

Review / Research Article

Perceived Stress and Correlates among Women in an Urban Northwestern Region of Nigeria: An Opportunity Cross-Sectional Study

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Abstract:

Background: Stress is the perceived or actual threat to a person's body that can result in a state of imbalance. Perceived stress is a psychological state that influences a person's cognitive ability and is associated with an increased risk of illnesses. This study, therefore, aimed to determine the perceived stress level and associated factors among women in Kaduna metropolis to create awareness, and ultimately curtail the menace of stress-related disorders.

Methods: This was an opportunity cross-sectional study conducted among women during a regional conference in Kaduna metropolis, Northwestern Nigeria. A self-administered structured questionnaire was used to obtain information about the women's sociodemographic characteristics, and their perceived sources of stress, and Cohen's PSS-10 was employed to assess their level of perceived stress. A chi-square test using ANOVA was done to determine any significant relationship between the participants' sociodemographic characteristics and their perceived stress levels. A p-value of < 0.05 was considered statistically significant.

Results: A total of 346 women aged between 18 and 65 years with a mean age and standard deviation of 41.98 ± 10.92 years participated in the study. Most (83.9%) of the participants were married and 45.9% of them had attained a tertiary level of education. The reported sources of stress had the workplace with the highest response at 27.2%, with the home at 26.4%, and health at 11.9%. The overall prevalence of perceived stress among them was 91.0% of which 9.0% had no/low level, 75.4% reported a moderate level, and 15.6% had a high level of perceived stress. The sociodemographic factors that were significantly associated with perceived stress among the respondents included their ethnic group (p = 0.038), educational level (p = 0.011), occupation (p < 0.001), and husband's occupation (p = 0.042).

Conclusion: This study has highlighted the fact that women are under a lot of stress which may be detrimental to their well-being. It revealed an alarming mental health morbidity among women needing prompt attention as this may result in psychological, physical, and behavioral problems. Therefore, there is a need to modify work policies aimed at reducing stress in workplaces. Women should be taught healthy coping mechanisms to relieve all forms of stress.

Key words: Perceived stress, Correlates, Women, Urban setting, Nigeria.

Introduction:

Stress refers to the physical, mental, and emotional strain or tension on an individual [1,2]. It is the perceived or actual threat to the human body's homeostasis that can result in a state of imbalance. Stress can also occur when the pressure of life exceeds an individual's perceived ability to cope

[3]. Perceived stress is the feeling or thought that a person has about how much stress they are under at a given point or over a period of time [4]. Perceived stress can also be referred to as the degree to which events or situations in an individual's life are assessed as stressful, uncontrollable, and unpredictable.

There is the release of certain hormones in the body following a stressful state [4]. Chronic exposure to stress hormones has been associated with a range of illnesses and disorders including anxiety, depression, sleep disorders, obesity, gastrointestinal disorders, cardiovascular disorders, immune disorders, and increased mortality [4,5]. Perceived stress is a psychological state that influences a person's cognitive ability [6]. Some evidence has found perceived stress to be associated with an increased risk of stroke and depression [7,8]. Stress is often more associated with negative life events, but it can also be a result of some positive life events such as celebrations [3]. Studies have shown that women report higher levels of stress and perceive stress more than men [3,4]. Men have also reported the workplace as the major source of stress while the family and home are reported by the women as more sources of stress [4].

