Ten years ago, Qatar initiated an education reform based on curriculum standards that draw on international expectations of what students should know, understand, and be able to do at each stage of their schooling. The mathematics curriculum being developed according to this reform is based on four major standards (strands): reasoning and problem solving, numbers and algebra, geometry and measure, and data handling and probability. Therefore, statistics is one of the major focus areas of the new mathematics curriculum in Qatar.

This paper employs a comparative analysis approach in highlighting the mathematics national curriculum standards related to statistics and probability in Qatar. Content analysis for these standards is made and compared to the recent common international expectations of learning statistics and probability as presented at the major international conference for teaching statistics in the USA in 2014. The rationale of this study is based on the importance of the discipline of statistics and probability, which has been receiving increasing attention due to its relevance to all scientific fields, as well as daily life. Employers today are looking for people who have the skills to assess data from many areas of work and daily life; hence, statistics education—including curriculum, teaching, and learning—has become a strong focus area of international research. The results presented here suggest that the necessary development of statistics and probability education in Qatar is being implemented. Comparing statistics and probability in the old and new mathematics curricula (before and after 2004) reveals many significant changes. For example, students start studying statistics and probability according to the new standards in first grade, instead of starting statistics in the middle school and probability in secondary school. Also, many statistics concepts and procedures that were not included in the old curriculum are represented in the new standards' statements, with instructions requiring students to, for example, “specify the problem,” “implement a plan,” “collect data from a variety of sources,” “deal with real data,” “represent data,” “evaluate results,” and “interpret data.”

In spite of this progress in line with the international approach regarding statistics and probability education for reasoning and problem solving, some weakness was found in the standards being developed in Qatar. For example the important idea of “variation” is not considered properly; there is an absence of the words “variation” and “variability” and of measures of variation in the National Mathematics Scope. This paper therefore provides some recommendations, the most important
of which is the need for an awareness that the fundamental issue in statistics, and thus statistics education, is variability. Indeed, this is the reason that statistics exists as a science; without variation, sources of variation, and attempts to measure and control variation, statistics would not ever have been invented.

Considering that very few studies have looked at teaching and learning statistics and probability in Arab countries, including Qatar, it is hoped that this paper will activate research regarding the issue of variability and its place in statistics and probability education by a reconsideration of the standards being developed.