

Table S1. Results of principal component analysis

Principal component	Standard deviation	Proportion of variance	Cumulative proportion
1	1.600	0.256	0.256
2	1.108	0.123	0.379
3	1.051	0.110	0.489
4	1.019	0.104	0.593
5	0.979	0.096	0.689
6	0.959	0.092	0.781
7	0.934	0.087	0.868
8	0.835	0.070	0.937
9	0.649	0.042	0.980
10	0.453	0.021	1.000

Table S2. Equation for the logistic regression model

$$\begin{aligned} \log(p) = & -21.18 - 0.10(\text{female}) + 0.09(\text{age}) - 0.45(\text{Igbo}) - 1.33(\text{Hausa}) + 0.14(\text{others}) - 0.02(\text{fish}) \\ & - 0.02(\text{physical activity}) + 1.27(\text{FH}) + 0.81(\text{highbp}) - 0.89(\text{VG}) - 1.25(\text{G}) - 0.47(\text{F}) + 0.85(\text{P}) \\ & + 0.01(\text{Weight}) + 0.04(\text{WC}) \end{aligned}$$

Table S3. Summary of artificial neural network model results

Parameters	Architecture	Accuracy (%)
Learning rate = 0.01 Decay = 0.01 Activation function = Logistic sigmoid	$H_1 \in \mathfrak{R}^{10}$	93.32
	$H_1 \in \mathfrak{R}^{20}$	97.68
	$H_1 \in \mathfrak{R}^{30}$	98.23
	$H_1 \in \mathfrak{R}^{40}$	98.09
	$H_1 \in \mathfrak{R}^{50}$	98.64
	$H_1 \in \mathfrak{R}^{60}$	98.36
	$H_1 \in \mathfrak{R}^{70}$	96.59
	$H_1 \in \mathfrak{R}^{80}$	97.27
	$H_1 \in \mathfrak{R}^{90}$	97.27
	$H_1 \in \mathfrak{R}^{100}$	97.27
Learning rate = 0.01 Decay = 0.05 Activation function = Logistic sigmoid	$H_1 \in \mathfrak{R}^{10}$	92.36
	$H_1 \in \mathfrak{R}^{20}$	95.91
	$H_1 \in \mathfrak{R}^{30}$	96.45
	$H_1 \in \mathfrak{R}^{40}$	97.14
	$H_1 \in \mathfrak{R}^{50}$	97.68
	$H_1 \in \mathfrak{R}^{60}$	97.41
	$H_1 \in \mathfrak{R}^{70}$	97.41
	$H_1 \in \mathfrak{R}^{80}$	97.14
	$H_1 \in \mathfrak{R}^{90}$	97.14
	$H_1 \in \mathfrak{R}^{100}$	97.14
Learning rate = 0.01 Decay = 0.1 Activation function = Logistic sigmoid	$H_1 \in \mathfrak{R}^{10}$	88.40
	$H_1 \in \mathfrak{R}^{20}$	92.36
	$H_1 \in \mathfrak{R}^{30}$	91.81
	$H_1 \in \mathfrak{R}^{40}$	91.54
	$H_1 \in \mathfrak{R}^{50}$	92.22
	$H_1 \in \mathfrak{R}^{60}$	92.09
	$H_1 \in \mathfrak{R}^{70}$	91.68
	$H_1 \in \mathfrak{R}^{80}$	92.77
	$H_1 \in \mathfrak{R}^{90}$	92.77
	$H_1 \in \mathfrak{R}^{100}$	92.77

Table S4. Comparison of AUC for the predictive models

	<i>p</i> -value
LR versus DT	<0.001
LR versus ANN	<0.001
DT versus ANN	0.217

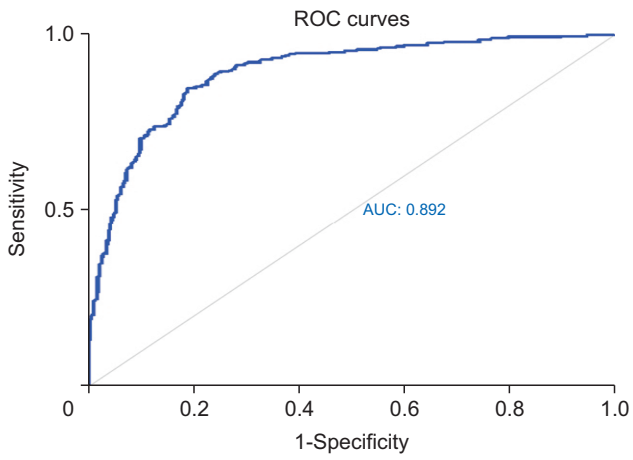


Figure S1. Area under the receiver operating characteristic curve (AUROC) for logistic regression.

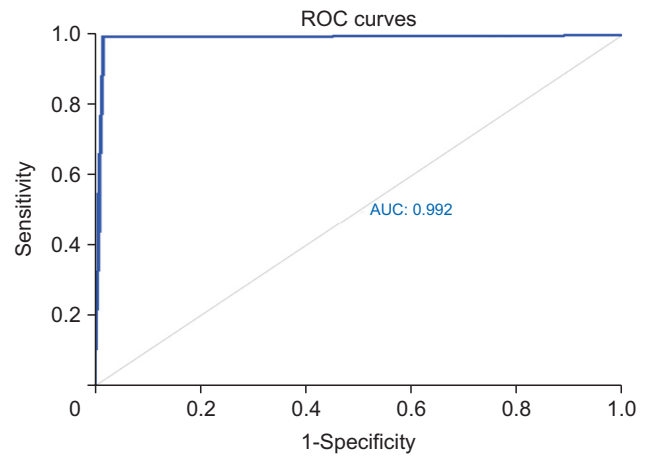


Figure S3. Area under the receiver operating characteristic curve (AUROC) for decision tree.

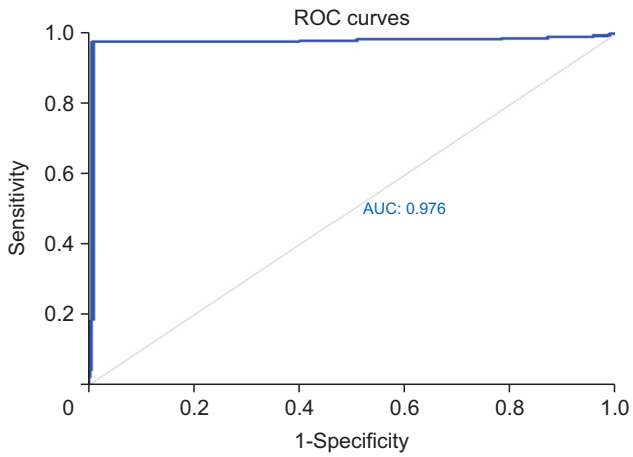


Figure S2. Area under the receiver operating characteristic curve (AUROC) for artificial neural networks.