



MODERATING ROLE OF NEUROTICISM BETWEEN TOKOPHOBIA AND MENTAL HEALTH AMONG PRIMIGRAVIDAS

Romana Ijaz¹, Summaira Naz¹, Mussarat Jabeen Khan^{2✉}, Humaira Bibi¹

ABSTRACT

OBJECTIVE: To explore the relationship between tokophobia, neuroticism and mental health; and to examine the role of neuroticism as a moderator between tokophobia and mental health.

METHODS: This cross-sectional study was conducted from September, 2019, to January, 2020, at different hospitals. Three instruments Eysenck Personality Questionnaire (EPQ), Warwick Edinburgh Mental Wellbeing Scale (WEMWBS), and The Wajima Delivery Expectancy Questionnaire (WDEQ) were administered on 100 women along with a demographic sheet to collect data and were analyzed using SPSS V 23.

RESULTS: Results showed that tokophobia had a significant positive relationship with neuroticism and significant negative relationship with mental health ($\beta = -0.23$, $t = -2.20$, $p = 0.030$). Neuroticism also predicted Mental health ($\beta = -0.51$, $t = 5.45$, $p = 0.001$) and create 22% in it ($\Delta R^2 = 0.22$, $\Delta F(1,97) = 29.72$, $p = 0.001$). The interaction of tokophobia and neuroticism significantly predicted mental health ($\beta = -0.17$, $t = 2.85$, $p = 0.048$) and about 30% change ($\Delta R^2 = 0.30$, $\Delta F(1,96) = 3.42$, $p = 0.048$) in mental health. Neuroticism significantly moderates the relationship between tokophobia and mental health in negative direction. Residential areas do not have significant differences on neuroticism, tokophobia and mental health among primigravidas.

CONCLUSION: Primigravida women with neuroticism personality have higher tendency to develop tokophobia and both significantly affect mental health of pregnant women.

KEY WORDS: Pregnancy (MeSH); Primigravidas (Non-MeSH); Parity (MeSH); Tokophobia (Non-MeSH); Mental Health (MeSH); Neuroticism (MeSH)

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- 1: Department of Psychology, Faculty of Law and Social Sciences, Hazara University, Mansehra, Pakistan
- 2: Department of Psychology, International Islamic University, Islamabad, Pakistan

Email✉: mussarat.jabeen@iiu.edu.pk

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health problems twice, having anxious personality, anxiety (prevail 39%), pre-partum depression (prevalence rate 6.5%-12.9%), dissatisfaction with their partnership, low self-esteem, lack of support.⁶⁻⁸ Studies demonstrated that pregnant women with neuroticism reported more anxiety, greater fear for vaginal delivery, and negative experiences related to birth.⁹ Neurotic individuals have intensified negative emotions, so they perceive environment more problematic, threatening and stressful. Neuroticism is a good predictor of social, biological, and psychological mechanisms of childbirth.¹⁰

Pioneering studies on tokophobia were done at the University of Hull.¹¹ Till nineteenth century only pathological aspects of Tokophobia were identified. Hofberg and Brockinton's used the term "tokophobia" at first to explain this obsessed and pathological fear of childbirth with aim to classify tokophobia as a real disease with identification of its treatment. A considerable number of researches have done till end of the 20th century on fear of childbirth but it still lacks definite recognition of tokophobia. Very limited epidemiological investigations done in developing countries on motherly depression specifically in primigravidae.¹¹ Previous literatures cannot explain the role of personality traits in developing tokophobia and specifically its psychological effects on mental health among primigravidas.

