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# Implementation & Monitoring of Screening & Brief Intervention (SBI) for Alcohol Use Disorders among TB Patients, SA



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# What is Screening & Brief Intervention (SBI)?



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# SBI

- **S**creening to find:  
at-risk drinkers (& drug users)  
possible alcohol (& drug) dependence
- **B**rief **I**ntervention
  - Early detection
  - Time limited
  - Low cost, easy to use
- Referral of more serious cases to further diagnostic assessment specialized care

# STUDY SETTING

- Implemented in 3 districts in 3 provinces with the highest TB caseloads in SA:

Siyanda in *Northern Cape*

Nelson Mandela Metro in *Eastern Cape*

eThekweni in *KwaZulu-Natal*

# RESEARCH QUESTION & STUDY DESIGN

- **RQ:** What is the effectiveness of the SBI among patients diagnosed with TB & found to be misusing alcohol?
- **Design:** Cluster randomized trial (RCT)
- TB patients misusing alcohol re-assessed twice post baseline assessment: time 2 (3 months after intervention) & time 3 (6 months after intervention).

# STUDY DESIGN FLOW CHART

Clinic randomization	
Randomization of 42 primary care clinics into 21 intervention and 21 control clinics	
21 intervention clinics (7 in each district)	21 control clinics (7 in each district)
Risk evaluation based on Alcohol Risk (AUDIT) score (n=4500)	
AUDIT score: 7 or more (women)/8 or more (men) → Invited for inclusion in study (n=900) AUDIT score <8 for men and <7 for women → Health education pamphlet (exit study) (n=3600)	
Intervention (with 450 screened risk drinkers)	Control (with 450 screened risk drinkers)
Brief intervention (two sessions) on alcohol problems	Receive alcohol health information (see Appendix 1)
Follow-up assessments: 3 and 6 months following intervention	Follow-up assessments: 3 and 6 months following intervention
	Training of counsellors in control sites and delayed intervention with control group

# SAMPLING & PROCEDURE

- Non-probability purposive sampling
- TB patients were recruited at the clinic (over 6 month period)
- Patients who screened positive for TB (new & re-treatment cases) & agreed to take part in the study were screened for alcohol misuse (using the AUDIT) & a brief intervention provided.
- Newly diagnosed TB participants identified as misusing alcohol were recruited per PHC .



# MEASUREMENT TOOLS

- *Socio-demographic Questionnaire*
- *Medical file information*: HIV status, CD4 count, ART, ART adherence (to clinic visits), TB treatment outcome; Body weight, Height
- *Health-status*: SF-12
- *Measure of Alcohol Misuse*: AUDIT
- *Additional measures*: Adherence to anti-TB drugs & ART & illicit drug use/smoking

# OUTCOME MEASURES

- *Primary outcome* (at 6 month f/u):  
Alcohol: change in mean number of alcohol use units & mean number of heavy drinking days compared to baseline
- *Secondary outcomes*  
Adherence to anti-TB drugs & ART  
TB: Treatment outcome-cured, completed treatment, failure, defaulted treatment, death, transfer out

# PRELIMINARY RESULTS

## *Sample Characteristics*

- Total number screened = 4900
- Males: 54.5% & females: 45.5%
- Mean age of 36 years (SD= 11.5) who screened positive for TB.
- Black African (83.6%)
- Coloured (13.1%)
- Indian (1.6%).

## Table 1: Socio-economic characteristics

	Total (n=4900)		Men (n=2671) (54.5%)		Women (n=2229) (45.5%)		$\chi^2$ or t	P
	N or M	% or SD	N or M	% or SD	N or M	% or SD		
<i>Age (range 18-93)</i>	36.2	11.5	37.2	11.5	34.8	11.4	7.29	0.000
18-24	643	13.3	276	10.6	358	16.5	75.43	0.000
25-34	1841	38.1	928	35.7	899	41.4		
35-44	1313	27.1	780	30.0	515	23.7		
45-54	671	13.9	399	15.3	259	11.9		
55-64	265	5.5	161	6.2	95	4.4		
65 or more	104	2.2	58	2.2	45	2.1		
<i>Marital status</i>								
Never married	3323	72.7	1734	70.2	1589	75.6	16.68	0.000
Married/cohabitating	982	21.5	594	24.1	388	18.5	21.03	0.000
Separated/divorced/widowed	265	5.8	141	5.7	124	5.9	.08	0.783
<i>Education</i>								
Grade 7 or less	1247	26.3	745	28.8	502	23.2	21.89	0.000
Grade 8-11	3364	70.8	1775	68.7	1589	73.4		
Grade 12 or more	139	2.9	64	2.9	75	3.5		
<i>Poverty index (5-20)</i>								
Low (5)	1592	35.0	882	35.2	710	34.4	2.22	0.329
Medium (6-12)	2195	48.2	1117	47.2	1018	49.3		
High (13-20)	768	16.9	433	17.4	335	16.2		
<i>Main household income</i>								
No income or other	848	18.4	507	20.4	341	16.1	13.87	0.000
Family member contributions	1638	35.6	888	35.7	750	35.5	.03	0.855
Social grants	1000	21.7	406	16.3	594	28.1	92.81	0.000
Formal salary	1115	24.2	685	27.6	430	20.3	32.47	0.000
<i>Geolocality</i>								
Urban residence	3151	66.2	1691	65.4	1460	67.2	1.56	0.212
Rural residence	877	18.4	480	18.6	397	18.3	.08	0.780
Informal settlement	730	15.3	413	16.0	317	14.6	1.79	0.181
<i>Number of persons living in a room (M=1.6, SD=1.1)</i>								
≤1	1832	38.4	1112	42.9	720	33.1	40.91	0.000
2	2000	42.0	1057	40.7	943	43.4	3.46	0.063
≥3	934	19.6	425	16.4	509	23.4	37.30	0.000

