

**Table 4** Spearman's correlations matrix between density of physicians and nurses, life expectancy, infant mortality rate (IMR), under-5 years mortality rate (U5MR) and maternal mortality rate (MMR) for the 18 states in Sudan, 2016

| Variable          | Density of Physicians | Density of nurses | Life expectancy | IMR      | U5MR  |
|-------------------|-----------------------|-------------------|-----------------|----------|-------|
| Density of nurses | 0.847***              |                   |                 |          |       |
| Life expectancy   | 0.765***              | 0.522             |                 |          |       |
| IMR               | -0.658**              | -0.572*           | -0.449          |          |       |
| U5MR              | -0.625*               | -0.486            | -0.645*         | 0.762*** |       |
| MMR               | -0.732**              | -0.646**          | -0.687**        | 0.383    | 0.329 |

\*P-value < 0.05, \*\*P-value < 0.01, \*\*\*P-value < 0.001.