### Supplementary table 1: Summary of the categorical variables (factors) associated with FLG-II.

| Factor                        | Sub Category | FLG-II n (%) | FLG-0, I n (%) | Chi-Square | P-value |
|-------------------------------|--------------|--------------|----------------|------------|---------|
| Parity                        | nulliparous  | 16 (9.0)     | 162 (91.0)     | 5.59       | 0.018   |
|                               | multiparous  | 74 (16.3)    | 380 (83.7)     |            |         |
| Family history of diabetes mellitus | Yes        | 24 (16.2)     | 124 (83.8)     | 0.46       | 0.490   |
|                               | No           | 66 (14.0)     | 407 (86.0)     |            |         |
| Family history of Stroke      | Yes          | 5 (12.8)      | 34 (87.2)      | 0.09       | 0.759   |
|                               | No           | 85 (14.6)     | 497 (85.4)     |            |         |
| Family history of Hypertension| Yes          | 31 (15.2)     | 173 (84.0)     | 0.12       | 0.728   |
|                               | No           | 59 (14.1)     | 358 (85.9)     |            |         |
| Family history of Liver disease | Yes       | 4 (26.7)      | 11 (73.3)      | 1.83       | 0.175   |
|                               | No           | 86 (14.2)     | 520 (85.8)     |            |         |
| Family history of Dyslipidaemia | Yes    | 21 (16.4)     | 107 (83.6)     | 0.55       | 0.457   |
|                               | No           | 68 (13.8)     | 424 (86.2)     |            |         |
| Family history of Non-ischemic Heart Diseases | Yes | 0 (0.0) | 12 (100) | 2.07 | 0.149 |
|                               | No           | 90 (14.8)     | 518 (85.2)     |            |         |
| Family history of ischaemic Heart Diseases | Yes | 7 (12.1) | 51 (87.9) | 0.27 | 0.602 |
|                               | No           | 82 (14.6)     | 480 (85.4)     |            |         |
| Family history of psychiatric diseases | Yes | 1 (14.3) | 6 (85.7) | 0.00 | 0.986 |
|                               | No           | 89 (14.5)     | 524 (85.5)     |            |         |
| Model Summary                      | Category   | Variable         | Coefficient | Ad: OR | 95% CI       |
|-----------------------------------|------------|------------------|-------------|--------|--------------|
| Cases included in the analysis    | Selected   | Constant         | -2.1        | 0.12   | -            |
|                                   |            | Gamma GT         | 0.74        | 2.11   | 1.49-2.99    |
|                                   |            | W/H Ratio        | 0.35        | 1.42   | 0.96-2.11    |
|                                   |            | BMI              | 0.55        | 1.73   | 1.16-2.58    |
|                                   |            | Min SBP          | 0.30        | 1.36   | 0.95-1.95    |
|                                   |            | Age              | 0.48        | 1.62   | 1.14-2.30    |
| Chi-Square                        | Non-selected| HDL              | -0.24       | 0.79   | 0.55-1.12    |
| Statistic                         |            | ALT              | 0.28        | 1.32   | 0.91-1.93    |
| P-value                           |            | Triglyceride     | 0.23        | 1.26   | 0.92-1.73    |

Supplementary table 2: Results of the prediction model for FLG-II using all the significant factors in supplementary table 1 and table 2 (Model 1)
| FLG- fatty liver grade, Gamma GT-gamma glutamyl transferase, W/H Ratio-waist to hip ratio, BMI-body mass index, Min SBP- minimum systolic blood pressure, HDL- high-density lipoprotein, ALT-aspartate aminotransferase, 2nd hour PG value of OGTT- second-hour plasma glucose value of oral glucose tolerance test, AST- aspartate aminotransferase, FPG-fasting plasma glucose, Min DBP-minimum diastolic blood pressure | <0.0001 | Hosmer and Lemeshow test | P= 0.75 | <0.0001 | Hosmer and Lemeshow test | P= 0.75 |
|---|---|---|---|---|---|---|
| | Hemoglobin | 0.19 | 1.22 | 0.90-1.65 |
| | Creatinine | 0.20 | 1.22 | 0.86-1.72 |
| | 2nd hour PG value of OGTT | 0.13 | 1.14 | 0.82-1.59 |
| | AST | 0.14 | 1.15 | 0.63-2.08 |
| | FPG | -0.09 | 0.91 | 0.58-1.45 |
| | Total Cholesterol | 0.09 | 1.09 | 0.67-1.79 |
| | Parity | -0.30 | 0.74 | 0.26-2.11 |
| | Min DBP | 0.06 | 1.06 | 0.65-1.72 |
Supplementary table 3: Results of the prediction model for FLG-II using all the non-invasive significant factors identified via bivariate analysis (Model 2)

