

Evidence Based Mental Health

Indice

1 Questions

2 Diagnosis

3 Treatment

1

Questions

Introduction

To introduce participants to the basic skills necessary to apply the principles of evidence based psychiatry including:

- | | |
|---|---|
| 1 | Formulating precise, answerable, structured clinical question |
| 2 | Searching for evidence |
| 3 | Critically appraising evidence |
| 4 | Tailoring research findings to individual patient in clinical practice |
| 5 | Overcoming barriers to implementation of evidence based clinical practice |

Well built clinical question can be divided into four sections:

Patient or problem	Intervention	Comparison intervention	outcome
Describe your patient and their problem. This may be a diagnosis or a different kind of problem	Describe the main intervention or manoeuvre: <ul style="list-style-type: none">- a treatment- a cause- a prognostic factor	In the case of treatment describe a comparative intervention	Describe what you hope to achieve or possible effects that the manoeuvre could have on your patient



Patient or problem	Intervention	Comparison intervention	outcome
<p>.....</p>	<p>.....</p>	<p>.....</p>	<p>.....</p>
<p>Describe your patient and their problem. This may be a diagnosis or a different kind of problem</p>	<p>Describe the main intervention or manoeuvre:</p> <ul style="list-style-type: none"> - a treatment - a cause - a prognostic factor 	<p>In the case of treatment describe a comparative intervention</p>	<p>Describe what you hope to achieve or possible effects that the manoeuvre could have on your patient</p>

Patient or problem	Intervention	Comparison intervention	outcome
In a middle aged male with schizophrenia	What is likelihood clozapine	Compared to aloperidolo	Producing fewer extra pyramidal side effects but similar better reduction in symptom
Describe your patient and their problem. This may be a diagnosis or a different kind of problem	Describe the main intervention or manoeuvre: <ul style="list-style-type: none"> - a treatment - a cause - a prognostic factor 	In the case of treatment describe a comparative intervention	Describe what you hope to achieve or possible effects that the manoeuvre could have on your patient

2

DIAGNOSIS

DIAGNOSIS

Aim

To develop the ability to:

Determine whether the results and conclusion of a diagnostic study are valid

Decide if the results are sufficiently focused and applicable to your problem

Determine what the results are and apply them to the clinical problem

Critical appraisal checklist for an article on diagnosis

Are the result of this diagnostic study valid?

- | | |
|---|--|
| 1 | Was there an independent, blind, comparison with a reference ("gold") standard of diagnosis |
| 2 | Was the diagnostic test evaluated in an appropriate spectrum of patient (like those in whom used in practice?) |
| 3 | Was the reference standard applied regardless of the diagnostic test result? |

Critical appraisal checklist for an article on diagnosis

	Disorder present	Disorder absent	Totals
Diagnostic test positive	a True positive	b True positive	a+b
Diagnostic test negative	c False negative	d True negative	c+d
Totals	a+c	b+d	a+b+c+d

Sensitivity	The proportion of true cases correctly identified by the test	$a/(a+c)$
Specificity	The proportion of true negatives correctly identified by the test	$d/(b+d)$
Positive predictive value	The proportion of test positives who have the target disorder	$a/(a+b)$
Pretest probability	the probability that a subject will have the disorder before the test (for a screening test, this will be the same as the prevalence of the disorder)	$(a+c)/(a+b+c+d)$

Pre-test odds	The odds that a subject will have the disorder before the test	Pretest probability/ 1 - Pre-test probability
Likelihood ratio for a negative result (LR+)	The odds that a negative test result will be present in a patient with the target disorder compared to with a patient without the target disorder	(1 – sensitivity)/ specificity
	Generally a LR – of 0.1 or less means that a positive test result will make a big change from pre-test to post-test probability – making the test useful for ruling IN the diagnosis (especially when the pre-test is less than about 30%)	Pre-test odds x likelihood ratio = Post-test odds

