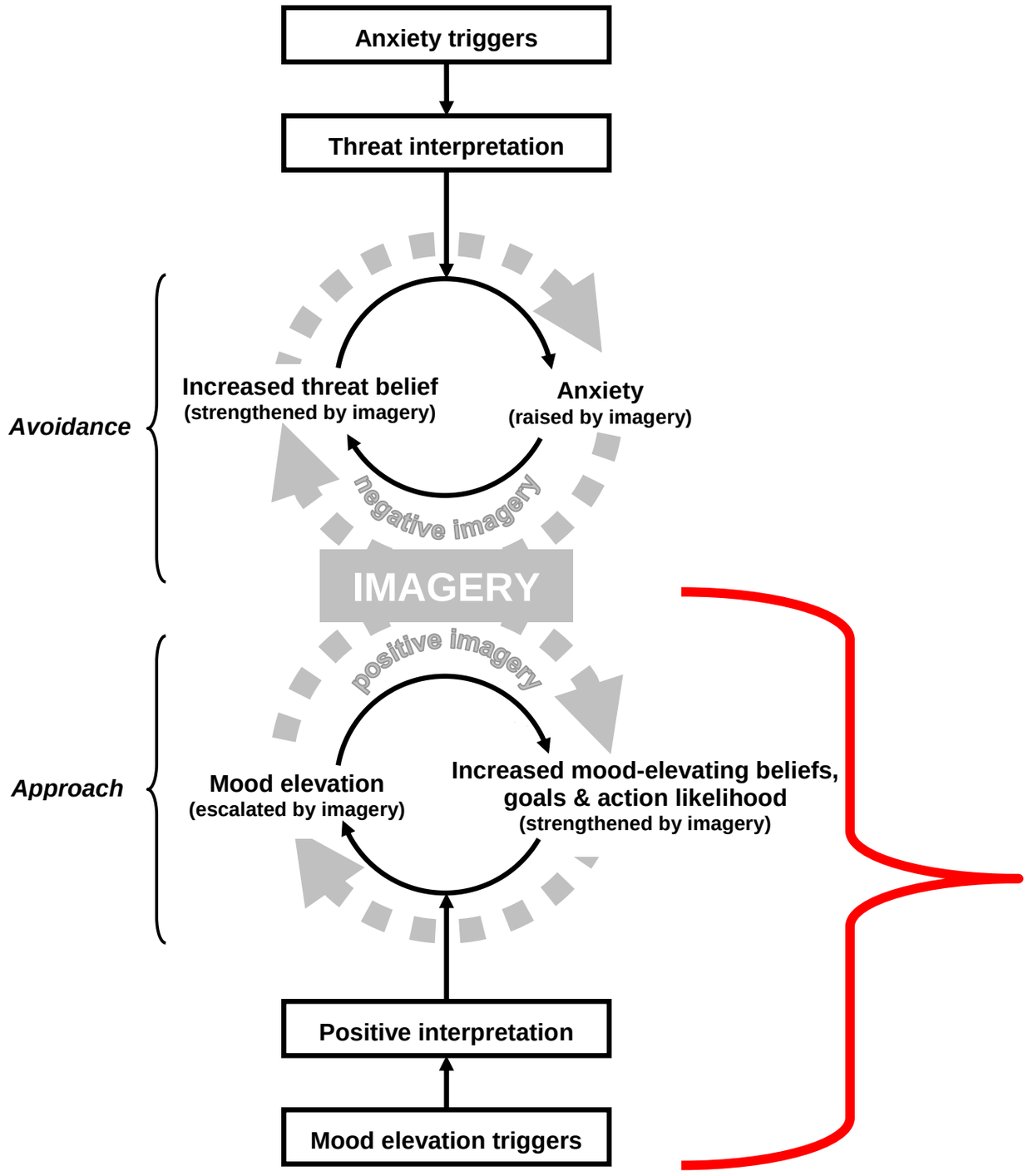
Holmes, Geddes, Colom & Goodwin (2008)



CBT model of panic:
imagery amplifies
anxious emotion

38

Holmes, Geddes, Colom & Goodwin (2008)



imagery also amplifies mania

Is suicidal imagery d in BD?

- "Flashforwards" Suicidal imagery?

  Holmes, Crane, Fennel & Williams (2007), *JBTEP*

- BP vs UP depression (N=20),

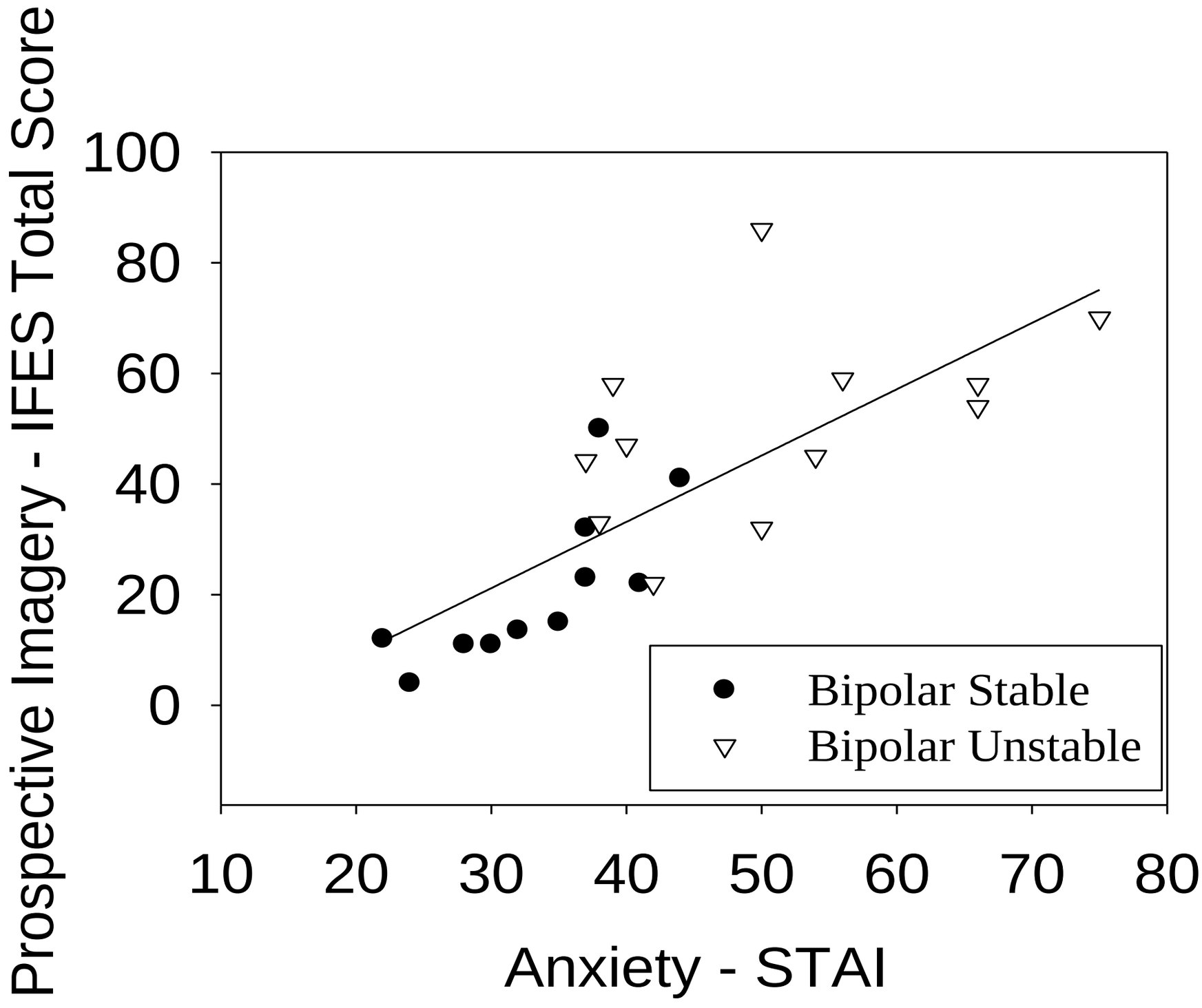
  hx suicidal ideation

- All had suicidal 'flashforwards' imagery
- BP images more preoccupying; compelling; wanted to act on them

Hales, Goodwin, Holmes (2011) Bipolar Disorders (in press)

