

# The impact of social media news on the health perception of society

Gulsah Cikrikci Isik<sup>1</sup>, Halit Aytaç,<sup>2</sup> Yunsur Cevik<sup>1</sup>, Emine Emektar<sup>1</sup>, Hasan Balıkcı<sup>1</sup>

<sup>1</sup>Health Sciences University, Keçioren Training and Research Hospital, Department of Emergency Medicine, Ankara, Turkey

<sup>2</sup>Buyukcekmece Mimar Sinan Public Hospital, Clinic of Emergency Medicine, Istanbul, Turkey

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## Abstract

**Aim:** Aim of the study is to demonstrate impact of health news at social media on the health perception of society, among healthcare related and non-healthcare related participants, under the subheadings of reliability of that news, doctor-patient relationship, patient health attitudes and health advertising and marketing. Social media has some benefits on health communication such as more accessible, shared health information; but also has some limitations such as lack of reliability, confidentiality, and privacy. Thereby misinformation through these platforms may lead the society to gain wrong health attitudes.

**Material and Methods:** This was a cross-sectional survey study consisted of two sections. First section was based on the demographic data and second section consisted of 25 questions about the attitudes related to social media and internet news to be answered using the Likert scale. Statistical analysis was performed using the Statistical Package for the Social Sciences version 22.0. Responses of the survey compared between the healthcare related and non-healthcare related participants by using Mann-Whitney U test P-value less than 0.05 was considered statistically significant.

**Results:** Among 1,622 returned valid questionnaires %66.8 of the participant were healthcare related. For all subheadings responses were significantly different among healthcare related and non-healthcare related participants ( $p < 0.05$  for all circumstances).

**Conclusion:** This survey demonstrated that perception attitudes of the society formed by health content shares on social media were significantly different between the groups. It could be mentioned that healthcare related population was more conservative and had a critical approach on this issue, on the other hand non-healthcare related population more frequently impressed by that kind of shares and tend to accept them directly. So raising awareness about digital health literacy is a public health necessity to ensure the access to valid and reliable information.

**Keywords:** Attitude; health; impact; internet; perception; social media.

## INTRODUCTION

The use of social media, which is defined as an internet-based technology that facilitates the sharing of ideas, thoughts, and information through networks and communities, has increased considerably in recent years (1). According to a report by Perrin, nearly two-thirds of American adults use at least one social networking site (2). The Turkey Statistical Office's Household Information Technology (IT) Utilization Research–2018 reported that the frequency of internet use in the 16–74 age groups in Turkey was 72.9%, and the most common reason for using the internet was social media (3).

With the widespread use of social media, the traditional vertical system of sharing information from sources of

scientific authority has been replaced by rapid horizontal information sharing from numerous sources, regardless of whether they are scientific or not (4). It has been demonstrated that the most popular online activity for adults after email and using search engines is searching for health information (5). Social media has some benefits for health communication, such as being more accessible, shared health information, and the potential to influence health policies and public health. However, conversely, it has certain limitations, such as the lack of reliability, confidentiality, and privacy (6). As a result, misinformation shared through these platforms can lead society in adopting inaccurate views of health and this impact may vary between healthcare related and non-healthcare related ones.

**Received:** 03.09.2019 **Accepted:** 14.10.2019 **Available online:** 05.12.2019

**Corresponding Author:** Gulsah Cikrikci Isik, Health Sciences University, Keçioren Training and Research Hospital, Department of Emergency Medicine, Ankara, Turkey **E-mail:** gulsah8676@gmail.com

There are many aspects related to internet sharing about health issues. One of them is the doctor–patient relationship; reporting of adverse news had a negative impact on perceptions of the doctor–patient relationship among both patients and doctors (7). Health advertising on social media, and social media marketing are other important elements, and unfortunately, patients tend to rely on internet information more frequently than on information from their physicians (8). In addition, physicians sometimes do not use social media responsibly, as for example, with plastic surgery “before” and “after” posts (9).

Our aim in this study was to demonstrate impact of health news at social media and internet on the health perception of society, among healthcare related and non-healthcare related participants, under the subheadings of reliability of that news, doctor–patient relationship, patient health attitudes and health advertising and marketing.