Post-test probability	Is the probability that the subject will have the disorder after the test	Post-test odds/ Post-test odds + 1
Likelihood ratio for a positive result (LR +)	<p>The odds that a positive test result will be present in a patient with the target disorder compared to with a patient without the target disorder</p> <p>Generally, a LR + of 10 or more means that a positive test result will make a big change from pre-test to post-test probability – making the test useful for ruling IN the diagnosis (especially when the pre-test is 30% or more: NB a screening test will usually need to do better than this)</p>	$\frac{a}{a+c} / \frac{b}{b+d}$ <p>=</p> <p>Sensitivity/(1-specificity)</p>

Critical appraisal checklist form for a diagnostic study

Is the research valid

1	Was there an independent, blind comparison with a reference ("gold") standard of diagnosis?	<input type="checkbox"/>	Yes	Comment
		<input type="checkbox"/>	No	
2	Was the diagnostic test evaluated in a appropriate spectrum of patient (like those in whom it would be used in practice)?	<input type="checkbox"/>	Yes	Comment
		<input type="checkbox"/>	No	
3	Was the reference standard applied regardless of the diagnostic test result?	<input type="checkbox"/>	Yes	Comment
		<input type="checkbox"/>	No	

Critical appraisal checklist form for a diagnostic study

Is the research important?		Disorder present	Disorder absent	Totals
Diagnostic test positive		a True positive	b True positive	a+b
Diagnostic test negative		c False negative	d True negative	c+d
Totals		a+c	b+d	a+b+c+d
Sensitivity $a/(a+c)$	Specificity $d/(b+d)$	LR + $\text{sens}/(1-\text{spec})$	LR - $(1-\text{sens})/\text{spec}$	Pre-test probability

Critical appraisal checklist form for a diagnostic study

Can I apply to my patient?

4		<input type="checkbox"/>	Yes	Comment
		<input type="checkbox"/>	No	
5		<input type="checkbox"/>	Yes	Comment
		<input type="checkbox"/>	No	
6		<input type="checkbox"/>	Yes	Comment
		<input type="checkbox"/>	No	

3

THERAPY

Critical appraisal checklist for an article on therapy

Are the results of this single trial valid?

1. The main question to answer

A Was the assignment of patient to treatment randomised?

B Was the randomisation list concealed?

C Were all subjects who entered in the trial accounted for in its conclusion?

D Were they analysed in the groups to which they were randomised?

2. Some finer points to address:

A Were subjects and clinicians "blind" to which treatment was being received?

B Aside from experimental treatment, were the groups treated equally?

C Were the groups similar at the start of the trial?

Critical appraisal checklist for an article on therapy

Matrix	Yes	No	Totals
Control Group	a	b	a+b
Experimental group	c	d	c+d

Example	Yes	No	Totals
Control Group	40%	60%	a+b
Experimental group	60%	40%	c+d

Control Event Rate (CER)	Risk of outcome event in control group	$a/(a+b)$
Experimental Event Rate (ERR)	Risk of outcome event in experimental group	$C/(c+d)$
Relative Risk Reduction (RRR)	The proportion of adverse events that would have occurred in the control group that are avoided by the intervention	$RRR = ((CER - ERR) / CER) \times 100\%$

Absolute Risk Reduction (ARR)	The absolute arithmetic difference in event rates of adverse events of interest between control group (CER) and experimental group (EER) when the experimental treatment prevent harm occurring to more patients than in the control treatment	$ARR = CER - ERR$
Number Needed to Treat (NNT)	The number of patients that need to be treated to prevent one additional adverse outcome. This is the inverse of the absolute risk reduction	$NNT = 1 / ARR = 1 / (CER - ERR)$

ODDS

The ratio of the number of people who experience the outcome of interest compared to the number who do not. If the event rate for a disease is 0,1 (10%), its non event rate is 0,9 and therefore its odds are 1/9 or 0,111

(if there are 10 horses in the race and you place a bet on one of the horses, what are the odds that your horse would win? 1/10)

**a/b in the control
0
In the experimental
c/d**

ODDS ratio

Is the odds of having the target disorder (or event) in the experimental group relative to the odds of having the target disorder (or event) in the control group (in cohort studies, systematic reviews) or the odds in favour of being exposed in subjects with the target disorder divided by the odds in favour of being exposed in control subjects i.e. without the target disorder (in case control studies)

a/b



c/d

TREATMENT





Aim	To develop the ability to:
	Determine whether the results and conclusion of a research article about the effectiveness of a therapeutic intervention are valide
	Decide if the results are sufficiently focused and applicable to your problem
	Determine what the results are and apply them to the clinical problem

Critical appraisal form for a single therapy studies

Is the research valid?