Imagery and trait anxiety

Holmes et al Behaviour Research and Therapy 49, (2011),707–713



Implications

- Increased rates of anxiety disorders
- Increased prospective imagery
  - —Increased mood instability driven by prospective imagery
  - —More potent impulse to suicidality driven by imagery
  - —and perhaps……

increased creativity in bipolar disorder

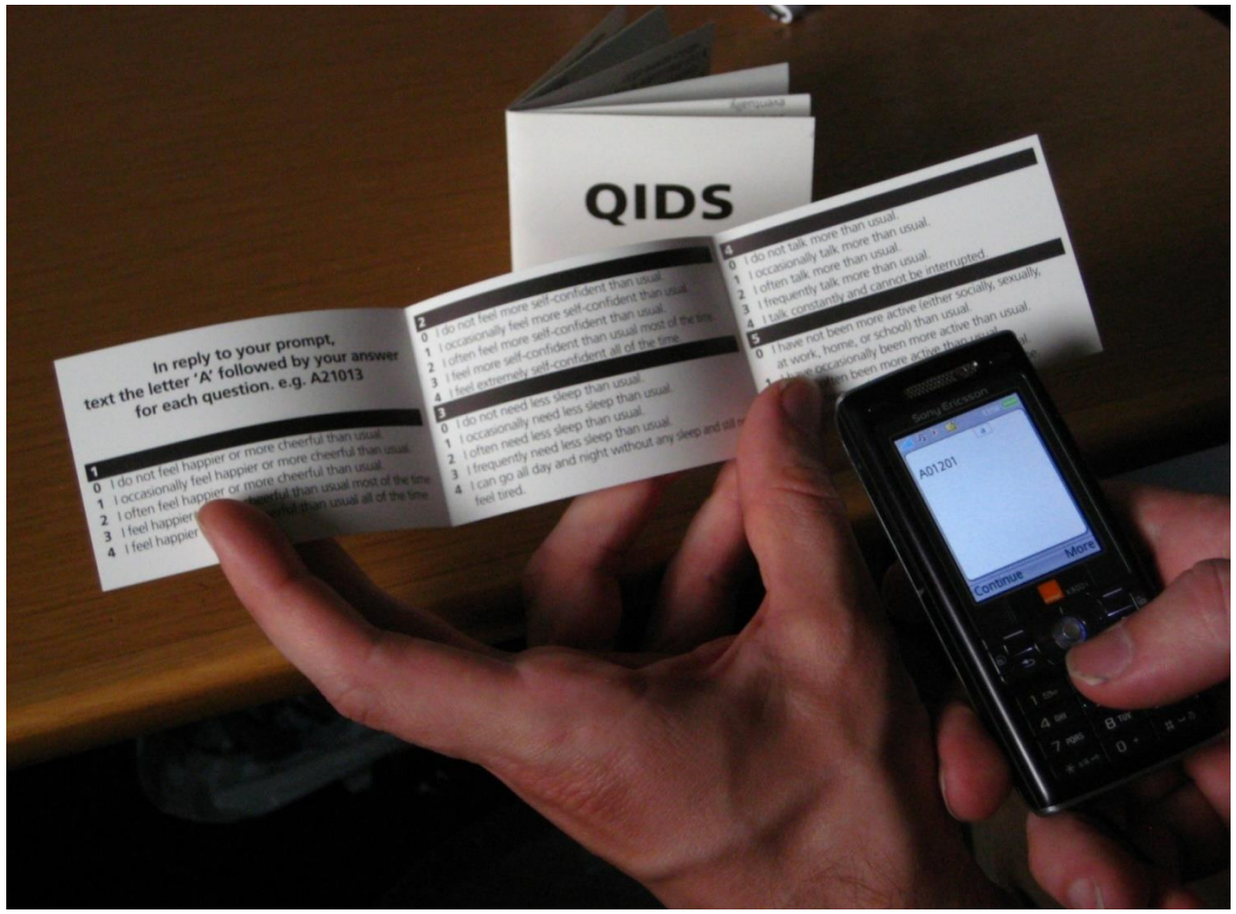
- *The Starry Night*
- *Van Gogh* wrote that *"imagination alone can lead us to the creation of a more exalting and consoling nature than ... reality."*

L 59, NOV 2002

Chronicity

The central place of mood monitoring

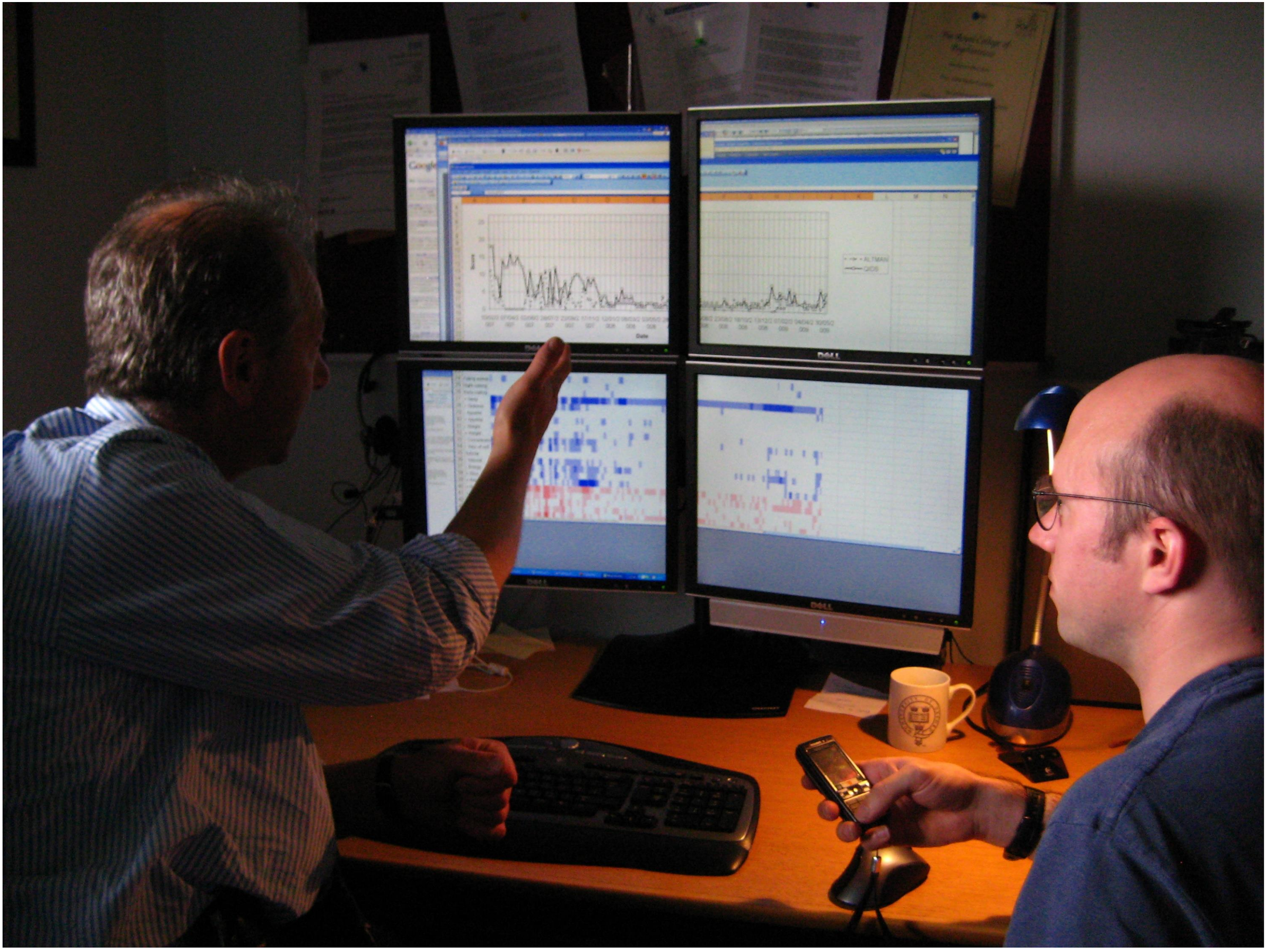
- Pencil and paper diaries
  - —Personal but difficult to share
- Text messaging
  - —Self-awareness of symptoms
  - —Sense of protection
- Automatic digital collection of data
  - —Constantly updated patient record
  - —Easy to review

