The most widely viewed YouTube videos with content related to multivitamins

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Abstract

Background: Use of multivitamin/multimineral (MVM) and other dietary supplements is common among American adults. The purpose of this study was to describe the source and content of the most widely viewed YouTube videos associated with MVM supplements.

Methods: Videos were filtered by number of views and the source of the video upload was recorded. A comparison of video characteristics and differences in video content was conducted.

Results: Cumulatively, the videos in this sample were viewed 25,573,055 times. The majority of videos found in this sample were uploaded by a nutrition, wellness, or fitness channel. Most videos mentioned benefits (80.4%, 95% CI: 72.5%, 88.3%) and advocated for use of the supplement (72.2%, 95% CI: 63.3%, 81.1%). Over 84% (84.5%, 95% CI: 77.3%, 91.7%) of the videos did not mention risks associated with taking a particular vitamin or supplement.

Conclusion: The findings of this study indicate that MVMs are often promoted and encouraged, yet risks associated with MVMs were infrequently mentioned. Health professionals should be aware of the extent to which MVM related content appears on social media and, more importantly, be attuned to the content, which can be misleading, or missing information regarding risks and/or evidence of possible benefits.

Introduction

Over 50% of American adults have reported use of dietary supplements, the majority of which are multivitamin/multimineral (MVM) supplements.1,2 Supplements, vitamins, and preventive care are of particular interest among the Millennial generation, currently between 18 and 36 years of age, who have been driving sales in this market.3 These young to middle-aged adults, especially women, are often at risk for inadequate micronutrient intake due to demanding lifestyles, poor dietary behaviors, and attempts to lose weight.3 The health benefits of taking supplements are not universal and vary both by type and person.3

Among this generation, healthy behaviors are often encouraged through the use of various wearable devices, mobile apps, and social media programs.5 Social media and sharing sites encourage are increasingly being sought as sources of health information.3 Between 50%-60% of individuals living in North America rely on the Internet for health information, however, minimal research has been done regarding health information presented on social media and sharing sites.7,8

YouTube.com™ is a popular social media platform with over a billion users.9 To our knowledge, there are no published papers regarding the content of videos published on this platform related to MVM supplements. Hence, the purpose of this study was to describe the source and content of the most widely viewed YouTube videos associated with MVM supplements.

Materials and Methods

A search of YouTube.com™ was conducted using the following search terms, “multivitamin supplement” and “vitamin.” Of the 100 most viewed videos (determined by filtering and sorting by the number of views on YouTube, only those that were spoken in English and featured products for human use were used in analysis. One video was excluded because it was not in English and two were excluded, as their product was intended for an animal. Each video was evaluated and coded for number of views, length in minutes, upload source, and content.

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Upload sources were defined as follows: (1) Nutrition, wellness, or fitness channel – video uploaded by a You-
Tube.com™ channel with content focused on nutrition, wellness, or fitness (including body building); (2) Televi-
sion/Internet—A clip that was uploaded by the network; or Internet-based news or programming; (3) Consum-
er—a clip uploaded by an individual without any professional affiliation; (4) Company channel or product 
advertisement – any video uploaded by a supplement company or promoting product sales; (5) Medical pro-
essional – video uploaded by a doctor of medicine (MD) or registered nurse (RN). One researcher (AB) sorted all 
videos and analyzed the entire sample. A random number generator was used to select 10% of videos to be coded by 
a second researcher (CHB). A kappa of 0.98 indicated a very high level of agreement between reviewers. If human 
subjects are not included in the research, review of the institutional review boards at William Paterson University 
and at Teachers College is not required.

Descriptive statistics included calculating frequencies, percentages, means, and ranges, additionally 95% CI of the 
measures were provided. Analysis of variance (ANOVA) was used to compare video characteristics and differences 
in video content were examined using chi-square analyses. Analyses were conducted using IBM SPSS (version 22, 
IBM Corp., Armonk, NY USA). P<0.05 was considered statistically significant.

