

Screening for mental disorders in HIV/AIDS: Desirable, Feasible, Worthwhile?

John A. Joska

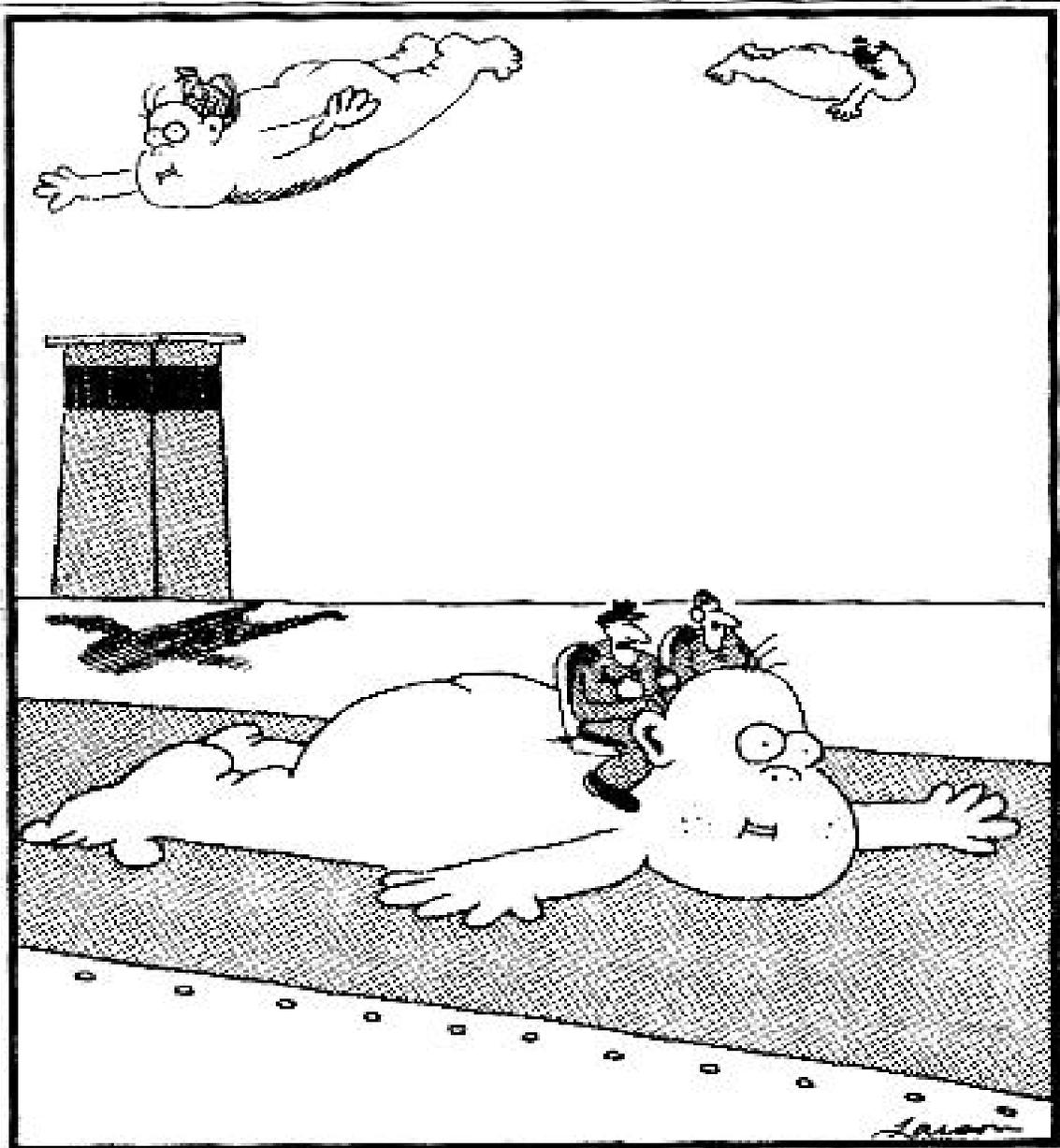
Division of HIV/Neuropsychiatry

Department of Psychiatry and Mental Health,

University of Cape Town

John.Joska@uct.ac.za





"Fuel ... check. Lights ... check. Oil pressure ... check. We've got clearance. OK, Jack—let's get this baby off the ground."