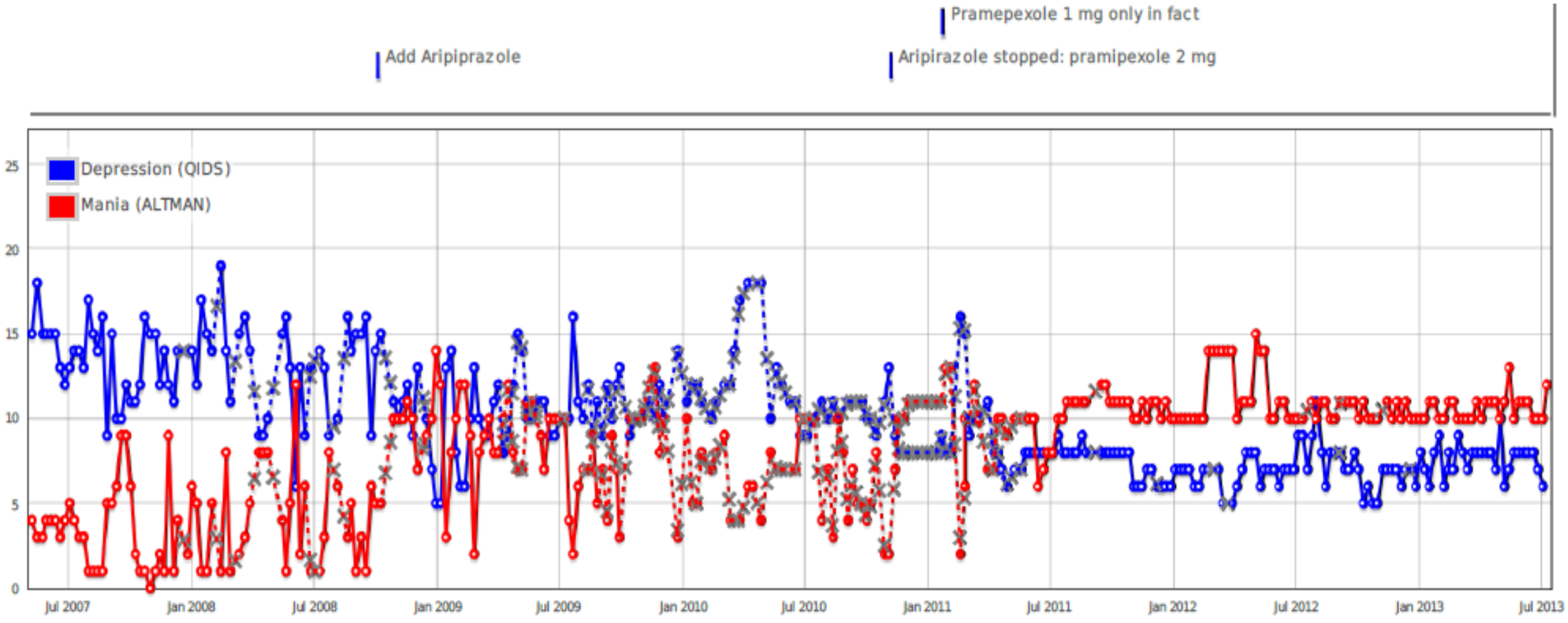


- **True Colours engages the patient:**
- we send weekly text or email messages to enable patients to self-report their symptoms using mood rating scales.

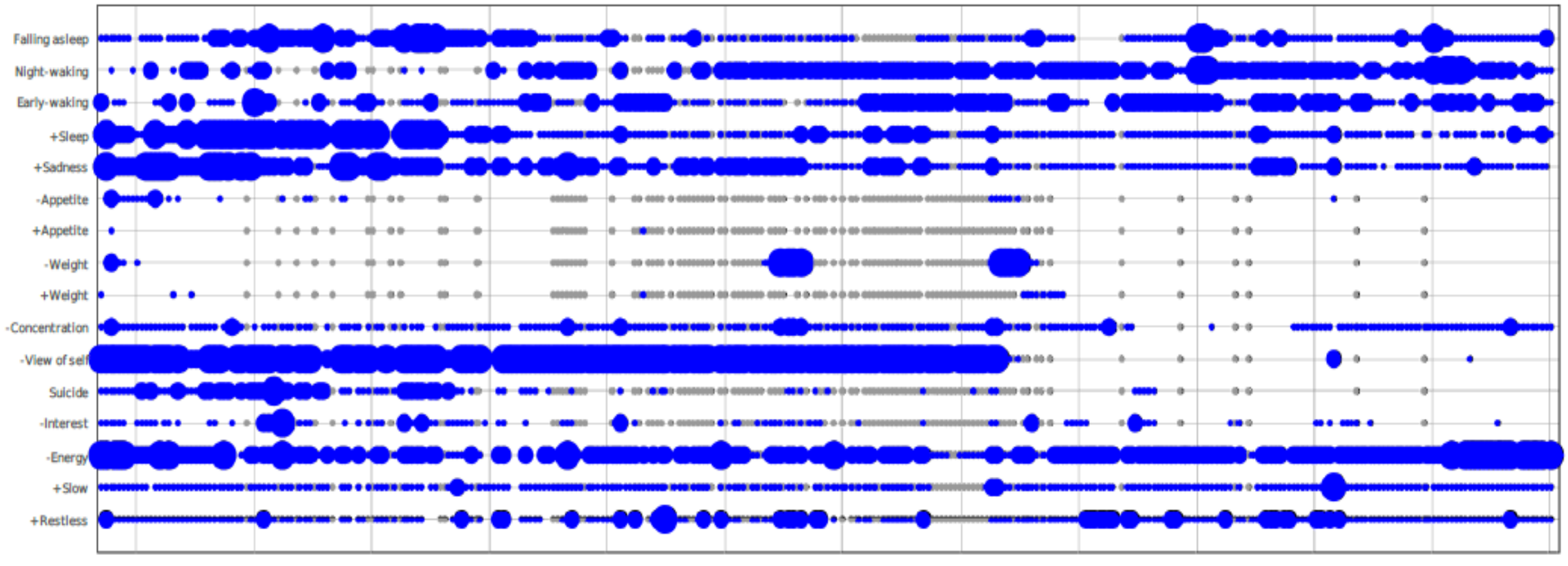
- **True Colours reminds the patient:**

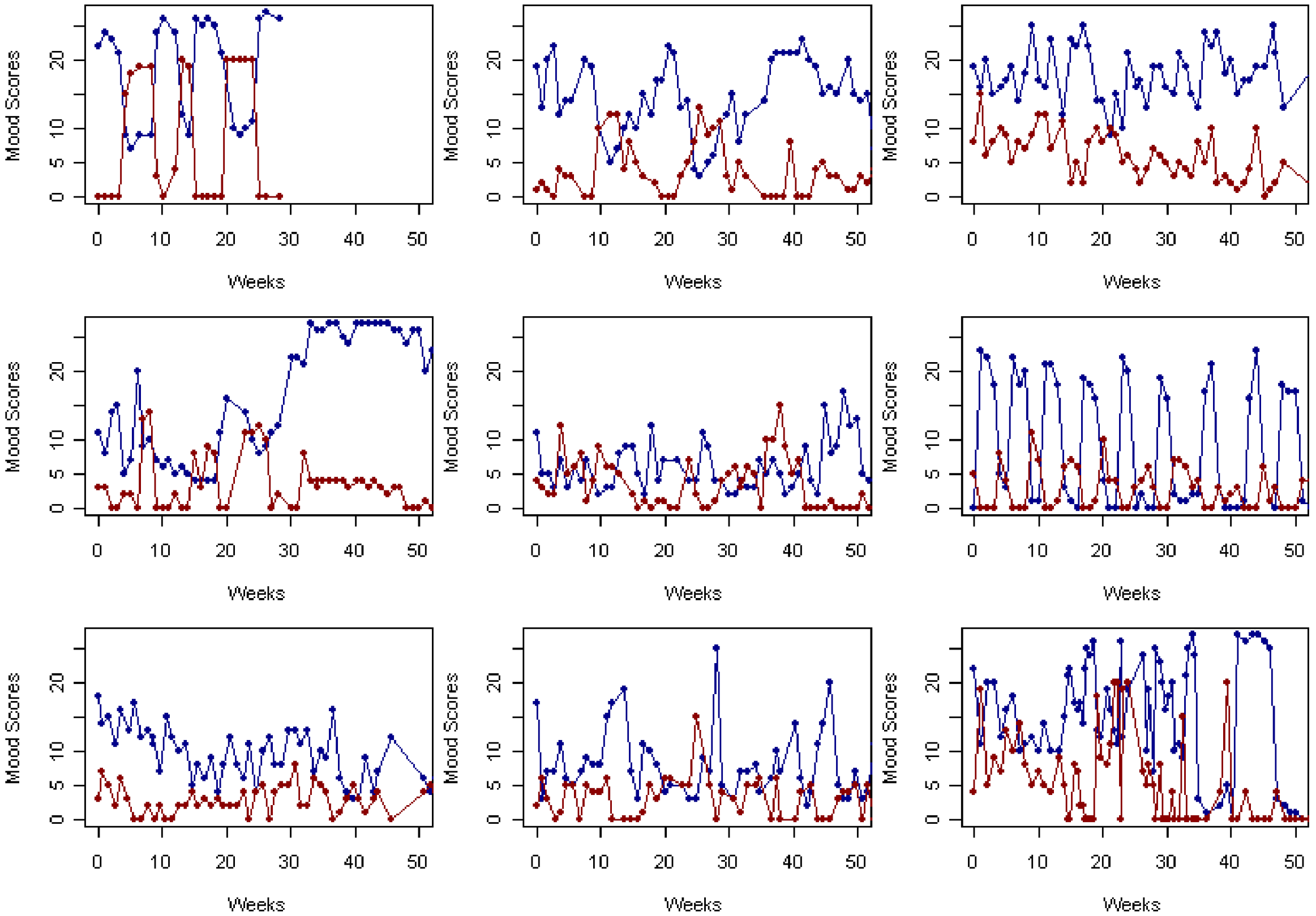
we send reminders when patients do not respond


