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**The relationship between experienced stigma, anxiety, loneliness, depression and social support among people with drug-resistant tuberculosis in Lagos, Nigeria**

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# Introduction

- Nigeria has one of the highest burdens of TB globally with a high prevalence of TB stigma
- Tuberculosis (TB) stigma is a major social factor affecting global TB control.
- TB stigma is more common and severe among those with drug-resistant TB (DR-TB).
- These discriminatory behaviours often result in loneliness, low self-esteem, poor quality of life, anxiety, and depression.
- In a study from Nigeria, 63.6% had no desire to help people with TB and 64.3% mentioned that people with TB should not be employed.

# Study hypothesis

- We hypothesized that
  1. Experienced stigma is positively related to anxiety, depression and loneliness.
  2. Social support is negatively related to anxiety, depression and loneliness.
  3. The association between experienced stigma, anxiety, depression and loneliness could be moderated by social support.

# Methods

- A descriptive, cross-sectional study was conducted at 5 DR-TB sites in Lagos among 203 adults on DR-TB treatment
- Study instruments: Validated tools were used to assess experienced stigma, anxiety, depression, loneliness and social support. They were pretested and Cronbach alpha values ranged between 0.723 and 0.833
- Ethical consideration: Ethics clearance from LASUTH IREC and IREC DUT
- Data analysis: Partial correlation and Hierarchical multiple regression using IBM statistics version 26

# Summary of measures, tools and variables

Measures	Outcome variable	Variable type	Tools
Outcome	Experienced or enacted stigma.	Continuous	Redwood DR-TB stigma scale
	Anxiety	Continuous	Generalized Anxiety Disorder-7
	Depression	Continuous	Patient Health Questionnaire-9 item
	Loneliness	Continuous	UCLA loneliness scale version 3
	Social support	Continuous	Multidimensional Scale of Perceived Social Support
Independent	Age	Continuous	
	Gender	Categorical (Male/ female)	
	Marital Status	Categorical (Single/married/divorced or separated)	
	HIV Status	Categorical(positive/negative/D on't know)	
	Perceived severity of DR-TB	Categorical (Very helpful/not sure)	
	Knowledge of TB	Categorical (Good/Poor)	
	Duration of treatment	Continuous	
	Had income	Categorical	
Composite	Experienced stigma X Social support	Continuous	

# Major findings

- 215 people with DR-TB were screened, and 203 participants were recruited in this study (94.4% participation rate).
- Experienced DR-TB stigma was identified in 65.5% (95%CI 58.5-72.0%)
- 63.1% (95%CI 56.0 – 69.7%) had depression,
- 72.9% (95%CI 66.2 – 78.9%) had anxiety,
- 56.2% (95%CI 49.0 – 63.1%) were lonely
- 44.8% (95%CI 36.9 - 51.0%) had high social support.

# Correlation between experienced stigma, anxiety, loneliness and depression before and after controlling for social support

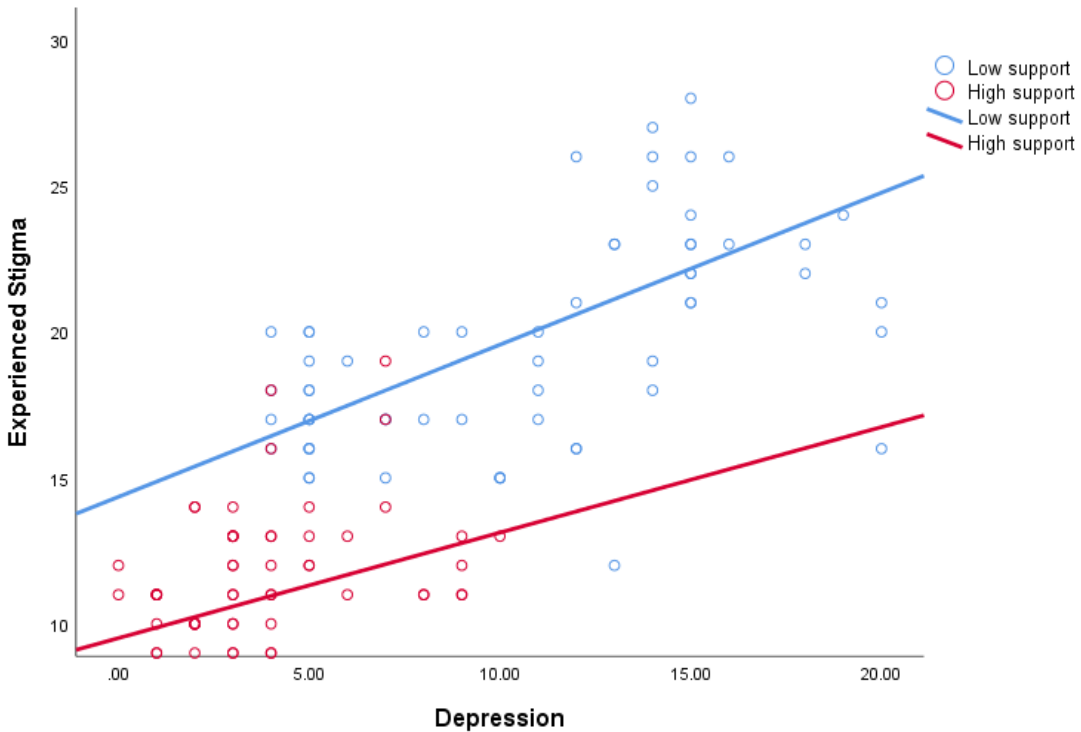
Variable	Before controlling for social support		After controlling for social support	
	r	p	r	p
Anxiety	0.694	<0.001	0.396	<0.001
Depression	0.689	0.001	0.454	<0.001
Loneliness	0.529	0.001	0.273	<0.001