1a	Was the assignment of patient to treatment randomized?	 Yes  No	Comment
1b	Was the randomization list concealed?		
1c	Were subjects and clinicians "blind" to which treatment was being received?		

Is the research valid?

2a	Was all subjects who entered the trial accounted for at its conclusion?	 Yes  No	Comment
2b	Were they analyzed in the groups to which they were randomised?		
3a	Aside from the experimental treatment, were the groups treated equally?	 Yes  No	Comment
3b	Were the groups similar at the starts of the trial?		

**Is the
Important?**

research

**RRR (Relative
Risk
Reduction)**

**ARR
(Absolute
Risk
Reduction)**

**NNT
(Number
Need to
Treat)**

**CER
(Control
Event Rate)**

**EER
(Experimental Event
Rate)**

CER-EER/CER

CER-EER

1/ARR

0.4





0.6

- 50

0,2

5

Can I apply to my patient?

4	Is the patient so different from those in the trial that the result don't apply?		Yes	Comment
			No	
5a	How great would the benefit of therapy be for this particular patient?		Yes	Comment
5b	What is the event rate in my practice for patient like this one? (PERR- Patient Expected Event Rate)		No	

Is ti consistent with the patient values and preferences?

6	Do I have a clear assessment of the patient's values and preferences?		Yes	Comment
			No	
7	Do this intervention and its potential consequences meet them?		Yes	Comment
			No	

Number Needed to Treat (NNT)

The number of patient that need to be treated to prevent one additional adverse outcome. This is the inverse of the absolute risk reduction