| Model Summary           | Category       | Variable   | Coefficient | Adj: OR | 95% CI  |
|-------------------------|----------------|------------|-------------|---------|---------|
| Cases included in the   | Selected       | Constant   | -2.19       | 0.11    | -       |
| analysis                |                | W/H Ratio  | 0.46        | 1.58    | 1.20-2.10 |
| FLG2 – 81               |                | BMI        | 0.71        | 2.03    | 1.50-2.76 |
| FLG0,1 – 456            |                | Min SBP    | 0.29        | 1.34    | 1.02-1.77 |
| Missing-97              |                | Age        | 0.31        | 1.37    | 1.03-1.81 |
| Chi-Square              | Non-selected   | Min DBP    | 0.01        | 1.01    | 0.73-1.42 |
|                         |                | Parity     | 0.10        | 1.10    | 0.52-2.34 |

FLG: fatty liver grade, Adj.OR: adjusted odds ratio, CI: confidence interval, W/H ratio: waist to hip ratio, BMI: body mass index, Min SBP: minimum systolic blood pressure, Min DBP: minimum diastolic blood pressure.
Supplementary table 4: Results of the prediction model for FLG-II using low-cost parameters (Model 3)

| Model Summary | Category | Variable                        | Coefficient | Ad: OR | 95% CI     |
|---------------|----------|---------------------------------|-------------|--------|------------|
| Cases included in the analysis | Selected | Constant                        | -2.19       | 0.11   | -          |
|               |          | Creatinine                      | 0.25        | 1.29   | 0.98-1.70 |
|               |          | FLG-II – 77                     |             |        |            |
|               |          | W/H Ratio                       | 0.41        | 1.51   | 1.13-2.00 |
|               |          | BMI                             | 0.72        | 2.04   | 1.49-2.80 |
|               |          | Min SBP                         | 0.30        | 1.35   | 1.01-1.79 |
|               |          | 2nd hour PG value of OGTT       | 0.36        | 1.45   | 1.13-1.87 |
| Chi-Square    | Non-selected | Age                            | 0.20        | 1.23   | 0.91-1.65 |
|               |          | Hemoglobin                      | 0.18        | 1.20   | 0.93-1.55 |
|               |          | FPG                             | 0.17        | 1.19   | 0.86-1.64 |
|               |          | Parity                          | 0.04        | 1.04   | 0.47-2.28 |
|               |          | Min DBP                         | 0.01        | 1.01   | 0.71-1.45 |

FLG- fatty liver grade, Adj. OR- adjusted odds ratio, CI-confidence interval, W/H Ratio- waist-hip ratio, BMI- body mass index, Min SBP- minimum systolic blood pressure, 2nd hour PG value of OGTT-second-hour plasma glucose value of oral glucose tolerance test, FPG- fasting plasma glucose, Min DBP- minimum diastolic blood pressure
Supplementary Table 5: Results of the prediction model for FLG-II using all the significant factors except AST, ALT and GGT (Model 4)

| Model Summary       | Category          | Variable         | Coefficient | Ad: OR | 95% CI   |
|---------------------|-------------------|------------------|-------------|--------|----------|
| Cases included in   | Selected          | Constant         | -2.24       | 0.11   | -        |
| the analysis        |                   | Creatinine       | 0.32        | 1.38   | 1.02-1.86|
| FLG-II – 72         |                   | W/H Ratio        | 0.40        | 1.50   | 1.08-2.09|
| FLG-0.1 – 392       |                   | BMI              | 0.58        | 1.87   | 1.27-2.49|
| Missing-170         |                   | Min SBP          | 0.30        | 1.35   | 0.99-1.84|
| Chi-Square          |                   | HDL              | -0.54       | 0.58   | 0.41-0.83|
| Statistic           |                   | 2nd hour PG value of OGGT | 0.35 | 1.42 | 1.09-1.86|
| 88.70               |                   | T. Cholesterol   | 0.36        | 1.43   | 1.02-2.01|
| P-value             | <0.0001           | Age              | 0.12        | 1.13   | 0.83-1.53|
| Hosmer and Lemeshow |                   | Triglyceride     | 0.06        | 1.06   | 0.78-1.45|
| test                |                   | Hemoglobin       | 0.15        | 1.16   | 0.89-1.51|
| P= 0.44             |                   | FPG              | 0.99        | 1.10   | 0.78-1.56|
|                     |                   | Parity           | -0.14       | 0.87   | 0.38-1.99|
|                     |                   | Min DBP          | -0.13       | 0.88   | 0.60-1.27|