# Major findings contd..

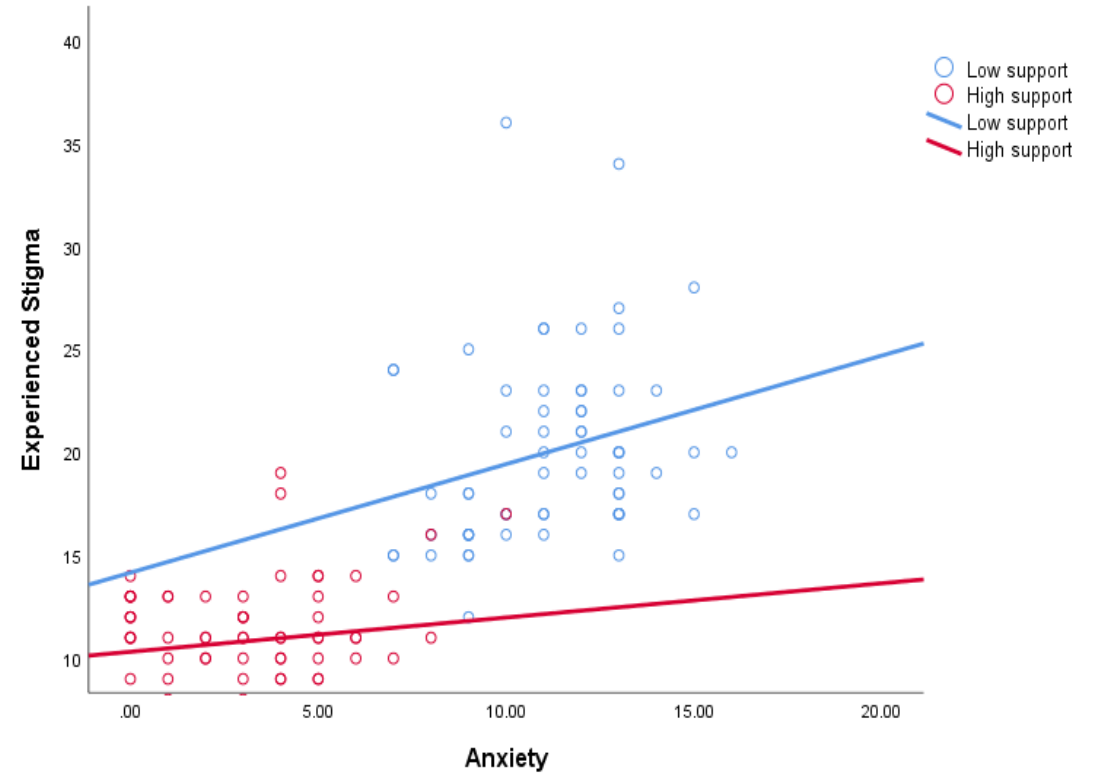
- Being female, not earning any income, HIV-negative and having poor knowledge of TB were associated with anxiety, loneliness and depression ( $p < 0.05$ ).
- There was a significant effect of experienced stigma on depression ( $B = 0.428$ ,  $p < 0.001$ ), anxiety ( $B = 0.374$ ,  $p < 0.001$ ) and loneliness ( $B = 0.285$ ,  $p = 0.0$ ).
- Social support exhibited a negative significant effect on depression ( $B = -0.255$ ,  $p < 0.001$ ), anxiety ( $B = -0.406$ ,  $p < 0.001$ ) and loneliness ( $B = -0.270$ ,  $p < 0.001$ ).