In order to fill the aforementioned gap in literature on tokophobia and its affects, this study was planned. As

INTRODUCTION

The parenthood of a woman sometimes bears many emotional disturbances due to the changes in physical appearance during the pregnancy period and childbirth process because of insufficient knowledge about these physiological changes particularly in primigravidas. Primigravidas is high-risk group of women having first pregnancy, so their response towards the experience of delivery is contingent on their expectations of delivery.² Its major contributing factors are insufficient health related education, health services, religious beliefs and cultural values.² Searle (1996) explored that

more than 20% women report fear of childbirth while 6% describe this fear as emotionally and physically disabling and develop many specific pathological problems such as tokophobia.³ Tokophobia is an unreasonable fear of childbirth that ranges from insignificant level to extreme level, commonly prevalent in primigravidas than multiparous women.⁴ Tokophobic women have excessive cortisol in amniotic fluid which directly affect their baby's cognitive, physical, linguistic, memory and social skills development.⁴ Tokophobia had an adverse affect on the mental health, balanced love, relationships, work performance and leisure pursuits among primigravidas.⁵ Tokophobic women report mental

TABLE I: CORRELATION MATRIX OF NEUROTICISM PERSONALITY TRAIT, TOKOPHOBIA AND MENTAL HEALTH (N=100)

Patient Variables	1	2	3	Mean	Standard Deviation
Neuroticism	-	0.38**	-0.36**	36.94	8.09
Tokophobia	-	-	-0.22*	107.70	15.83
Mental health	-	-	-	44.17	10.69

*p < .05, **p < .01.

TABLE II: HIERARCHICAL MULTIPLE REGRESSION ANALYSIS PREDICTING MENTAL HEALTH FROM TOKOPHOBIA AND NEUROTICISM PERSONALITY TRAIT (N = 100)

Predictor	I	ΔR^2	β
Step I		.05*	
	Tokophobia		-.22*
Step II		.22*	
	Tokophobia		-.41**
	Neuroticism		-.51**
Step III		.03*	
	Tokophobia		-.44**
	Neuroticism		-.46**
	Tokophobia*neuroticism		-.17*
Total R ²		.30*	

*p < .05, **p < .01.

TABLE III: MEAN COMPARISON OF RURAL AND URBAN AREAS ON TOKOPHOBIA, MENTAL HEALTH AND NEUROTICISM (N=100)

Scales	Urban (n=55)		Rural (n=45)		t (98)	P	CI 95%	
	M	SD	M	SD			UL	LL
Tokophobia	106.21	14.30	109.51	17.42	1.03	.30	9.60	-3.01
Mental health	44.76	10.93	43.44	10.49	-.61	.54	2.96	-5.60
Neuroticism	36.23	7.77	37.80	8.49	.96	.33	4.79	-1.66

tokophobia has multifactorial etiology which is linked with predisposing factors' combinations, so it's very important to explore a more comprehensive view of tokophobia and its associated factors. Tokophobia devastatingly affect women's health which consequently affect their baby's health, their families and mother-baby bond.¹¹ Many tokophobic women terminate their pregnancy, some prefer caesarean section, some adopted a child than become biological motherhood, some reach menopause without given birth to baby; and some opted permanent gynaecological procedures to prevent pregnancy. So it's a crucial time to divert attention on the psychological issues faced by tokophobic primigravidas and their babies. This research aimed to measure the moderating role of neuroticism and residence area differences on tokophobia, neuroticism, and mental health.

METHODS

This cross-sectional study was conducted from September, 2019, to January, 2020, after approval from Department of Psychology, Hazara University, Mansehra, Pakistan. The present research was aimed to explore the moderating role of neuroticism personality trait on tokophobia and mental health; and also explored the residential areas differences on study variables. This study had three hypotheses;

- 1) Tokophobia will have positive relationship with neuroticism and negative relationship with mental health among primigravidas;
- 2) Neuroticism will significantly moderate the relationship between tokophobia and mental health; and
- 3). Residential area has significant differences on tokophobia, mental

health, and neuroticism.

Estimated 42% women of the world dead annually due to intrapartum. Caesarean section rate is 67.7%, with 30.87% patients are primigravida and 69.1% of patients are multigravida. The sample size was calculated by using the WHO sample size calculator, considering 5% margin of error and 95% confidence interval.¹² One hundred primigravida women with age range from 20 to 40 years, from both urban (n=55) and rural (n=45) areas were selected. Only educated primigravidas who visit gynaecologists at hospital settings regularly for their antenatal checkups included in sample. Those primigravidas who were uneducated or consult midwives for their prenatal checkups were excluded from the study.

