

Non-red gummy bears pose thread to human health – a randomized control trial

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Abstract

In March 2021, several cases of kids becoming sick were reported that occurred within two weeks after eating gummy bears. Thus study aimed to assess the effect of gummy bears on human health by performing a randomized control trial in Berlin, Germany. The results of this trial show that consumption of non-red gummy bears lead to severe health issues and possibly death. This should cause immediate action by health policy makers.

Introduction

Gummy bears play a key role in the prevention of unhappiness in children and adults. This is further strengthened by the advertising slogan „Haribo macht Kinder froh, und Erwachsene ebenso“. However, adverse events might occur which were previously unknown or incompletely reported in other studies. A timely detection and investigation of potentially related adverse events is critical for maintenance of confidence in the distribution of gummy bears. This data can support the identification and evaluation of gummy bear signals in the post marketing phase by providing the incidence of conditions potentially related to gummy-bear-related adverse events.

In March 2021 cases of sickness were identified after eating of gummy bears mainly in Europe. In Germany, 42 cases of sickness that occurred within 16 days after eating of the first dose of gummy bears were reported to the National Regulatory Authority as of 02 March 2021 (1). Among those, 23 were reported to be accompanied by vomiting and the survival of eight patients could not be confirmed.

At this point of time, approximately 2.9 million people had received gummy bears in Germany. (2)

Since sickness can occur independent from eating gummy bears, we performed a randomized control trial to find out whether gummy bears cause sickness and potentially death.

The aim of this study was to establish the risk for sickness after eating gummy bears for various kids and colours of gummy bears.

Methods

We recruited pupils from schools in Berlin, Germany, to participate in our trial. We sent letters to the chief of the schools which were then distributed to the teachers who themselves were not allowed to participate in the trial. They told the pupils to go to our facility after school and that they would be able to eat as much gummy bears as they wanted to eat.

When pupils arrived at our facility, they were sent into a room with almost no light and given a huge bowl of gummy bears (1kg) which they were to consume in the dark.

However, all gummy bears in the bowl were of the same colour. The colours were yellow („Zitrone“), orange („Orange“), white („Ananas“), green („Apfel“), dark red („Himbeer“), and light red („Erdbeer“). The gummy bears were given directly from Haribo-Holding GmbH & Co. KG. The control group was given avocado pieces that had the same size as the gummy bears.

After eating, kids were closely monitored for 6 hours for any signs of sickness by our medical staff. As our medical staff was pretty bored watching the kids, and they really like the red gummy bears, kids in the red groups were given smaller bowls of gummy bears because they had to share it with the medical staff.

Results

28.000 kids were recruited and divided into 7 groups. 3.000 Kids were in each gummy bear colour and 10.000 kids were in the control group. However, after trial had started, all kids in control group claimed they would not eat avocado as they were promised gummy bears and left.

However, due to one case of hyperglycaemia, the study was stopped early as by protocol (see supplemental appendix).

Figure 1 shows the results of the study.

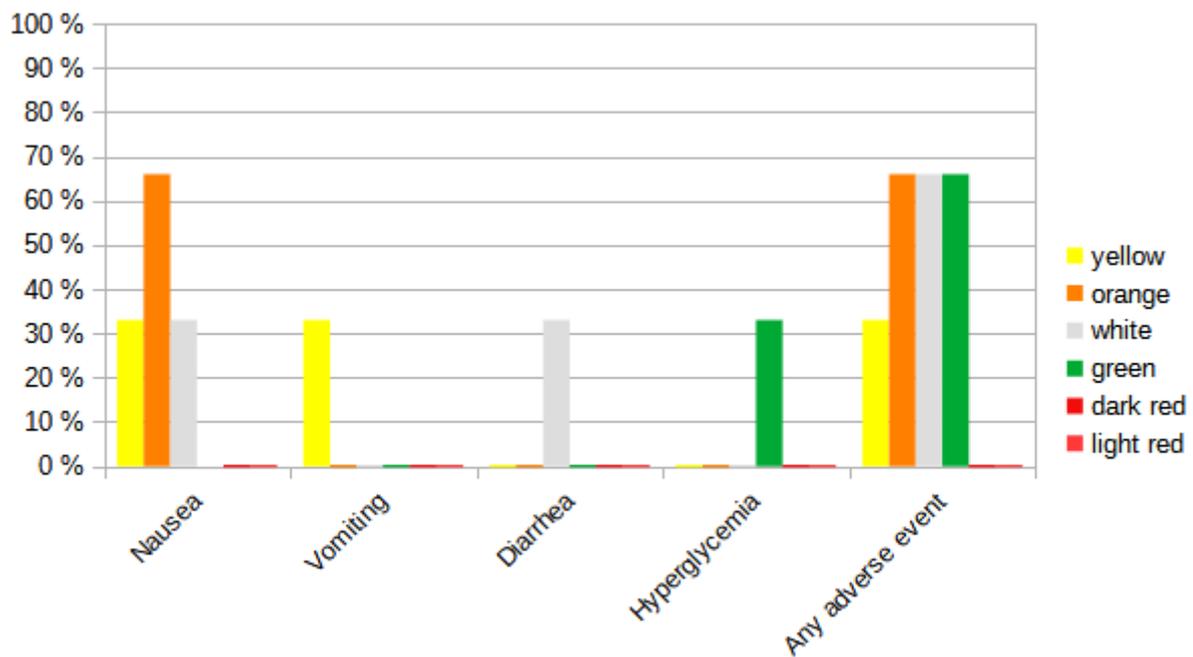


Figure 1: Adverse events by colour of gummy bears

Discussion

Based on the results of our randomized control trial, only red gummy bears (both dark „Himbeer“ and light „Erdbeer“) were not related to any adverse events.

More than 66% of orange, white and green eaters were subject to adverse events, hinting at a severe health danger from these colours that could lead to overloading of the

intensive care units in Germany. This was further demonstrated by one kid in the green group with diabetes mellitus type I who became hyperglycaemic and who could have died if he had not been given insulin by our medical staff.

Health Politicians in Germany should immediately ban these colours of gummy bears.

While the adverse event rate in the yellow group was lower, it was still 33%. Of these 33%, 100% were vomiting. Given that vomiting can lead to severe consequences, including rupture of oesophagus and consecutive death, the German government should thus also ban yellow gummy bears for the sake of public health.

Author Contributions

No author contributed to the manuscript.

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The study was funded by a large chocolate company that wants to remain anonymous for obvious reasons.

Conflict of Interest

The authors declare that they like red gummy bears more, but this had no effect on the trial. The authors received funding by a large chocolate company (that wants to remain anonymous for obvious reasons) outside of the submitted work.

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