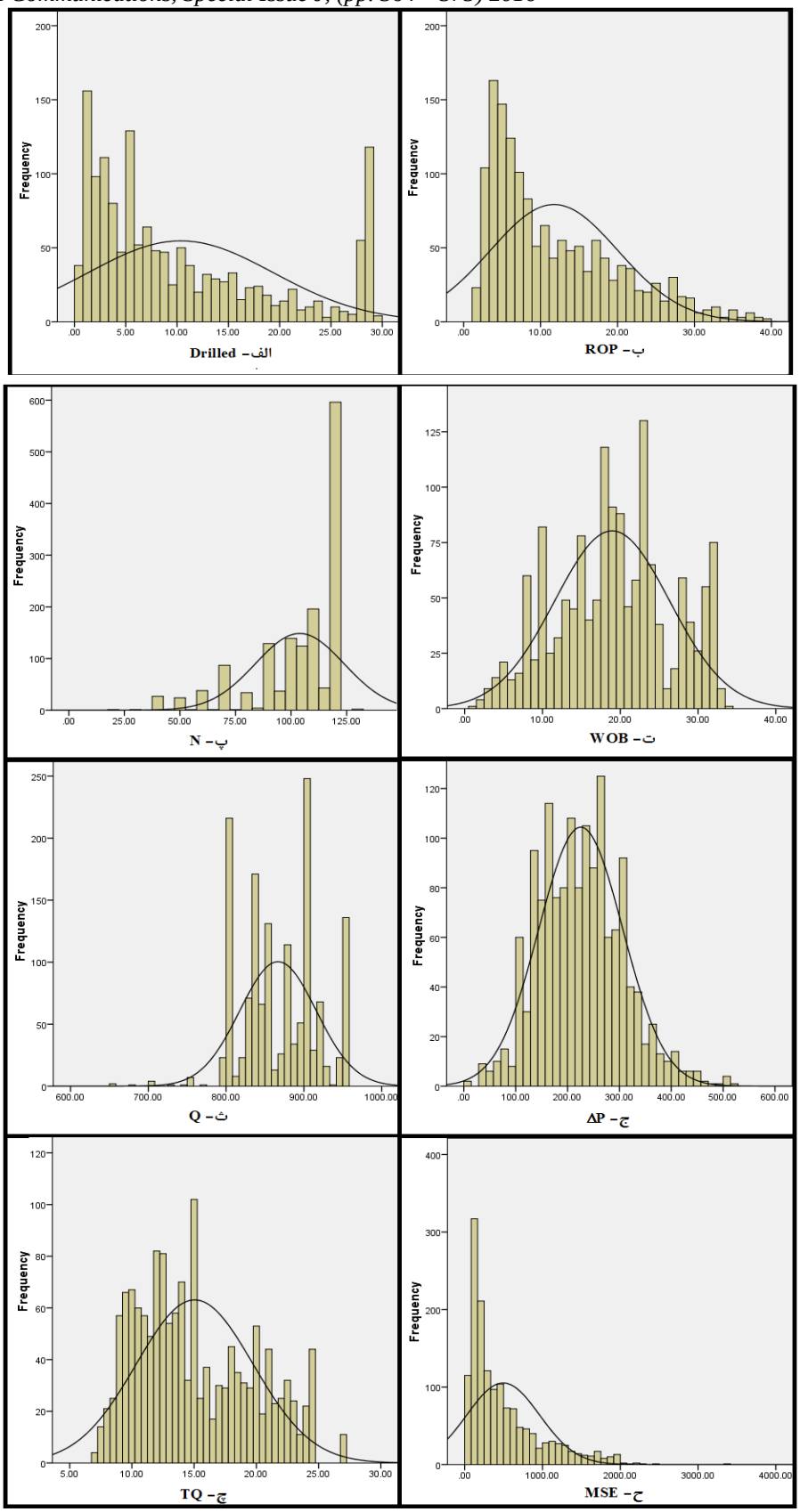

Fig 1-1: Normal curve and histogram of drilling parameters. a)Drilled; b) ROP.c) N, d) WOB, e) Q f)□□□**P** , g) TQ , h) MSE

2. It is recommended that the neural network application software must be designed to determine with serial changes in drilling parameters, the most appropriate model for achieving the optimal combination of mechanical specific energy.

3. As noted above, the mechanical specific energy can help for checking drilling performance (selecting and optimizing drilling parameters), checking the performance of bit (bit design with more efficiency) and the instability of drilling operations. Although appropriate statistical processed for optimizing drilling parameters and their effect on mechanical specific energy on the studied area hadn't been done and also mechanical specific energy have an important role in reducing costs. In this research by using mechanical specific energy we can analyze and optimized drilling parameters on the part of Iran's South Pars field. As a result of this research it recommended that by using mechanical specific energy to investigate drilling instabilities during operation (which can include bit plunging and BHA in the mud, vibrations, improper cleaning of wells, etc.) and checking the bit performance in the area. By selecting the appropriate type of bit (fixed cutter, PCD, etc.), appropriately designed of bit (number of blades, size and density of cutters, , number and size of nozzles) and taking cutting depth, adjacent pressure and etc., must be increased drilling speed and minimize the damages to the bit.

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