## MATERIAL and METHODS

This was a cross-sectional survey study that was carried out in accordance with the regulations of and approved by the local research ethics committee. For the data collection process, an open online-based Turkish language questionnaire was created using Google Forms. Readability of the text was measured as 10 on the Flesch–Kincaid Grade Level test, which means it was suitable for anyone 15 years of age and older. Invitations to participate were sent by email, SMS messages, and via social media groups (WhatsApp, Twitter, Instagram, and Facebook), and respondents were asked to share the questionnaire with their colleagues. There was an online informed consent form, and the completion of the questionnaire was considered to imply informed consent to participate in the study. Further, no personal identifying information was required; all email addresses and phone numbers were kept secret, and strict confidentiality was maintained. Participation was completely voluntary. Only fully answered questionnaires were included in the study. Data collected between the March and April 2019.

### Description of the questionnaire

The questionnaire consisted of two sections. The first section collected demographic data, and the second section consisted of questions about attitudes related to social media and internet news that were answered using a Likert scale.

In the first section, participants provided information about their gender, age, marital status, education level (literate, primary school, secondary school, high school, and university), whether they or any of their relatives worked in the healthcare sector, how long they spent, on average, on social media per day, and how often they encountered health news or advertisements on social media and the internet.

The second section of the questionnaire consisted of phrases related to attitudes about topics such as reliability of health news found online, the effects of that

news on the doctor–patient relationship, the effects of that news on the attitudes of participants with regard to health issues, and the opinion of the participant related to social health marketing and advertising. Participants were asked to answer those phrases using a Likert scale, with the options of strongly agree, agree, undecided, disagree, and strongly disagree. This section also contained some attitude statements related to frequency that were answered using a Likert scale with the options of always, very often, sometimes, rarely, and never. Some of the phrases were asked in both positive and negative ways to increase the reliability of the questionnaire. Full survey wording with responses as percent is presented in Appendix 1.

### Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences version 22.0 (SPSS Inc.; Chicago, IL, USA). Demographic data related to participants were expressed as numbers and percentages. After assessing normal distribution by using the Kolmogorov–Smirnov test, all variables were described in terms of median and interquartile range (IQR) (25–%75). Responses of the survey compared between the healthcare related and non-healthcare related participants by using Mann–Whitney U test. A p-value of less than 0.05 was considered statistically significant.

## RESULTS

Among 1,622 valid questionnaires, 61.6% were female and the median age of the participants was 32 (IQR 26–40).

Table 1. Characteristics of participants	
Variable	Number (%) / median (IQR 25-75)
<b>Gender</b>	
Female	999 (61.6%)
Male	623 (38.4%)
<b>Age</b>	32 (IQR 26-40)
<b>Marital status</b>	
Married	897 (55.5%)
Single	719 (44.5%)
<b>Education level</b>	
Literate	7 (0.4%)
Primary School	32 (2%)
Secondary School	49 (3%)
High School	326 (20.1%)
University	1206 (74.4%)
<b>As if they/ their relatives were working in the healthcare sector</b>	
Yes	1084 (66.8%)
No	537 (33.1%)
<b>Average time spend on social media per day</b>	
< 10 min	81 (5%)
10 – 30 min	194 (12%)
30 min – 1 h	380 (23.5%)
1 h – 2 h	476 (29.4%)
≥ 2 h	489 (30.2%)
<b>Frequency of coming across with health news and advertisements on social media and internet</b>	
Never	56 (3.5%)
Rarely	419 (25.8%)
Sometimes	605 (37.3%)
Often	447 (27.6%)
Always	95 (5.9%)

Abb: IQR: inter quartile range; min: minute; h: hour

Fifty-five percent of them were married, and 74.4% was university graduated. Sixty-six percent of the participants were healthcare sector related. Nearly one-third of the participants reported spending more than 2 hours per day on social media, and 27.6% mentioned that they encountered health news and advertisements on social media and the internet very often (Table 1).

In general, responses to the phrases about the reliability of the health news and advertisements on social media and internet, was significantly different between healthcare related participants and non-healthcare related ones. However related with the phrase about the effect of that news on reduction of the trust across the health system, responses were similar between the groups (Table 2).