Eysenck Personality Questionnaire (EPQ),¹³ Warwick Edinburgh Mental Wellbeing Scale (WEMWBS),¹⁴ and The Wajima Delivery Expectancy Experience Questionnaire (WDEQA) were used for data collection.¹⁵ EPQ is a 36-item scale out of which 12 items are used to measure neuroticism personality trait. Its response format is a 5-point Likert-type scale with a score range of 12-60. The reliability estimates of neuroticism in this study was .85. WEMWBS consisted of 14 items with scoring on a 5-point Likert scale. Its score range was from 14-70. The reliability coefficient of this scale in this study was .87. WDEQA is a 33 items scale using a 6-point Likert scale with a score range of 0-165 with .85 cut off point score was. Women who have scores above than 85 were diagnosed as tokophobic (clinical fear of child birth), while those women who have less than 85 scores were identified as having normal labor fear. The Cronbach's alpha for scale in this study was .79. After taking permission from the higher authorities of hospital administration, primigravidas were approached in gynecological OPDs' of different hospitals personally. After taking informed consent from the patients at first only WDEEQ was administered on primigravidas in order to screen tokophobic women because only tokophobic women were taken as sample of the study. Initially WDEEQ was administered on 500 women out of

which 128 women get score above cut point, so the prevalence rate of tokophobia among women was 25.60%. In second stage other two questionnaires were distributed on these 128 screened women with clear instructions to respond to all items of each scale because they gave assurance regarding the confidentiality of information and will be only used for research. Out of these 128 women only 100 women fill all questionnaire completely, so the response rate was 78.12%. In the current study the final analysis was done on the sample of 100 women by using Statistical Package of Social Sciences (SPSS-V23).

RESULTS

Five hundred women were initially approached out of which 128 women were screened as tokophobic as they get scores above than 85 cut off scores of WDEEQ. Out of these 128 women only 100 women fill all questionnaire completely, so the final analyses were done on 100 primigravidas. Mean age of the participants was 28.2 ± 8.3 years. Out of 100 participants, 45 (45%) were from rural areas and 55 (55%) were from urban areas. Half (50%) of the study participants had education up to 14 years, while 50 (50%) had > 14 years of formal education.

The results indicated that all scales are highly reliable as alpha reliability coefficient of EPQR was 0.85, for WDEEQ was 0.79 and WEMBS was 0.87. All questionnaires also had high construct validity as indicated by the significant results of item total correlation ($**p < 0.01$).

Table I indicates that neuroticism is significantly positively correlated with tokophobia, while significantly negatively linked with mental health. Similarly, tokophobia is also significantly negatively associated with mental health.

Table II showed significant negative association of Tokophobia and Mental Health $\{\beta = -.23, t = -2.20, p = .030\}$ and explained about 5% change in mental health $\{\Delta R^2 = .05, \Delta F(1, 98) = 4.83, p = .030\}$. Neuroticism also predicted Mental health $\{\beta = -.51, t = 5.45, p = .001\}$ and create 22% in it $\{\Delta R^2 = .22, \Delta F(1, 97) = 29.72, p =$

$.001\}$. The interaction of tokophobia and neuroticism significantly predicted mental health $\{\beta = -.17, t = 2.85, p = 0.48\}$ and about 30% change $\{\Delta R^2 = .30, \Delta F(1, 96) = 3.42, p = .048\}$ in mental health.

Table III demonstrate that residential areas had no significant differences on tokophobia, mental health and neuroticism

DISCUSSION

This research determines the moderating role of neuroticism between tokophobia and mental health and to explore residential area differences on these variables among primigravidas. At first, we computed the reliability coefficients of all the scales which were above average as PQR, WDEQ and WEMBS have .65, .75 and .72 respectively. For determining the construct validities item-total correlation analyses were conducted, which have significant results for all scales on $**p < 0.01$. The results revealed that tokophobia was significantly negatively linked to mental health and significantly positively related with neuroticism (table I). The findings revealed that neuroticism significantly moderated the relationship between tokophobia and mental health negatively (table II). These explored that both neuroticism and tokophobia individually predicted mental health in negative direction. The overall 30% change occurred in mental health as a result of the individual affect of both tokophobia and neuroticism and their interaction affect. These results indicated that the negative relationship of tokophobia and mental health hold more strongly in those individuals who have higher level of neuroticism personality characteristics.

