

Effect of Level of Implementation of HACCP Principles on Quality of Catering Services at Day Care Centers: A Case of Nyeri Town Constituency, Nyeri County, Kenya

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Abstract

Global reports show a general increase in the growth of childcare services, majorly because of modernization and tough economic conditions that require parents to be involved in various type of employment. Consequently, day care centers are becoming very popular for the child as an alternative avenue where children can spend part of their time. Quality of catering services is considered to play a significant role in the well-being of a child enrolled in any day care centre. To ensure quality of food, catering setups have to implement a food safety management system based on the principles of Hazard Analysis and Critical Control Points (HACCP). The study sought to determine the effect of level of implementation of HACCP principles on quality of catering services at day care centers and was based on the System Theory in evaluating adherence to HACCP principles in the catering sections of children day care centers. In identifying the constituency to be studied purposive sampling method was used. Further, purposive sampling was employed in identifying day care catering personnel. A census was carried out in all legally registered 16 daycare centers. Target population was 64 respondents from all the 16-daycare centers and comprised the manager and three catering staffs who are majorly involved in ensuring quality of food at the centers. Mixed methods were used in collecting both quantitative and qualitative data, while primary data was obtained through use of questionnaires and interviews. Secondary data was obtained through a desk study of relevant documents including government policies, institutional strategic plans, minutes and admission lists. Numerical data was analyzed descriptively using Statistical Package for Social Sciences (SPSS) computer software program. Regression analysis was carried out to indicate the strength of association between the variables under the study. Further, coefficient of determination was calculated to indicate variations in the dependent variable as caused by the independent variable. The Research findings were presented using frequency distribution tables, bar charts and pie charts for quantitative data and thematic areas for qualitative data. From the findings, the study found that majority of day care centers purchased food from reputable or reliable suppliers, at the right time, and of good quality. However, food of different types was not stored in different storage rooms. Hygiene was observed in the preparation and handling of food though cooking was not done until all the ingredients were ready to be served. Majority of cooked food is re-heated few minutes before serving. This study is potentially of use to current and prospective parents since it could help them make informed choices on the day-care centers they choose for their children. For proprietors, the insight from the study could enable them to provide control measures that enhance adherence to HACCP principles in day-care centers, thus improve quality of services, which would eventually lead to increased number of customers and subsequently increase revenues. The study has also added new knowledge to hospitality industry as well as advanced knowledge and theory in hospitality studies.

Keywords: - HACCP Principles, Quality of Catering Services, Day Care Centers

1.0 Introduction

Babies need lots of care and affection in the early years (Factor for Life Global, 2016). Home away from home environment for a child has a very strong influence on child's competences prior to school's entry (Kerry, Zeenat, Dhuey, & Akbari, 2015). Catering services offered in day care centers help in the development of a child. Therefore, all childcare services have a responsibility to promote good/quality nutrition for children in their care. Child-care centers and all staff should be familiar with hygiene standards, nutrition principles for children, and food safety laws (Better Health, 2016). Intake of adequate nutrients is of more importance in retaining normal growth and development of the body, thus mealtime, type of food and quantities of food served to children is crucial. To ensure quality of food, catering setups have to implement food safety management system based on

the principles of Hazard Analysis and Critical Control Points (HACCP) (CAC, 2003). However, difficulties in implementing this system in small and medium catering enterprises are well-known (Bas, Yuksel and Cavusoglu, 2007, Herath & Henson, 2010). Therefore, a flexible application of HACCP has been proposed (Taylor, 2008) with the aim of promoting good manufacturing practices, establishing prerequisite programs such as cleaning and disinfection procedures for surfaces and equipment, and controlling truly decisive critical limits such as temperature/time during and after food dispensation.

2.0 Literatures review

HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product. For successful implementation of a HACCP plan, management must be strongly committed to the HACCP concept. A firm obligation to HACCP by top management is to provide business employees with a sense of the importance of producing quality food which is safe. HACCP system is designed for use in all segments of the food industry from growing, harvesting, processing, manufacturing, distributing, merchandising and preparing food for consumption. Prerequisite programs such as Current Good Manufacturing Practices (CGMPs) are an essential foundation for the development and implementation of successful HACCP plans (U.S Food & Drug Administration, 2014).