With regard to the doctor–patient relationship, more than 60% of the participants disagreed with the idea that health news on social media creates a negative prejudice against healthcare workers. Moreover, 45.8% of them agreed that such news caused patients to empathize with physicians. Distribution of responses was similar between the groups about this issue. On the other hand, related with the violence, healthcare related participants thought that news cause an increase at violence against healthcare workers (Table 2).

The third part of the survey was related to the effects of such news on the health attitudes of participants. The distribution of responses to phrases regarding whether or not such health news had an impact on their choice of hospital or physician were inconsistent. More than 80% of the participants agreed that they consult with a health care professional before applying the recommendations in health news they encountered online. Additionally, 20–25% of participants mentioned that they search their health complaints and prescriptions on the internet before seeing a doctor or using the drug. This tendency was significantly higher in the non-healthcare related participants (Table 3).

Finally, the opinions of the participants in relation to social media health marketing and advertising were checked. Use of products advertised or reported in such a manner was very rare in general (4.3%) and most of participants agreeing that unproven health news or product advertisements should be prohibited. However confidence in that this type of news and the usage of such products among the non-healthcare related participants group were significantly higher than healthcare related participants (Table 3).

Full survey wording with the distribution of responses is presented in Appendix 1.

**Table 2. Survey responses of the healthcare related and non-healthcare related participants to phrases about reliability and doctor-patient relationship as median (IQR 25 -75).**

Phrases	HC r. participants	Non-HC r. participants	P value
<b>Reliability</b>			
P1: I believe that the health news I have encountered on social media and the internet is reliable.	2 (IQR 2-3)	2 (IQR 2-3)	<0.001
P7: I do not find the health news / advertisements that I have encountered on social media and the Internet reliable.	4 (IQR 3-4)	3 (IQR 3-4)	<0.001
P2: The news I've encountered on social media and the Internet reduce my trust across the health system.	3 (IQR 2-4)	3 (IQR 2-4)	>0.05
P13: The health news I encounter increases my trust across the health system.	2 (IQR 2-3)	3 (IQR 2-3)	<0.001
P5: I find the statements on issues such as vaccines and diet by people who are not health professionals in social platforms informative and correct.	1 (IQR 1-2)	2 (IQR 1-2)	0.001
P22: I find the statement on issues related to public health by non-health professionals in social platforms wrong and misleading.	5 (IQR 4-5)	4 (IQR 4-5)	<0.001
P8: I feel the need to investigate the accuracy of this type of health news / advertisements	4 (IQR 3-5)	4 (IQR 3-4.5)	<0.001
<b>Doctor-patient relationship</b>			
P4: Health news that I encounter on social media and Internet create a negative prejudice against health workers on me.	2 (IQR 2-3)	2 (IQR 2-3)	>0.05
P11: The health news I've encountered allows me to empathize with health workers and create a positive prejudice against them.	3 (IQR 2-4)	3 (IQR 3-4)	>0.05
P19: I think that the health news that I encounter increases the violence against health workers.	4 (IQR 3-5)	3 (IQR 2-4)	<0.001
P23: I think that the health news that I encounter provides a reduction of violence against health workers by providing deterrence.	2 (IQR 2-3)	3 (IQR 2-3)	<0.001

Abb: HC: healthcare; r. related; IQR: inter quartile range; P: Phrase

Likert scale: 1: Strongly disagree/ never; 2: Disagree/ rarely; 3: Undecided/ sometimes; 4: Agree/ often; 5: Strongly agree/ always

**Table 3. Survey responses of the healthcare related and non-healthcare related participants to phrases about attitudes in health issues and social health marketing and advertising as median (IQR 25 -75)**