Results
Together, the 97 videos analyzed were viewed 25,573,055 times. The majority of videos found in this sample were 
uploaded by a nutrition, wellness, or fitness channels. The mean length of all videos was nearly 11 minutes and, on 
average, viewed over 200,000 times (Table 1). No significative differences were found in the mean number of views 
between upload sources. The mean length in minutes was highest among videos uploaded by television/internet 
sources (20.0 [26.9]) and shortest among videos uploaded by vitamin company channels or advertisements (4.0 
[3.2], P = 0.01). Most videos mentioned benefits (80.4%, 95% CI: 72.5%, 88.3%) and advocated for use of the sup-
plement (72.2%, 95% CI: 63.3%, 81.1%) (Table 1). Over 84% (84.5%, 95% CI: 77.3, 91.7%) of the videos did not 
mention risks associated with taking a particular vitamin or supplement, but 42.9% (95% CI: 24.6%, 61.2%) of videos 
uploaded by television and internet sources mentioned such risks. More than half of the videos uploaded by television 
and internet sources (60.7%, 95% CI: 42.6%, 78.8%) and by medical professionals (55.6%, 95% CI: 23.1%, 88.1%) referred to previous studies or re-
search, while less than half of the videos uploaded from other sources referred to research, with only one in four 
company channel videos and advertisements referring to existing research.

Conclusions
This study is novel in that it describes the content of the most popular videos on YouTube.com™ focused on MVM 
supplements. The findings of this study indicate that MVMs are often promoted and encouraged, yet risks as-
sociated with MVMs were infrequently mentioned. Advertising for vitamins and supplements has been prominent 
since the 1930s even though their promotions are often offering false hopes. Popular news media and ad-
vertisements promote vitamins as crucial for two reasons (1) to help ensure sufficient dietary intake of micro-nu-
trients and (2) to help enhance beauty. Advertising also promotes the idea that vitamin supplements are required 
for optimal health.

While today’s vitamin industry represents income in the billions, questions arise about how the industry and sup-
plements are being regulated. The Federal Trade Commission (FTC) enforces laws that ban “unfair or deceptive acts or practices” in the United States. and the FTC plays a role in ensuring that “customers get accurate informa-
tion about dietary supplements so that they can make informed decisions about these products.” The FTC also 
has primary responsibility for claims in advertising and direct marketing materials, for example that advertising 
for vitamins and dietary supplements are truthful and not misleading. This type of regulation does not apply to content 
from independent sources, such as content uploaded by consumers on public sharing platforms that reflect opinions that may be mistaken for fact.

In addition to the FTC, other organizations attempt to promote truthful marketing in the vitamin supplement in-
dustry. The Council for Responsible Nutrition Foundation (CRNF) has pledged grants to the National Advertising 
Division (NAD), a service of the Council of Better Business Bureaus (CBBB), to monitor advertising for dietary 
supplements in a self-regulatory program. The program conducted by NAD allows companies to voluntarily alter 
actions that are not compliant behavior prior to facing potential consequences from law enforcement agencies like the FTC.

The limitations of this study include the cross-sectional design (popularity based on number of views changes 
constantly), and the inclusion of only the 100 most widely viewed videos (an arbitrary cut point). Nevertheless, this 
study contributes to the literature about an emerging topic, namely how social media may influence consumers’ decision-making related MVM use. Health professionals should be aware of the extent to which MVM related con-
tent appears on social media and, more importantly, be attuned to the content, which can be misleading, or missing 
information regarding risks and/or evidence of possible benefits.

Ethical approval
This study was exempt from requiring IRB approval since no data from human subjects was used.

Competing interests
The authors declare that they have no competing interests.

Funding
No funding was received for this study.

