

Locus of control and utilization of skilled maternity care in Nigeria: The mediating role of neuroticism

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Introduction

Maternal mortality is a leading cause of deaths among adult females of childbearing age in low and lower-middle-income countries. In sub-Saharan Africa maternal mortality accounts for 68% of all maternal deaths. Although reducing maternal mortality has been a key policy goal over the last twenty years, improving health outcomes for pregnant women in low-income countries has been slow.



While the role of cognitive traits in utilization of healthcare services have been established, emerging body of research finds that non-cognitive traits also play an important role in the physical and psychological well-being of an individual. In this study, we sought to investigate the direct role of locus of control on utilization of skilled birth care and its indirect role through neuroticism.

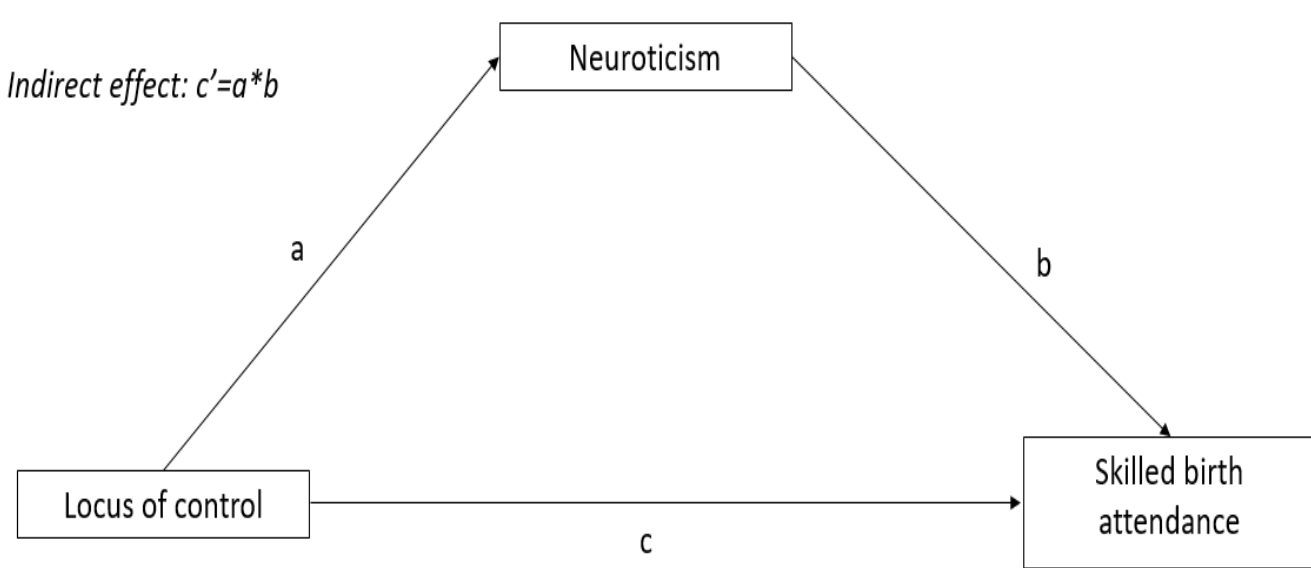
Locus of control is one of the concepts from psychology that has generated great interest among economists. Developed by Julian Rotter in 1966, locus of control describes the degree to which an individual has control over events and outcomes in his life.

Neuroticism refers to individual differences in negative emotional response to threat, frustration, or loss and is a fundamental domain of personality, which has been found to influence a wide range of psychopathological and physical healthcare concerns.

Methods

We used the traditional Baron and Kenny mediation analysis approach introduced in 1986 to test the direct effect of locus of control (explanatory variable) on skilled birth care (outcome variable) and its indirect effect through neuroticism (mediator).

Mediation analysis represents the consideration of how a third variable affects the relationship between two other variables through direct and indirect pathways.



Where;
a represents the direct pathway between locus of control and neuroticism,
b represents the direct pathway between neuroticism and skilled birth attendance, and
c' represents the pathway between locus of control and skilled birth attendance.

Empirical model:

$$SBA_i = \alpha_1 + cLOC_i + \beta X_1 + \varepsilon_1$$
$$SBA_i = \alpha_2 + c'LOC_i + bNEU_i + \beta X_1 + \varepsilon_2$$
$$NEU_i = \alpha_3 + aLOC_i + \beta X_1 + \varepsilon_3$$

(1)

(2)

(3)

Where;
 α_1 , α_2 , and α_3 = intercepts,
 SBA_i = outcome variable representing utilization of skilled birth care,
 LOC_i = locus of control
 NEU_i = neuroticism.
 X_1 = control variables, and
 ε_1 , ε_2 , and ε_3 = residuals.

Results

Estimated direct and indirect effect sizes and bootstrap test for indirect effect and 95% bias-corrected confidence interval:

Model pathways	ß	Std. Err.	95% confidence interval	
			Lower	Upper
Estimated direct effects: Path a (LOC -> NEU) Path b (NEU -> SBA) Path c (LOC -> SBA)	0.099 -0.061 -0.102	0.021 0.028 0.024	0.584 -0.117 -0.024	0.140 -0.006 -0.055
Estimated indirect effect: Path c' (LOC -> NEU -> SBA)	-0.093	0.024	-0.139	-0.047
Bootstrap test for indirect effect			95% bias-corrected confidence interval	
			Lower	Upper
LOC -> NEU -> SBA	-0.169	0.033	0.109	0.239

Note: The indirect effect is significant, as the 95% bias-corrected confidence interval does not overlap with zero

Sensitivity analysis:

Variables	Coeff (Std. Err)	p-value	95% confidence interval	
			Lower	Upper
Neuroticism	-0.261 (0.106)	0.013	-0.468	-0.054
Locus of control	-0.089 (0.021)	0.000	-0.131	-0.048
Rho at which ACME = 0	-0.20			
R^2_M^2R^2_Y at which ACME = 0	0.04			

*Significant p-values at 1%, 5% and 10%; ACME = Average causal mediation effect

Conclusions

Our results showed significant negative direct effect of locus of control on utilization of skilled birth care . We also found a significant negative but lower direct effect of locus of control on utilization of skilled birth care through neuroticism These findings confirmed the presence of a partial mediation between locus of control and neuroticism in the utilization of skilled birth care.

Our findings have important implications for policy. More specifically, women with external locus of control with high levels of neuroticism were less likely to utilize skilled birth care when compared to women with internal locus of control that scored low on the neuroticism scale. Policies to address utilization of skilled birth care in low resource settings have primarily centred on providing financial subsidies to pregnant women and equipping available healthcare facilities.

A significant observation from this study was the lack of literature on the influence of non-cognitive traits and healthcare utilization in low and lower-middle-income countries. We attributed this to the non-inclusion of standardized measurement of these traits in nationally collated datasets. We therefore recommended the inclusion of standardized questionnaires designed to measure non-cognitive traits in national datasets, such as the Demographic and Health Surveys in low and lower-middle-income countries to facilitate the collection of these traits as done in high-income countries.

By extending, the literature on the determinants of utilization of maternal healthcare services to consider the role of non-cognitive traits, our findings reflect other predictors of healthcare utilization that might improve maternal and child healthcare utilization when taken into cognisance in the design of interventions, especially in low resource settings.

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