Phrases	HC r. participants	Non-HC r. participants	P value
<b>Attitudes in health issues</b>			
<b>P6:</b> Health news I encounter on social media and Internet affect my hospital and physician choice.	3 (IQR 2-4)	3 (IQR 2-4)	>0.05
<b>P17:</b> While choosing a physician or a hospital, I don't take into account the news I've encountered on social media or the Internet.	3 (IQR 2-4)	3 (IQR 2-4)	<b>0.007</b>
<b>P10:</b> I have to consult with a healthcare professional before applying a recommendation on health news I encountered.	4 (IQR 4-5)	4 (IQR 3-5)	<b>&lt;0.001</b>
<b>P15:</b> If I think that a health recommendation (like diet) that I watch / read is appropriate for myself, I apply it directly without feeling the need to consult a physician.	2 (IQR 1-3)	2 (IQR 1-3)	>0.05
<b>P3:</b> When the doctor gives me a prescription, I feel the need to research drug on the internet before using it.	2 (IQR 1-3)	2 (IQR 2-3)	<b>0.002</b>
<b>P16:</b> When I get sick, I feel the need to research my complaints online before I admit a doctor.	3 (IQR 1-3)	3 (IQR 2-4)	<b>&lt;0.001</b>
<b>Social health marketing and advertising</b>			
<b>P9:</b> Unproven health news / product advertisements should be prohibited.	3 (IQR 2-4)	3 (IQR 2-4)	>0.05
<b>P12:</b> I believe that news and advertisements about health should be considered within the scope of freedom of thought.	3 (IQR 2-4)	3 (IQR 2-4)	<b>&lt;0.001</b>
<b>P14:</b> I have received / used the product / application by relying on the health news / advertisements I have encountered.	1 (IQR 1-2)	1 (IQR 1-2)	>0.05
<b>P18:</b> The health news that I have encountered leads me to practice complementary and alternative medicine methods.	2 (IQR 1-3)	2 (IQR 1-3)	<b>0.03</b>
<b>P20:</b> The advertisement of a health attitude/ product by a famous person or usage of that product by that person increase my confidence in the product.	2 (IQR 1-3)	2 (IQR 1-3)	<b>0.02</b>
<b>P24:</b> I think that the health news and advertisements I encounter are made with material concerns, which reduces my confidence in the product.	4 (IQR 4-5)	4 (IQR 3-5)	<b>&lt;0.001</b>
<b>P21:</b> I would like to make sure that the products sold on the internet are approved by the relevant ministries.	5 (IQR 4-5)	5 (IQR 4-5)	<b>0.03</b>
<b>P25:</b> The health news I've encountered on social media and Internet is bothering me.	3 (IQR 3-4)	2 (IQR 3-4)	<b>&lt;0.001</b>

\*Abb: HC: healthcare; r: related; IQR: inter quartile range; P: Phrase

\*Likert scale: 1: Strongly disagree/ never; 2: Disagree/ rarely; 3: Undecided/ sometimes; 4: Agree/ often; 5: Strongly agree/ always