DELL
DELL
DELL

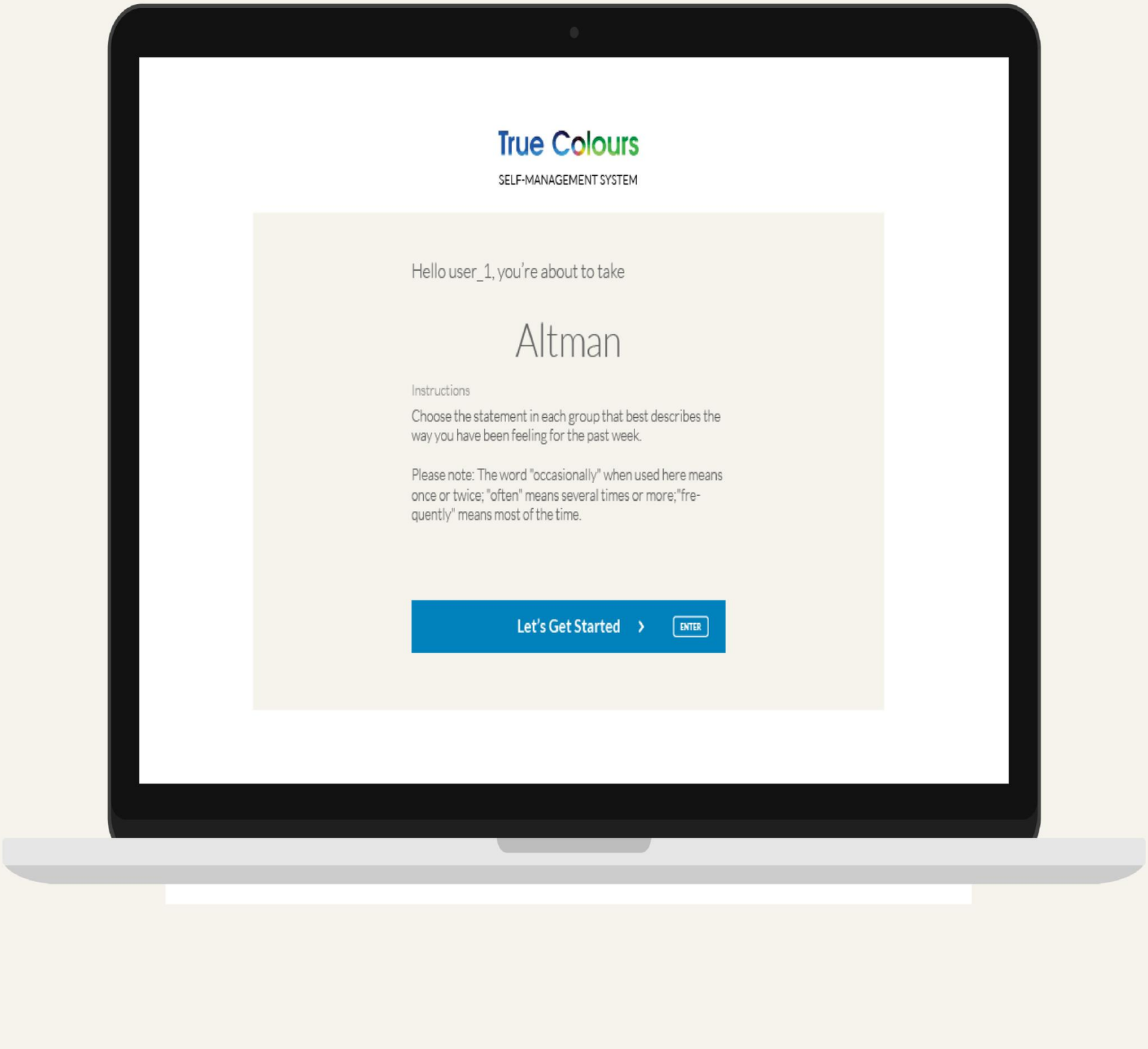


DEPRESSION (QIDS)