# Socio-economic characteristics (table 1)

- Almost two-thirds of the participants (65.2%) were between 25 to 44 years old
- The majority (72.7%) was never married
- 27.7% had completed secondary education
- 17% scored high on the poverty index
- 24.2% main household income (a formal salary)
- 58.9% unemployed
- 15.3% lived in informal settlements
- 16.8% lived in a temporary or permanent shack
- among 19.6%, three or more persons were living in one room.

## Table 2: Health-treatment characteristics

	Total (n=4900)		Men (n=2671)		Women (n=2229)		$\chi^2$ or t	P
	N or M	% or SD	N or M	% or SD	N or M	% or SD		
New TB patient	3643	76.5	1943	75.0	1700	78.2	7.03	0.008
Repeat TB treatment patient	1120	23.5	647	25.0	473	21.8		
Decided to stop TB treatment before	123	2.5	83	3.2	40	1.8	8.54	0.003
HIV unknown status	451	9.5	311	11.8	143	6.7	43.69	0.000
HIV positive	2572	54.0	1200	47.1	1338	62.3	78.37	0.000
Daily or almost daily tobacco use	1290	27.6	1006	39.6	284	13.3	399.2 9	0.000
Severe psychological distress (based on Kessler 10)	1183	26.3	660	26.9	523	25.6	.90	0.341
Perceived health status (1=excellent-5=poor)	3.4	1.1	3.3	1.1	3.4	1.1	-1.50	0.134
Diagnosed with diabetes	188	4.4	89	3.9	99	5.0	3.17	0.075
On antiretroviral therapy	871	22.9	384	19.5	487	26.7	27.79	0.000
<b><i>Adherence</i></b>								
Non-adherence to TB treatment (missed at least one day in past 10 days)	512	24.4	303	26.1	209	22.3	4.04	0.044
Non-adherence to ART (missed at least once medication in past 7 days)	52	11.8	21	9.9	31	13.5	1.36	0.244

## Health-treatment characteristics (table 2)

- From Total sample 76.6% were new TB patients & 23.4% were retreatment TB patients.
- More than 10% of retreatment patients indicated that they had intended to stop TB treatment before.
- From those who had tested for HIV, 59.9% were HIV positive
- 22.1% of HIV positive patients on antiretroviral therapy
- 9.6% had never tested for HIV.

# Health-treatment characteristics cont.

- More than one in four patients (27.6%) were current (past month) tobacco users, 26.3% had severe psychological distress, 4.4% had been diagnosed with diabetes and 46.3% perceived their health status as fair or poor.
- Regarding adherence to TB medication, 24.5% indicated that they had missed at least on one day in the past 10 days their medication.
- From those who were on antiretroviral treatment, 11.8% reported that they had at least once missed their ARVs in the last seven days.



### Table 3: Alcohol use by sex

	AUDIT	Total (n=1532)	Men (n=864)	Women (n=668)	$\chi^2$ or *	P
	score	%	%	%		
Abstainers	0	68.2	57.0	81.6	326.08	0.000
Low-risk drinkers	1-7	76.8	68.2	87.0		
High risk drinkers	8-19	16.6	22.5	9.5	234.10	0.000
Probable alcohol dependence	20+	6.6	9.3	3.4		
Hazardous or harmful drinkers	8+	23.2	31.8	13.0	233.41	0.000
		M (SD)	M (SD)	M (SD)		
Total AUDIT score		4.3 (8.1)	5.7 (8.1)	2.4 (6.0)	*	0.000

## Alcohol use (table 3)

- Using a cut-off score of 8 to 19 for the AUDIT analysis indicated:
  - 22.5% of all men & 9.5% of all women were classified as hazardous drinkers
  - 9.3% of men & 3.4% of women meet criteria for probable alcohol dependence (harmful drinking) (with an AUDIT score of 20 or more) as defined by AUDIT.
- Overall 23.2% of the patients were hazardous or harmful alcohol users (31.8% among men & 13.0% among women). Men had significantly higher AUDIT scores than women (see Table 3).