$$\text{NNT} = 1 / \text{ARR}$$

$$\text{NNT} = 1 / \text{CER} - \text{ERR}$$

$$\text{ARR} = \text{CER} - \text{ERR} \quad 0,4 - 0,6 = - 0,2$$

$$\text{CER} = a / (a + b) \quad 40 / (40 + 60) = 0,4$$

$$\text{ERR} = C / (c + d) \quad 60 / (60 + 40) = 0,6$$

$$\text{NNT} = 1 / \text{ARR} \quad 1 / 0,2$$

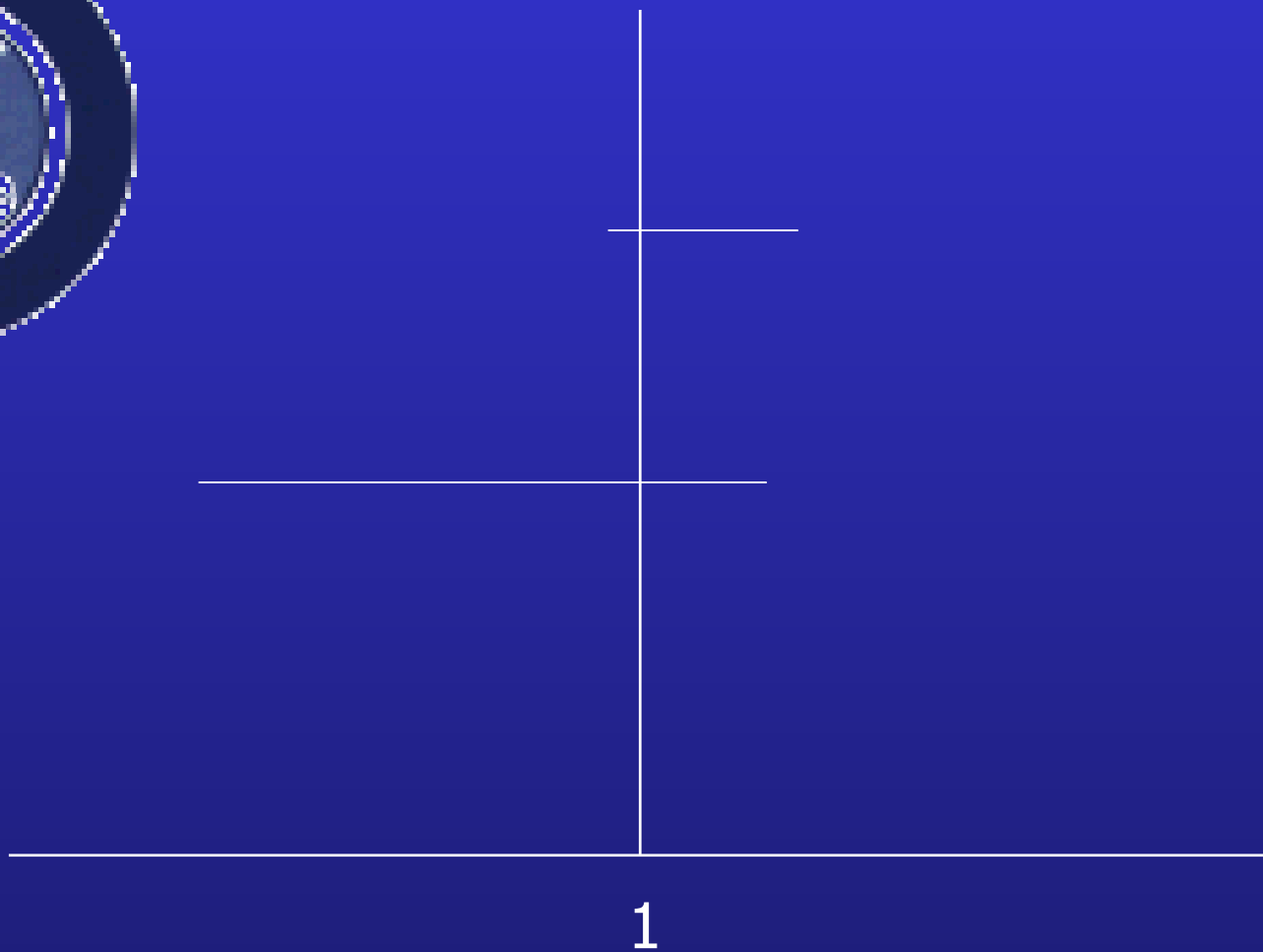
$$\text{NNT} \quad 5$$

Example	better	No better
Control Group	40	60
Experimental group	60	40

$$a/b = \text{ODD}$$

$$c/d = \text{ODD}$$

$$\frac{60/40}{40/60} = \frac{\text{ODD}}{\text{ODD}} = 2.27 = \text{ODD ratio}$$



Stiffman AR, Dore P, Cunningham RM, Earls F.

Person and environment in HIV risk behavior change between adolescence and young adulthood.

Health Educ Q 1995 May;22(2):211-26

602 youths interviews first occurred in 1984-1985 and 1985-1986 when the youths were adolescents and were repeated again in 1989-1990 and 1991-1992 when they were all young adults.

longitudinal multivariate analysis 31% of the variance in HIV risk behaviors by inner-city young adults is predicted by a combination of adolescent risk behaviors,

- personal variables (suicidality, substance misuse, antisocial behavior),
- environmental variables (history of child abuse, poor relations with parents, stressful events, peer misbehavior, number of AIDS prevention messages),
- interactions between variables (number of neighborhood murders with child abuse, number of neighborhood murders with substance misuse, and unemployment rates with antisocial behavior).

Woody GE, Metzger D, Navaline H, McLellan T, O'Brien CP. Psychiatric symptoms, risky behavior, and HIV infection. NIDA Res Monogr 1997;172:156-70

Higher symptom levels were found among those who seroconverted in the 6 months following notification, but not thereafter.

Symptom levels did not distinguish between HIV-positive and HIV-negative individuals 24 months following notification of seropositivity.

