



# Weight Stigma and Social Introversion of Overweight Neonatal Mothers: Does Age Make a Difference?

Eke OH<sup>1\*</sup>, Onyenyirionwu UG<sup>2</sup> and Odo VO<sup>3</sup>

<sup>1</sup>Clinical Psychology Unit, Medical Center University of Nigeria, Nigeria

<sup>2</sup>Department of Social Work, University of Nigeria, Nigeria

<sup>3</sup>Department of Psychology, University of Nigeria, Nigeria

## Abstract

Research evidence indicates that overweight has contributed to mental health in diverse populations. Its impact has been given little research attention in Nigeria. The present study examined weight stigma and social introversion of overweight neonatal mothers. Participants were 120 neonatal mothers drawn from health facilities in eastern Nigeria using a purposive sampling technique. Data was collected by means of self-report measures. Multiple regression results showed that weight stigma positively predicted social introversion of total sample. Weight stigma did not predict social introversion of older neonatal mothers, but positively predicted social introversion of younger neonatal mothers. In order to promote maternal mental health, age-based differentials in the link between weight stigma social introversion should be addressed by researchers and healthcare practitioners.

**Keywords:** Weight stigma; Social introversion; Mothers; Neonatal; Nigeria

## Introduction

Neonatal mothers are faced with health challenges (WHO, 2019; European Association for the study) [1,2] and are at risk for overweight, social withdrawal and other mental health challenges [3]. Although, the trajectories, type of overweight and social introversion of mothers differs accordingly [4]. Research on neonatal women are scarce in comparison with other participants [2,4,5]. In Nigerian context, neonatal women are faced with continuous stay at home which may impact on their social introversion and health [6,7]. Thus, caring for neonates by mothers may be time demanding and involved eating regularly so that neonates will get adequate nutrition. Eating regularly can predict weight gain [8], and weight gain may increase or worsen weight stigma of neonatal mothers.

Weight stigma is social devaluation and denigration of people perceived to carry excess weight which lead to prejudice, negative stereotype and discrimination toward these people [9]. It has contributed to adverse mental health in other contexts such as adolescents eating disorders [10,11], discrimination and body dissatisfaction [12] body image of women, low self-esteem [9], depression [13], distress [14]. However, little is known about the mental health implication of weight stigma in neonatal mothers.

In particular, knowledge of possible age differences in association of weight stigma and social introversion is very limited despite age differences in weight stigma indicating that younger mothers experience weight stigma more than older mothers [15]. There is direct age effect on social introversion [16,17] with evidence that younger mothers have more social introversion compared to older mothers [18,19]. As a rationale for this study, more information on age effect weight stigma and social introversion association could potentially lead to carefully tailored and specific strategies to reduce weight stigma, which in turn could effectively reduce social introversion and contributes to better life quality of neonate's mothers. Also, the study seeks to replicate among overweight mothers, extant findings on impacts of weight stigma on overweight neonatal mothers as established in other populations. It will add to the maternal health literature and the findings may be relevant to practitioners in mental health care. The specific objectives of this study are to examine whether: 1) Weight stigma predicts overweight mother's social introversion. 2) Age make a difference in weight stigma and social introversion.

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### \*Correspondence:

Okechukwu Hope Eke, Clinical Psychology Unit, Medical Center University of Nigeria, Nsukka, Nigeria,  
E-mail: hope.eke@unn.edu.ng

Received Date: 18 Jan 2021

Accepted Date: 08 Feb 2021

Published Date: 16 Feb 2021

### Citation:

Eke OH, Onyenyirionwu UG, Odo VO. Weight Stigma and Social Introversion of Overweight Neonatal Mothers: Does Age Make a Difference?. *Am J Med Public Health*. 2021; 2(1): 1013.

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## Method

### Participation and procedure

Participants were 120 neonatal mothers (Age = 19 to 46 years,  $M_{age} = 30.20$  years, Body mass index = 65-130,  $M_{BMI}=80$ ). Drawn from university medical centre in eastern Nigerian using a purposive sampling technique. Data was collected by means of questionnaires in the local dialects of the mothers. Translation and back translation of the questionnaires from English to the local language were carried out by two experts translators. Semantic problems shown by translation into Igbo were resolved through discussion among the experts, the researchers and two mothers who were native of Igbo speakers with good knowledge of English. Following ethical approval by ethical committee of the hospital, neonatal mothers were approached by research assistants (Internship Students) in the antenatal clinic during immunization program, and were asked to participate in this study. The purpose and procedures of the study, the kinds of questions that would be asked, and confidentiality of data and participants' rights were explained to them. Neonatal mothers who gave informed consent were recruited for this study. Non literate participants were assisted by the research assistants. It took approximately 10 min to answer the questionnaires. Eight participants whose data were missing for >25% of items within any of the scales were not included in the analysis, giving rise to a final sample of 120 overweight neonatal mothers.