## Appendix 1. Full survey wording with responses as percent (%) (n:1622)

Demographic data					
Gender	Female		Male		
	61.6		38.4		
Age					
Marital status	Married		Single		
	55.3		44.3		
Education level	Literate	Primary school	Secondary school	High school	University
	4	2	3	20.1	74.4
Do you or any of your 1 <sup>st</sup> degree relatives work in the healthcare sector?	Yes		No		
	66.8		33.1		
How long do you spend, on average, on social media per day?	<10 m	10-30 m.	30 m. 1 h.	1 – 2 h.	> 2 h.
	5	12	23.4	29.3	30.1
How often do you encounter health news or advertisements on social media and the internet?	1	2	3	4	5
	3.5	25.8	37.3	27.6	5.9
Phrases	1	2	3	4	5
P1: I believe that the health news I have encountered on social media and the internet is reliable.	16	35.9	38.5	7.7	2
P2: The news I've encountered on social media and the Internet reduce my trust across the health system.	6	28.5	29.6	30.4	5.5
P3: When the doctor gives me a prescription, I feel the need to research drug on the internet before using it.	23.2	33	23.2	14.2	6.3
P4: Health news that I encounter on social media and Internet create a negative prejudice against health workers on me.	20.5	40.8	17.7	15.5	5.5
P5: I find the statements on issues such as vaccines and diet by people who are not health professionals in social platforms informative and correct.	50.7	25.9	9.4	8.3	5.6
P6: Health news I encounter on social media and Internet affect my hospital and physician choice.	14.5	30.7	18.2	31.4	5.3
P7: I do not find the health news / advertisements that I have encountered on social media and the Internet reliable.	3.3	12.6	22.5	42.4	19.3
P8: I feel the need to investigate the accuracy of this type of health news / advertisements.	5.2	11.9	19.1	35.7	28
P9: Unproven health news / product advertisements should be prohibited.	5.8	3.5	4.7	24.5	61.6
P10: I have to consult with a healthcare professional before applying a recommendation on health news I encountered.	2.4	6.4	10.6	45.8	34.8
P11: The health news I've encountered allows me to empathize with health workers and create a positive prejudice against them.	7.6	17	29.7	35.8	10
P12: I believe that news and advertisements about health should be considered within the scope of freedom of thought.	15.9	25.2	22.7	27.8	8.3
P13: The health news I encounter increases my trust across the health system.	12.9	37.7	32.3	14.2	3
P14: I have received / used the product / application by relying on the health news / advertisements I have encountered.	56.4	28.8	13.5	3	1.3
P15: If I think that a health recommendation (like diet) that I watch / read is appropriate for myself, I apply it directly without feeling the need to consult a physician.	32.7	27.4	17.2	18	4.7
P16: When I get sick, I feel the need to research my complaints online before I admit a doctor.	21.5	24.7	26.4	19	8.4
P17: While choosing a physician or a hospital, I don't take into account the news I've encountered on social media or the Internet.	6	27.3	22.3	32.8	11.6
P18: The health news that I have encountered leads me to practice complementary and alternative medicine methods.	29.7	25.8	28.4	13.5	2.6
P19: I think that the health news that I encounter increases the violence against health workers.	6.2	18.6	20.3	30.9	24
P20: The advertisement of a health attitude/ product by a famous person or usage of that product by that person increase my confidence in the product.	32.4	34.4	17.4	12.1	3.6
P21: I would like to make sure that the products sold on the internet are approved by the relevant ministries.	3.6	5.9	9	25.4	56.1
P22: I find the statement on issues related to public health by non-health professionals in social platforms wrong and misleading.	2.5	5.1	7.6	29	55.8
P23: I think that the health news that I encounter provides a reduction of violence against health workers by providing deterrence.	18.4	30.7	31.7	13.8	5.3
P24: I think that the health news and advertisements I encounter are made with material concerns, which reduces my confidence in the product.	2.9	7.4	17.3	42.6	29.8
P25: The health news I've encountered on social media and Internet is bothering me.	6.8	17.3	34.7	25.3	15.9

Abb: n: number of participants, m: minute, h: hour, P: Phrase

Likert scale: 1: Strongly disagree/ never; 2: Disagree/ rarely; 3: Undecided/ sometimes; 4: Agree/ often; 5: Strongly agree/ always

## DISCUSSION

The most important result of this study was the finding that the impact of health news and advertisements encountered on social media and the internet in terms of perceptions was significantly different between the healthcare sector related participants and non-healthcare sector related ones. In general, the non-healthcare related group was amenable to this kind of sharing on social media, and they found such news more reliable and thought of it as part of freedom of thought. Conversely, the healthcare sector related group was more rigid and were generally uncomfortable with such news. The general thought in this group was that such news adversely affects the doctor–patient relationship and is misleading with regard to public health related issues; they also more often believed that such information should be banned.

With the widespread use of the internet and social media, the tendency to use online data for health information purposes has increased. Health information consumers are not only the patients, but also their friends, families, and other people with public health concerns, so the sharing of health information on the internet affects a broad spectrum of the population (10). On the one hand, health care information on social media does offer some benefits, such as easy accessibility, provoking of empathy, social support via interaction with others, and the potential to influence health policies (6, 10). On the other hand, it also has some important handicaps, such as a lack of reliability, confidentiality, and privacy (6, 11). Social media contains misleading, anecdotal information that promotes unscientific therapies and drugs, and it also has the potential to change the beliefs of patients concerning controversial topics such as vaccinations (12). Public displays of unhealthy behaviors, negative psychological impacts from accessing inappropriate content, and the use of social media to distort policy and research funding (13). Therefore, in the age of technology, improving the quality of information shared on social media and the evaluation of the same by relevant authorities is a necessity for improved public health.