Before implementing HACCP, basic food hygiene conditions and practices (requirements / prerequisites) must be in place in a food catering setups. HACCP will then be used to manage steps in the catering businesses which are critical in ensuring the preparation of safe food. Prerequisites include where appropriate: cleaning and sanitation, maintenance, personnel hygiene, pest control, plant and equipment, premises and structure services (compressed air, ice, steam, ventilation and water availability). In addition, it involves distribution and transport waste management zoning (physical separation of activities to prevent potential food contamination) (Food Safety Authority, 2008).

3.0 Study Method

3.1.1 Research Design

Research design is defined as the plan, structure of investigation conceived so as to obtain answers to research questions and to control for variance (Ng'ang'a, Kosgei, & Gathuthi, 2009). Royse (2011) opines that a research design is the "blue print" of the research. It is the "action plan for getting from here to there" where "here" is the question to be answered and "there" is the conclusion "answers about these questions". An action plan should guide the researcher in the process of collecting, analyzing and interpreting data. The research design is the logic that links the data to be collected and the conclusion to be made to the initial questions of study. This study adopted descriptive research design. Descriptive research design is a method of collecting information by interviewing or administering questionnaires to the sample of individuals (Orodho, 2005). This study made use of self administered questionnaires and interviews using interview checklist, as instruments for primary data collection. Secondary data was collected through desk study analysis of existing literature on HACCP that relate to quality of catering services in child day care centers .

3.1.2 Study Area

This study was carried out in Nyeri Town Constituency, Nyeri County, Kenya. Nyeri Town Constituency was selected because the area is diverse and cosmopolitan in nature. In addition, the constituency hosts the headquarters for Nyeri County and hence houses most of the key offices of the devolved unit as compared to other constituencies in the county. The constituency also has a high concentration of institutions such as institutions of higher learning, banks, and major business enterprises including children day care centers. Hence, it offered rich ground for data collection for the proposed research.

3.1.3 Target population

The study targeted all 16-day care centers in Nyeri Town Constituency that are licensed to operate. A total of 64 respondents were targeted which included the managers of the day care centers and three staff members working in catering sections; the stores, production and service.

3.1.4 Sampling and sample size

Given that there are only sixteen legally registered day care centers in the selected constituency, a census survey was employed in carrying out the research. A census is the procedure of systematically acquiring and recording information about the member of a given population. Data collected through census takes into account the entire targeted population account and is likely to be more accurate. In addition, a population of 16 day care centers was very small to be sampled further.

3.1.5 Data collection

In carrying out this research, mixed methods of data collection were employed to collect quantitative (numeric data) and qualitative data (interview data). Mixed methods ideally include benefits of both qualitative and quantitative. Whereas quantitative data may be collected via measures such as self-reports and physiological

tests, qualitative data are collected via focus groups, structured or semi structured interviews, and other forms (Creswell, 2013). Primary data was obtained through use of questionnaires and interviews. In this study quantitative data was obtained by use of a self administered questionnaire while qualitative data was obtained through interviews.

Questionnaires were appropriate as they provided a standard set of questions for all the respondents on the sought information. Only one questionnaire was administered to each target respondent. Drop and pick method was used to distribute and collect the completed questionnaires. An interview was also conducted in an oral administration of a research instruments was done through a face-to-face encounter between the researcher and respondents (Mugenda & Mugenda, 1999) were done. An interview standard checklist gathered more information relating to food safety and HACCP measures put in place to enhance quality of catering services. Collecting secondary data involved analyzing of county government policies relating to day care centers, institutional strategic plans and other institutional documents including minutes and admission lists.