# Table 4: Patients screened positive for alcohol misuse/abuse

Districts	Males (AUDIT 8+)	Females (AUDIT 7+)	Total
Nelson Mandela Screened = 1556 (31.8%)	380	155	535 (34.3%)
eThekweni Screened = 3043 (62.1%)	385	114	499 (16.4%)
Siyanda Screened = 301 (6.1%)	37	24	61 (20.3%)
Total Screened= 4900	802	293	1095

## Predictors: Hazardous or Harmful alcohol use (table 5)

- **Univariate analyses:**

**Among men** older age, lower formal education, greater poverty, living in a shack, being on TB retreatment, having stopped TB treatment before, tobacco use, not being on ART & non-adherence to TB medication were associated with hazardous or harmful alcohol use

**Among women** lower formal education, greater poverty, living in a shack, having no household income, being on TB retreatment, having stopped TB treatment before, tobacco use, & non-adherence to TB medication were associated with hazardous or harmful alcohol use.

- **Multivariable analyses:**

**Among men** tobacco use, high poverty & living in a shack were associated with hazardous or harmful alcohol use

**Among women** that lower education, living in a shack and tobacco use were associated with hazardous or harmful alcohol use.

Table 3: Predictor: hazardous or harmful alcohol use

	Men		Women	
	Cr OR (95% CI) <sup>a</sup>	Adj OR (95% CI) <sup>a,b</sup>	Cr OR (95% CI) <sup>a</sup>	Adj OR (95% CI) <sup>a,c</sup>
Age	1.00 (0.99-1.01)	---	1.00 (0.99-1.01)	---
Not married	1.00	---	1.00	---
Married/cohabitating	0.88 (0.72-1.08)		1.17 (0.84-1.62)	
Separated/divorced/widowed	0.74 (0.50-1.09)		1.47 (0.89-2.40)	
Grade 7 or less	1.00	1.00	1.00	1.00
Grade 8-11	0.83 (0.69-0.99)*	1.05 (0.76-1.46)	0.55 (0.42-0.72)***	0.73 (0.43-1.24)
Grade 12 or more	0.75 (0.43-1.33)	1.32 (0.49-3.50)	0.31 (0.12-0.79)*	0.17 (0.02-1.44)
Poverty low	1.00	1.00	1.00	1.00
Medium	1.29 (1.06-1.56)**	1.18 (0.86-1.62)	1.45 (1.06-1.98)	1.48 (0.87-2.53)
Poverty high	1.43 (1.11-1.83)**	1.85 (1.14-3.01)*	1.85 (1.25-2.73)**	1.77 (0.82-3.81)
No income/other-Ref	1.00	---	1.00	1.00
Family contributions	0.94 (0.74-1.19)		0.61 (0.43-0.87)**	0.56 (0.28-1.09)
Social grants	0.90 (0.68-1.20)		0.63 (0.44-0.91)*	0.47 (0.23-0.96)*
Formal salary	0.88 (0.69-1.13)		0.33 (0.21-0.52)***	0.25 (0.10-0.60)**
Urban residence	1.00	1.00	1.00	1.00
Rural	1.40 (1.13-1.74)**	1.76 (1.22-2.54)**	1.49 (1.08-2.05)*	1.12 (0.64-1.98)
Informal settlement	1.64 (1.31-2.10)***	1.44 (0.94-2.22)	1.90 (1.37-2.65)***	1.90 (0.98-3.66)
Perceived health status	1.04 (0.97-1.12)	---	0.99 (0.89-1.11)	---
New TB vs. retreatment	0.65 (0.54-0.79)***	0.68 (0.48-0.96)*	0.61 (0.46-0.80)***	0.96 (0.55-1.67)
Decided to stop TB treatment before	1.99 (1.27-3.11)**	1.85 (0.79-4.34)	2.96 (1.49-5.89)**	2.36 (0.70-7.97)
Daily or almost daily tobacco use	4.19 (3.51-5.00)***	4.51 (3.34-6.09)***	7.03 (5.26-9.39)***	5.56 (3.27-9.45)***
Severe psychological distress	0.99 (0.82-1.20)	---	0.96(0.71-1.29)	---
Diabetes	0.91 (0.57-1.44)	---	0.66 (0.33-1.32)	---
Never tested for HIV	1.19 (0.93-1.54)	---	0.78 (0.44-1.38)	---
HIV positive	0.91 (0.76-1.10)	---	1.08 (0.81-1.44)	---
On ART	0.80 (0.62-1.03)	---	0.91 (0.66-1.25)	---
Non-ART adherence	0.62 (0.20-1.93)	---	1.98 (0.73-5.37)	---
TB non-adherence	1.97 (1.50-2.58)***	1.36 (0.96-1.92)	2.81 (1.89-4.17)***	1.72 (1.00-2.96)

# CONCLUSION

- Results presented: cross-sectional from baseline data (altho' this is an RCT)
- Consequently, this is a limitation
- However, important highlights from the data  
Insight gained into the prevalence of alcohol use/misuse among patients with active TB in “high burden of disease provinces” 3
- Also Insight gained into behavioural repertoire of TB & TB/HIV co-infected patients (e.g. adherence to anti-TB drugs & ART)

# POLICY IMPLICATIONS

- **NDoH**: Need to consider cost-efficient screening (e.g. for alcohol use/abuse) & intervention programs for TB patients in areas with a low cure rate
- **Economic Policy**: Structural Adjustment programmes

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