

An analysis of oral contraceptive related videos on TikTok



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BACKGROUND: TikTok has increasingly become a source of information about reproductive health. Patients seeking health information about oral contraception on TikTok may be influenced by videos containing misinformation or biased information.

OBJECTIVE: This social media infodemiological study aims to provide a descriptive content analysis of the quality and reliability of oral contraceptive health information on TikTok.

STUDY DESIGN: Researchers screened 1,000 TikTok videos from December 2022 to March 2023 retrieved under various search terms related to oral contraceptives. Data, including engagement metrics such as views, likes, comments, saves, and shares, were recorded. Video content including contraceptive methods discussed, efficacy, tolerability, and side effects were recorded. Two reviewers independently used a modified DISCERN criteria and Global Quality Scale (GQS) to assess the quality and reliability of information for each video.

RESULTS: Five hundred seventy-four videos were analyzed after applying exclusion criteria. Videos had a median length of 27 seconds (Q1=13sec, Q3=57sec) and received a median of 35,000 total views (Q1=4856 views, Q3=411,400 views) and 166 views per day (Q1=28 views per day, Q3=2021 views per day). Video creators were 83.3% female and 58.7% white. The mean modified DISCERN score was 1.63 (SD=1.06) and the mean GQS score was 2.28 (SD=1.37). Video creators were 83.3% female and 58.7% white. The mean modified DISCERN score was 1.63 (SD=1.06) and the mean GQS score was 2.28 (SD=1.37). The most common topic discussed in the videos was the effects of contraception. Healthcare professionals had significantly higher DISCERN and GQS scores ($p<.001$) than non-healthcare professionals. However, they received fewer views, likes, and comments on their videos ($p<.001$). Healthcare professionals were 86 times more likely than non-healthcare professionals to post educational videos ($p<.001$). However, non-educational content received significantly more views, likes, and comments than educational content ($p<.001$).

CONCLUSION: TikTok videos related to oral contraceptive health had low quality and reliability of information. The majority of videos were made by non-healthcare providers, and the most common topic discussed was the effects of contraception. Videos made by healthcare professionals contained more reliable contraceptive information, but received less engagement than videos made by non-healthcare professionals. Healthcare providers should consider the prevalence of poor-quality information about oral contraceptives on social media when counseling and educating patients about reproductive health.

Key words: adolescent, birth control, contraception, contraceptive pill, infodemiology, misinformation, online content, oral contraceptives, reproductive health, sex education, social media, social media analytics

Introduction

Social media has increasingly become a major source of consumer health information as well as a platform where

patients can share testimonials and connect over shared experiences.¹⁻¹² The mobile application TikTok has had a rapidly growing influence since its

launch in 2017 and was the most downloaded application worldwide in 2022.¹³ Initially used as a form of networking and entertainment, its large presence

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Tweetable statement: TikTok videos on oral contraceptives have low-quality information, especially when produced by non-healthcare professionals. This may negatively influence viewers to have biases toward contraception usage.

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Why was this study conducted?

Health information on social media is loosely regulated and has the potential to rapidly disseminate medical misinformation, as platforms such as TikTok continue to gain popularity.

It is important to understand the quality and reliability of the information available, particularly surrounding reproductive health and the use of contraceptives among adolescents.

What are the key findings?

This study found that oral contraceptive related videos overall contained poor quality information. Healthcare professionals were 86 times more likely than non-healthcare professionals to post educational videos. However, non-educational content received significantly more views, likes, and comments than educational content.

What does this study add to what is already known?

TikTok users who view content about oral contraceptives disproportionately watch videos containing low-quality information and videos uploaded by non-healthcare professionals.

has now expanded into becoming the primary search engine for adolescents and young adults and a significant potential source of health information.¹⁴ However, health information on social media is loosely regulated and has the potential to rapidly disseminate medical misinformation.