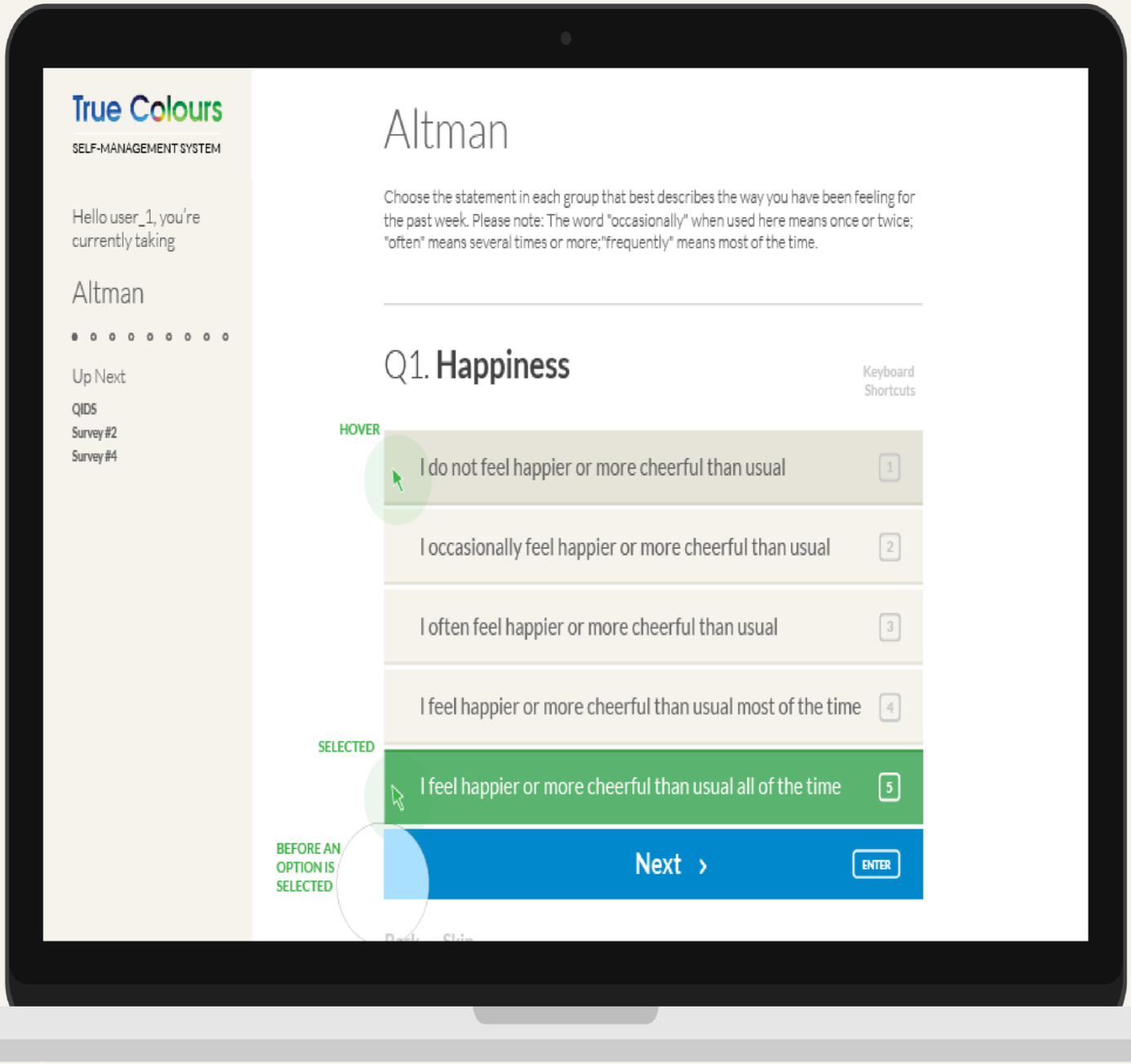


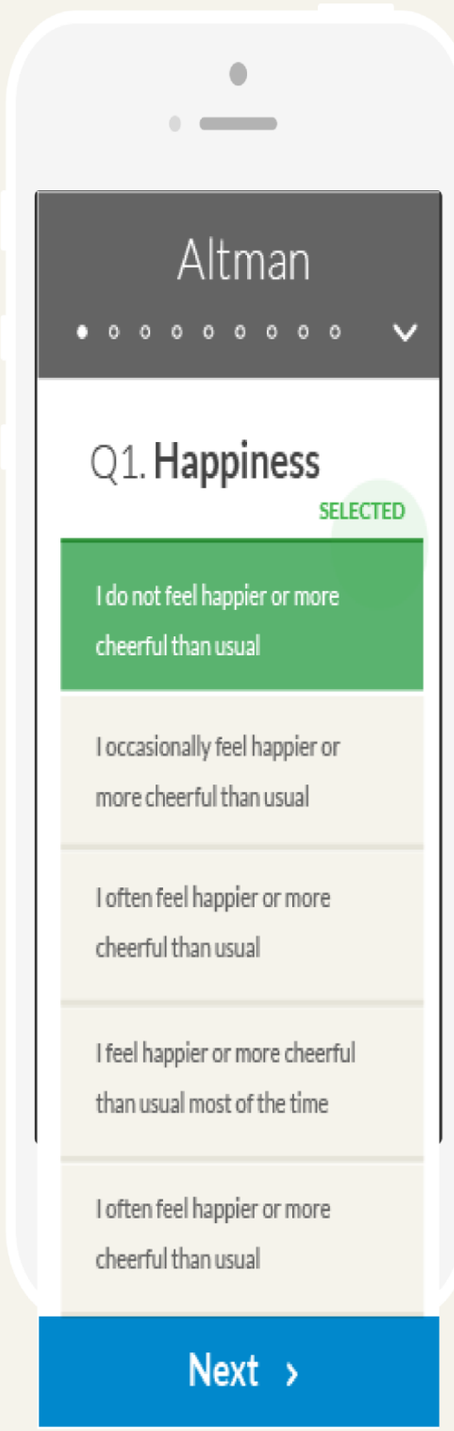

Mood Scores
0
5
10
20
0
10
20
30
40
50
Weeks

Welcome Screen

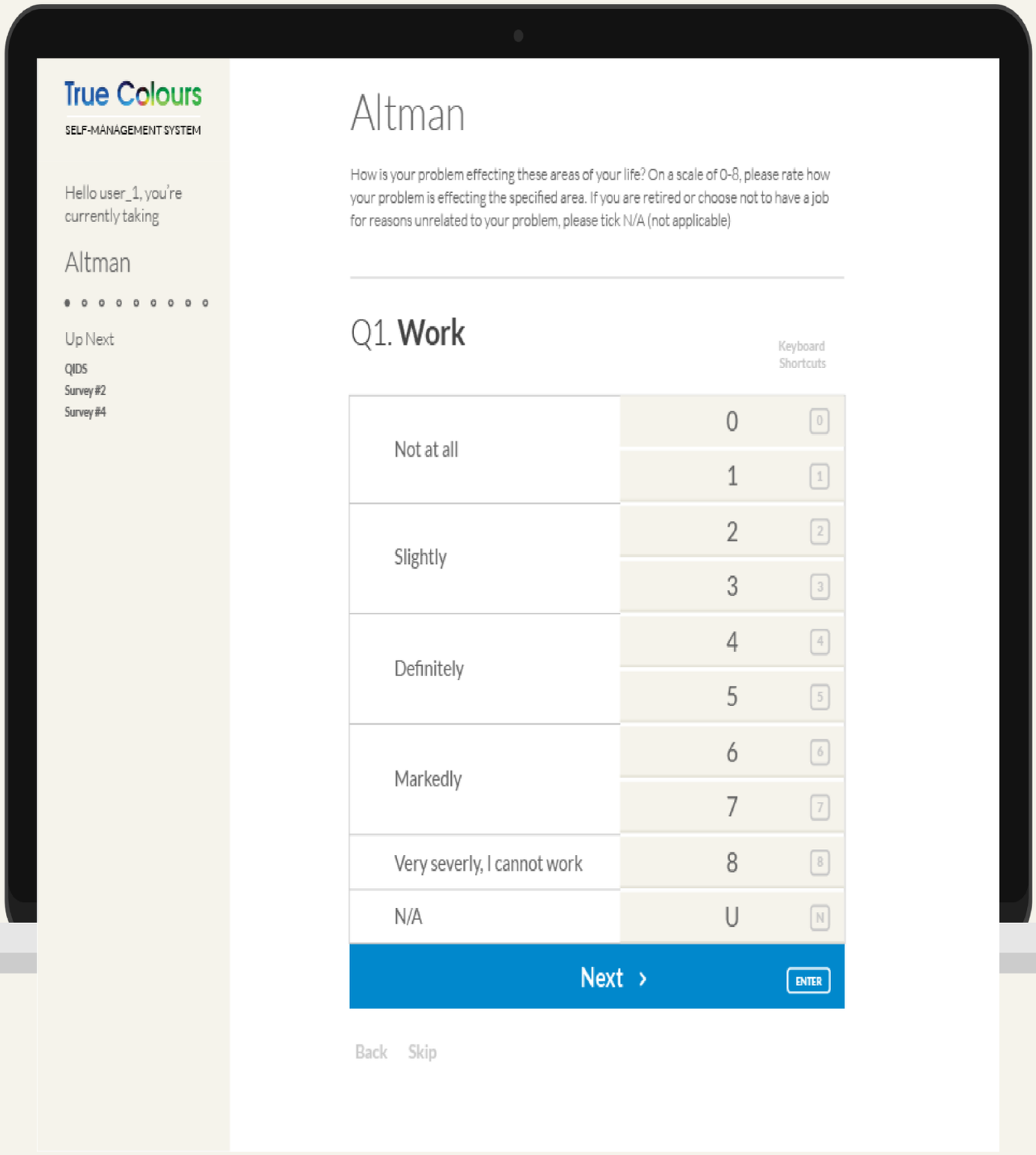


Multiple Choice Questions

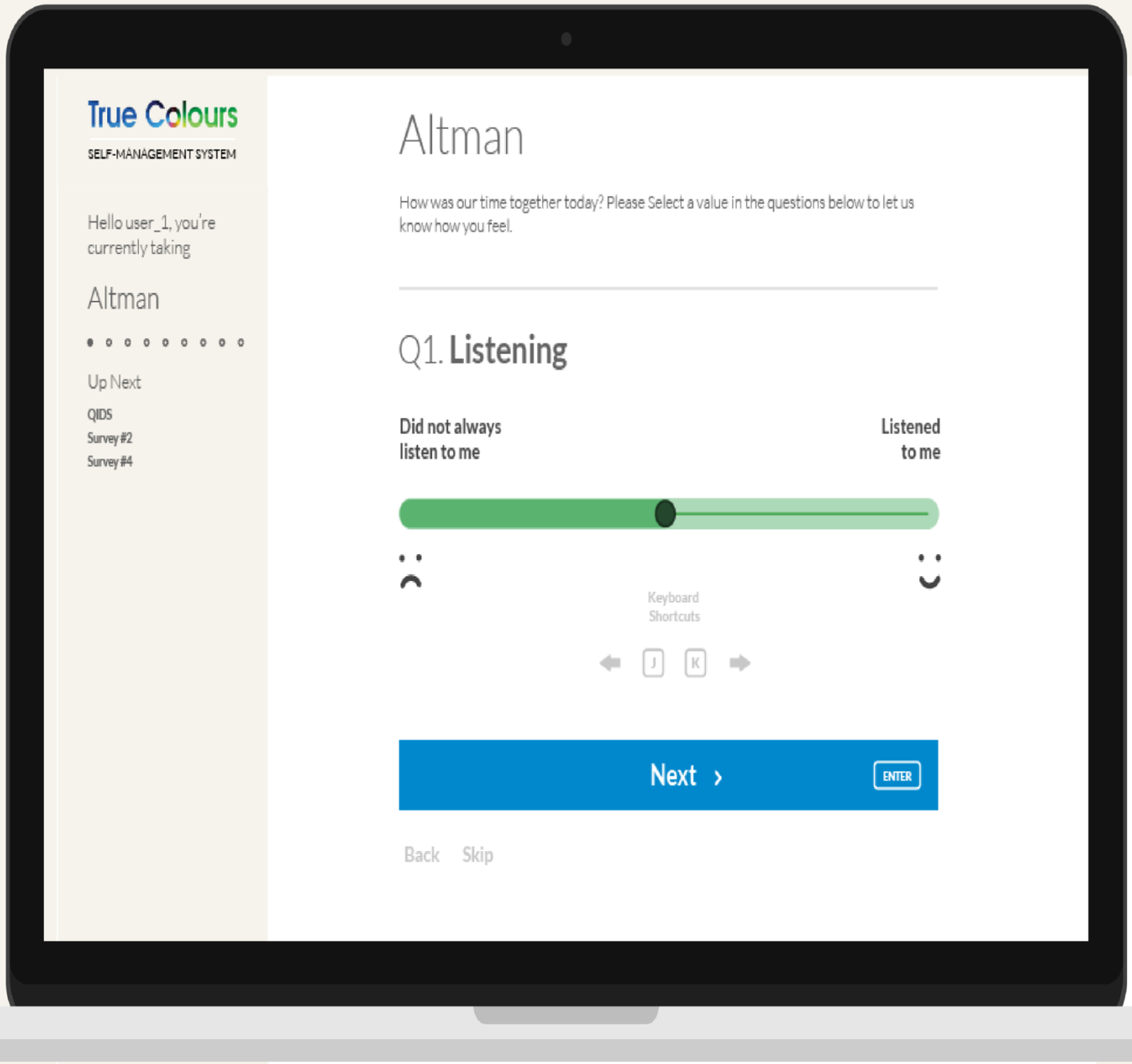


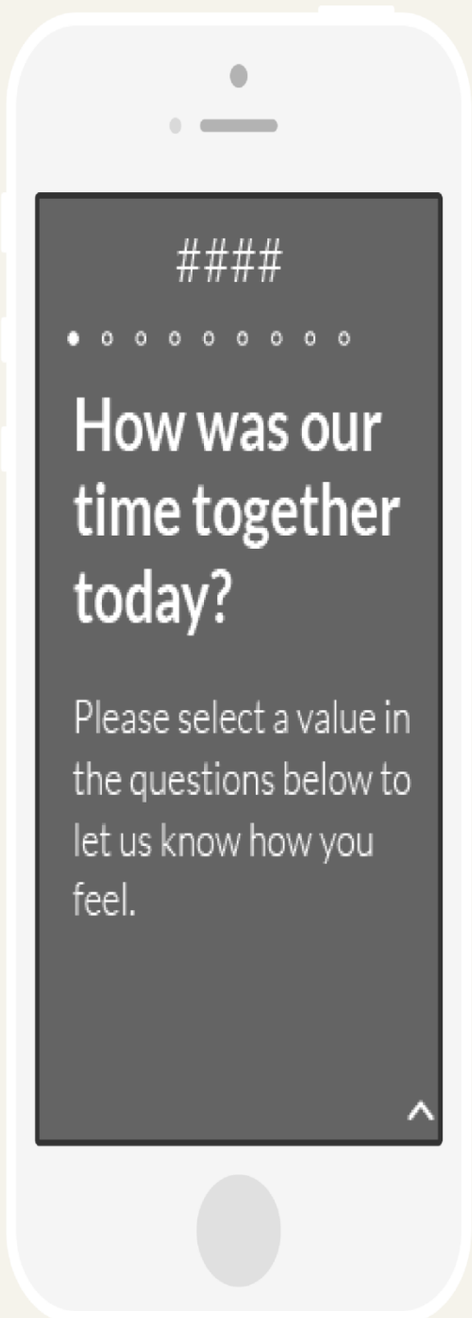


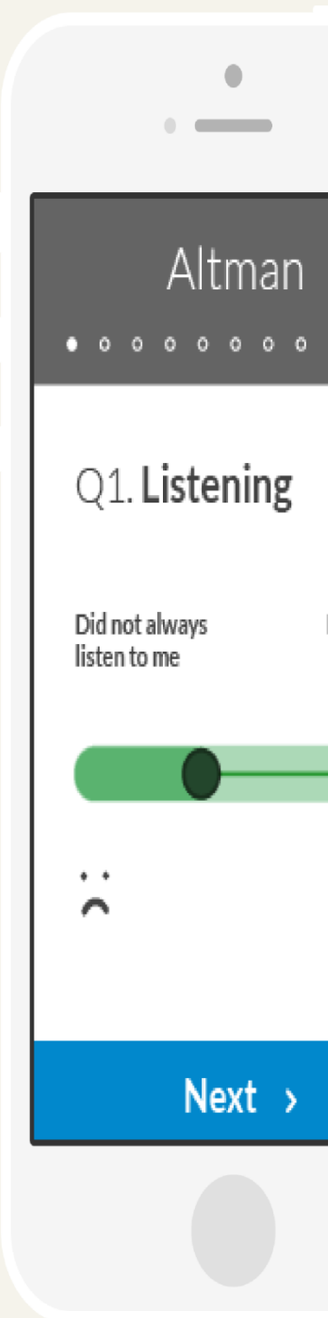
Grouped Radio Buttons



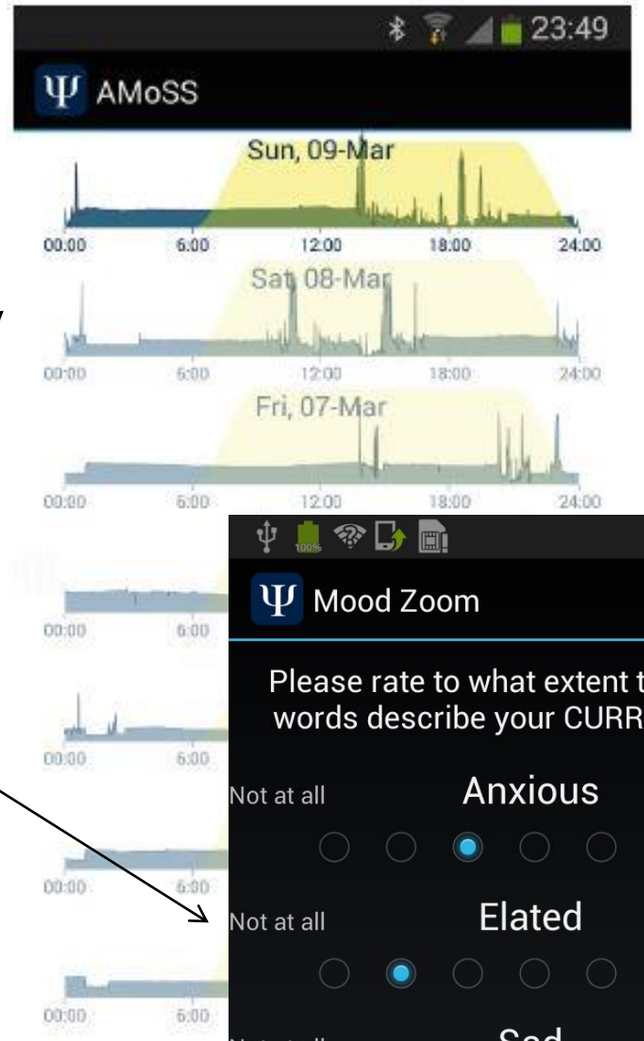
Slider Questions

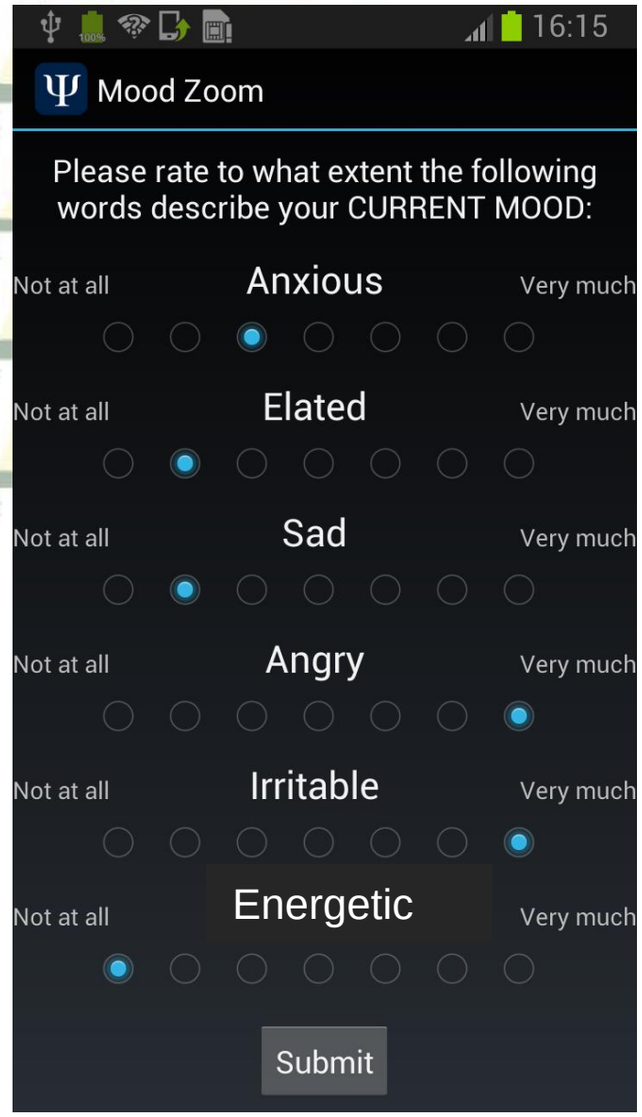