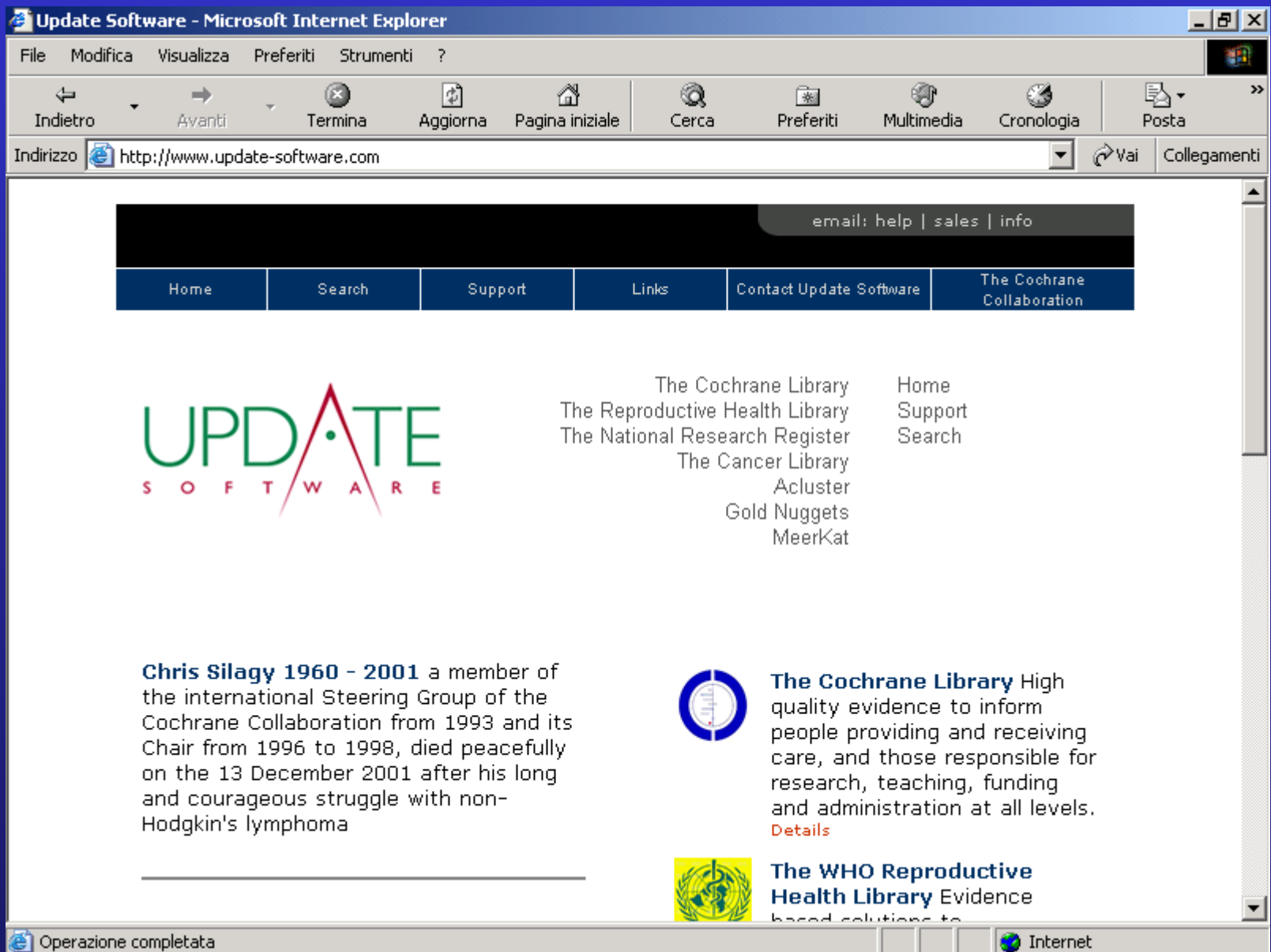
Taken together, these findings indicate that elevated psychiatric symptoms are risk factors for continued high risk behavior, as well as for seroconversion. The data add to those of Brooner and colleagues (1993), who demonstrated that ASPD serves as a risk factor for HIV infection.

The fact that antisocial personality disorder and psychiatric severity are associated with risky behavior and with actual HIV infection further expands earlier findings showing that these two factors are associated with poorer treatment outcome.