World Bank study: leading causes of DALY's by 2020

Rank	Worldwide		
	Disease or injury	DALYs ($\times 10^6$)	Cum %
..	All causes	1388.8	..
1	Ischaemic heart disease	82.3	5.9
2	Unipolar major depression	78.7	11.6
3	Road-traffic accidents	71.2	16.7
4	Cerebrovascular disease	61.4	21.1
5	Chronic obstructive pulmonary disease	57.6	25.3
6	Lower respiratory infections	42.7	28.4
7	Tuberculosis	42.5	31.4
8	War injuries	41.3	34.4
9	Diarrhoeal diseases	37.1	37.1
10	HIV	36.3	39.7

Overview

- Why screen
 - Impact of CMD
 - Prevalence of CMD
- What to screen for
 - CMDS
 - Common disorders specific to PLWHA in pre-ARV care
- How should it be done
 - Task-shifting: LC's vs nurses
 - Specialist support
- A way forward
 - Integrating into existing ARV care
 - Research into feasibility and utility

Why screen

- High prevalence of Common Mental Disorders (Goldberg and Lecrubier 1995)
- High impact of CMD
 - Adherence (Lun et al 2005, JAIDS)
 - Mortality (Leserman 2003, Biol Psy)
 - QOL, coping support (Collins et al 2006, AIDS)
- Detection without screening tools is low (Patel et al 2008, Psych Med) and are advocated in many published guidelines (NICE, 2004)
- Anti-depressant and psychosocial treatments are highly effective (NICE 2004)

Adult (aged 15–49 years) HIV prevalence in countries
which have conducted population-based HIV surveys in recent years

Countries	Population-based survey prevalence (%) (year)	2001 HIV prevalence (%) reported in 2002 Report on the global AIDS epidemic	2003 HIV prevalence (%) reported in 2004 Report on the global AIDS epidemic	2005 HIV prevalence (%) reported in 2006 Report on the global AIDS epidemic
Sub-Saharan Africa				
Benin	1.2 (2006)	3.6	1.9	1.8
Botswana	25.2 (2004)	38.8	38.0	24.1
Burkina Faso	1.8 (2003)	6.5	4.2	2.6
Burundi	3.6 (2002)	8.3	6.0	3.3
Cameroon	5.5 (2004)	11.8	7.0	5.4
Central African Republic	6.2 (2006)	12.9	13.5	10.7
Chad	3.3 (2005)	3.6	4.8	3.5
Côte d'Ivoire	4.7 (2005)	9.7	7.0	7.1
Equatorial Guinea	3.2 (2004)	3.4	NA	3.2
Ethiopia	1.4 (2005)	6.4	4.4	(0.9–3.5)
Ghana	2.2 (2003)	3.0	3.1	2.3
Guinea	1.5 (2005)	NA	2.8	1.5
Kenya	6.7 (2003)	15.0	6.7	6.1
Lesotho	23.5 (2004)	31.0	29.3	23.2
Malawi	12.7 (2004)	15.0	14.2	14.1
Mali	1.3 (2006) 1.7 (2001)*	1.7	1.9	1.7
Niger	0.7 (2006) 0.9 (2002)	NA	1.2	1.1
Rwanda	3.0 (2005)	8.9	5.1	3.1
Senegal	0.7 (2005)	0.5	0.8	0.9
Sierra Leone	1.5 (2005)	7.0	NA	1.6
South Africa	16.2 (2005) 15.6 (2002)	20.1	20.9	18.8
Swaziland	25.9 (2006–7)	33.4	38.8	33.4
Uganda	7.1 (2004–5)	5.0	4.1	6.7
United Republic of Tanzania	7.0 (2004)	7.8	9.0	6.5
Zambia	15.6 (2001–2)	21.5	16.5	17.0
Zimbabwe	18.1 (2005–6)	33.7	24.6	20.1
Asia				
Cambodia	0.6 (2005)	2.7	2.6	1.6
India	0.28 (2005–6)	0.8	0.9	0.9
Latin America and Caribbean				
Dominican Republic	1.0 (2002)	2.5	1.7	1.1
Haiti	2.2 (2005–6)	6.1	5.6	3.8

* includes male 15–59 years.

South Africa is the country with the largest number of HIV infections in the world.

HIV prevalence data collected from the latest round of antenatal clinic surveillance suggest that HIV infection levels might be levelling off, with prevalence among pregnant women at 30% in 2005 and 29% in 2006 (Department of Health South Africa, 2007). In addition, the decrease in HIV prevalence among young pregnant women (15-24 years) suggests a possible decline in the annual number of new infections. The epidemic varies considerably between provinces, from 15% in the Western Cape to 39% in the province of KwaZulu-Natal.

(Department of Health South Africa, 2007).

Psychiatric Disorders Are More Prevalent in HIV-Infected Patients

- HIV Cost and Services Utilization Study (HIV-infected patients) compared with National Comorbidity Survey Replication (noninfected population)

Psychiatric Disorder, %	Prevalence in Survey Population	
	HCSUS (N = 2864)	NCS-R (N = 9282)
Major depression	36.0	16.6
Dysthymic disorder	26.5	2.5
General anxiety disorder	15.8	5.7
Panic disorder	10.5	4.7
Any drug or alcohol use disorder	50.1	27.8

Psychiatric Disorders in New Medical Intakes in an Inner-City HIV Clinic

Psychiatric Disorder, %	Prevalence
Psychiatric conditions (nonsubstance use)	54
▪ Major depression	20
▪ Adjustment disorder	18
Substance abuse	74
Cognitive impairment	18
Personality disorder	26*

Lyketsos CG, et al. AIDS. 1996;10:1033-1039.