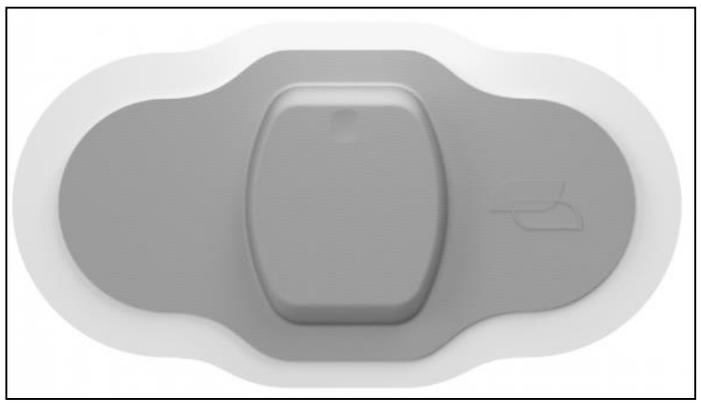


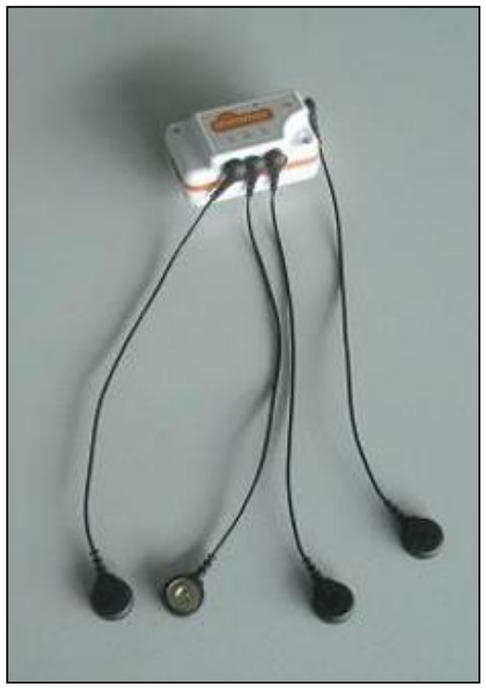

12:45
Thu. 3 May


23:49
AMoSS
Sun, 09-Mar
Sat, 08-Mar
Fri, 07-Mar
00:00
6:00
12:00
18:00
24:00


16:15
Mood Zoom
Please rate to what extent the following words describe your CURRENT MOOD:
Not at all
Anxious
Very much
Not at all
Elated
Very much
Not at all
Sad
Very much
Not at all
Angry
Very much
Not at all
Irritable
Very much
Not at all
Energetic
Very much
Submit