Adolescents and young adults may turn to TikTok for reproductive health information for numerous reasons, including deficits in formal sex education, barriers in access to care, or mistrust of healthcare professionals. Between 2006-2010 and 2011-2013, there was a significant decline in the receipt of education about contraception for both males and females.^{15,16} Due to inconsistencies in sex education across the US, many adolescents fill in the gaps in sex education by turning to social media.¹⁷ This lack of access to sex education predisposes at-risk populations to inadequate education and perpetuates a cycle of unintended pregnancies, sexually transmitted infections, and other adverse health outcomes.^{15,18-20} Additionally, perceived peer experiences are the most influential factor for young women considering contraceptive use, which may make them uniquely susceptible to misinformation and negative portrayals of oral contraception on TikTok.²¹ This infodemiological study aims to provide a

descriptive content analysis of the quality and reliability of oral contraceptive health information on TikTok.

Materials and methods**Search strategy and data collection**

This study was deemed exempt by the University of Nevada, Las Vegas Institutional Review Board (UNLV-2022-169, March 30, 2022). A TikTok account was created to facilitate searches. There was no prior search history on this account other than oral contraceptive-related searches used for training purposes for the study. Ten searches were conducted on the TikTok web application (<https://www.tiktok.com>) pertaining to combined oral contraceptive pills (COC), progestin-only pills (POP), and unspecified oral contraceptive pills. The following search terms were used: “birth control,” “the pill,” “oral contraceptive pill,” “OCPs,” “combined oral contraceptive pill,” “COCs,” “combination pill,” “progesterone only pill,” “POPs,” “mini pill.” Search results were organized according to TikTok’s algorithm, which determined which videos were most relevant for each term searched. The scope of search was limited to oral contraceptives only to facilitate depth of analysis on the most common contraceptive method used by women aged 15-29 years.²² The first 100 uniform

resource locators (URLs) for each search term were collected for each search term and recorded on a Microsoft Excel spreadsheet. Duplicate URLs were removed and recorded only once under the first search the video appeared under. All searches were conducted from December 2022 through March 2023 with 1,000 videos initially screened.

The inclusion criteria were videos uploaded to TikTok from a public account that were relevant to the medical treatment, procedure, or condition in question. The exclusion criteria were videos not in English and videos not related to oral contraception. Videos were excluded if they exclusively discussed another type of contraception such as the IUD, the implant, intramuscular injection, patches, vaginal rings, or barrier methods. Videos were included if they explicitly mentioned oral contraception, or if they referred to contraception as “birth control,” but did not specify a type of oral contraceptive. The video selection and exclusion criteria were independently verified by 2 authors. Disagreements in video inclusion and exclusion were resolved by a third author. Videos were assigned a code consisting of a shortened version of the search term and a randomized 4-digit number. Upon completion of data collection, videos were anonymized by deleting the URL from the data sheet and using the randomized codes as the primary identifier.

Data, including engagement metrics such as views, likes, comments, saves, shares, and followers, were recorded. The number of views per day (total views divided by days since video was posted), views per like (number of views divided by number of likes), and likes per day (number of likes divided by days since video was posted) were calculated. Researchers also recorded if the videos were “sponsored” or whether the user’s account was “verified” by TikTok, which confirms that their account belongs to the person or brand they represent.^{23,24} All included videos were categorized according to the perceived main theme of the video; categories included “Education/Informational,” “Testimonial/Seeking Advice” and “Other” (including humor/entertainment and political videos). The

source (healthcare professional or non-healthcare professional), as reported by the uploader, was also recorded. Healthcare professionals were defined as physicians, pharmacists, physician assistants, nurse practitioners, nurses, and midwives. Non-healthcare professionals were defined as all other user qualifications or users who omitted their qualifications. The gender and race of the video creator as perceived by the researcher were recorded. The mode of information delivery (“individual(s) in the video,” “external voice,” “no speaker,” “text,” and “other”) was recorded.

All videos were viewed and analyzed independently by 2 authors. Contraceptive methods discussed and topics discussed were recorded.