*Treisman GJ and Hutton HH. Unpublished data.

Tygerberg ID clinic 2002-2003¹

Table 2

Comparison of rates of psychiatric disorder at baseline and on follow-up

Clinical diagnoses	Baseline (<i>n</i> = 149) [<i>n</i> (%)]	Follow-up (<i>n</i> = 65) [<i>n</i> (%)]
Current major depression	52 (34.9)	13 (20)
Past major depression	27 (18.1)	10 (15.4)
Dysthymic disorder	32 (21.5)	2 (3.1)
Suicidality	13 (8.7)	4 (6.2)
PTSD	22 (14.8)	17 (26.2)
Generalized anxiety disorder	10 (6.7)	4 (6.2)
Alcohol dependence	15 (10.1)	1 (1.5)

Burden of HIV in patients with SMI

- Burden of HIV in SA
 - Ante-natal prevalence:2005: 30.2%
 - Adult numbers WCape 2008: 283 000, 22 000 stage IV¹
- Burden of HIV in SMI
 - HIV SMI prevalence globally: 3-50%
 - HIV SMI prevalence in SA: 5% (VH)- 28% (Durban 2001)
- Burden of SMI in HIV
 - Mania prevalence 6% in late HIV (Uganda)
 - Psychosis prevalence in late HIV: ?3-15%²

¹ WCape ARV monitoring report 2006

² Atkinson et al 2005

Problem of psychiatric disorders

- Depression delays initiation of HAART
- More Rapid Discontinuation of ART in Depressed Persons
- Depression Increases Mortality in Patients on ART*
- Depressed patients on anti-depressants show improved adherence to those not
- Depressed patients with HIV have a lower quality of life

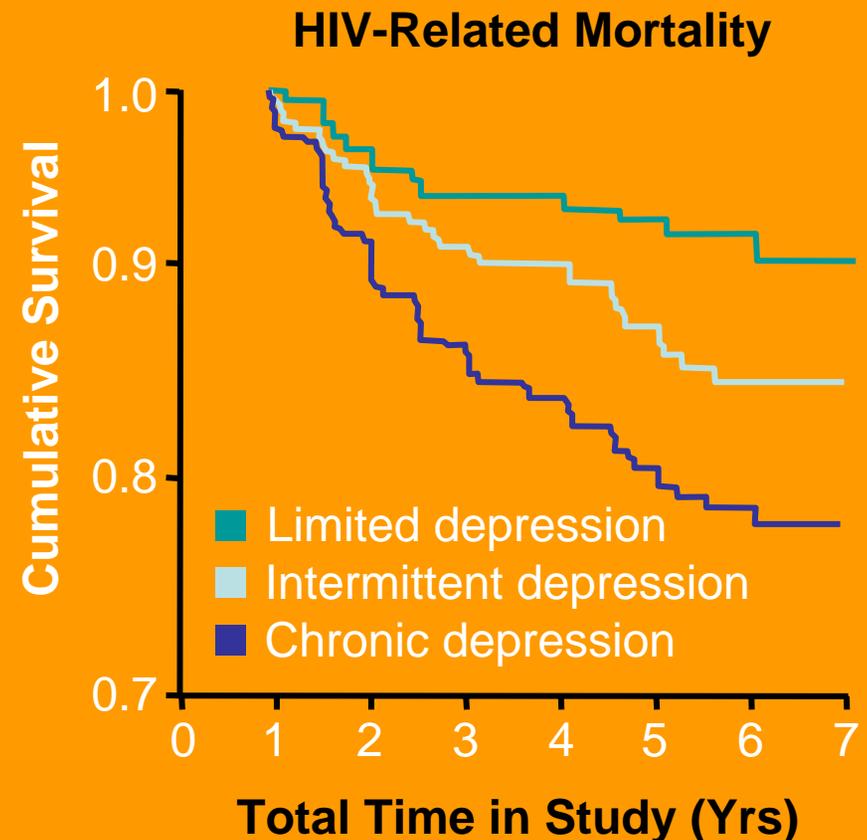
1 Fairfield KM, et al. J Gen Intern Med. 1999;14:446-448.