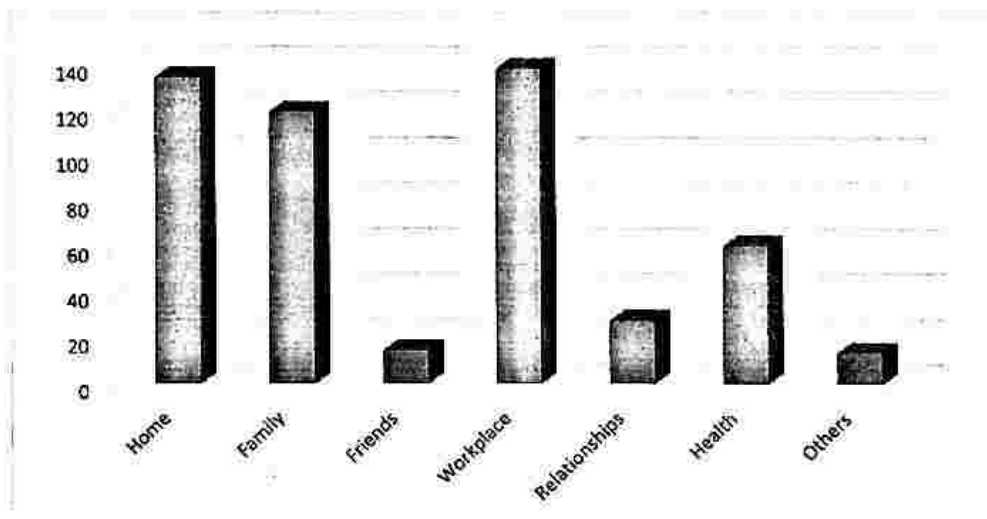
A validated and often used psychological instrument for measuring the degree of perceived

stress in an individual is the Cohen's Perceived Stress Scale – 10 (PSS-10) [9]. Cohen's PSS-10 measures how a person feels about the general stressfulness of their life and their ability to tackle such stress. The PSS is also a measure of the degree to which events or situations in an individual's life are appraised as stressful. However, it does not measure the frequencies or types of stressful events that had occurred to an individual [4,9].

Identifying the sources of stress and the level of perceived stress is integral to the effective management of stress among women. Applying the appropriate coping mechanisms to stress would enhance the overall well-being of an individual [4]. However, maladaptive coping strategies may result in complicated stress-related disorders. This study, therefore, aimed to determine the perceived stress level and associated factors of stress among women in Kaduna metropolis to increase awareness, and ultimately curtail the menace of stress-related disorders.

Table i: Distribution of the Participants' Sociodemographic Characteristics

Characteristics	Categories	Frequency	Percentage
Age (years)	18 – 30	78	22.5
	31 – 45	221	63.9
	46 – 65	47	13.6
	Total	346	100
Marital status	Single	7	2.1
	Married	290	83.9
	Divorced	3	1.0
	Widowed	46	13.0
	Total	346	100
Ethnic group	Hausa	171	49.4
	Yoruba	30	8.7
	Igbo	53	15.3
	Others	92	26.6
	Total	346	100
Educational status	Primary	59	17.1
	Secondary	128	37.0
	Tertiary	159	45.9
	Total	346	100
Occupation	Employed	137	39.6
	Self Employed	116	33.5
	Unemployed	93	26.9
	Total	346	100
Husband's educational status	Primary	36	10.4
	Secondary	106	30.6
	Tertiary	148	42.8
	Don't know	56	16.2
	Total	346	100
Husband's occupation	Employed	145	41.9
	Self-employed	98	28.3
	Unemployed	47	13.6
	Don't know	56	16.2
	Total	346	100
Number of children	0-4	241	69.7
	≥ 5	105	30.3
	Total	346	100



Multiple responses were recorded.

Figure 1: Bar Chart Showing the Study Participants' Perceived Sources of Stress.

Methods:

This was an opportunity cross-sectional study conducted among women during a regional conference in Kaduna metropolis in April 2018. Kaduna state is the third most populous state in Nigeria, and Kaduna metropolis is cosmopolitan in nature [10]. An anonymous self-administered structured questionnaire was used to obtain information about the women's sociodemographic characteristics, and their perceived sources of stress, and Cohen's PSS-10 was employed to assess their level of perceived stress [9]. The Cohen's PSS-10 comprises ten questions on a five-point scale ranging from 0 (never) to 4 (very often) including how often the women had felt or thought a certain way within the past month. Scores ranged from 0 to 40, with higher scores indicative of a higher level of stress. For this study, scores 0 – 13 were considered as none and/or low level of perceived stress, scores 14 – 26 as a moderate level of perceived stress, and 27 - 40 as a high level of perceived stress [9]. Before cumulating the scores, the scores for questions 4, 5, 7, and 8 were reversed as they are positive questions resulting in a score of 0 reversed to 4, a score of 1 was reversed to 3, 2 remained as 2, 3 was reversed to 1, and 4 was reversed to 0 [9]. The data was analyzed using SPSS version 20. A chi-square test using ANOVA was done to determine any significant relationship between the