Other axis II disorders (e.g., borderline or narcissistic), as well as other axis I disorders with high symptom levels that were not well represented in these studies (schizophrenia, manic depressive illness), may also show similar elevated rates of risky behavior and seroconversion, although there is a scarcity of data currently available to assess the risk behavior of these patients

2 Implementing

	Resources
1	The Cochrane Library
2	PubMed (Internet Medline)
3	Embase
4	PsycInfo
5	Biological Abstracts
6	Cinahl




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PubMed

Clinical Queries using Research Methodology Filters

This specialized search is intended for clinicians and has built-in search "filters" based largely upon [Haynes RB et al.](#) Four study categories--therapy, diagnosis, etiology, prognosis--are provided, and you may indicate whether you wish your search to be more sensitive (i.e., include most relevant articles but probably including some less relevant ones) or more specific (i.e. including mostly relevant articles but probably omit a few). See [this table](#) for details regarding filtering.

Indicate the category and emphasis below:
 Category: ☒ therapy ☐ diagnosis ☐ etiology ☐ prognosis
 Emphasis: ☐ sensitivity ☒ specificity

Enter subject search (do not repeat any of the words above):

NOTE: If you want to retrieve everything on a subject area, you should not use this page. The objective of filtering is to reduce the retrieval to articles that report research conducted with specific methodologies, and retrieval will be greatly reduced.