2 Bangsberg DR, et al. ICAAC 2001. Abstract 1721

3 Yun LW, et al. J Acquir Immune Defic Syndr. 2005;38:432-438.

Depression Increases Mortality in Patients on ART

- Study assessed association of depressive symptoms with HIV-related mortality and decline in CD4+ cell counts in HERS cohort (N = 765)
- Depression (CES-D) defined as limited, intermittent, or chronic
- Multivariate analysis: increased RR of mortality in women with chronic depressive symptoms (2.0; 95% CI: 1.0-3.8) vs those with limited or no symptoms
- Mortality in patients with CD4+ < 200
 - Chronic depression: 54% (RR: 4.3; 95% CI: 1.6-11.6) vs limited depression
 - Intermittent depression: 48% (RR: 3.5; 95% CI: 1.1-10.5) vs limited depression
 - Limited depression: 21%



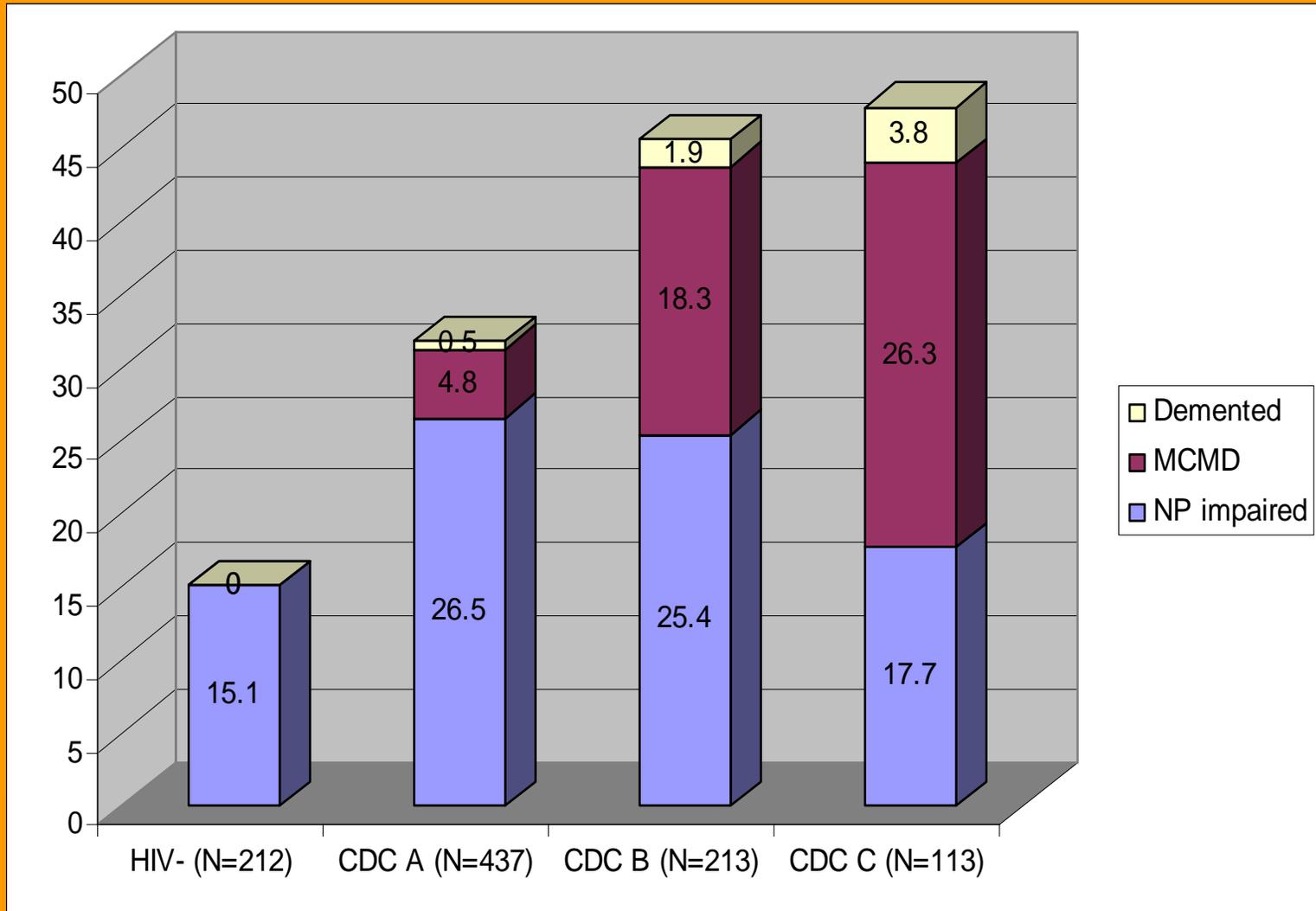
Physician recognition of CMDs is generally poor

- Education helps but has short-lived effects (Gerrity et al 1999)
- Physicians in developing countries may detect only a third of cases (Patel et al 1998)
- Collaborative care programmes can improve outcomes for PC depression (Bower et al 2006)
 - A new role player- case manager- to assist in management
 - Improving liaison betw PHC and mental health specialists
 - Mechanisms to collect and share information on patient progress

What should we be screening for

- Depressive disorders
 - Major depressive disorder (35%)
 - Adjustment disorder (with depressed mood) (18%)
- Anxiety disorder
 - Post-traumatic stress disorder (15%)
 - Panic disorder (10%)
 - ?Generalised anxiety disorder (7-15%)
- Bipolar disorders (manic episodes- ADs) (2-5%)
- Alcohol and substance abuse disorders (>10%)
- Neurocognitive disorders (30%)