The reasons that healthcare sector related participants tended to be against this kind of news on social media was likely due to the contents being non-evidence based, false, or misleading. However, considering the increasing use of social media, attempts to increase the quality of online information sharing would be more beneficial than talking about blocking such information. The first thing to do is to improve digital health literacy. Education is very important in this context, and training patients and healthcare professionals to improve their ability to differentiate between high-quality content and low-quality content on the internet is a necessity (14). Health care officials and experts should guide consumers to access more high-quality content, and these professionals also need to be accessible on social media to provide the information, support, and advice the public is looking for (15, 16). Another element that can be used to assess

the reliability of health information on the internet is HONcode certification. HONcode is an approach taken by the Health on the Net Foundation, and it consists of different procedural principles such as authority, privacy, financial disclosure, and so on that a website must follow to gain certification (17). Although it provides an objective evaluation of the content for consumers, HONcode is not widely known. Most consumers use search engines for health-related information, where the results are listed according to popularity rather than quality. It would be beneficial if search engine developers could modify search engines to promote high-quality, reliable health information by prioritizing websites that have the HONcode certification (17).

Social media has an important impact on the doctor–patient relationship, which can be either positive or negative. The knowledge of patients about their own illnesses allows them to take responsibility for their own health and also contributes to more equal communication between the patient and health care professionals (18). However, this situation also creates disadvantages, such as challenging the health care professional's expertise and increased switching of doctors (18). Another important factor that has a negative impact on this relationship is unconfirmed and biased adverse news. Violence against doctors has increased recently, and the negative portrayal of doctors in the media contributes to this (19). Therefore, the responsibility of the mass media for improving doctor–patient relationships includes careful design and the independent and adequate reporting of adverse news with a professional approach (7).

Another important issue on social media is advertisements. The internet has become one of the most effective mass media platforms for the advertising of any sort of product, whether beneficial or harmful, useful or useless, directly to consumers (20). Unethical contents, such as the sale of illicit drugs or the marketing of certain products in the form of a “miracle drug,” can be freely shared on social media without any supervision (21,22). Similarly, as a result of growing interest in complementary and alternative medicine (CAM), ads on this issue have increased in recent years. However, as should be the case for all treatment options, awareness about unverified information, potential adverse effects, and contraindications of CAM treatments should be established (23).

In general, it is worth mentioning that social media is a powerful weapon for reaching large populations, and social media-based educational approaches could play an important role in patient decision-making, possibly incentivizing patient behavioral changes (24). Therefore, legislative control of health-related content sharing on the internet and social media, in terms of validity and reliability, may be a necessity. In addition, public health stakeholders should use media campaigns to ensure that accurate health information is widely disseminated in order to produce positive changes or prevent negative changes in health-related behaviors in the community (25).

## LIMITATIONS

The Cronbach's alpha of the survey was 0.61, so the reliability and validity of the survey were not high. The reason for this could be because the survey was very comprehensive and aimed to assess the views of participants on different topics; therefore, it was difficult to ensure the internal consistency of the survey. To the best of our knowledge, there was no already prepared questionnaire that had been checked in terms of reliability and validity on this issue that we could have used for this study. Our aim was to research data about the attitudes of participants on different headline topics related to health and social media, and despite this Cronbach's alpha, we thought this survey was helpful for evaluation of this issue.

Most of the participants were healthcare related that was because of first priority we used our personal social networks for reaching the participants so that might cause bias and results of the study should not be generalized.

## RECOMMENDATIONS

This study aimed to shed light on the problem of uncontrolled health-sharing; however new studies are needed to manage with this problem and to assess the success of this management initiatives.

## CONCLUSION

Social media affects society's behaviors and health attitudes in many respects. This survey demonstrated that with regard to health-related content sharing on social media, there were significant differences between healthcare related and non-healthcare related participants; that healthcare related participants were more conservative and had a more critical approach to this issue, while the non-healthcare related participants were more frequently impressed by such information sharing and tended to accept such messages directly. Therefore regarding such an important public health concern, access to valid and reliable information for consumers should be inspected, and national and international legislative regulations should be established. Raising awareness about digital health literacy and conducting media audits is a public health necessity.

*Competing interests: The authors declare that they have no competing interest.*

*Financial Disclosure: There are no financial supports.*

*Ethical approval: Local ethics committee approval was received for this study.*

*Gulsah Cikrikci Isik ORCID: 0000-0002-6067-7051*

*Halit Aytar ORCID: 0000-0003-4982-699X*

*Yunsur Cevik ORCID: 0000-0003-1325-0909*

*Emine Emektar ORCID: 0000-0002-6056-4401*

*Hasan Balikci ORCID: 0000-0002-6233-3738*

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