An easily verifiable dispersion order for discrete distributions

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Dispersion is a fundamental concept in statistics, but classical measures — particularly stochastic orders — face important limitations in the discrete setting. We propose a new weak dispersive order for discrete distributions that relaxes restrictive support conditions while preserving key properties. In addition, we introduce variability measures based on probability concentration that satisfy classical axioms and are easy to interpret. Empirical examples illustrate the usefulness of the proposed approach.