# Slope plot of interaction between experienced stigma and social support on depression and anxiety

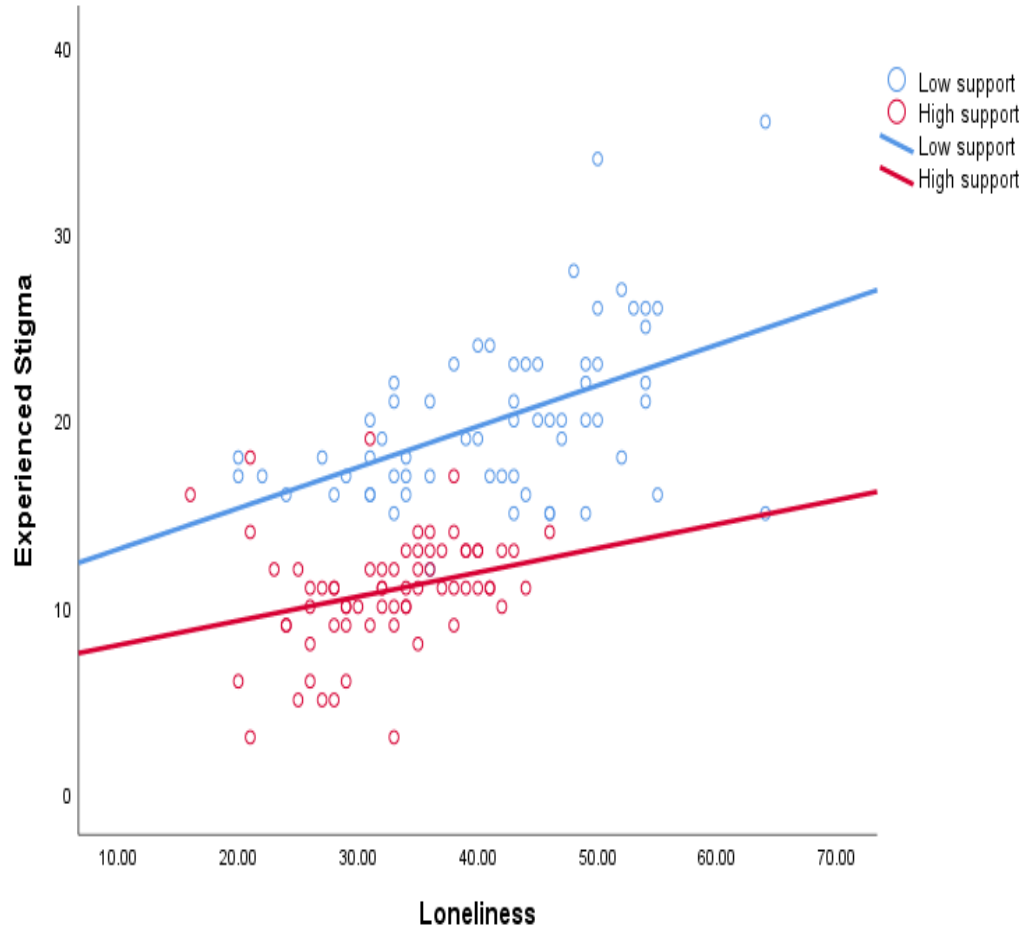


**Depression: ( $B = 0.567$ ,  $SE = 0.115$ ,  $p < 0.001$ )  
at low social support: ( $B = 0.275$ ,  $SE = 0.253$ ,  
 $p = 0.024$ ) at high social support:**



**Anxiety: ( $B = 0.254$ ,  $SE = 0.060$ ,  $p = 0.044$ )  
low social support ( $B = 0.127$ ,  $SE = 0.094$ ,  $p$   
 $= 0.307$ ) high social support**

# Slope plot of interaction between experienced stigma and social support on loneliness



- The effect of experienced stigma on loneliness was different at low ( $B = 0.491$ ,  $SE = 0.250$ ),  $p < 0.001$ ) and high ( $B = 0.275$ ,  $SE = 0.253$ ,  $p = 0.024$ ) social support groups.

# Mean scores of social support subscales

Having a special person who cares and who is a real source of comfort had the highest scores of all the 12 items.

Subscales of social support	Mean scores (sd)	F, p-value
Significant others	5.88 (1.07)	51,531, p=<0.001
Family	5.56 (1.13)	
Friends	4.74 (1.29)	

# Conclusion and recommendations

- There was a positive correlation between experienced stigma with anxiety, depression and loneliness.
- Also, social support moderated the association between experienced stigma, anxiety, depression and loneliness.
- Support from significant others was higher than support from family and friends.
- Our results point to the fact that improving social support among people with DR-TB is crucial in reducing the negative effects of stigma on anxiety, depression and loneliness.
- We recommend that psycho-social interventions targeted at PWTB be part of the care received by people with DR-TB.

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*Thank you*