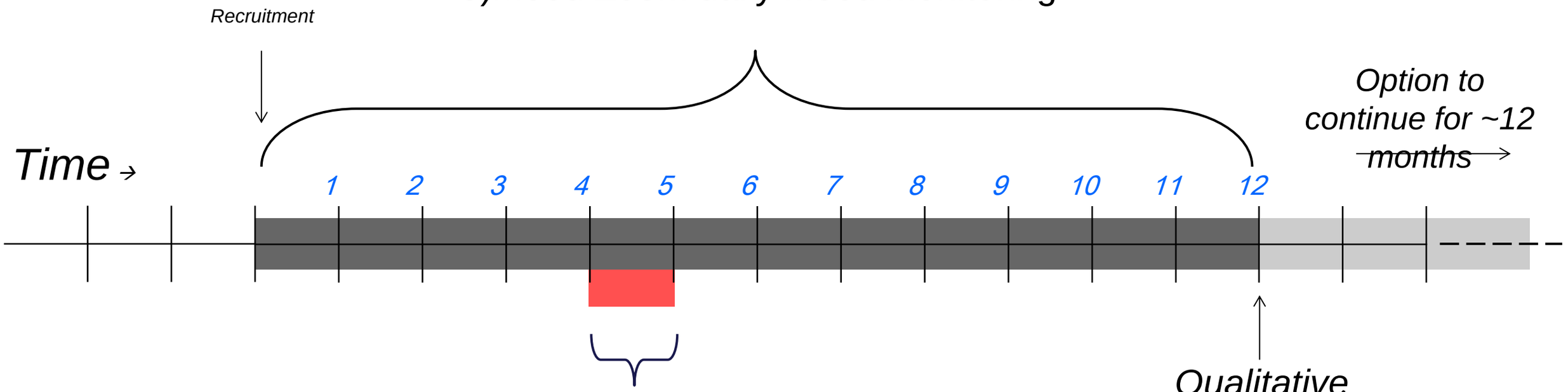

025332
GENEActiv





‘Low-intensity monitoring’ (12 weeks)

1)Research phone + AMoSS Study App
2)Fitbit One
3)GeneActiv Smart ‘Watch’
4)True Colours weekly mood monitoring
5)Mood Zoom daily mood monitoring



‘High-intensity monitoring’ (1 week)

(i)Blood pressure monitor and ear thermometer (3 x per day)
(ii)“Proteus” Patch (continuous, 3-7 days)
(iii)“Shimmer” ECG (continuous, 2-3 days)
(iv)Mood Zoom (current mood) 10 x per day
(v)Pulse oximeter (>40 year olds), night only

Some (very) preliminary results and observations

Recruitment ⟶

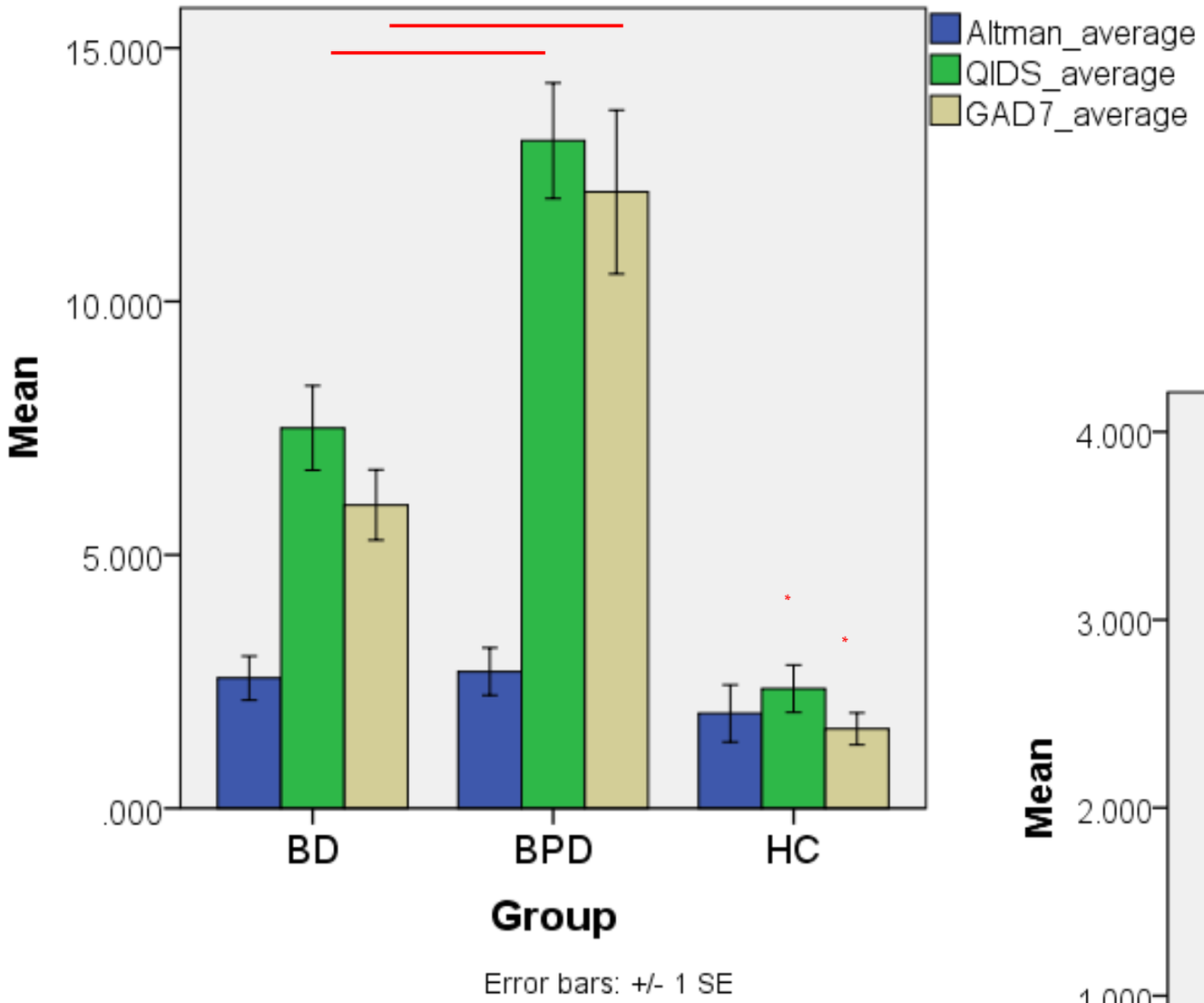
Healthy Controls (HC) = 28 (56%)

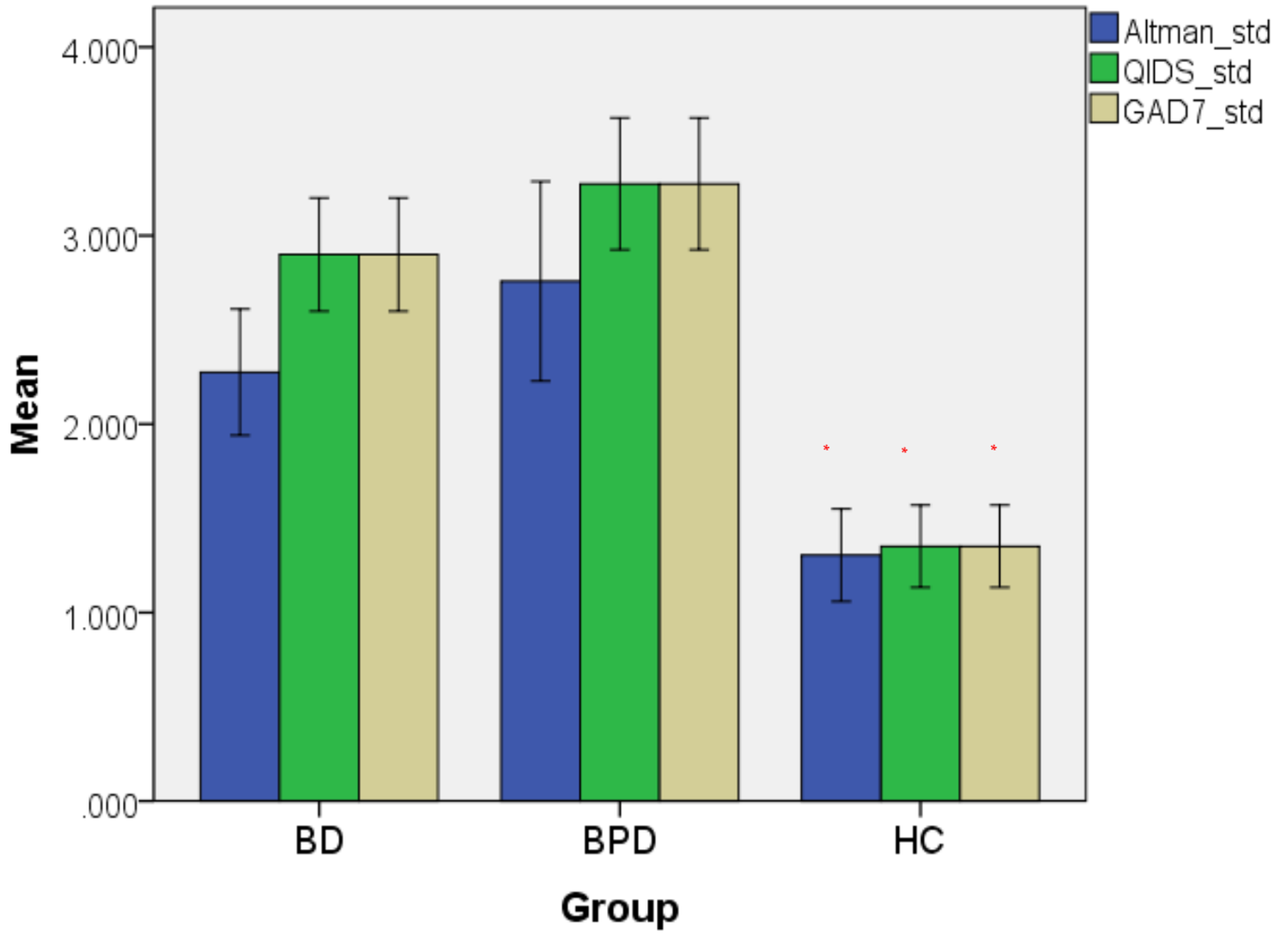
Bipolar Disorder (BD) = 36 (72%)