Quality and reliability of information

Each video was assigned to 2 researchers to independently assess the quality and reliability of each video. Video reliability was assessed using the full DISCERN criteria and a modified version of the DISCERN criteria consisting of 5 questions.^{2,6-8} Using both forms of the DISCERN criteria, each video was given a score from 0 to 5, with 0 indicating ‘low quality’ and 5 indicating “high quality.” Video quality was assessed using the Global Quality Scale (GQS) where a score of 1 indicates “poor quality, poor flow, most information missing, not at all useful for patients” and 5 indicates “excellent quality and flow, very useful for patients”.⁶⁻⁸

Statistical analysis

The unit of analysis was the TikTok video. First univariate analysis was conducted to describe the data in terms of the measures of central tendencies (e.g., mean, median), measures of dispersion (standard deviation), and range for the numeric variables. To account for inter-rater variability in the validation scores, only scores that were independently agreed upon by the 2 assigned reviewers were included in the analysis. The categorical variables were presented as counts and proportions. The normal approximation to the binomial distribution method was used to calculate 95% confidence intervals of proportions in the univariate analyses. To determine if there are any statistically significant

FIGURE 1
Flowchart of video inclusion criteria.

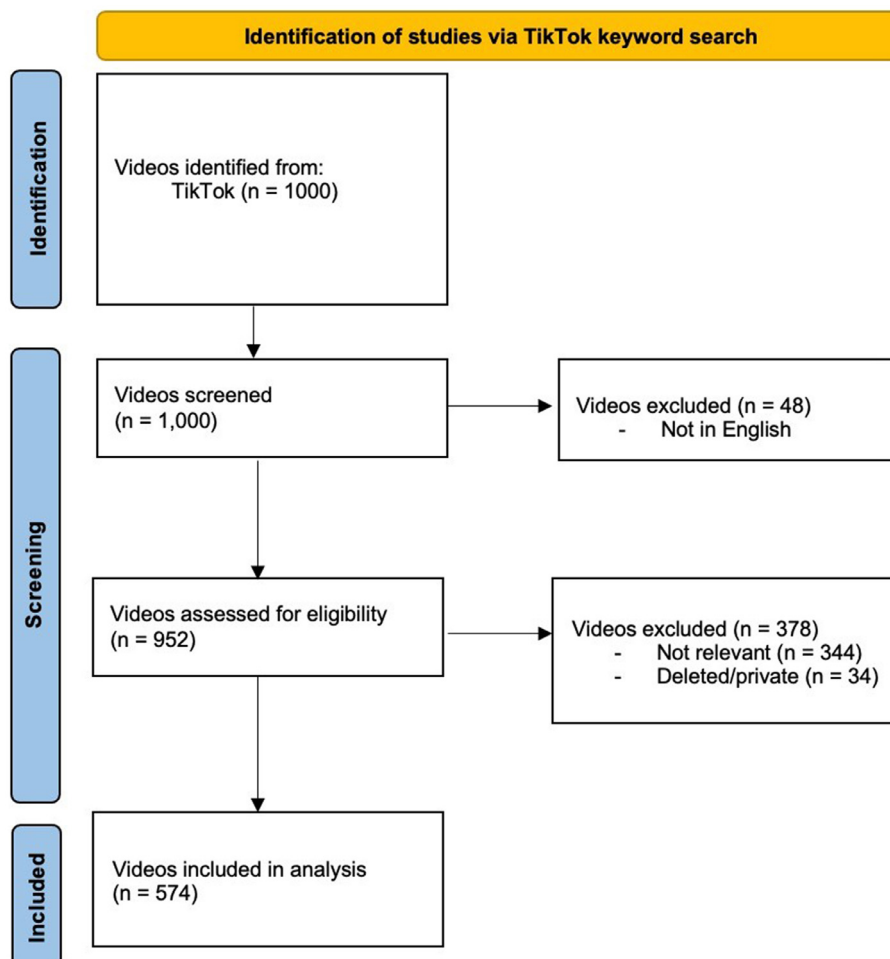


TABLE 1
Contraceptive methods discussed in videos (N=574*).

Contraceptive method	Number of videos	Proportion (%)
Combined oral contraceptive	205	35.7
Progestin only pill	176	30.7
Unspecified oral contraceptive	150	26.1
Unspecified method	49	8.5
Intrauterine device	25	4.4
Implant	23	4
Injection	22	3.8
Ring	16	2.8
Patch	15	2.6
Barrier methods	15	2.6
Natural family planning	11	1.9
Emergency contraceptive	10	1.7

* Some videos had multiple contraceptive methods discussed

differences in the metrics of social media engagement (i.e., likes, views, and comments) and in the data validation scores (i.e., DISCERN, Modified DISCERN, and GQS) among different groups of users, video types, and video sources were performed using an independent-samples-t-test (a type of bivariate test). A logistic regression to model the probability of tweets by the healthcare professionals was utilized. Estimates for the parameters were obtained through the maximum likelihood estimation method with 95% Wald's confidence limits for the logistic model. All analyses were conducted using SPSS version 27 and SAS 9.4.

