Survey data as compositional tables

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Abstract

A group of 145 students was asked to answer a questionnaire on the effectiveness of three protective measures during sexual intercourse. The goal was to know if the different protective methods were associated with different types of assessments. For example, if the male condom is associated primarily with avoiding sexually transmitted infections, or tranquility during and after intercourse, while contraceptive pills are rather well valued to prevent pregnancies, increase of sensations of pleasure.

Students were asked to evaluate the preventive effect of male preservatives (P), contraceptive pills (C), and morning-after pills (M), assigning values between 1 and 99 to each of them, in relation to 10 different items (sexually transmitted infections, pregnancies, tranquility during and after intercourse, easy availability, transmission of the AIDS virus, interest in protecting the health of the couple, increase of male feelings of pleasure, increase of female feelings of pleasure, easy to use correctly, causing side effects).

Thus, for each student a 10×3 two-way table without zero entries was obtained. The sample of tables is considered here as an $N = 145$ sample of a contingency table, which marginals correspond to the probabilities assigned to each question, respectively the probabilities assigned to each of the three preventive actions. The compositional center of these tables, understood as contingency table, is orthogonally decomposed into an independent and an interaction table (Egozcue et al., 2015). The interaction table gives insight into the relation between methods and items that is not evident in a classical compositional approach considering the answers of each student as a composition in the 30-part simplex. This type of analysis is complemented with other compositional exploratory techniques.

REFERENCES

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