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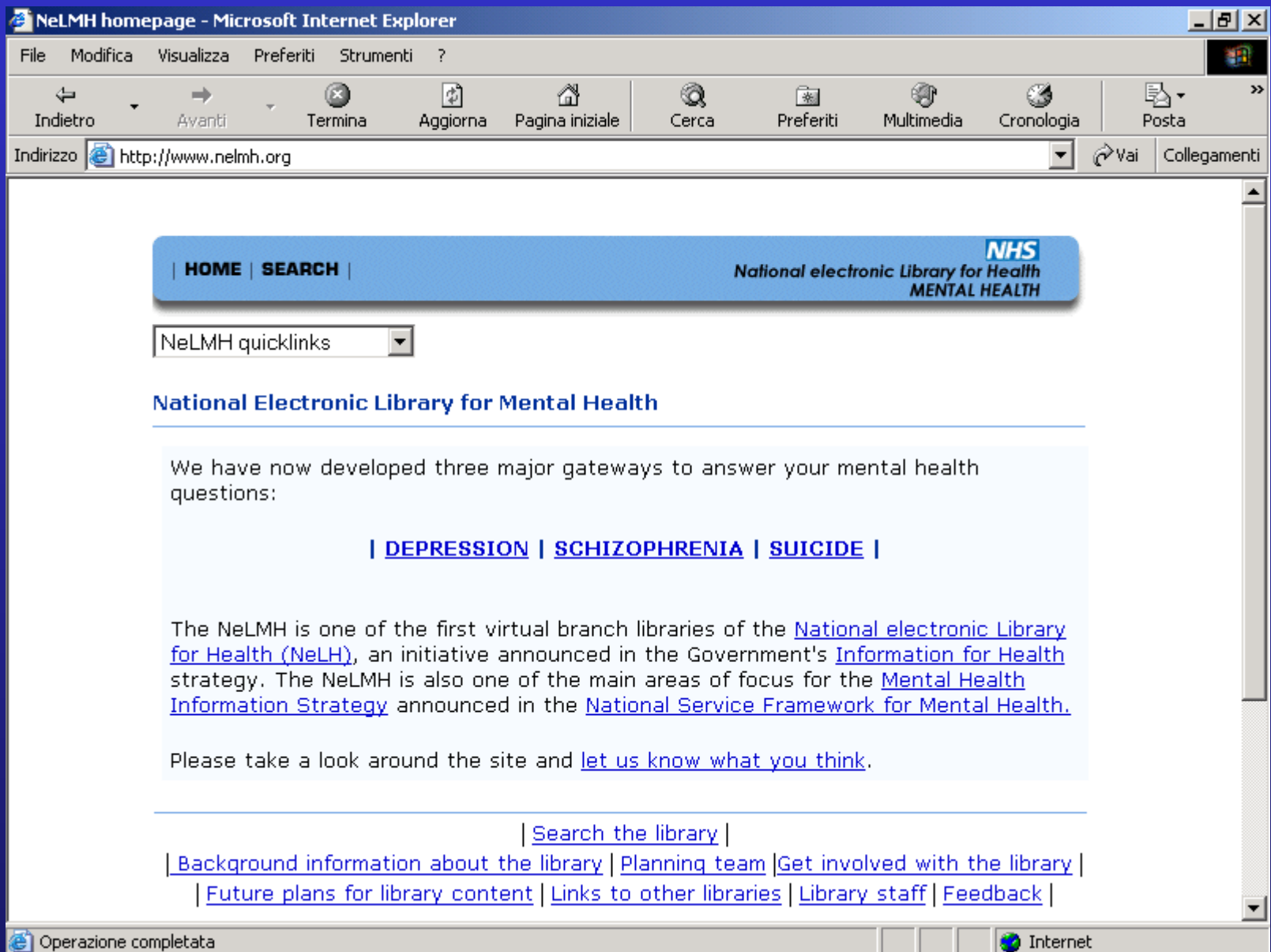
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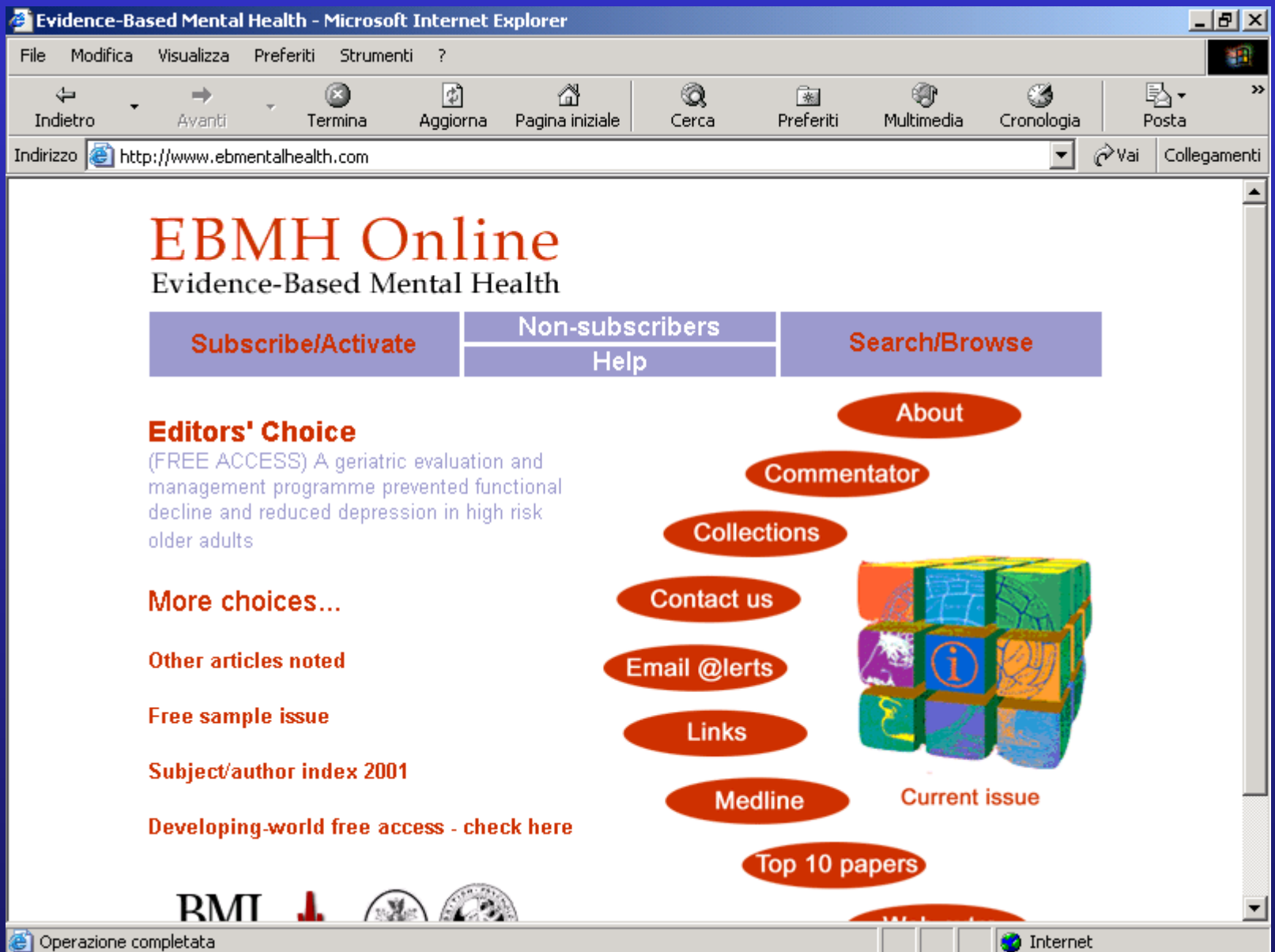
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	Question fucused resources
1	NHS - National electronic Library for Mental Health
2	Evidence Based Mental Health
3	Clinical Evidences