participants' socio-demographic characteristics and their perceived stress levels. A p-value of < 0.05 was considered statistically significant. Ethical approval to conduct this study was obtained from the Ethical committee of the 44 Nigerian Army Reference Hospital, Kaduna. Written informed consent was obtained from the participants.

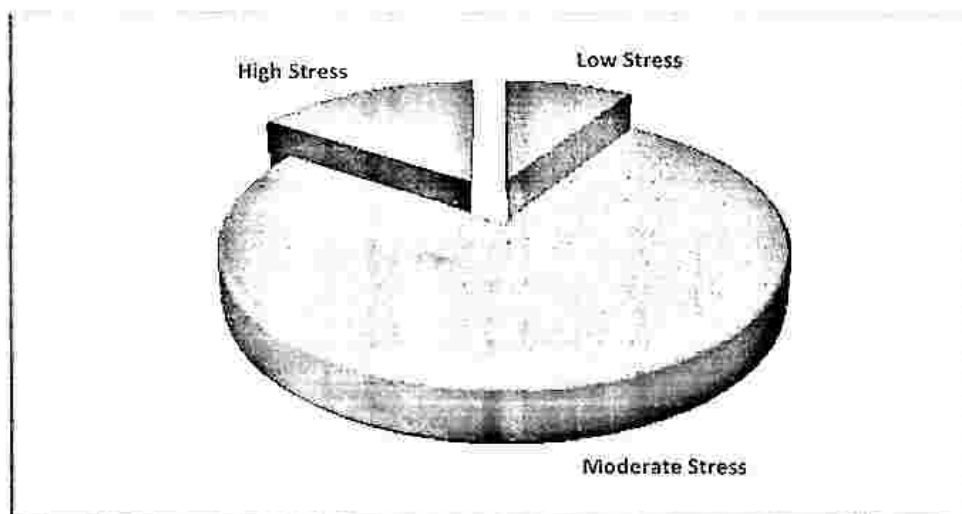
Results:

A total of 346 women aged between 18 and 65 years with a mean age and standard deviation of 41.98 ± 10.92 years participated in the study. A majority (221, 63.9%) of the participants were in the age group of 31 to 45 years as shown in Table I. Most (290, 83.9%) of them were married and only 7 (2.1%) were single. About half (171, 49.4%) of the women were of Hausa ethnic group which is the predominant tribe in the study area. The study reported that 159 (45.9%) of the participants had attained a tertiary level of education. Only 137 (39.6%) of the women were employed and 116 (33.5%) were self-employed. About two-thirds (241, 69.7%) of the participants had fewer than five children. One hundred and forty-eight (42.8%) of the participants' husbands had attained a tertiary level of education and 145 (41.9%) of their husbands were employed.

