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## TABLE OF CONTENTS

GENERAL INFORMATION	IC
INFORMATION FOR AUTHORS	1F
EDITORIAL NOTE:	
Exploring Dermatoglyphic Screening for Hypertension, Strengthening Mental Health Care in Primary Health Settings, and Other Innovative Approaches to Improve Healthcare Outcomes – <i>G. E. Erhabor</i>	1081
<b>ORIGINAL ARTICLES</b>	
<b>Self-rated Competence and Role of Primary Health Care Workers in Mental Health Care Delivery in Oyo State, Nigeria</b> O. C. Omobowale, M. B. Olatunji	1083
<b>Association Between Anti-Chlamydial Antibodies and Tubal Factor Infertility in South Eastern Nigeria</b> J. C. Akabueze, P. U. Agu, E. O. Ugwu, S. N. Obi, U. U. Aniebue, G. U. Eleje, A. O. Ugwu, C. S. Anigbo, P. C. Ekwueme, M. I. Eze, K. E. Ekwuazi	1091
<b>Assessing the Safety of Ketamine as a Procedural Sedative in Paediatric Dentistry: A Comparative Study with Midazolam</b> O. D. Oladokun, S. O. Oyeleke, A. A. Adebayo, N. M. Shuaib, A. S. Omotuyole, A. O. Ajibare	1097
<b>Trichoscopic Evaluation of Normative Values of Scalp Hair Density in an African Population from Nigeria: A Cross-Sectional Study</b> E. L. Anaba, H. Sani, D. Magaji, H. Oseze, E. Otofrowei, A. O. Akinkugbe, E. O. Okoro, A. Tosti, A. Ogunbiyi	1105
<b>Family Planning Service Uptake in Hospitals in Rivers State, Nigeria</b> C. T. Atata, U. C. Oguzor, P. A. Green, P. O. Dienye	1113
<b>Comparative Study of Serum Malondialdehyde in Women with Cervical Cancer and Women with High-Risk Human Papillomavirus Infection at The Lagos State University Teaching Hospital, Lagos</b> A. J. Owuye, A. K. Adefemi, A. M. Olumodeji, M. O. Adedeji, K. A. Rabi, O. I. Akinola, A. O. Ugwu, M. A. Adenekan	1120
<b>Comparative Effectiveness of Paracetamol, Ibuprofen, and their Combination in Managing Post-Endodontic Treatment Pain</b> U. Otakhoigbogie, N. E. Onyia, E. K. I. Omogbai, M. A. Sede	1129
<b>Adult Intussusception: A 10-year Institutional Review</b> M. E. Aghahowa, F. E. Alu, O. Emuze, S. I. Atinko, M. A. Alada, K. E. Olofin, B. M. Gali	1137
<b>Dermatoglyphic Characteristics in Adults with Primary Hypertension in Southwestern Nigeria</b> M. O. Adetona, D. O. Babawale, O. S. Michael, J. A. Badejo, A. M. Adeoye	1143
<b>CASE REPORT</b>	
<b>Forearm Auto-Transplantation of Adenomatous Parathyroid Tissue to Prevent Post-Surgical Hypoparathyroidism: A Case Report</b> R. Jalalimehr, S. P. Balasubramanian	1149
<b>INDEX TO VOLUME 41, NO. 11, 2024</b>	
Author Index	1154
Subject Index	1155



### Trichoscopic Evaluation of Normative Values of Scalp Hair Density in an African Population from Nigeria: A Cross-Sectional Study

*Évaluation Trichoscopique des Valeurs normatives de la Densité des Cheveux du Cuir Chevelu dans une Population Africaine du Nigéria : Une étude Transversale*

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#### ABSTRACT

**BACKGROUND:** Reports of hair density (HD) on healthy scalp of Africans is rare. Our study aimed to document normative scalp HD values in an African population.

**METHODS:** A cross-sectional study of the healthy scalp of 909 individuals aged 5-45 years was conducted in 2023. Phototrichoscopic measurements were taken from four scalp sites (frontal, temporal, vertex and occipital). Hair parameters were compared between genders and across age groups. Data was analyzed using the IBM statistical package version 26.0.