### Measures

**Data:** Data was collected using two self-reported measures namely, Weight Self-stigma Questionnaires (WSSQ) and Social Interaction Anxiety Scale (SIAS). Participants provided data on their age by indicating them on the questionnaire. To assess the weight stigma, we use WSSQ [11]. WSSQ has been shown to be reliable in terms of internal consistency ( $\alpha=0.81$  and  $0.87$ ) and test-retest reliability over 3 months period ( $0.86$  and  $0.98$ ), has good construct validity with other measures of symptoms. In the current study we obtained  $\alpha$  of  $0.80$ . To measure social introversion, we used 20-item Social Introversion Anxiety Scale [20]. SIAS has been shown to be reliable in terms of internal consistency ( $\alpha=0.87$  to  $0.93$ ) and test re-test reliability over three-month period ( $0.90$ ), has good concurrent validity with fear of negative evaluation scale, social phobia subscale. In this current study, a Cronbach's of  $0.72$  was obtained. Total score ranges from 0 to 80, and higher scores (of the respondent(s) on the 20 items indicates higher social anxiety.

**Data analysis:** We used multiple regressions (step-wise method) to analyze the data.

## Results

Table 1 test whether weight stigma predicts overweight neonatal mothers' social introversion (Objective 1). Overweight stigma positively predicted social introversion of overweight neonatal mothers ( $\beta=29$ ,  $P<0.001$ ). Age (control variable in step 1) did not significantly predict social introversion. Regression was run for older and younger ages in order to test for age effects in weigh stigma and social introversion association (objective 2) (Table 2, 3). The age variable was coded so that '0' indicated older age and '1' was for younger age. Weight stigma did not predict neonatal mother's social introversion. Controlling for older age mothers' weight stigma did not significantly impact social introversion (Table 3). Weight stigma positively predicted social introversion of younger age women ( $\beta=0.36$ ,  $p<0.001$ ), accounting for about 14% of the variance

**Table 1:** Multiple regression predicting social introversion from weight stigma for the total sample.

	Step 1		Step 2	
Variables	SE	$\beta$	SE	$\beta$
Control				
Age	0.05	0.7	0.05	0.05
Predictor				
Weight Stigma			0.06*	0.29*
AR <sup>2</sup>	0.00		0.08*	
AR <sup>2</sup>	0.00		0.08*	
AF	0.82		20.18*	

\* $P<0.001$

**Table 2:** Multiple regression predicting social introversion by weight stigma for among older mothers.

	Step 1		Step 2	
Variables	SE	$\beta$	SE	$\beta$
Control				
Age	0.8	0.11	0.8	0.11
Predictor				
Weight Stigma			0.13	-0.06
AR <sup>2</sup>	0.01		0.01	
AR <sup>2</sup>	0.01		0.2	
AF	0.86		0.31	

**Table 3:** Multiple regression predicting social introversion by weight stigma among younger mothers.

	Step 1		Step 2	
Variables	SE	$\beta$	SE	$\beta$
Control				
Age	0.6	0.03	0.05	0.01
Predictor				
Weight Stigma			0.05	0.36*
AR <sup>2</sup>	-01		.14*	
AR <sup>2</sup>	0.00		.15*	
AF	0.82		27.06*	

\* $P<0.001$

in social introversion ( $\Delta R^2=0.14$ ). Controlling for younger age did significantly impact social introversion.

## Discussion

Findings of the study indicated that weight stigma was associated with social introversion for the total sample and for younger ages but not for older ages. This finding support previous studies which reported that weight stigma was associated with social introversion [2,4]. Stigmatized mothers tend to be dissociating from stigma inducing persons, conditions or environment and may also experience disaffection in interpersonal relationship which may encourage them to opt for social introversion. However, the observed age differences on impact of weight stigma on social introversion supports differences which have been observed between younger age mothers and older age mothers in relation to approach in dealing with weight stigma [15-17]. However, older age mothers may have developed coping strategies for stigma and experience lesser mental health impact of it. Effective programs to reduce weight stigma's cognitive impact on them change their perception about self and the stigma need to be

well tailored in Nigerian context so as to reduce weight stigma among younger age mothers. This study has some limitations including cross-sectional design and limited sample number, which demands caution in interpretation. Apart from age, social support and mothers' characteristics (education status) may influence the outcome of the study, such variables were not included as control variables, due to the unavailability of such data and it is one of the study's weakness.

In conclusion, despite these limitations, findings point to the study as a modest effort to highlight the relevance of recognizing age differences when designing and implementing maternal health interventions.

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