- [13] Desouky D, Allam H. 2017. Occupational stress, anxiety, and depression among Egyptian teachers. *J Epidemiol Global Health*; 7(3): 191–198.
- [14] Mark GM. 2008. The relationship between workplace stress, Job characteristics, individual differences, and mental health. Ann Arbor: Cardiff University; 48106.
- [15] Manabete S, John C, Makinde A, Duwa ST. 2016. Job stress among school administrators and teachers in Nigerian secondary schools and technical colleges. *Int J Educ Learn Devel*; 4(2): 1-9.
- [16] Ghulza FH, Qamar ZA, Arshad M, Haider G. 2019. A study of the organizational stress among public sector secondary school teachers in Punjab. *Eur Online J Nat Soc Sci.*; 8(2): 285–93.
- [17] Lunau T, Siegrist J, Dragano N, Wahrendorf M. 2015. The association between education and work stress: does the policy context matter? *PLoS ONE*; 10(3): 1–17.
- [18] Othman Z, Sivasubramanian V. 2019. Depression, anxiety, and stress among secondary school teachers in Klang, Malaysia. *Int Med J.*; 26(2): 71–74.
- [19] Vallejo MA, Vallejo-Sloeker L, Fernandez-Abascal EG, Mananes G. 2018. Determining factors for stress perception assessed with the Perceived Stress Scale (PSS-4) in Spanish and Other European samples. *Front Psychol*; 9: 37 <http://doi:10.3389/fpsyg.2018.00037>
- [20] Hsien-Chuan HP, Kreageloh CU, Shepherd D, Billington R. 2009. Religion/spirituality and quality of life of international tertiary students in New Zealand: exploratory study. *Ment Health Relig Cult.*; 12(4): 385–399 <http://doi:10.1080/13674670902752920>
- [21] Gomathi KG, Ahmed S, Sreedharan J. 2013. Causes of stress and coping strategies adopted by undergraduate health profession students in a university in the United Arab Emirates. *Sultan Qaboos Univ Med J.*; 13(3): 437–441.
- [22] Shiferaw H, Anand S, Nemera G. 2015. Stress and coping strategies among generic B.Sc. nursing students of Jimma University, South-West Ethiopia. *International Journal of Advanced Multidisciplinary Research*; 2(7): 511–517.



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No/low level = 31 (9.0%), Moderate level = 261 (75.4%), High level = 54 (15.6%).

Figure 2: Pie Chart Showing the Study Participants' Levels of Perceived Stress.

Table II: Association between the Participants' Sociodemographic Characteristics and Their Perceived Stress,

Characteristics	Perceived Stress			F stat	p-value
	No/Low stress	Moderate Stress	High Stress		
Age group (years)				2.869	0.134
18 – 30	10 (12.8)	52 (66.6)	16 (20.5)		
31 – 45	16 (7.2)	171 (77.3)	34 (15.3)		
46 – 65	5 (10.6)	38 (80.8)	4 (8.5)		
Marital status				1.111	0.389
Single	2 (28.5)	4 (57.1)	1 (14.2)		
Married	23 (7.9)	221 (76.2)	46 (15.8)		
Divorced/widowed	6 (12.2)	36 (73.4)	7 (14.2)		
Ethnic group				4.826	0.038*
Hausa	18 (10.5)	134 (78.3)	19 (11.1)		
Yoruba	3 (10)	23 (76.6)	4 (13.3)		
Igbo	4 (7.5)	42 (79.2)	7 (13.2)		
Others	6 (6.5)	62 (67.3)	24 (26.1)		
Educational level				10.375	0.011*
Primary/None	8 (13.5)	42 (71.1)	9 (15.2)		
Secondary	15 (11.7)	98 (76.5)	15 (11.7)		
Tertiary	8 (5.0)	121 (76.1)	30 (18.8)		
Occupation				47.149	0.000*
Employed	9 (6.5)	106 (77.3)	22 (16.1)		
Self-employed	16 (13.7)	83 (71.5)	17 (14.6)		
Unemployed	6 (6.4)	72 (77.4)	15 (16.1)		
Husband's Education				3.783	0.064
Primary/None	4 (11.1)	25 (69.4)	7 (19.4)		
Secondary	10 (9.4)	81 (76.4)	15 (14.1)		
Tertiary	6 (4.1)	114 (77.0)	28 (18.9)		
Don't know	27 (48.2)	19 (33.9)	10 (17.8)		
Husband's Occupation				4.606	0.042*
Employed	11 (7.5)	109 (75.1)	25 (17.2)		
Self-employed	9 (9.1)	68 (69.3)	21 (21.4)		
Unemployed	3 (6.3)	38 (80.8)	6 (12.7)		
Don't know	27 (48.2)	19 (33.9)	10 (17.8)		
Number of children				7.297	0.070
0 – 4	19 (7.8)	183 (75.9)	39 (16.2)		
≥5	12 (11.4)	78 (74.2)	15 (14.3)		

F stat = ANOVA variance, * = significant p-value, Frequency (percentage).

