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Internet Challenges from a Health Education Perspective

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Abstract

Risk behaviour is characteristic for adolescence phase [1]. Internet challenges in particular offer teenagers and young adults the opportunity to establish their status in their peer group and in front of an audience of millions. So far health education in German grammar schools has mainly focused on the following health risk behaviours: consumption of alcohol, tobacco, drugs, intensive sunbathing and deviant eating habits. Internet challenges such as those shown on YouTube have only recently expanded the thematic repertoire of school health education [2]. The presentation informs about popular challenges such as the cinnamon challenge, tide pod challenge, chilli challenge, ice-and-salt challenge, deodorant challenge and about their endangerment potentials [3]. In this context semi-structured interviews were conducted with six chemistry teachers in order to explore their perspective and state of knowledge on this type of juvenile risk behaviour. The cinnamon challenge was given special attention in these interviews. The evaluation of these interviews was based on a summarizing content analysis according to Mayring. Thus, a category system was created, which shows the current health education in chemistry classes of the teachers interviewed and their knowledge about current internet challenges, in particular the cinnamon challenge and its potential danger.

Keywords: *internet challenges, cinnamon challenge, health education, chemistry teachers, interviews, content analysis*

1. Introduction

Adolescents in particular use the internet platform YouTube to share private videos, including internet challenges, with an audience of millions. These challenges are characterized by the fact that they are often risk-related and that they encourage many users to watch and imitate them. Our research group for Chemistry Education focuses on internet challenges in which various substances come into contact with or are absorbed through mouth, nose, eyes or skin [1,4]. Many of these substance-related internet challenges, such as the cinnamon challenge, tide pod challenge, chili challenge, ice-and-salt challenge, deodorant challenge etc., can be easily imitated and seem to be harmless. However, they sometimes involve considerable health risks, which are often not known to the predominantly young participants. With our own current research, we expand the existing spectrum of research on adolescent risk behaviours, such as alcohol and tobacco consumption, poor nutrition or delinquent behaviour, as well as the adequate explanatory models [1,5]. These approaches are supplemented by specific perspectives, including gender aspects [6,7]. So far, surveys have primarily focused on adolescents. A perspective on the phenomenon of internet challenges that has not yet been taken into account refers to teachers who are responsible for health education at schools and who may have to carry out preventive or interventional measures in class. These teachers are confronted with the challenge of assessing the potential dangers of internet challenges correctly with consideration of the risk behaviour of pupils both in school (e.g. the choking game) and outside of school activity (e.g. the consumption of alcohol and drugs). This article is dedicated to this research desideratum. This article presents the cinnamon challenge and its risks as an example. It recapitulates findings on the frequency of certain types of substance-related internet challenges and offers a first insight into a recent qualitative study in which teachers were interviewed about their understanding of health education and internet challenges. Finally, it provides a perspective on the future project.

2. The cinnamon challenge

As an example, the cinnamon challenge and its potential danger is examined from a scientific point of view. The sequence of images in Figure 1 shows the procedure of this internet challenge.

Fig. 1: Procedure of the cinnamon challenge (https://www.youtube.com/watch?v=aP7zc4Nvi_Q)

The purpose of the challenge is to swallow a spoonful of cinnamon powder without taking any liquids for support. This constitutes a health hazard. The fine cinnamon powder removes all saliva from the mouth and makes swallowing impossible. Therefor mouth and throat become very irritated. Coughing and shortness of breath occur. The resulting struggle of the affected person for air causes particles of the cinnamon powder to enter the lungs [8]. Cinnamon powder is the dried, powdered bark of cinnamon trees. Consequently, cinnamon consists cellulose fibres. Inhalation of fine cellulose fibres has a damaging effect on the lung tissue. This has been shown in an experiment with rats [8,9]. Cellulose powder was intratracheally administered to the animals. Even a single administration can cause chronic inflammation and scarring of the lung tissue [9]. A further risk factor is coumarin, which is a component of cinnamon [10]. For small children and people with respiratory diseases, this substance can cause headaches, nausea and dizziness.