Results

Of the 1,000 screened videos, 574 videos met inclusion criteria and were analyzed (Figure 1). Combined oral contraceptives (COC) made up 35.7% of all videos (n=205), progestin-only pills were 30.7% (n=176), and 26.1% of videos (n=150) did not specify a contraceptive method but discussed contraception in general terms such as referring to contraception as "birth control" (Table 1). Surgical sterilization and vasectomy were excluded from Table 1 because they were discussed in <1% of videos. The most common topic discussed in the videos was the effects of the

contraceptive, including intended effects and adverse effects (62.0%, n=356), followed by pregnancy prevention (20.7%, n=119) (Table 2). Some videos discussed multiple modes of contraception or multiple topics. Topics excluded from Table 2 were discussed in <3% of videos (accessibility of treatment, interactions with a healthcare provider, sexual intercourse, postpartum contraception, abortion, family planning, polycystic ovarian syndrome, endometriosis, and contraindications to oral contraceptive pills).

Most of the videos analyzed were educational or informational (62.9%, n=361), followed by patient testimonials or 'seeking advice' (28.6%, n=164) (Table 3). Female users posted 83.3% of videos (n=478) and white users posted 59% of videos (n=337). Sixty-five percent of videos were posted by non-healthcare professionals (n=201) (Table 4). The videos had medians of 35000 (Q1=4856, Q3=411400) views, 906 (Q1=104, Q3=29100) likes, and 33 (Q1=5, Q3=369) comments (Table 5).

Educational videos had higher DISCERN, modified DISCERN, and GQS scores, indicating higher quality and reliability of information, than non-educational videos (Table 6). Videos posted by healthcare professionals had higher DISCERN, modified DISCERN,

and GQS scores than those posted by the non-healthcare professionals ($p<.001$).

Non-educational videos had significantly higher mean views, likes, and comments compared to educational videos ($p<.001$). Non-healthcare professionals had significantly higher mean views, likes, and comments when compared to healthcare professionals ($p<.001$). (Table 6) Healthcare professionals were 86 times more likely than non-healthcare professionals to post educational videos (adjusted odds ratio=86.31 [95% CI=26.93, 276.65], $p<.001$).

Comment

Principal findings

This study provides a descriptive content analysis of 574 TikTok videos listed under popular search terms for oral contraceptives. The most common demographics of video creators were white, female, and non-healthcare professionals. Most of the content consisted of educational or informational videos, followed by user testimonials. Video creators most frequently discussed the perceived effects of their contraceptive pill.

Overall, as suggested by the DISCERN and GQS criteria, videos contained low quality information, however, educational videos and those created by healthcare professionals had higher quality as compared to non-educational videos and those being created by non-healthcare professionals. Despite this, user engagement (views, likes, comments) significantly favored non-educational content and videos published by non-healthcare professionals.

Results in the context of what is known

Our findings are consistent with previous social media analytical studies, which similarly found that TikTok videos were created by non-healthcare professionals, portrayed personal experiences and opinions concerning hormonal contraception,²⁵⁻²⁷ and contained low quality information.²⁸⁻³⁰ These studies raise similar concerns

TABLE 2
Most common topics discussed in videos (N= 574*).

Topic(s) discussed in videos	Number of videos	Proportion (%)
Effects of contraceptive	356	62
Pregnancy prevention	119	20.7
Adherence to treatment	80	13.9
Discontinuation of treatment	52	9.1
Misinformation	23	4

* Some videos had multiple topics discussed

TABLE 3
Descriptive statistics of TikTok videos (N=574).