Percentage of subjects with neurocognitive disorders (HNRC)



National Antiretroviral Treatment Guidelines 2004: **Patient selection criteria**

Indication for ART

Medical criteria:

CD4 count <200 cells/mm³ irrespective of WHO stage

OR

WHO Stage IV disease irrespective of CD4 count

Psycho-social considerations (not exclusion criteria):

- Demonstrated reliability, i.e. patient has attended three or more scheduled visits to an HIV clinic
- *No active alcohol or other substance abuse*
- *No untreated active depression*

- Disclosure: it is strongly recommended that patients have disclosed their HIV status to at least one friend or family member OR have joined a support group
- Insight: patients need to have accepted their HIV-positive status
- Patients should be able to attend the antiretroviral centre on a regular basis or have access to services that are able to maintain the treatment chain. Transport may need to be arranged for patients in rural areas or for those far away from the treatment site.

How do we screen

Psychological Medicine (2008), 38, 221–228. © 2007 Cambridge University Press
doi:10.1017/S0033291707002334 Printed in the United Kingdom

ORIGINAL ARTICLE

Detecting common mental disorders in primary care in India: a comparison of five screening questionnaires

V. Patel^{1,2*}, R. Araya³, N. Chowdhary², M. King⁴, B. Kirkwood¹, S. Nayak⁵, G. Simon⁶
and H. A. Weiss¹

¹*London School of Hygiene and Tropical Medicine, London, UK*

²*Sangath, Alto-Porvorim, Goa, India*

³*University of Bristol, Bristol, UK*

⁴*Royal Free and University College Medical School, London, UK*

⁵*Voluntary Health Association of Goa, Goa, India*

⁶*Center for Health Studies, Group Health Cooperative, Seattle, USA*

Background. Screening of patients for common mental disorders (CMDs) is needed in primary-care management programmes. This study aimed to compare the screening properties of five widely used questionnaires.

Method. Adult attenders in five primary-care settings in India were recruited through systematic sampling. Four questionnaires were administered, in pairs, in random order to participants: the General Health Questionnaire (GHQ, 12 items); the Primary Health Questionnaire (PHQ, nine items); the Kessler Psychological Distress Scale (K10, 10 items), and from which we could extract the score of the shorter 6-item K6; and the Self-Reporting Questionnaire (SRQ, 20 items). All participants were interviewed with a structured lay diagnostic interview, the Revised Clinical Interview Schedule (CIS-R).

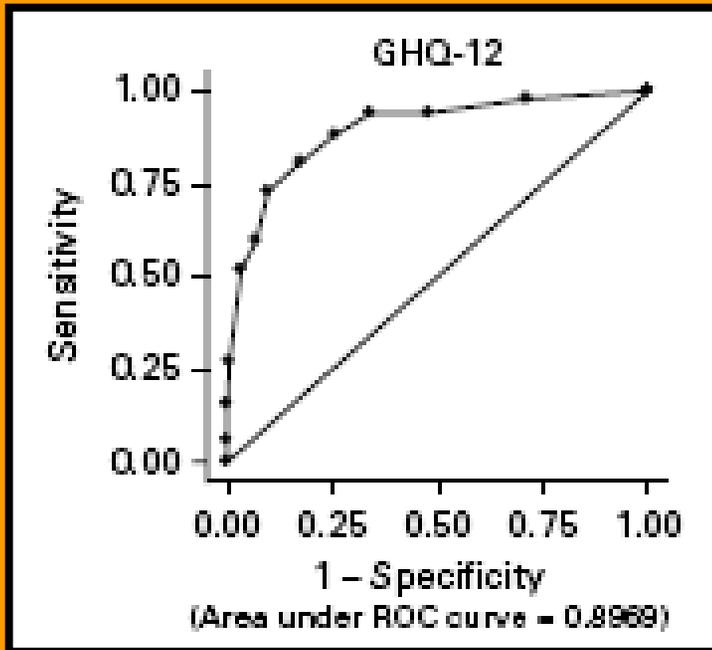
Results. Complete data were available for 598 participants (participation rate 99.3%). All five questionnaires showed moderate to high discriminating ability; the GHQ and SRQ showed the best results. All five showed moderate to high degrees of correlation with one another, the poorest being between the two shortest questionnaires, K6 and PHQ. All five had relatively good internal consistency. However, the positive predictive value (PPV) of the questionnaires compared with the diagnostic interview ranged from 51% to 77% at the optimal cut-off scores.

Conclusions. There is little difference in the ability of these questionnaires to identify cases accurately, but none showed high PPVs without a considerable compromise on sensitivity. Hence, the choice of an optimum cut-off score that yields the best balance between sensitivity and PPV may need to be tailored to individual settings, with a higher cut-off being recommended in resource-limited primary-care settings.