These findings are in line with a previous study which explored a significant negative relationship between tokophobia and mental health as the mental health of primigravidas is more affected by tokophobia as they report more mental health problems than normal pregnant women.¹⁶ Similarly, another research revealed neuroticism as a positive predictor of tokophobia because neurotic women have higher chances to develop tokophobia.¹⁰ A

study of 100 pregnant tokophobic women found that 47% in the USA and 36% in Sweden primigravidas have fear of labor pain so they request for C-Section to avoid delivery pains.¹⁷ According to Lethem, Slade, Troup, and Bentley¹⁸ pain avoidance is a learned behaviour which aimed to escape/avoid pain-inducing experiences/situations. Basically, fear affects the cognitive functioning which enhances the psychophysiological reactivity and they perceive situations as more dangerous and their reaction is also stronger towards situations than normal individuals. Fear affect people's way of reaction to given information and their evaluation of experienced pain and its outcomes. Pain avoiding behaviour has a strong association with neurotic personality features, which is manifested through women's requests of C-Section because tokophobic women experience more intense labor pain than women without tokophobia. So, during the puerperium period women having neuroticism personalities estimate their coping and parenting skills to handle a baby as poor and insufficient. Fear of childbirth and anxiety related to pregnancy are both significantly and highly correlated with neuroticism, depression, dissatisfaction in partnership, and low self-esteem.¹⁹ A study conducted in Pakistan also reported a very high prevalence rate of antenatal stress in Pakistan ranging from 29% to 66%.²⁰ Pakistani women have insufficient knowledge about child birth process because Pakistani social/cultural norms considered it taboo to talk openly about fear of childbirth. Consequently, it particularly affects primigravidas (women experiencing first pregnancy).²¹ The analysis also revealed that residential areas have non-significant differences in tokophobia, neuroticism, and mental health (table III). The non-significant differences in residential areas on tokophobia, mental health and neuroticism may appear because the data were collected only from educated women and minute differences existed in living style of both urban and rural areas.

Clinically, these findings help to understand that tokophobic primigravidas have higher risks

regarding their clinical state. National Health Service (NHS) London Clinical Network²² reported that tokophobic primigravidas develop severe levels of depression and anxiety and have a risk of post-traumatic stress disorder. As pregnancy progress, the anxiety level of tokophobic women also increased, which develops suicidal risk and self-harm behaviour. Consequently, due to ongoing increased anxiety of mother the baby/fetal is also at risk involved pregnancy dissolution, difficulty in developing attachment/bonding, and in longer-term it negatively affects the baby's emotional state and developmental outcomes. Clinically now practitioners reported constant increase in the number of such women.

The present study encounters some shortcomings/limitations as the sample was not representative of all women of Pakistan because it is selected from limited areas of Pakistan and based on only registered educated women at hospitals. Another limitation is that it only studies only one demographic variable (residential area) on tokophobic women and it relies on a self-report measure scale to screen out tokophobic women. It is suggested that the next researcher conduct study on both literate and illiterate women from whole of Pakistan and explore the affect of other demographic variables as well who have an important role in tokophobia development. It is also suggested to use some other clinical tools to screen out the tokophobic women than self-report scales. It is concluded women with neuroticism personality have a higher tendency to develop tokophobia and both significantly affects the mental health of pregnant women. Especially primigravida women have a higher tendency to develop tokophobia because they solely rely on information related to labor pain from varied sources and have no personal experience. These results are helpful for clinical practitioners to enhance their knowledge about this disorder and its affects as well as get awareness of how adversely anxiety affect both pregnancy period and child labor. So, during antenatal checkups the practitioners encourage such women to discuss their anxieties and fears openly.

CONCLUSION

Primigravida women with neuroticism personality have higher tendency to develop tokophobia and both significantly affect mental health of pregnant women.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

RI & HB: Acquisition of data, drafting the manuscript, approval of the final version to be published.

SN: Concept and study design, analysis and interpretation of data, critical review, approval of the final version to be published.

MJK: Concept and study design, acquisition, analysis and interpretation of data, drafting the manuscript, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request



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