Characteristics of videos			
Variable	Categories	n (%)	95% CI
Video type	Educational/informational	361 (62.9)	58.7, 66.8
	Testimonial/seeking advice	164 (28.6)	24.9, 32.5
	Others (advertisements, humor/entertainment and political videos)	49 (8.5)	6.3, 11.1
Video source	Individual	520 (90.6)	87.9, 92.8
	Organization	54 (9.4)	7.2, 12.1
Verified	Yes	45 (7.8)	5.7, 10.3
	No	529 (92.2)	89.6, 94.2
Sponsored	Yes	5 (0.9)	0.2, 2.0
	No	569 (99.1)	97.9, 99.7
Mode of delivery	External voice including other	38 (6.6)	4.7, 8.9
	Individual (s) in the video	303 (52.8)	48.6, 56.9
	No speaker	75 (13.1)	10.4, 16.1
	Text	158 (27.5)	23.9, 31.4

TABLE 4
Characteristics of video creators (N=574).

Variable	Categories	n (%)	95% CI
Gender	Female	478 (83.3)	79.9, 86.2
	Males	70 (12.2)	9.6, 15.1
	Could not determine	26 (4.5)	2.9, 6.5
Race	White	337 (58.7)	54.5, 62.7
	Non-white	158 (27.5)	23.9, 31.3
	Could not determine	79 (13.8)	11.0, 16.8
Qualification	Healthcare professionals	201 (35.0)	31.1, 39.1
	Non-healthcare professionals	373 (65.0)	60.9, 68.8

that most contraceptive-related content on TikTok contains low quality and reliability of information. However, our results reveal that TikTok users interact with these videos significantly more than videos containing more reliable educational content.

Clinical implications

Unreliable information from unqualified sources about oral contraceptives reaches millions of TikTok users. Since many of TikTok's users are adolescents, their first exposure to reproductive health topics may be from TikTok creators rather than a healthcare provider. Negative messaging about oral contraception on TikTok may potentiate misinformation or exacerbate mistrust of medical professionals, which in turn may cause patients to delay or forgo care. Additionally, patients may be persuaded to discontinue hormonal contraception in favor of less effective on-demand methods.

Our findings have considerable implications for the delivery of patient education and physician-generated messaging about contraception on social media. Reliable educational content on TikTok about contraception is sparse and may not effectively reach its target audience. This may be due to viewership trends causing the TikTok 'For You' algorithm to preferentially show users non-educational content.³¹ Providers should take this into consideration when counseling patients about contraceptive options and where to access reliable health information. Healthcare professionals who create TikTok content about contraception should also consider that educational videos garner significantly lower user engagement than non-educational content. While TikTok may have potential to become a platform for creating accessible and reliable messaging about contraception, social media content from healthcare professionals should not replace efforts to foster patient trust, counsel patients on evaluating medical evidence, and facilitate joint decision-making.

Research implications

Considering the growing popularity of TikTok as a search engine and health

TABLE 5
Descriptive data and validation scores collected from videos.

Video characteristics	Minimum	Maximum	Mean (SD)	95% CI of mean	Median (Q1, Q3)
Days since upload	3	1,114	277±217	259; 295	220 (123; 362)
Video length in seconds	3	194	43±43	39; 46	27 (13; 57)
Views	102	88,000,000	910,423±4,249,281	559,290; 1,261,557	35,000 (4,856; 411,400)
Likes	1	3,600,000	84,620±295,899	60,168; 109,071	906 (104; 29,100)
Comments	0	35,300	753±2,686	531; 975	33 (5; 369)
Saves	0	139,200	3,861±13,6831	2,730.; 4,992	65 (6; 1,292)
Shares	0	110,900	1,745±7,825	1,099; 2,392	23 (2; 444)
Views/day	1	211,031	4,613±14,945	3,378; 5,848	166 (28; 2,021)
Views/like	3	10,2312	64±433	29; 100	26 (13.5; 60)
Likes/day	0	16,546	461±1,664	325; 597	4.30 (1; 161)
Followers	5	14,600,000	233,431±818,009	165,837; 301,027	22,950 (3464; 146725)
DISCERN score	1	5	2.25±1.159	2.12; 2.38	2 (1;3)
GQS (/5)	1	5	2.28±1.37	2.12; 2.44	2 (1;3)
Modified DISCERN score (/5)	0	5	1.63±1.06	1.51; 1.75	1 (1;2)

information platform, more research is necessary to provide up-to-date information of rapidly changing social media trends to health educators and providers. While this study only focused on oral contraceptives, future research is needed on other modes of contraception and reproductive health topics to identify and follow online discourse trends. One potential area of future inquiry is the use of TikTok to encourage young adults to make regular visits

to a gynecologist or primary care physician, which may increase opportunities for patients to ask questions and receive reliable reproductive health education that is suited for their individual needs.³²

Strengths and limitations

The strengths of this study include its size, narrow focus on oral contraceptives, and systematic search method. To our knowledge, this is the largest study

quantifying the quality and reliability of health information pertaining to oral contraception on TikTok.