Figure 1 is a bar chart depicting the participants' perceived sources of stress. There were multiple responses from the participants. The reported sources of stress had the workplace with the highest response of 139 (27.2%). This was closely followed by the home (135, 26.4%) and family (120, 23.4%). Other reported sources of stress included health (61, 11.9%), relationships (28, 5.5%), friends (15, 2.9%), and others such as financial strain and life events accounted for 2.7% of the responses.

Figure 2 is a pie chart showing the prevalence of perceived stress among the study participants. The overall prevalence of perceived stress among them was 91.0% in which 31 (9.0%) had no/low level, 261 (75.4%) reported a moderate level, and 54 (15.6%) had a high level of perceived stress.

Table II shows the association between the participant's sociodemographic characteristics and their level of perceived stress. Sociodemographic factors that were significantly associated with perceived stress among the respondents include ethnic group ($p = 0.038$), educational level ($p = 0.011$), occupation ($p < 0.001$), and husband's occupation ($p = 0.042$).

Discussion:

In this cross-sectional descriptive opportunity survey to assess perceived stress and its associated factors, 346 women in an urban Northwestern region of Nigeria participated. The result of the study indicated an alarming mental health morbidity among the participants, thus needing immediate attention as it may contribute to psychological, physical, and behavioral problems.

The overall prevalence of perceived stress in this study was found to be 91%, which is similar to a study conducted in Hong Kong that reported a prevalence of 91.6% [11]. However, our finding indicated a higher prevalence compared to the study by Asa & Lasebikan conducted in Southwest Nigeria which reported a prevalence of 72.2% [12]. On the other hand, we found a lower prevalence of stress compared to the study in Egypt by Desouky & Allan that reported work-related stress of 100% [13]. Such variations might be due to the different local characteristics, including perceptions, traditions, study tools, living standards, and educational systems available in these countries; which may have given either exacerbation or buffering effects of stressors related to work [14]. In addition, the disparity could be due to different approaches, periods of research, and sample populations.

In this study, more proportion of women in the age group of 31 – 45 years reported higher stress levels than those in other age groups. This may be because this age group is an active and productive age that is saddled with huge responsibilities, although this was not statistically significant. The perceived stress level was more among the married women in this study. This could be due to the responsibility associated with marriage; the stress of raising children, taking care of their husbands, in-laws and other family members, visitors, and domestic work. However, marital status was not significantly associated with stress levels in this study. Furthermore, women who had fewer than 5 children reported a higher level of stress than those who had more children, nonetheless, this was also not statistically significant.

This study showed that the participants' educational level was significantly associated with their perceived stress level. Specifically, a higher educational level was associated with high perceived stress. Studies conducted in other regions of the country and India have supported this finding [15,16]. This could be due to the high job demand with increased responsibilities. However, other studies revealed that lower educational levels were associated with higher stress [17,18]. One possible reason given was that dealing with certain complexities of work may be more difficult if there is a lower level of education.

In this study, the participants' perceived stress level was significant with their ethnic group, where the participants from non-indigenous ethnic groups recorded higher levels of perceived stress than the indigenous Hausa ethnic group. One explanation for the difference may be the geographic variations in perceived stress levels based on cultural differences [19]. The Igbo and Yoruba ethnic groups are from the Southeastern and Southwestern parts of the country respectively, and finding themselves in a new environment and culture may have contributed to their level of perceived stress. Consequently, they may be exposed to higher levels of stress due to acculturation or the need to adjust to the host culture [20]. There may also be varied parental or familial expectations of these women from different cultures, which may impact their perceived stress levels [21].