**RESULTS:** The mean age of the participants was  $21.8 \pm 11.02$  years and they were 52.1% female. The number of hair strands (HS) from each pilosebaceous unit (PU) was 1 in 99.9% and 2 in 98% of the participants. HD ranged from 113 – 660/cm<sup>2</sup> with a median (IQR) of 330.0 (301.0, 368.0) and was highest at the frontal scalp area. HD and total number of HS were significantly higher in all scalp sites in males ( $p=0.001$ ) except for the frontal scalp site,  $p=0.283$ . HD and number of HS were highest in the fourth decade of life (median HD (IQR); 339 (301, 386), mean HS/PU;  $37.09 \pm 6.96$ ) and least in the first decade of life (median HD (IQR); 320 (292, 358), mean HS/PU;  $35.18 \pm 6.26$ ) irrespective of the scalp site,  $P < 0.001$ .

**CONCLUSIONS:** The hair density of Africans is high. The number of HS from each PU and HD varies with the scalp site, age and gender. These findings from the African scalp are relevant in the management of Africans who have hair loss and in those who require restorative surgeries. **WAJM 2024; 41 (11): 1105-1112**

**KEYWORDS:** Hair density, Africa, Trichoscopy, Phototrichoscopy, Hair strand, Hair, Normative values

#### RÉSUMÉ

**CONTEXTE:** Les rapports sur la densité capillaire (HD) sur le cuir chevelu sain des Africains sont rares. Notre étude visait à documenter les valeurs normatives de HD du cuir chevelu dans une population africaine

**MÉTHODES:** Une étude prospective transversale du cuir chevelu sain de 909 individus âgés de 5 à 45 ans a été menée en 2023. Des mesures phototrichoscopiques ont été prises à partir de quatre sites du cuir chevelu (frontal, temporal, vertex et occipital). Les paramètres capillaires ont été comparés entre les sexes et entre les groupes d'âge. Les données ont été analysées à l'aide du logiciel statistique IBM version 26.0.

**RÉSULTATS:** L'âge moyen des participants était de  $21,8 \pm 11,02$  ans et ils étaient à 52,1 % des femmes. Le nombre de mèches de cheveux (HS) de chaque unité pilo-sébacée (UP) était de 1 sur 99,9 % et de 2 sur 98 %. La HD variait entre 113 et 660/cm<sup>2</sup> avec une médiane (IQR) de 330,0 (301,0, 368,0) et était la plus élevée au niveau de la zone frontale du cuir chevelu. La HD et le nombre total de HS étaient significativement plus élevés dans tous les sites du cuir chevelu chez les hommes ( $p = 0,001$ ), à l'exception du frontal,  $p = 0,283$ . L'HD et le nombre d'HS étaient les plus élevés au cours de la quatrième décennie de la vie (HD médiane (IQR) ; 339 (301 386), HS/PU moyenne ;  $37,09 \pm 6,96$ ) et les moins élevés au cours de la première décennie de la vie (HD médiane (IQR) ; 320 (292, 358), moyenne HS/PU  $35,18 \pm 6,26$ ) quel que soit le site du cuir chevelu,  $P < 0,001$ .

**CONCLUSIONS:** La densité capillaire des Africains est élevée. Le nombre d'HS de chaque PU et HD varie en fonction du site du cuir chevelu, de l'âge et du sexe. Ces découvertes sur le cuir chevelu africain sont pertinentes dans la prise en charge des Africains souffrant de perte de cheveux et de ceux qui nécessitent des chirurgies réparatrices. **WAJM 2024; 41 (11): 1105-1112**

**MOTS CLÉS:** Densité capillaire, Afrique, Trichoscopie, Phototrichoscopie, Mèche de cheveux, Cheveux, Valeurs normatives.

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**Abbreviations:** HD: Hair density; HS: Hair strands; PU: Pilosebaceous unit