

E-ISSN: 2582–2160, Volume: 4, Issue: 4, July-August 2022

## PLASMODIUMS TYPING AND ITS POSSIBLE CORRESPONDENCE TO THE PATIENTS' TYPOLOGICAL BELONGING

<sup>1</sup>Tkachenko Elena Viktorovna, <sup>2</sup>Jha Sahil Kumar, <sup>3</sup>Rauth Upasona, <sup>4</sup>Dr Jagdev Singh Guleria

 <sup>1</sup>Candidate of medical sciences, Physiology chair assistant Poltava State medical university
 <sup>2,3</sup> Student, International faculty, General Medicine Poltava State medical university, Ukraine
 <sup>4</sup> Internal Medicine Bhartia Institute of Science and Research, New Delhi

*Abstract*: Studying of different personalities in association with disease and well being is a great tool to gather knowledge on how different people react, give response to (mentally and clinically; in terms of duration of convalescence period) and alter their behaviour in order to get cured (will to get better). This article concerns with the diagnostically important purpose of plasmodium typing, it's relatedness as a disease to various human typologies as a whole (sinistrality, temperament, control locus, ethnic belonging, morbidity). Additionally, recovery response rate in terms of immunity is determined with relation to type of personality and temperament.

## *Keywords*: malaria, therapy, prevention, children malaria, malaria at pregnancy, anemia at malaria as well as the term about the sick transporting into the non-endemic areas.

Plasmodium different antigenic proteins are considered to be the main target for the effective vaccine development [1], that is why their multi-facetated study in part with typological aspects taking into consideration and their own typing represents rather important area of theoretical and applied research together with malaria itself in all its multiple variations. Demographic and clinical profiles of Plasmodium falciparum and plasmodium vivax patients were studied in India separate parts in part in south-west [2], separate diagnosis and treatment was developed for Plasmodium vivax malaria [3]; these works touch Plasmodium's typing and ethnic typological aspect.

As a whole, one differentiates malaria low- and high-endemic areas (ethnic typological aspect) in various countries, particularly in India and even North-Eastern districts separately [4] and they say about epidemiology distinguishing features in them concerning to malaria and anemia development. Knowledge, attitudes and beliefs about malaria differ in various countries, their parts, districts and populations - here are the data received in South Asian population [5]. There is a term "imported malaria" characterizing ethnic typological aspect - for example there was imported malaria on Reunion Island in 2016 [6]. One can differentiate semi-immune and non-immune travelers typologies of the sick during imported malaria in countries where malaria is not endemic and there exist the works on these travelers' comparison in ethnic typological aspect separately [7] or together with gender, age and gender-age. There are articles concerning to malaria separate symptoms management in different countries characterizing ethnic typological aspect – here is the one about local perspectives on malaria fever management in Madagascar [8]. One differentiates the term "spatial malaria transmission" and its movement patterns are studied in different countries and are compared one with another; we found a research about its description and comparison in four sub-Saharan African countries with involving the ethnic typological aspect doubtly [9]. Interesting data characterizing also ethnic typological aspect and urbanization impact on malaria peculiarities about epidemiological links between malaria parasitemia and hypertension were found from a population-based survey received in rural Côte d'Ivoire accordingly to which microscopic malaria parasitemia in the sick with increased body temperature had hypertension odds bigger thrice than malaria parasitemia-negative people with lower body temperature; malaria parasitemia and hypertension were found to be prevalent and seemingly linked comorbidities in the Africans [10].

There exists decreased motivation to the use of protective nets in malaria endemic areas in part in Burkina Faso (ethnic typological aspect) [11], motivators to mosquito net care and repair were assessed in Southern Tanzania (ethnic typological aspect was analyzed together with additional typology – people division by their income to the poor and non-poor) [12].

Nets are different in various countries - Ethiopia, Ghana, Mali, Nigeria, Senegal, Zambia [13] and their parts, regions as well as factors affecting their usage, for example there is a work about such contributive factors in Western Kenya (ethnic typological aspect) [14], Gambia [15], in the Republic of Benin in ethno-gender aspect with discussing the women's role in the acquisition and utilization of PIBs (Permethrin Impregnated Bednets) [16]. Even the attitude to the nets care and repair differs between countries and even one country separate parts, states and districts, here are the work about in two districts in Eastern Uganda [17]. Significant informing about malaria can adopt both male- and female-governed households while formal education of the households exhibited positive effect only in the families where the main was man but not woman; there is an expedience of creating the universal policy tools that can be applied in promotion of integrated malaria prevention practices uptake for the households where the chief is the man and where the main is woman; these results were received in Kenya (ethno-gender typological aspect) [18].



