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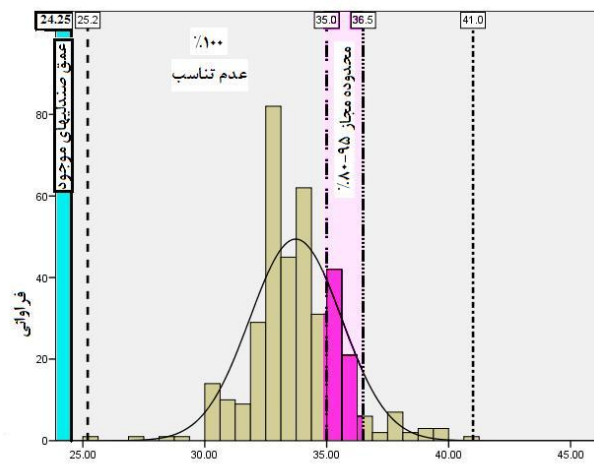
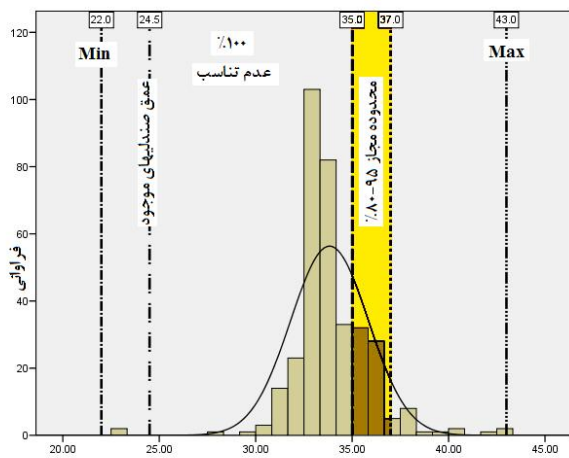
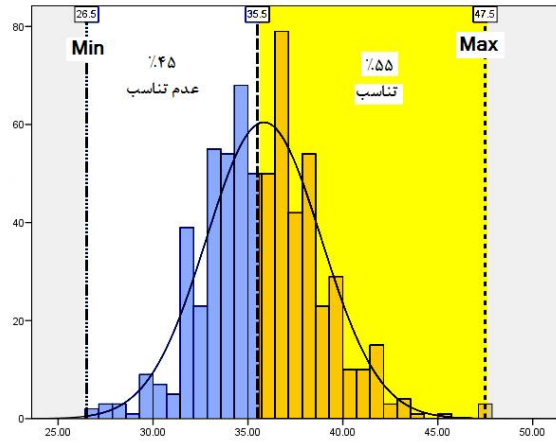
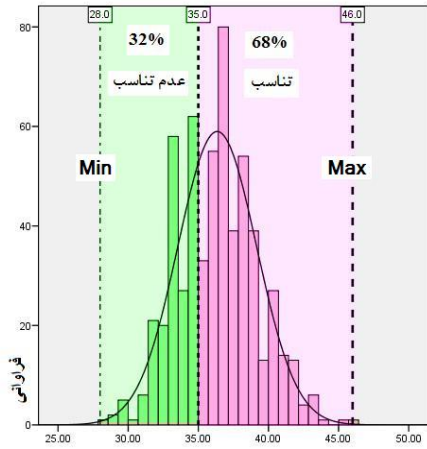
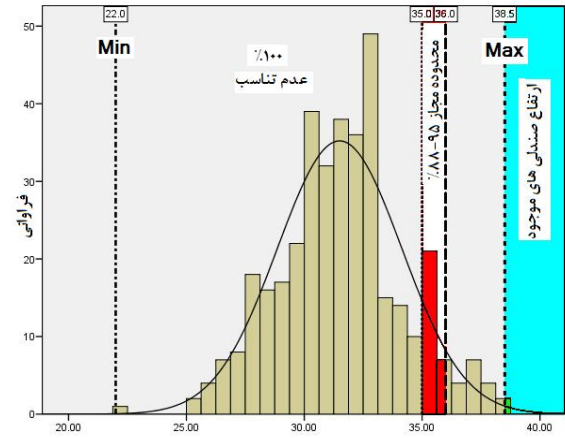
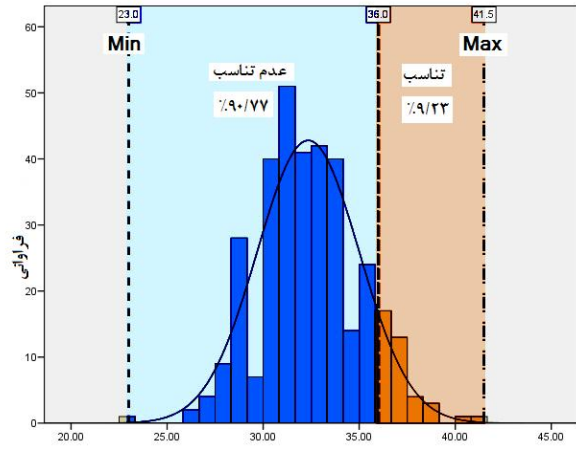
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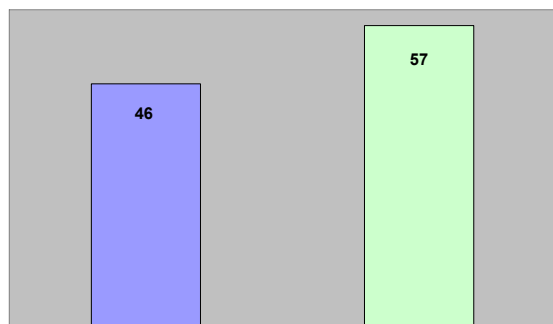
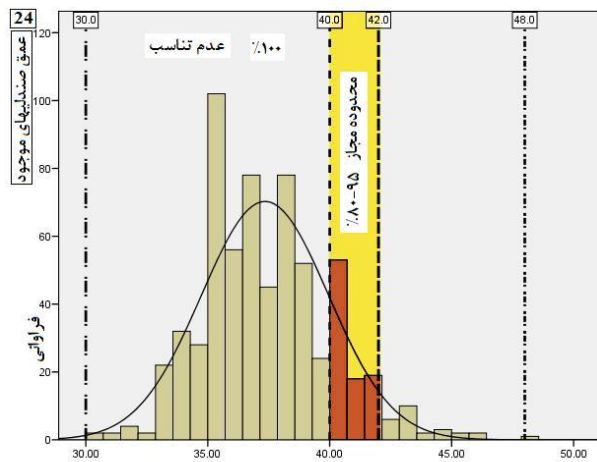
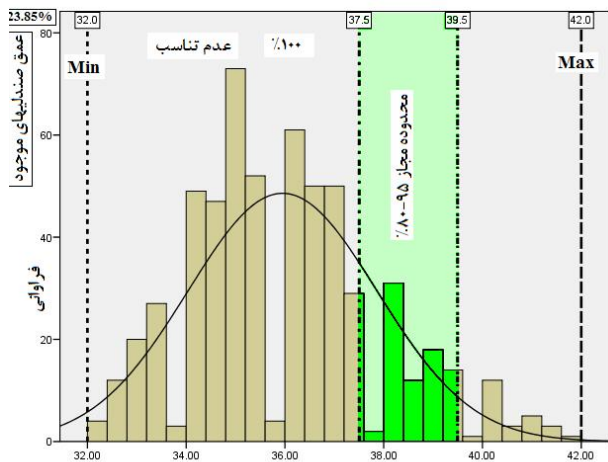
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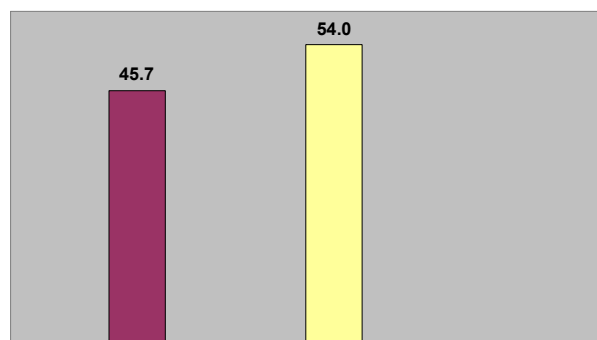




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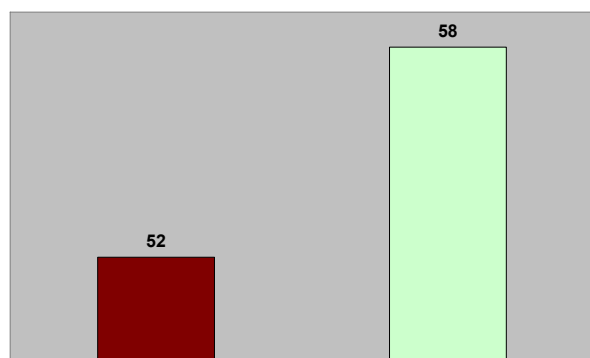
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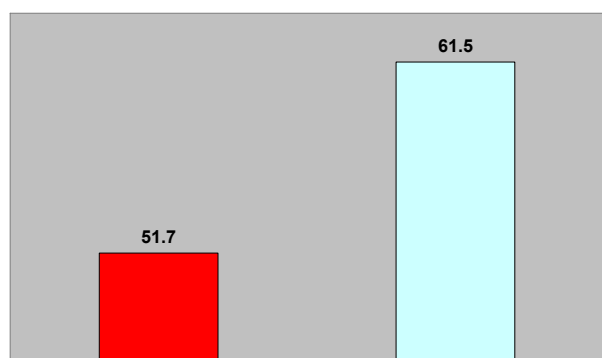
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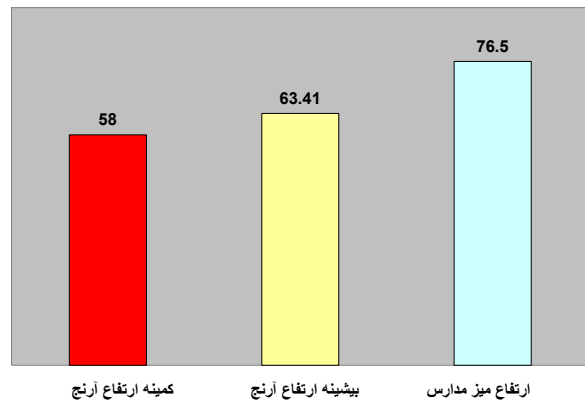
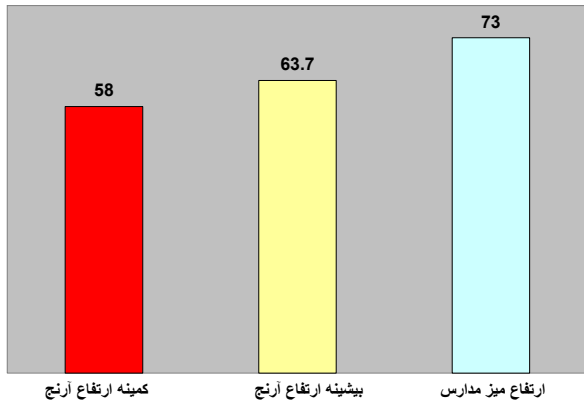
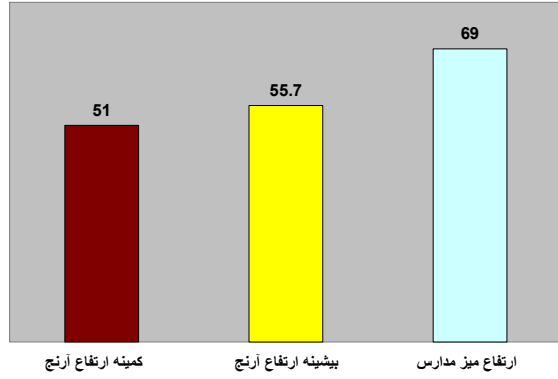
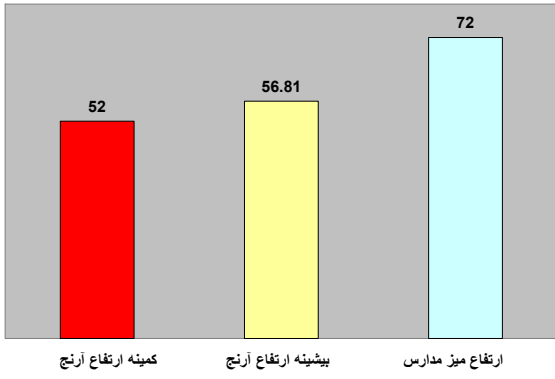