Clinical Evidence - Microsoft Internet Explorer

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Compton WM , Cottler LB , Ben-Abdallah A , Cunningham-Williams R , Spitznagel EL, The effects of psychiatric comorbidity on response to an HIV prevention intervention. Drug Alcohol Depend, 58(3): 247-57 2000

Drug abusers with psychiatric comorbidity are at high risk for becoming exposed to HIV. To address this compelling public health issue, our randomized HIV prevention study compares the effectiveness of the NIDA standard HIV testing and counseling protocol to a four session, peer-delivered, educational intervention for out-of-treatment cocaine users with and without antisocial personality disorder (ASPD) and major depression. Among the 966 out-of-treatment cocaine users who have completed the 3 month follow-up, all groups, regardless of assignment to standard vs. peer-delivered intervention or psychiatric status, improved significantly in: crack cocaine use, injection drug use, number of IDU sex partners and overall number of sex partners, but not in condom use. Nevertheless, when stratified by psychiatric status, ASPD was associated with significantly less improvement in crack cocaine use ($P = 0.04$) and with a trend for less improvement in having multiple sex partners and having IDU sex partners ($P = 0.06$ and 0.08 , respectively). ASPD status was not associated with change in injection drug use or condom use. Depression was associated with a trend ($P = 0.07$) for greater improvement in crack cocaine use but not in any of the other behaviors. When examining the standard and peer intervention groups separately, no consistent differences in the association of psychiatric comorbidity with outcome were discerned between the two groups. We conclude that persons with ASPD and depression respond well to standard HIV prevention interventions, but these psychiatric disorders respectively attenuate and enhance response somewhat. Behavioral interventions tailored for persons with these conditions may be indicated if long-term change in HIV risk behaviors is to be achieved.

Research architecture

Research architecture

TYPES OF EPIDEMIOLOGICAL AND CLINICAL RESEARCH

Observational studies

Descriptive studies

Case reports

Case series

Cross-sectional studies sample (eg prevalence studies)

Outcome (or prognosis) studies

Analytic studies

Population

Individuals

Intervention studies

Uncontrolled intervention studies

Controlled intervention studies

Single case (N of 1) experimental designs

Controlled clinical trials

Randomized controlled trials

Descriptive studies	Case reports	
	Case series	Is a report on a group of patients without a control group
	Cross-sectional studies sample (eg prevalence studies)	A defined population is observed for a presence/absence of an outcome of interest and possible risk factors at a single point in time or time interval
	Outcome (or prognosis) studies	
Analytic studies	Population	
	Individuals	

Uncontrolled intervention studies		
Controlled intervention studies	Single case (N of 1) experimental designs	
	Controlled clinical trials	
	Randomized controlled trials	A RCT is a trial in which a group of patients is randomized to either an experimental group (or groups) or a control group. The process of randomisation seeks to equalise all possible prognostic factors, known and unknown, between the group, that is to reduce the risk of the results being due to confounding factors. It should be noted that not all studies described as randomized have been truly randomized.