3. Findings on the frequency of substance-related internet challenges

In a survey on substance-related internet challenges in the period from 2015 to 2018 [3,4], 2035 YouTube videos were viewed. They were categorized using an analysis grid and the percentage of types in the total number of videos viewed was determined. This investigation was discontinued at the beginning of 2019, as since then YouTube has prevented the publication of extremely dangerous internet challenges (cf. the corresponding "Harmful or dangerous content policy"). In almost half (46.2%) of the videos, substances were ingested by mouth. The oral internet challenges were further subdivided in two types: in type I, the oral intake of acidic, basic or very pungent substances causes irritation. These include the chili challenge, the cinnamon challenge and the tide pod challenge. In type II the ingested substance causes a feeling of disgust and nausea, by overstraining the sense of taste or the stomach. These includes the red-bull-and-milk challenge and milk chugging. After oral internet challenges, percutaneous internet challenges (17.7 %), i.e. actions in which substances come into contact with the skin, are the second most frequent form of substance-related internet challenges. Typical examples are the deodorant challenge and the ice-and-salt challenge. In these cases, heat is extracted from the skin and the skin is damaged by so-called cold burns. Substances in internet challenges are absorbed comparatively less frequently via the eyes and nose (5.9 %). There were also internet challenges involving fire (e.g. fire challenge) (9.8 %), explosions (10.6 %) and weapons (3.7 %). The category “other” comprises 6.1 percent.

4. Selected findings from an interview study with teachers

Six problem-centred semi-structured interviews were conducted with six chemistry teachers. They were asked about their understanding of health promotion with regard to their own chemistry lessons and their views on internet challenges in their own experience. Furthermore, the teachers' assessment of the following aspects was requested: Students' engagement with internet challenges and possibilities for integrating the topic of internet challenges into chemistry lessons. In addition, the teachers were shown a video on the cinnamon challenge during the interview, which they were asked to discuss. Using this specific example, the teachers were asked to clarify their assessment of the internet challenge phenomenon. The aim was to find out how the teachers assess the risk of the cinnamon challenge. The semi-structured interviews were transcribed and evaluated with the help of the summarizing content analysis according to Mayring [11]. Based on this analysis, seven main categories were formed that reflect the spectrum of teachers' responses. An excerpt of an interview translated into English is presented here as an example:
When asked to assess the potential danger of the cinnamon challenge, one teacher answered: "*Nah, it burns a little, they said. They laughed until the end, they're all still standing, all still breathing (laughs), so it doesn't look so dangerous, yeah.*" This text passage shows that the hazard potential of

the cinnamon challenge is classified as low by the teacher in this context. She also describes the implementation of the internet challenge in the interview as "somewhat unpleasant", and she assesses the cinnamon challenge as "harmless" based on the video. To evaluate the hazard potential of the cinnamon challenge, the teacher mainly uses the reactions of the young people she can observe in the video. She does not provide scientific justifications. The concrete example shows how easy it can be to misjudge, when only one single video is used to assess the hazard potential of an internet challenge. The other chemistry teachers who were interviewed estimated the hazard potential of the cinnamon challenge to be higher. However, they also showed ignorance and a decent uncertainty in dealing with this internet challenge and its risks. The entire analysis of the six interviews is presented in detail at a later point in time. In the context of this article, however, it can already be stated that the assessment of risks that can be associated with internet challenges is not a trivial task for teachers. Only a combination of scientific, psychological, sociological and media educational considerations will lead to an appropriate discussion of the problem. In this respect, teachers should receive support within their education and in the context of further training.

5. Outlook

In interviews, teachers showed interest in the topic of internet challenges. They were aware of the timeliness and relevance of the problem, even though they could not clearly determine to what extent their students get in touch with internet challenges in their everyday lives. The interviews revealed that teachers need help for their practice including guiding principles how to integrate the approach to internet challenges in their own lessons and an overview of internet challenges and their potential dangers. The planned expansion of the research project should address precisely this aspect. Based on the guidelines given by the teachers in the interviews, a digitally supported offer for teachers is to be created, which will provide basic information on internet challenges, i.e. descriptions of performance and physiological risk, including scientific analyses, as well as help in classifying the degree of damage. It will also provide supplementary information on interventions and didactic background information. In addition, internet challenges are to be viewed from a media perspective as a component of a modern digital culture.

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