FLG- fatty liver grade, Adj. OR- adjusted odds ratio, CI-confidence interval, W/H Ratio- waist to hip ratio, BMI- body mass index, Min SBP- minimum systolic blood pressure, HDL- high-density lipoprotein, 2nd hour PG value of OGGT-second hour plasma glucose value of oral glucose tolerance test, T. Cholesterol- total cholesterol, FPG- fasting plasma glucose, Min DBP- minimum diastolic blood pressure
### Supplementary Table 6: Results of the prediction model for FLG-II using anthropometric and liver enzyme parameters (Model 5)

| Model Summary           | Category | Variable  | Coefficient | Adj. OR | 95% CI   |
|-------------------------|----------|-----------|-------------|---------|----------|
| Cases included in the analysis | Selected | Constant  | -2.25       | 0.11    | -        |
|                         |          | W/H Ratio | 0.34        | 1.40    | 0.99-1.99|
|                         |          | BMI       | 0.58        | 1.79    | 1.23-2.59|
|                         |          | Age       | 0.50        | 1.64    | 1.17-2.31|
|                         |          | Min SBP   | 0.36        | 1.44    | 1.01-2.04|
|                         |          | GGT       | 0.61        | 1.83    | 1.33-2.52|
|                         | Non-selected | ALT     | 0.27        | 1.31    | 0.92-1.85|
|                         |         | AST       | 0.13        | 1.14    | 0.66-1.97|
|                         |         | Parity    | -0.13       | 0.88    | 0.33-2.32|
|                         |         | Min DBP   | 0.15        | 1.16    | 0.77-1.75|

Chi-Square Statistic: 85.94, P-value <0.0001, Hosmer and Lemeshow test P= 0.94

FLG-fatty liver grade, Adj. OR- adjusted odds ratio, CI-confidence interval, W/H Ratio- waist to hip ratio, BMI- body mass index, Min SBP- minimum systolic blood pressure, GGT- gamma glutamyl transferase, ALT- Alanine aminotransferase, AST- Aspartate aminotransferase, Min DBP- minimum diastolic blood pressure.
Supplementary Table 7: Results of the prediction model for FLG-II using anthropometric and lipid profile parameters (Model 6)

| Model Summary          | Category | Variable     | Coefficient | Ad: OR | 95% CI    |
|------------------------|----------|--------------|-------------|--------|-----------|
| Cases included in the analysis | Selected | Constant     | -2.18       | 0.11   | -         |
|                        |          | W/H Ratio    | 0.48        | 1.62   | 1.17-2.23 |
| FLG-II – 74            |          | BMI          | 0.59        | 1.81   | 1.30-2.51 |
| FLG-0,1 – 417          |          | total        | 0.36        | 1.44   | 1.06-1.96 |
| Missing-143            |          | Cholesterol  | 0.36        | 1.44   | 1.06-1.96 |
| Chi-Square             |          | Min SBP      | 0.29        | 1.33   | 0.99-1.80 |
| Statistic              |          | HDL          | -0.52       | 0.59   | 0.43-0.82 |
| 80.02                  | Non-selected | Age       | 0.24        | 1.24   | 0.95-1.70 |
| P-value                |          | Triglyceride | 0.14        | 1.15   | 0.86-1.54 |
| <0.0001                |          | Parity       | -0.08       | 0.93   | 0.42-2.04 |
| Hosmer and Lemeshow test |          | Min DBP      | -0.16       | 0.85   | 0.60-1.22 |
| P= 0.27                |          |              |             |        |           |

FLG-fatty liver grade, Adj. OR- adjusted odds ratio, CI-confidence interval, W/H Ratio- waist to hip ratio, BMI- body mass index, Min SBP- minimum systolic blood pressure, HDL- high-density lipoprotein