Borderline PD (BPD) = 12 (40%)

} Total N=76 (58%)

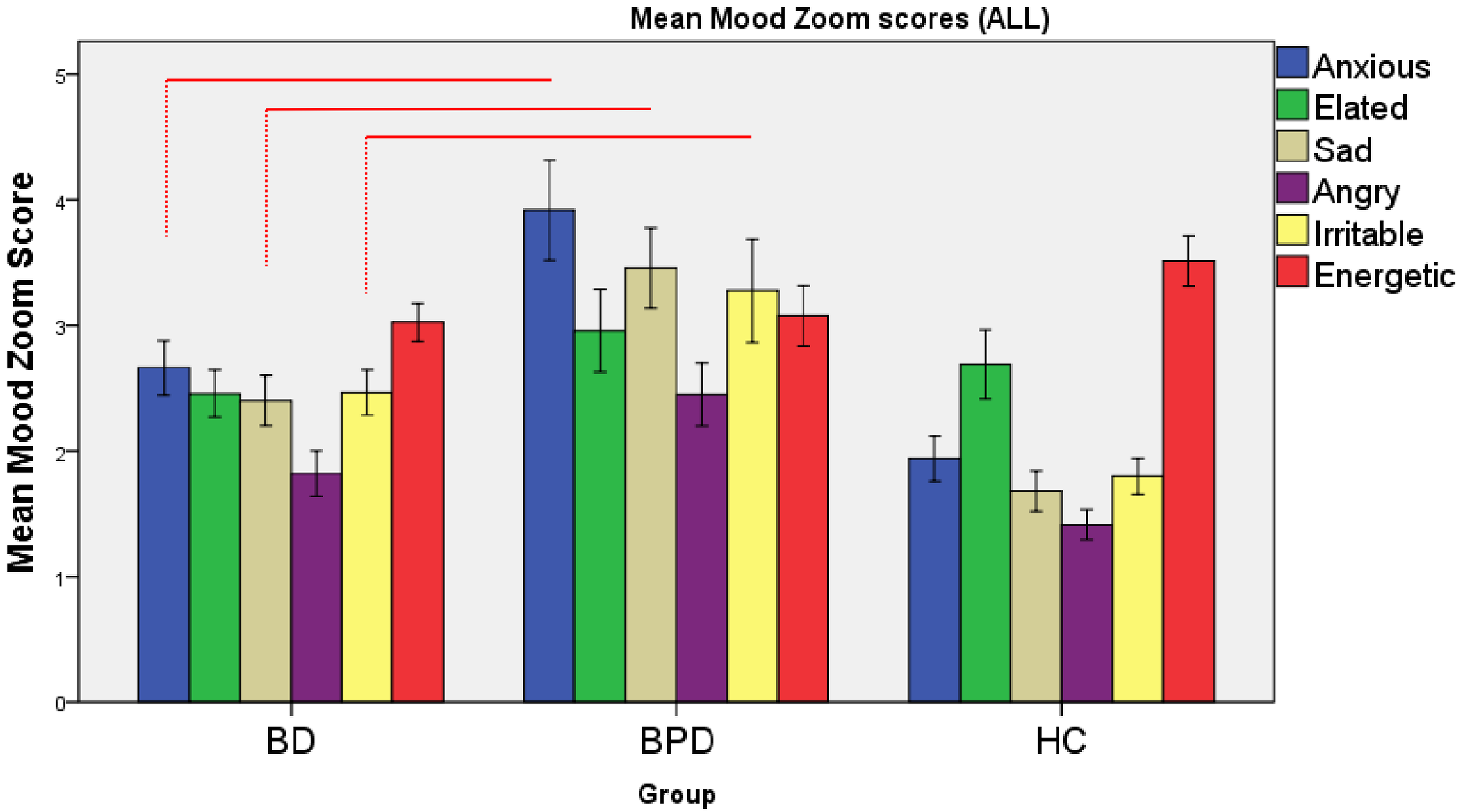
True Colours data



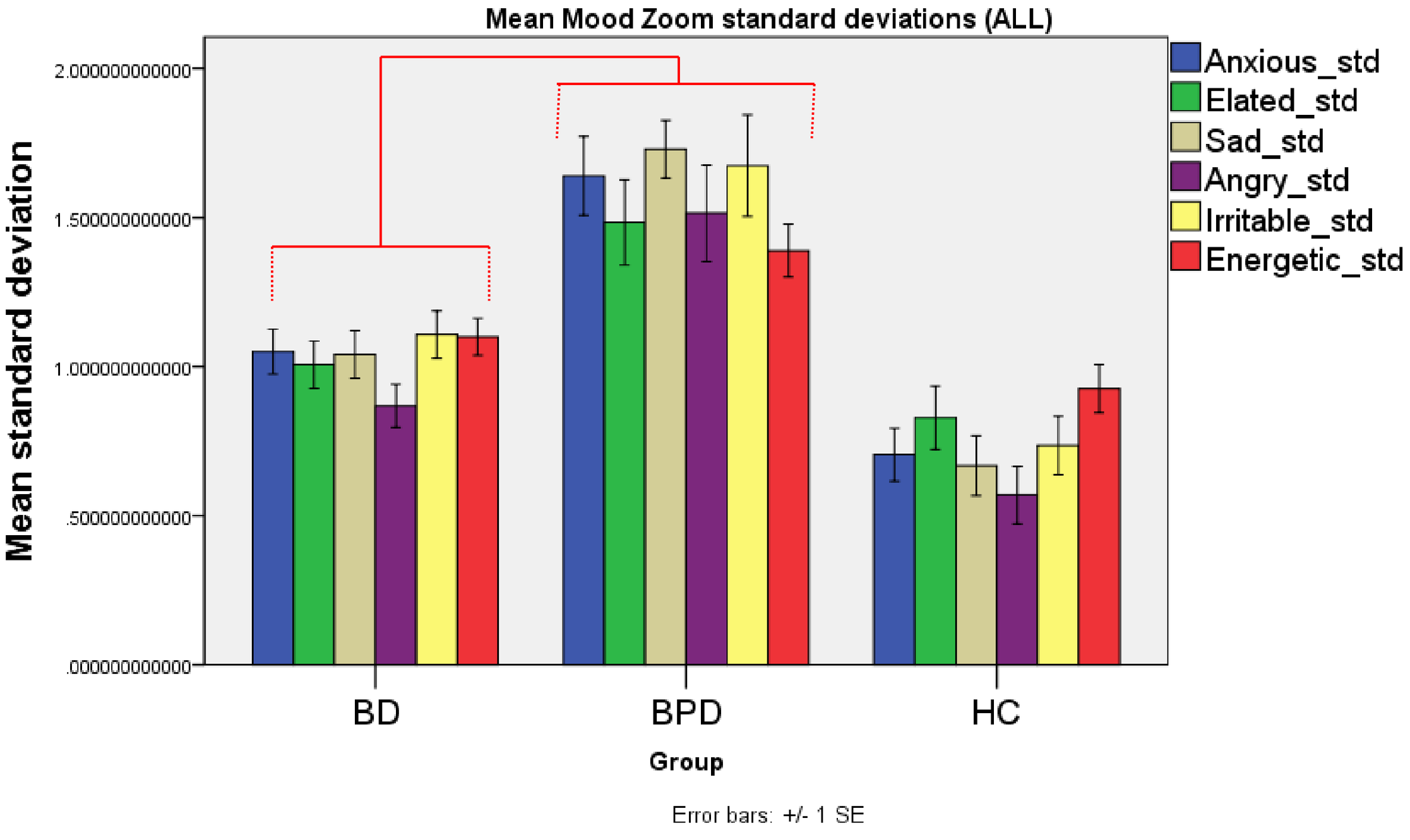


(Selecting cases where we have at least 4 responses)

Mood Zoom - means



Mood Zoom – standard devations



Conclusions

- What really matters in treatment is where we need to look for innovation
  - —Patient led
  - —Expert led
- Chronicity and anxiety
  - —Imagery as a novel emotional amplifier
  - —Increase potential to innovate new treatments
- How we measure Better Outcomes
  - —Will enhance and improve patient care

True Colours and

proving personalised and responsive care for people with bipolar disorder

The OXTEXT Team