Of course, ethnic typological aspect on malaria is described by the data about varieties in morbidity in different continents (in Africa) [19], countries, country parts, areas, districts and even cities – for example, in Mesoamerica and the Dominican Republic [20].

Ethno-age typological aspect finds its reflection about children morbidity (in part, the seasonal one that can define malaria course and the patients' typologies on seasonality) and prevention variations on malaria in different countries, country parts, areas, districts and even cities – for example, in Northern Sahelian Ghana [21], health district of Koutiala, Mali [22]. Separate works on ethno-age aspect are devoted to treatment and prevention peculiarities in the adult.

Only Anopheles' mosquitoes' females but not males can suck blood in people and transmit malaria Plasmodiums that represents gender typological aspect.

Gender and independence in many countries and on the African continent in part are discussed in many research for example [23] and Tanzania [24] while widening the data about ethno-gender typological aspect. In Southern Tanzania only women but not men are responsible for the nets preparing, care [25] and repair against malaria mosquitoes and thus for this disease prevention (ethno-gender typological aspect) [26] and there exists household inequalities [27]. Mother is the first who sees that her child got sick in malaria because she spends more time with her children while man usually pays for the treatment in rural Senegal (ethno-gender-age typological aspect plus the area rural character taking into consideration) [28] and Mali (ethno-gender-age typological aspect) [29]. There is a consideration that females deal to preventive nets more than males because mothers share them with their younger children, are more vulnerable to malaria at pregnancy and as a whole use nets more often than men do.

On Bioko Island, Equatorial Guinea bed nets are applied in the children under five years old (ethno-age typological aspect) [30].

There was performed an assessment of treaty bednet use among children and pregnant women across 15 countries using standardized national surveys while emphasizing ethno-gender-age typological aspect on malaria prevention separate pathway. There are the researches widening the data about ethnic typological aspect, in a given case - on assessing the effectiveness of malaria intervention national programs in different countries, for example, DAMaN in India, its separate district Odisha, dealing to nets using and cultural communication about malaria [31].

There was an increased women's participation in the US Presidents Malaria initiative Africa indoor residual spraying project (ethnogender typological aspect) [32].

**Conclusion:** The personality traits influence on any disease control by means of immunity and the zest to live healthy. It is dependent significantly on temperament. Optimists and extraverts (sanguinics and cholerics) demonstrate more expressed immunity besides the other positives like shorter recovery period and medicines better effects. On the contrary, introverts, melancholics and phlegmatics by temperament, pessimists by mood are at greater risks of immune deficiencies, more frequent bacterial and viral diseases and even tumors development if natural killers (NK-cells), macrophagues possess deficient activity while T-supressors are too much active. Any disease can have longer and complicated course at pessimism, even life duration is thought to be shorter in left-handed people whose dominant right hemisphere is responsible for negative emotions. Effect of treatment and preventive means is also less if the sick don't believe in their own forces, in positive prognosis, the therapy success and proper character as well as in their doctors. The III-rd-IV-th stages of tumors are better to be treated in optimists. Also pessimists may require permanent emotional support to feel themselves better. Malaria fortunately is a treatable in many cases in a proper diagnosis is put in time. Like any other disease, it is not just the physicality of the disease. The disease perception and mental state will play very important role in curing the patients and the therapy positive prognosis.

## Reference

[1] Kalkal M, Kalkal A, Dhanda SK, Das E, Pande V, Das J. A comprehensive study of epitopes and immune reactivity among Plasmodium species. BMC Microbiol.2022;22:74. Doi:10.1186/s12866-022-02480-7

[2] Chery L, Maki JN, Mascarenhas A, Walke JT, Gawas P, Almeida A, Fernandes M, Vaz M, Ranaman R, Shirodkar D, Bernabeu M, Manoharan SK, Pereira L, Dash R, Sharma A, Shaik RB, Chakrabarti R, Babar P, White J III, Mudeppa DG, Kumar S, Wenyun Z, Skillman KM, Kanjee U, Lim C, Shaw-Saliba K, Kumar A, Valecha N, Jindal VN, Khandeparkar A, Naik P, Amonkar S, Duraisingh MT, Tuljapurkar S, Smith JD, Dubhashi N, Pinto RGW, Silveria M, Gomes E, Rathod PK. Demographic and clinical profiles of Plasmodium falciparum and plasmodium vivax patients in a tertiary care center in southwestern India. Malar J.2016; 15: 569. Doi: 10.1186/s12936-016-1619-5.