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## Evaluation of mismatch between school furniture dimensions and students anthropometric characteristics in Karaj primary schools, Iran

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### Abstract

Mismatch between the school furniture and body dimension of children is one of the important factors affecting the deformation of spinal column and causing low back pain. In addition, it can be a prefactor for mental disorders. Also, it causes bad-temper and bad-behaviour in students. Lack of normative anthropometric measurements of Iranian children, serving as a basis for furniture construction, could be the reason for this problem. The purpose of the present study is the optimization of ergonomic factors to design school furniture based on students anthropometric characteristics for increasing students' health. 2,000 students (M:1,000, F:1,000) in primary schools ranging 6-11 years old in Karaj city, from 4 education areas, were randomly chosen, 16 primary schools and 25 students from each class of every 16 schools on the basis of BSI5873 standard. They were then divided into 2 age groups, 6-8 & 8-11, and the seated anthropometric characteristics like popliteal height, buttock-popliteal length, and knee height were measured. Also the furniture dimensions were measured to compare with the measured anthropometric items: Desk height, desk clearance, seat depths, and seat heights were measured. The data were analyzed with Minitab ver 15 & Statistica ver. 7 Softwares. The results showed, except knee clearance, none of school furniture measurements are in the range of pupils' body dimensions. It was concluded that the design and manufacturing of school furniture are done without any attention to anthropometric rules and in future it might put the health of the society at risk.

**Keywords:** Anthropometric, School furniture, School children, Ergonomy, Musculo Skeletal Disorder, Lumber back pain