Perspective
Volume 14:1, 2023

Journal of Biometrics and Biostatistics

ISSN: 2155-6180 Open Access

Statistical Process Control (SPC) is an Industrial Standard Methodology for Measuring and Controlling Quality

Margo Ross*

Department of Biostatistics, Science and Technology of New York, New York, USA

Introduction

Many businesses now view quality control and improvement as an essential part of their overall business strategy. This is due to the fact that any company can outperform its rivals if it can improve and control its quality to the satisfaction of its customers. However, the focus of this study was on the application of statistical quality control methods to Guinness Nigeria Plc's Nigeria Malt drink in order to control and improve product quality and remain competitive in the market. Quality control data were gathered from a secondary source (Ama Brewery Enugu's quality control department), and statistical parameters like means, ranges, standard deviations, Centre Line Control Limit (CL), Upper Control Limit (UCL), and Lower Control Limit (LCL) were developed and analysed for the business using statistical approaches like X-Bar chart, R-chart, and CUSUM chart. This was done in order to accomplish the goals of the study. The standard measurements of sugar level, energy level, protein level, net weight, and volume content were controlled in this study, and they were 11 grams, 243 kilojoules, 0.3 grams, 330 millilitres, and 33 centilitres, respectively.

Description

Process capability is the range over which the natural variation of the process occurs as determined by the system of common causes. It is the ability of the combination of people, machine, methods, material and measurement to produce a product that will consistently meet design specifications. The proportion of output that can be produced within design specifications measures process capability; in other words it is measure of uniformity of process. Process capability can be measured if all special causes have been eliminated and the process is in the state of statistical control. Process capability is important to both product designer and manufacturing engineer. A process capability study allows one to predict, quantitatively, how well a process will meet designed to yield specific information about the performance of the process under specified operating conditions. Control charts have two principle divisions: attributes and variables. Attribute control can be further divided into charts for percentage defectives and chart for the number of defects per unit. The main interest in the variables is control over changes in the average and the range of measurements. Control chart for all these considerations follows the same basic format of mean value bounded by upper and lower control limits. It is the calculation of the control limits that distinguishes the type of chart [1,2].

However, the focus of this study was on the application of statistical quality control methods to Guinness Nigeria Plc's Nigeria Malt drink in order to control and improve product quality and remain competitive in the market. Quality control data were gathered from a secondary source (Ama Brewery Enugu's quality control department), and statistical parameters like means, ranges, standard deviations, Centre Line Control Limit (CL), Upper Control Limit (UCL), and Lower Control Limit (LCL) were developed and analysed for the business using statistical approaches like X-Bar chart, R-chart, and CUSUM chart. This was done in order to accomplish the goals of the study. The standard measurements of sugar level, energy level, protein level, net weight, and volume content were controlled in this study, and they were 11 grams, 243 kilojoules, 0.3 grams, 330 millilitres, and 33 centilitres, respectively.

The resulting Control Charts were also constructed using the parameters developed for better understanding and visibility. From the result, it was found that X-Bar chart for sugar, energy, protein, net-weight, and volume of the process data collected and analysed lies within the designed range of specified value, implying that the process is capable of producing acceptable product. Then the R-Chart for sugar, energy, protein, net weight, and volume of the process data collected and analysed lies within the designed range of specification, which depict that the process is capable of producing acceptable product. CUSUM chart for sugar, energy, protein, net-weight, and volume of the process data collected and analysed lies within the acceptable range of specified value and this imply that the process produced an acceptable product [3-5].

Conclusion

Those who recalled initiating a TP at the first wave of PATH participation were considered left-censored. When estimating the age of initiation of any use of these TPs, accuracy and bias can be reduced by including in the analysis both the users of each TP during the first wave of PATH participation and prospective follow-up participants (including right-censored participants). Six TPs' initiation ages were estimated as follows: traditional cigars, cigarillos, and smokeless tobacco, as well as hookahs and e-cigarettes. In addition, after controlling for sex, racial/ethnicity, and ever use of the TP during the first wave of PATH participation, we estimated the age at which youth ever used.

References

1. Deng, Hongtao. "Real-Time monitoring of athletes' training data based on wireless sensors." *Microprocess Microsyst*. 81 (2021): 103697.
2. Zhou, Yi-Hong, Vinay R. Raj, Eric Siegel and Liping Yu. "Standardization of gene expression quantification by absolute real-time qRT-PCR system using a single standard for marker and reference genes." *Biomarker Insights* 5 (2010): BMI-S5596.
3. Hajjar, Ihab, and Theodore A. Kotchen. "Trends in prevalence, awareness, treatment, and control of hypertension in the United States, 1988-2000." *JAMA*. 290 (2003): 199–206.
4. Kabisch, Maria, Christian Ruckes, Monika Seibert-Grafe and Maria Blettner. "Randomized controlled trials: Part 17 of a series on evaluation of scientific publications." *Dtsch Arztebl Int* 108 (2011): 663.
5. Franklin, Jessica M. and Sebastian Schneeweiss. "When and how can real world data analyses substitute for randomized controlled trials?." *Clin Pharm Therap* 102 (2017): 924-933.

Address for Correspondence: *Margo Ross, Department of Biostatistics, Science and Technology of New York, New York, USA , E-mail: ross453@edu.in*

Received: 02 January, 2023, Manuscript No. Jbmbs-23-90606; **Editor assigned**: 03 January, 2023, Pre QC No. P-90606; **Reviewed:** 16 January, 2023, QC No. Q-90606; **Revised:** 20 January, 2023, Manuscript No. R-90606; **Published:** 27 January, 2023, DOI: 10.37421/-2155-6180.2023.14.150

How to cite this article: Ross, Margo. "Statistical Process Control (SPC) is an Industrial Standard Methodology for Measuring and Controlling Quality." *J Biom Biosta* 14 (2023): 150.