4.0 Findings and Discussion

According to HACCP principles, all food suppliers should be of a reputable nature and should be assessed for cleanliness, food storage facilities and food handling method. Concerning the level of implementation of HACCP principles, the study revealed that in majority (67.2%) of day care centers, food was always purchased from reputable suppliers and in majority (59.0%) of day-care centers, food is always purchased at the right time and is always (55.7%) received in good quality. Qualitative data from 3 key informants showed that they purchased food from reliable suppliers as a way of ensuring quality. This implies that food received in day care is always of good quality. In majority (55.7%) of day-care centers food of different types was not stored in different storage rooms (32.8% strongly agreed, 42.6% agreed) while in about half (50.8%) of the of day care centers hygiene was observed in the preparation of food. In majority (65.5%) of the day care centers cooking was not done until all the ingredients were ready to be served while in more than half (57.4%) of day care centers food hygiene is observed when handling food items before being served. In majority (80.3%) of day care centers cooked food is heated few minutes before time of serving. The results are presented in Table 1.

Table 1: Level of Implementation of HACCP practices

Response	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Food is always purchased from Reputable Suppliers	27.9	39.3	3.3	16.4	13.1
Food Is Always Received At the Right Time	32.8	26.2	1.6	21.3	18.0
Food Received is Always of Good Quality	31.1	24.6	8.2	23.0	13.1
Food of Different Types Is Stored In Different Storage Rooms	3.3	32.8	8.2	42.6	13.1
Hygiene Is Observed In the Preparations of Food in Day Care Centers	36.1	14.8	3.3	23.0	23.0
Cooking in the Day Care Centers is done Until All the Ingredients Are Ready To Be Served	19.7	26.2	3.3	39.3	11.5
Food Hygiene is observed when handling Food Items before Being Served in Day Cares	27.9	29.5	4.9	21.3	16.4
Cooked Food Is Heated Few Minutes before Time of Service in Day Cares	8.2	41.0	6.6	39.3	4.9

Views from majority of the key informants (8) showed that they cleaned the kitchen utensils and equipments after every use with hot soapy water. They also had separate taps for kitchen and hand washing, while responses from two key Informants showed that the respondents had 2 different taps for kitchen and for ordinary hand washing. On personal hygiene, views from 4 key informants' showed that the respondent observed personal hygiene which is very important in preventing food poisoning and illness. Qualitative data showed that food care was done through covering of food while cooking and already that of already cooked food through views from 3 key informant's who observed that food was covered with clean lid, thus helping prevent food contamination. Another important food storage management that revealed in the study included appropriate storage of cooked food. According to responses from 4 key informants' food was stored according to the type of food. For example, perishable food was stored in refrigerators separate from non- perishable food. FIFO (First-In-First-Out) method was also applied in issuing of food items from the stores. According to Mucky Pups Childcare Ltd, (2014) different foods have different storage requirements and hence should be stored immediately after the delivery has been checked. Highly perishable food should be attended first, then dry and canned foods. A different storage area for kitchen non-food equipments should be equipped with hooks for hanging mops, brooms, and other cleaning tools, a utility sink for filling buckets and cleaning tools, and a floor drain.

Inferential statistics showed that level of implementation of HACCP principles can predict quality of

catering services, with an R-value of 0.508, which indicated an above average correlation. The R^2 value, which indicated how much of the dependent variable (quality of catering services), can be explained by the independent variable (level of implementation of HACCP principles) was 45.9%. The ANOVA results indicated that the regression model predicted the outcome variable significantly. An F statistic of 2.266 indicated that the model was significant and was supported by a probability value of 0.037 which was below 0.05, and which on overall indicated that the model applied could statistically significantly predict the outcome variable.

5.0 Summary

The study revealed that in regard to the level implementation of HACCP principles, majority of day care centers food handlers usually purchase food from reputable suppliers, purchasing it in time and in good quality. In addition, they ensure hygiene while handling food items before serving. In majority of day care centers cooked food is heated few minutes before time of serving. However, different types of food are not stored in different storage rooms while during preparation cooking is not done until all the ingredients are ready to be served.

6.0 Recommendation

The study recommends that the management of the catering departments in day care centers should provide alternative storages and ensure different types of food stuffs are stored appropriately and that during preparation cooking is done until all ingredients are properly cooked. Day care centers should document procedures in relation to application of HACCP principles and Management should ensure ISO certification of HACCP in the day care centers. This shall help in monitoring and evaluation of HACCP system.

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