Meal-kit subscription boxes enable consumers to receive pre-measured ingredients delivered straight to their door12. The meal-kit includes a step-by-step recipe card for the consumer to prepare a specific meal within the domestic kitchen13. Research has highlighted that while the meal-kit industry has been steadily growing for several years, the COVID-19 pandemic has been a catalyst for increased popularity among home cooks, with meal-kit services use at home7,8.

The trend of home cooking, and opting for meal-kit services, is expected to continue beyond the pandemic4. The appeal reported among consumers as being convenience, healthier options, more diverse and interesting recipes, less food waste, and reduced shopping trips9.

Given the association of the domestic kitchen with the sporadic incidence of foodborne illness10, this current consumer trend presents unique food-safety challenges, offering distinctive opportunities to inform and educate consumers to implement recommended food-safety practices to reduce the risk of foodborne illness associated with food prepared in the home.

Data suggests that the inclusion of food-safety information in recipes improves consumer food-safety practices11. Consequently, there is a need to review and evaluate recipe cards provided in meal-kit subscription boxes to determine the inclusion of food-safety information.

Results

Figures

Figure 1. Highlighted advice relating to washing produce adjacent to the recipe instructions.

Figure 2. Highlighted advice relating to washing produce is included within the recipe instructions.

Figure 3. Highlighted handwashing advice that was found within recipe instructions.

Figure 4. Highlighted cooking advice related to temperature and sensory characteristics (‘not pink’).

Figure 5. Highlighted marinating advice provided within the recipe instructions.

Methods

1. Members of the public, from the UK, were invited via social media platforms to share images of meal-kit recipe cards from the last 12 months via email and picture messaging.
2. An online database was developed using the Partnership for Food Safety Education (PFSE) ‘Safe Recipe Style Guide’6 to enable a content analysis of recipe cards according to the four predesigned categories: ‘Produce’, ‘Hand Washing’, ‘Cross Contamination’, ‘Produce’ and ‘Hand Washing’.
3. Ethical approval was obtained from the Health Care and Food Ethics Committee at Cardiff Metropolitan University (Ethics Approval Reference Number PGR-S421).

Post-pilot amendments to the data collection tool: Refrigeration

The PFSE ‘Safe Recipe Style Guide’6 was useful in establishing the key practices that should be included in a printed recipe to prompt safe food preparation and handling. However, one critical food-safety practice – refrigeration – was not referred to. The storage of ingredients in the refrigerator, below 5°C, is necessary to reduce the growth rate of bacteria. The database took this into consideration and was amended to include this important practice.

Of the meal-kit recipe cards that provided ingredients that required chilled storage:

50% of recipe cards referred to storing ingredients in the fridge.

Only one recipe card referred to the recommended temperature (≤5°C).

Of the recipe cards that referred to refrigeration, none of the recipe cards specified the location within the refrigerator (i.e., On the bottom shelf).

Significance of study

This pilot study has addressed a research gap detailing the inclusion of food-safety information in meal-kit recipe cards.

This includes:

• Although all recipes provided some form of food-safety practice, none of the recipes expanded upon why this information was relevant or important for the consumer to reduce the risk of foodborne illness.

Future observational research is required to establish if the inclusion of food-safety information in meal-kit subscription box recipe cards has an impact on the food-safety behaviours of consumers in the domestic kitchen.

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