A major limitation of this study is the subjective nature of video analysis, which is reflected in the high degree of inter-rater variability in DISCERN and modified DISCERN scores. Additionally, certain characteristics of the videos were unable to be ascertained including user ages and their country of origin. The amount of time that lapsed between

TABLE 6
Comparing quality and engagement statistics of the selected videos (N=574 videos).

Variable (s)	Video Type		Type of users	
	Educational	Non-educational	Healthcare professionals	Non-healthcare professionals
Information Quality Scores (Mean±SD)				
DISCERN	2.89±1.07	1.54±0.69	3.11±1.03	2.00±1.02
Modified DISCERN	2.20±1.06	0.96±0.57	2.63±0.94	1.31±0.89
GQS	3.01±1.25	1.15±0.55	3.21±1.198	1.79±1.20
Video Engagement Metrics (Mean±SD)				
Likes	28232±124700	176623±439217	16491±68073	119297±355969
Views	292205±1142680	1919980±6646765	219060±751349	1261155±5168220
Comments	292±903	1502±4112	278±1042	991±3193

Note: GQS=Global Quality Scale; All *p* values were statistically significant at <0.05 level.

video search and data analysis varied for each video due to the large number of videos screened. This limited our sample size because we excluded videos that were deleted or had privacy settings changed after the initial video collection. We included the first 100 videos for each search term according to TikTok's algorithm for determining which videos were most relevant, and conducted the search over 4 months, thus limiting the accuracy of search results due to the constantly changing nature of TikTok content. For example, some videos may have gained popularity after we recorded their engagement metrics. Future studies may be improved by collecting video data at multiple points in time to further understand user engagement trends. Despite these limitations, our results show an unequivocal user preference for non-educational videos made by non-healthcare professionals." In addition, the "search" feature on TikTok may not accurately reflect what videos users see on their For You Page.

Conclusions

The growing influence of social media platforms including TikTok is particularly concerning regarding how adolescents and young adults access information about oral contraception. TikTok content about oral contraceptive pills predominantly contains low-quality information created by non-healthcare professionals, and these videos garner more user engagement than videos with higher quality health information and created by healthcare professionals. Adolescents and young adults may be biased toward user-generated content on social media and may be more likely to be influenced by inaccurate portrayals of contraception. Although TikTok may have utility in its ability to make health information more accessible, messaging about oral contraceptives on TikTok is predominantly created by patients sharing their own personal views and experiences. Additionally, adolescents and young adults may not be equipped to interpret the reliability of this information and the credibility of those posting it, which raises concerns about the potential for poor quality information

and misinformation about oral contraceptives on TikTok. ■

CRedit authorship contribution statement

Melanie Shackleford: Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Anna Horvath:** Writing – original draft, Project administration, Investigation, Data curation, Conceptualization. **Mayra Repetto:** Writing – original draft, Project administration, Investigation, Data curation, Conceptualization. **Andrea Thi:** Project administration, Investigation, Data curation, Conceptualization. **Rory Twells:** Writing – original draft, Project administration, Investigation, Data curation, Conceptualization. **Maggie Sanders:** Writing – original draft, Supervision, Investigation, Data curation, Conceptualization. **Stephanie Fernandez:** Writing – original draft, Project administration, Funding acquisition, Data curation, Conceptualization. **Dale Netski:** Writing – review & editing, Supervision, Data curation, Conceptualization. **Kavita Batra:** Writing – review & editing, Validation, Software, Formal analysis, Conceptualization. **Nadia Gomez:** Writing – review & editing, Supervision, Methodology, Data curation, Conceptualization. **Leanne Free:** Writing – review & editing, Visualization, Supervision, Data curation, Conceptualization.

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