Detection of CMD 2008: Patel: Methods

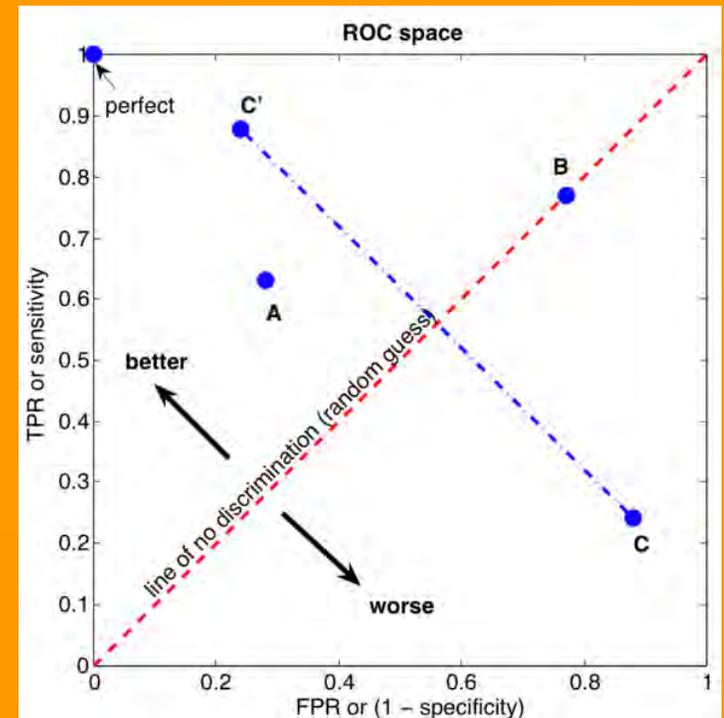
- 5 screening questionnaires
 - International use
 - Brevity (20 Qs)
 - Face validity
- Used:
 - PHQ-9 (depression)
 - GHQ (Goldberg and Williams)
 - SRQ: 20 items, WHO tool
 - K10 (plus K6)
- Standard diagnostic interview: CIS-R

Detection of CMD 2008: Patel: Results



A statistical method whereby the actual number of cases detected (sensitivity) vs the number of cases detected which are not cases (false positive or 1-specificity) using a "GOLD STD" (here the CIS-R) and the tool in question- the GHQ.

1 is an ideal AUC, while $>.075$ is good



		Condition (as determined by " <u>Gold standard</u> ")		
		Positive	Negative	
Test outcome	Positive	True Positive	False Positive (<u>Type I error</u> , <u>P-value</u>)	→ Positive predictive value
	Negative	False Negative (<u>Type II error</u>)	True Negative	→ <u>Negative predictive value</u>
		↓ <u>Sensitivity</u>	↓ <u>Specificity</u>	

Ability to detect cases- as sensitivity drops, you miss some cases

Measures how specific your test is to the condition in question- as it drops, you pick up extra cases

You don't want to miss cases, and you don't mind examining some extra negative cases.

		Patients with <u>bowel cancer</u> (as confirmed on <u>endoscopy</u>)		
		<i>Positive</i>	<i>Negative</i>	?
FOB test	<i>Positive</i>	TP = 2	FP = 18	$= TP / (TP + FP)$ $= 2 / (2 + 18)$ $= 2 / 20 \equiv \mathbf{10\%}$
	<i>Negative</i>	FN = 1	TN = 182	$= TN / (TN + FN)$ $= 182 / (1 + 182)$ $= 182 / 183 \equiv \mathbf{99.5\%}$
		\downarrow $= TP / (TP + FN)$ $= 2 / (2 + 1)$ $= 2 / 3 \equiv \mathbf{66.67\%}$	\downarrow $= TN / (FP + TN)$ $= 182 / (18 + 182)$ $= 182 / 200 \equiv \mathbf{91\%}$	

We want then: A highly sensitive screening tool, with at least moderate specificity?

A good tool required sensitivity and PPV of >50%

Table 4. Acceptable cut-off scores for the questionnaires against the ICD-10 diagnosis for any common mental disorder (CMD) criterion

Questionnaire	Cut-off score ^a	Proportion correctly classified (%)	Sensitivity (%)	Specificity (%)	Positive predictive value (%)	Positive likelihood ratio
GHQ	5/6	87	73	90	61.2	7.58
	6/7	87	60	93	64.5	8.73
	7/8	89	52	97	77.1	16.16
K10	5/6	85	65	89	52.5	5.63
	6/7	87	54	93	61.9	8.26
K6	3/4	86	58	91	56	6.47
SRQ	11/12	88	64	90	51.8	7.86
	12/13	89	55	92	53.3	10.36

A tool for HIV/AIDS clinic settings

- Medline search using combinations of the terms "Screening instruments" AND "HIV/AIDS" AND "Mental Disorders/illness"
- Pence BW, Miller WC, Whetten K, Eron JJ, Gaynes BN: "Prevalence of DSM-IV-defined mood, anxiety, and substance use disorders in an HIV clinic in the Southeastern United States"
J Acquir Immune Defic Syndr. 2006 Jul;42(3):298-306
- "Substance Abuse and Mental Illness Screener": SAMISS

