

**RELATIONS FOR MOMENTS OF LOWER GENERALIZED
ORDER STATISTICS FROM A FAMILY OF J- SHAPED
DISTRIBUTION AND ITS CHARACTERIZATION**

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Summary

Order statistics, record values and several other models of ordered random variables are the special cases of generalized order statistics. Pawlas and Szynal (2001) introduced the concept of lower generalized order statistics to enable a common approach to descending ordered rv's like reversed order statistics and lower record values. The work of Burkschat *et al.* (2003) may also be seen for lower generalized order statistics. In this study explicit expressions and some recurrence relations for single and product moments of lower generalized order statistics drawn from a family of J-shaped distributions have been obtained. Further the results are deduced for moments of lower record values and order statistics and a characterization theorem of this distribution based on a recurrence relation for single moments of lower generalized order statistics is also presented.

Keywords: Lower generalized order statistics, order statistics, lower record values, single and product moments, recurrence relations, J-shaped distributions, characterization.

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