[3] Baird JK, Valencha N, Duparc S, White NJ, Price RN. Diagnosis and treatment of Plasmodium vivax malaria. Am J Trop Med Hyg.2016;95(6 Suppl):35-51.

[4] Shankar H, Singh MP, Areeb Hussain SS, Phookan S, Singh K, Mishra N. Epidemiology of malaria and anemia in high and low malaria-endemic North-Eastern districts of India.Front Public Health.2022;10:940898. Doi:10.3389/pubh.2022.940898.

[5] Regmi K, Kunwar A, Ortega L. A systematic review of knowledge, attitudes and beliefs about malaria among the South Asian population. Infect Ecol Epidemiol.2016;6:10. Doi: 10.3402/iee.v6.30822.

[6] Pagės F, House S, Kurtkowiak B, Balleydier E, Chieze F, Filleul L. Status of imported malaria on Reunion Island in 2016. Malar J.2018;17:210. Doi: 10.1186/s12936-018-2345-y.

[7] Mischlinger J, Rönnberg C, Álvarez-Martinez MJ, Bühler S, Paul M, Schlagenhauf P, Petersen E, Ramharter M. Imported malaria in countries where malaria is not endemic: a comparison of semi-immune and nonimmune travelers. Clin Microbiol Rev.2020;33(2):e00104-19. Doi: 10.1128/CMR.00104-19.

[8] Mattern C, Pourette D, Raboanary E, Kesteman T, Piola P, Radrianarivelojosia M. "Tazomoka in not a problem". Local perspectives on malaria fever case management and bed net use in Madagascar. PLoS One.2016;11(3):e0151068.Doi:10.1371/journal.pone.0151068.



E-ISSN: 2582–2160, Volume: 4, Issue: 4, July-August 2022

[9] Marshall JM, Tourė M, Ouėdraogo AL, Ndhlovu M, Kiware SS, Rezai A, Nkhama E, Griffin JT, Hollingsworth D, Doumbia S, Govella NJ, Ferguson NM, Ghani AC. Key traveller groups of relevance to spatial malaria transmission: a survey of movement patterns in four sub-Saharan Africa.Malar J.2016;15:200. Doi: 10.1186/s12936-016-1252-3.

[10] Eze IC, Bassa FK, Esse C, Kone S, Acka F, Laubhouet-Koffi V, Kouassi D, Utzinger J, Bonfoh B, N'Goran EK, Probst-Hensch N. Epidemiological links between malaria parasitemia and hypertension: findings from a population-based survey in rural Côte d'Ivoire. J Hypertens.2019;37(7):1384-1392.

[11] Toė LP, Skovmand O, Dabire KR, Diabate A, Diallo Y, Guiguemde TR, Doannio JM, Akogbeto M, Baldet T, Gruenals ME. Decreased motivation to the use of insecticide-treated nets in a malaria endemic area in Burkina Faso.Malar J.2009;8:175. Doi: 10.1186/1475-2875-8-175.

[12] Mboma ZM, Dillip A, Kramer K, Koenker H, Greer G, Lorenz LM. "For the poor, sleep is leisure": understanding perceptions, barriers and motivators to mosquito net care and repair in southern Tanzania. Malar J.2017;17(1):375. Doi: 10.1186/s12936-018-2528-6.
[13] Baume CA, Marin MC. Intra-household mosquito net use in Ethiopia, Ghana, Mali, Nigeria, Senegal, and Zambia: are nets being used? Who in the household uses them? Am J Trop Med Hyg.2007;77:963-971.

[14] Alaii JA, Hawley WA, Kolczak MS, ter Kuile FO, Gimnig JE, Vulule JM, Odhacha A, Oloo AJ, Nahlen BL, Phillips-Howard PA. Factors affecting use of permethrin-treated bed nets during a randomized controlled trial in western Kenya.Am J Trop Med Hyg.2003;68:137-141.

[15] Wiseman V, Scott A, McElroy B, Conteh L, Stevens W. Determinants of bed net use in the Gambia: Implications for malaria control.Am J Trop Med Hyg.2007;76:830-836.

[16] Rashed S, Johnson H, Dongier P, Moreau R, Lee C, Crepeau R, Lambert J, Jefremovas V, Schaffer C. Determinants of the Permethrin Impregnated Bednets (PIB) in the Republicof Benin: the role of women in the acquisition and utilization of PIBs. Soc Sci Med.1999;49:993-1005.