SAMISS properties: Face Validity

- Developed for HIV
 - Includes SA questions
 - Excludes somatic problems
- Brief: takes <10 mins
- SA: 3 items from WHO AUDIT + others
- MI: 8 CIDI items looking for CMD in HIV:
 - Mania
 - Depression
 - GAD
 - PTSD
 - Panic
 - Adjustment disorder

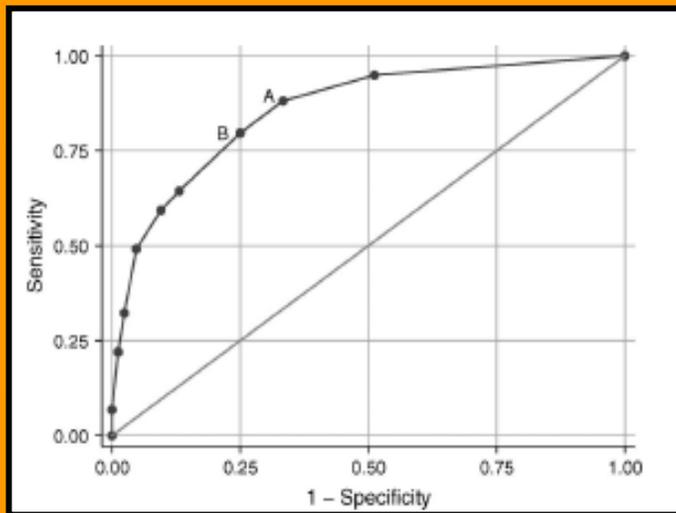
SAMISS properties:

TABLE 3. Test Characteristics of SAMISS

Screening Module	Diagnosis*	No Diagnosis	Sensitivity (95% CI)	Specificity (95% CI)	LR+	LR-
SA	29	119	86.2 (68.3 to 96.1)	74.8 (66.0 to 82.3)	3.4	0.18
MI	59	84	94.9 (85.9 to 98.9)	48.8 (37.7 to 60.0)	1.9	0.10
Combined†	68	75	97.1 (89.8 to 99.6)	44.0 (32.5 to 55.9)	1.7	0.067

*From SCID.

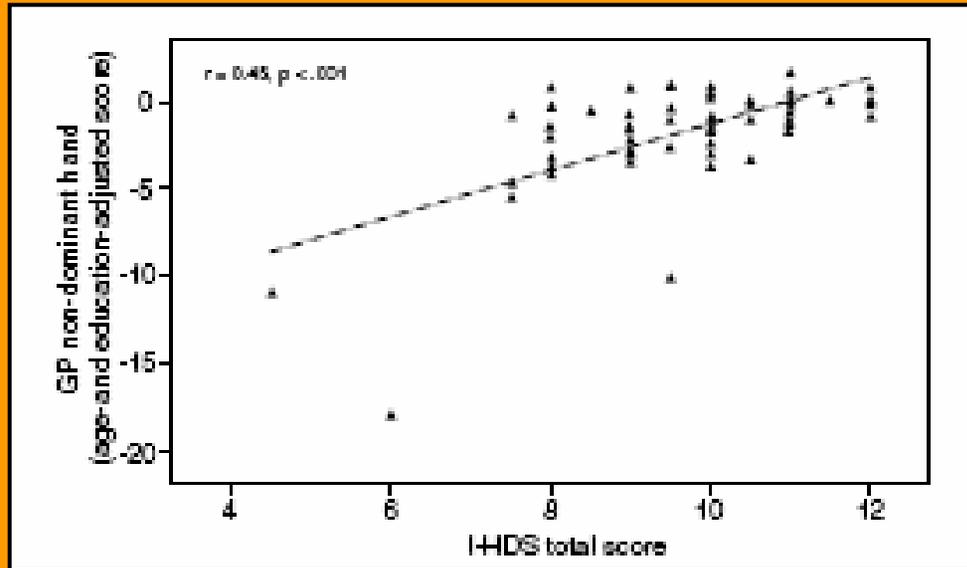
†Positive screen on either SA or MI module, compared with any SCID diagnosis.