This study also showed that unemployed women were more likely to be stressed compared to those who were employed. This could be because the unemployed may experience stress from job

searching and financial constraint. This is strengthened by the finding from a study among University students in Ethiopia, where students with financial constraints were more likely to be stressed compared to those who had no financial problems [22]. Husband's occupation was also statistically significant in this study, where women whose husbands were unemployed had higher levels of perceived stress than those whose husbands were employed. This could be due to economic challenges and family demand which may lie heavily on the woman since the husband is not employed. However, the participants' husband's educational level was not significantly associated with their stress level, though a higher proportion of women whose husbands had attained a tertiary level of education recorded more stress levels than their counterparts.

Conclusion:

About three-quarters of the women perceived a moderate level of stress. Work and home stress were identified as the major sources of stress. The participants' occupations, educational levels, ethnic groups, and their husband's occupations were significantly associated with their perceived level of stress. This study has highlighted the fact that women are under a lot of stress which may be detrimental to their physical, behavioral, and psychosocial health. Therefore, there is a need to modify work policies aimed at reducing stress in workplaces. Women should be taught healthy coping mechanisms to relieve all forms of stress.

The study was limited by its cross-sectional nature, limiting causality inferences. In addition, the dependence on self-reporting may result in possible information bias. Despite these limitations, the study provides an assessment of the level of perceived stress among women in an urban setting.

Conflict of interest

The authors declare that they have no competing financial, professional, or personal interests.

References:

- [1] Andreou E, Alexopoulos EC, Lionis C, Varvogli L, Gnardellis C, Chrousos GP, Darvin C. 2011. Perceived Stress Scale: Reliability and Validity Study in Greece. *Int J Environ Res Public Health*; 8(8): 3287-3298.
- [2] Asani MO, Farouk Z, Gambo S. 2016. Prevalence of perceived stress among clinical students of Bayero University

- Medical School. *Niger J of Basic Clin Sci*; 13: 55-58.
- [3] Beall JW, DeHart RM, Riggs RM, Hensley J. 2015. Perceived Stress, stressors, and coping mechanisms among Doctor of Pharmacy students. *Primary*; 3: 344-354.
- [4] Anbumalar C, Dorathy AP, Jaswanti VP, Priya D, Reniangelin D. 2017. Gender Differences in Perceived Stress levels and coping strategies among college students. *Int J of Indian Psychology*; 4(4): 22-32.
- [5] Zhang M, Simon MA, Dong X. 2014. The Prevalence of Perceived Stress among US Chinese older adults. *AIMS Medical Science*; 1(1): 40-56.
- [6] Potter GG, Hartman M, Ward T. 2009. Perceived stress and everyday memory complaints among older adult women. *Anxiety, Stress, & Coping Int J*; 22(4): 475-481.
- [7] Booth J, Connelly L, Lawrence M, Chalmers C, Joice S, Becker C, Dougall N. 2015. Evidence of perceived psychosocial stress as a risk factor for stroke in adults: a meta-analysis. *BMC Neurology*. 15(233).
- [8] Maideen SFK, Sidik SM, Rampal L, Mukhtar F. 2014. Prevalence, associated factors and predictors of depression among adults in the community of Selangor, Malaysia. *PLoS* 10.1371; e95395.
- [9] Cohen S, Williamson G. 1988. Perceived Stress in a Probability Sample of the United States. Spacepan S & Oskamp S (Eds). *The Social Psychology of Health*. Newbury Park, CA: Sage.
- [10] Nigeria 2006 Census Figures (Population) [Online] [cited 2022 May 12]. Available from: URL: www.nigeriamasterweb.com/Nigeria06/CensusFigs.html
- [11] Chan AH, Chen K, Chong EY. 2010. Work stress of teachers from primary and secondary schools in Hong Kong. In: International multi conference of engineers and computer scientists, IMECS; 1903-1906. <http://dspacecity.edu.uk/handle/2031/7097>
- [12] Asa FT, Lasebikan VO. 2016. Mental health of teachers: teachers' stress, anxiety, and depression among secondary schools in Nigeria. *Int Neuropsychiatr Dis J*; 7(4): 1-10.