[17] Scandurra L, Acosta A, Koenker H, Kibuuka D, Harvey S. "It is about how the net looks": a qualitative study of perceptions and practices related to mosquito net care and repair in two districts in Eastern Uganda. Malar J.2014;13:504.

[18] Diiro GM, Affognon HD, Muriithi BW, Wanja SK, Mbogo C., Mutero C. The role of gender on malaria preventive behaviour among rural households in Kenya. Malar J.2016;15:14. Doi: 10.1186/s12936-015-1039-y.

[19] Alegana VA, Okiro EA, Snow RW. Routine data for malaria morbidity estimation in Africa: challenges and prospects. BMC Med.2020;18:121. Doi: 10.1186/s12916-020-01593-y.

[20] Rios-Zertuche D, Carter KH, Harris KP, Thom M, Zúňiga-Brenes MP, Bernal-Lara P, González-Marmol Á, Johans CK, Hernández B, Palmisano E, Cogen R, Naik P, El Bcheraoui C, Smith DL, Mokdad AH, Iriarte E. Malar J.2021;20:208. Doi: 10.1186/s12936-021-03645-x.

[21] Ansah PO, Ansah NA, Malm K, Awuni D, Peprah N, Dassah S, Yarig S, Manful C, Agbenyeri J, Awoonor-Williams J, Ofosu W, Oduro AR. Evaluation of pilot implementation on seasonal malaria chemoprevention on morbidity in young children in Northern Sahelian Ghana. Malar J.2021;20:440. Doi: 10.1186/s12936-021-03974-x.

[22] Maiga H, Gaudart J, Sagara I, Diarra M, Barmadio A, Djimde M, Coumare S, Sangare B, Dicko Y, Tembely A, Traore D, Dicko A, Lasry E, Doumbo O, Djimde AA. Two-year scale-up of seasonal malaria chemoprevention reduced malaria morbidity among children in the health district of Koutiala, Mali. Int J Environ Res Public Health.2020;17(18):6639. Doi: 10.3390/ijerph17186639.

[23] Imafidon E. "Miss independent": gender and independence on the Africa continent.Inkanylso.2013;5:21-30.], in part in a context of gender role perceptions and female role changing for example in Nigeria [Nwosu IE. Gender role perceptions and the changing role of women in Nigeria. Int J Agriculture Rural Dev.-2012;15:1240-1246.

[24] Rogers SG. Efforts towards women's development in Tanzania: gender rhetoric vs gender realities. In: Women in developing countries: a policy focus; Staudt KA, Jaquette JS, eds 1983;23-41.

[25] Evans R. Children's caring roles and responsibilities within the family in Africa. Geogr Compass.2010;4:1477-1496.

[26] Dillip A, Mboma ZM, Greer G, Lorenz LM. "To be honest, women do everything": understanding roles of men and women in net care and repair in Southern Tanzania. Malar J.2018;17:459.Doi: 10.1186/s12936-018-2608-7.

[27] Feinstein S, Feinstein R, Sabrow S. Gender inequality in the division of household labour in Tanzania. Afr Soc Rev.2010;14:98-109.
[28] Franckel A, Lalou R. Health seeking behavior for childhood malaria: household dynamics in rural Senegal. J Biosoc Sci.2008;41:1-19.

[29] Ellis AA, Doumbia S, Traore S, Dalglish S, Winch PJ. Household roles and care-seeking behaviours in response to severe childhood illness in Mali. J Biosoc Sci.2013;45:743-759.

[30] Garcia-Basteiro AL, Schwabe C, Aragon C, Baltazar G, Rehman AM, Matias A, Nseng G, Kleinschmidt I. Determinants of bed net use in children under five and household bed net ownership on Bioko Island, Equatorial Guinea. Malar J.2011;10:179.

[**31**] Bal M, Das A, Ghosal J, Pradhan MM, Khuntia HK, Pati S, Dutta A, Ranjit M. Assessment of effectiveness of DAMaN: A malaria intervention program initiated by Government of Odisha, India. PLoS One.2020;15(9):e0238323. Doi:10.137/journal.pone.0238323.

[32] Donner A, Belemvire A, Johns B, Mangam K, Fiekowsky E, Gunn J, Hayden M, Ernst K. Equal opportunity, equal work: increasing women's participation in the U.S. President's Malaria initiative Africa. Glob Health Sci Pract.2017;5(4):603-616.