High sensitivity (detects most cases),
moderate specificity (detects some false
positives)

AUC=0.86

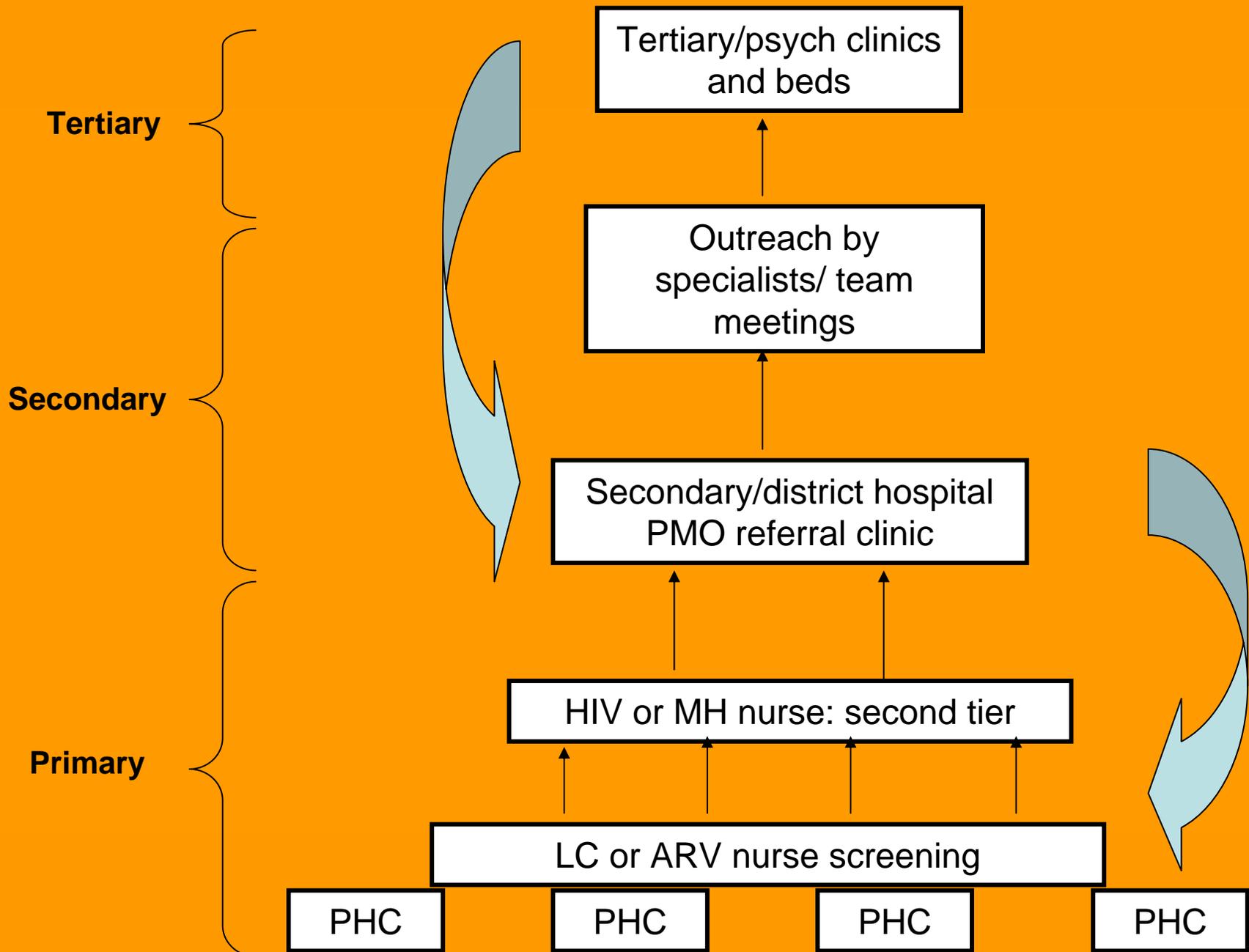
Screening for neurocognitive disorders: The IHDS



Cut-off score <10: Sensitivity 80%, Specificity 55%

How should screening be done

- Use brief, valid screening tools
- Use existing infra-structure and human resources where possible
- Collaboration, relationship with Province
- As part of a collaborative care model
 - Introduce a “case manager” to provide assistance for detected cases ITO second tier screening: the HIV/mental health nurse
 - Mechanisms of liaison betw PHC and MHC: HIV nurse visits + referral clinic at secondary hospitals
 - Information sharing on progress: referral forms, handing patient back to PHC with feedback
- Constant review



A mental health screening project in 6 phases!

- 1. *Agreement*: nurse vs LC using screening tool
 - Who should screen: using existing personnel, probably lay counsellors, problem of JD
 - Need to establish proof of principle first
- 2. *Validation*: nurse/doctor check tool against others PLUS MINI
 - Measuring sensitivity/specificity of SAMISS/IHDS against MINI
 - No easy gold std for IHDS (?GP non-dominant)
- 3. *Referral* needs, criteria
 - Measuring referral patterns, needs, reasons e.g. for admission, complexity, psychotropics
- 4. *Outcomes*: which? QOL? Retention?
 - Retention includes mortality + transfers out (40%) AND LTFU (60%-presumed non-adherence)
- 5. *Replication*: more clinics...
 - Start with 2-3 more clinics
 - Politics of who screens? Do we employ our own LC's or can we sell to existing staff?
- 6. *Neuropsychiatric assessment*
 - Characterising who gets referred, why, and their outcomes

Challenges can be overcome