Authors’ contributions
CHB and CEB conceptualized the study, AB collected the data, JM analyzed the data. All authors contributed to writing this manuscript.
### Table 1. Characteristics of 97 YouTube.com™ videos on multivitamin supplements and vitamins

<table>
<thead>
<tr>
<th>Upload source</th>
<th>Total (n=97)</th>
<th>Nutrition, wellness, or fitness channel (n=31)</th>
<th>Television/Internet (n=28)</th>
<th>Consumer (n=17)</th>
<th>Vitamin company channel/advertisement (n=12)</th>
<th>Medical professional (n=9)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean number of views (SD)</td>
<td>263639.7 (940641.9)</td>
<td>306408.4 (697921.6)</td>
<td>405301.2 (1591739.4)</td>
<td>131345.1 (107589.8)</td>
<td>83888.6 (50242.4)</td>
<td>165159.2 (198868.7)</td>
<td>0.82</td>
</tr>
<tr>
<td>95% CI number of views</td>
<td>76448.1, 450831.4</td>
<td>60726.0, 552090.7</td>
<td>349097.2, 461505.2</td>
<td>80201.1, 182489.1</td>
<td>55461.8, 112315.4</td>
<td>35234.0, 295084.4</td>
<td></td>
</tr>
<tr>
<td>Range number of views</td>
<td>39312-8507748</td>
<td>43775-3933582</td>
<td>44431-8507748</td>
<td>39327-341330</td>
<td>42077-201528</td>
<td>39312-592300</td>
<td></td>
</tr>
<tr>
<td>Mean length in min (SD)</td>
<td>10.9 (16.9)</td>
<td>6.6 (3.0)</td>
<td>20.0 (26.9)</td>
<td>7.8 (11.7)</td>
<td>4.0 (3.2)</td>
<td>12.6 (14.5)</td>
<td>0.10</td>
</tr>
<tr>
<td>95% CI length in min</td>
<td>7.5, 14.3</td>
<td>5.6, 7.7</td>
<td>10.0, 29.9</td>
<td>2.2, 13.3</td>
<td>2.2, 5.8</td>
<td>3.1, 22.1</td>
<td></td>
</tr>
<tr>
<td>Range length in min</td>
<td>0.6-88.8</td>
<td>2.4-15.2</td>
<td>2.3-88.8</td>
<td>0.6-51.8</td>
<td>0.7-9.2</td>
<td>4.0-50.6</td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
</tr>
<tr>
<td>Refers to studies/research</td>
<td>44 (45.4)</td>
<td>14 (45.2)</td>
<td>17 (60.7)</td>
<td>5 (29.4)</td>
<td>3 (25.0)</td>
<td>5 (55.6)</td>
<td>0.15</td>
</tr>
<tr>
<td>Mentions how much (units) to take</td>
<td>41 (42.3)</td>
<td>15 (48.2)</td>
<td>15 (53.6)</td>
<td>5 (29.4)</td>
<td>3 (25.0)</td>
<td>3 (33.3)</td>
<td>0.3</td>
</tr>
<tr>
<td>Mentions benefits</td>
<td>78 (80.4)</td>
<td>25 (80.6)</td>
<td>24 (85.7)</td>
<td>14 (82.4)</td>
<td>8 (66.7)</td>
<td>6 (66.7)</td>
<td>0.73</td>
</tr>
<tr>
<td>Advocates use of the mentioned supplement(s)</td>
<td>70 (72.2)</td>
<td>23 (74.2)</td>
<td>18 (64.3)</td>
<td>14 (82.4)</td>
<td>9 (75.0)</td>
<td>6 (66.7)</td>
<td>0.73</td>
</tr>
<tr>
<td>Mentions that it is safe</td>
<td>8 (8.2)</td>
<td>4 (12.9)</td>
<td>2 (7.1)</td>
<td>2 (11.8)</td>
<td>0.0</td>
<td>0 (0.0)</td>
<td>0.54</td>
</tr>
<tr>
<td>Mentions risk of taking supplement</td>
<td>15 (15.5)</td>
<td>1 (3.2)</td>
<td>12 (42.9)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>2 (22.2)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
References


