

Ranking and Subset Selection Procedures for Populations With Censored Data: A Review

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In this paper, we review the work carried out on the problems of ranking and subset selection procedures for populations with censored data. Such problems arise in various situations such as industrial life testing, medical studies and biological experiments. Some of the specific situations are described as under:

1. Components of k types are available and interest is to select the best component (e.g. the component with largest mean life time) or we want to select the t best components $1 < t < k - 1$. The data is censored and could be Type-I, Type-II or random.

2. Possible k therapies of a disease (e.g. cancer, AIDS) are available. The problem is to select the best therapy when the data on survival times of patients are available. Similarly, the selection of best drug out of k drugs available for dissolving kidney stone, when the data of time to dissolve the stone in patients are censored, is a problem of selection under censoring.

3. There are k different locations in a river with different levels of potential heavy metal contamination at different locations. The interest is to select a site having least contamination based on the data of certain heavy metal concentrations in the muscle of fish caught from these locations. It is not possible to measure the concentration below certain level. In this case the data is Type-I left censored.

In Section 1, we discuss selection procedures for selecting exponential population with largest location parameter when the data is either Type-I or Type II censored. Section 2 contains procedure for selecting exponential population with largest scale parameter in the presence of Type-II censoring and in Section 3, in the presence of random censoring. In Section 4, we