

Quality information and fake news on Covid-19 and immunization among adolescents: a qualitative analysis in school settings

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Parole chiave: Fake news; Covid-19; immunizzazione; adolescenti

Abstract

Background. Correct information is an essential tool to guide thoughts, attitudes, daily choices or more important decisions such as those regarding health. Today, a huge amount of information sources and media is available. Increasing possibilities of obtaining data also require understanding and positioning skills, particularly the ability to navigate the ocean of information and to choose what is best without becoming overwhelmed.

Objective. In the present study, focus group methodology has been used as a survey instrument in a school setting in order to study the knowledge, preconceptions, and attitudes of students toward vaccination practice, to promote favourable and knowledgeable attitudes about vaccination and counteract the spread of fake news.

Material and methods. In an educational institution in Apulia in March 2023, 2 focus group sessions were conducted with students as part of an educational project. The selected sample of 23 students was divided into two groups consisting of 12 and 11 participants each, respectively, chosen through the probabilistic method. The knowledge and attitude baseline was assessed through a structured questionnaire at the start of the day. Then, before the focus group sessions, the first group (A) was exposed to an informative video conducted by an expert on the topic of vaccination and fake news, while the second group (B) attended a frontal lesson on the same issues. The guiding questions that the moderators considered in both groups for the topic of vaccination investigated the importance, the usefulness of vaccines, and the trust in political authorities.

Results. The responses to the initial questionnaire revealed high variability among the two groups, although they were randomly selected. Transcripts of the dialogues were categorized by ATLAS.ti into 204 total codes and 87 categories, then combined to form increasingly generic categories that were united by related themes. It was developed in a specific model of favouring and hindering factors divided into 4 thematic domains specially adapted to the school context: perception of disease risk, emotional aspects, beliefs about the vaccine, and attitudes toward fake news.

Discussion. The category “Fake News” with 97 mentions turns out to be the most discussed by students within all the explored domains. Adolescents have a greater attitude to be overcome by conspiracy theories, probably because they are more exposed to online news. We could detect a generalised sense of confusion with respect to the communication of the pandemic period that emphasised, in many of them, prior perplexities. Public health policies, criticised by the participants, led them to develop a sceptical and conspiratorial attitude toward the authorities, claiming economic interests behind some management choices. “Emotions,” with 63 quotes, confirmed the strong impact of the emotional sphere, multifaceted and diverse, on adolescents’ personal experience during the pandemic.

Conclusions. The results suggest that a single intervention (video or lesson) is not able to change attitudes and thinking tendencies of the adolescents examined. In addition, the leader figure present in both groups, was found to influence, in both study conditions (group A and group B), students’ opinions, especially on the issue of fake news, more than a short-term intervention.

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Introduction

Correct information is an essential tool to guide our thoughts, attitudes, everyday choices or more important decisions such as those that protect our health.

Today, we have within reach a vast number of information sources and means of communication, which greatly increase the possibility of obtaining data but also require understanding and positioning skills, in particular the ability to navigate the ocean of information and choose what is best without becoming overwhelmed. Such an aptitude may be easier to develop in the presence of specific expertise in a subject matter. On the other hand, it may prove alienating in front of an uncritical attitude on what the net conveys.

In fact, most of the content circulating on the Internet is approximate, if not false. These are the so-called hoaxes or fake news, which are often deviant and spread exponentially through the net, shifting public opinion towards the goals of partisan interests, and not always to the protection of the community (1).

This is the case with information on the COVID-19 pandemic and vaccinations, complex topics that involve people's emotional state and economic impact and thus can be the target of manipulation efforts by specific groups with vested interests. For this reason, field studies can be useful to identify current information gaps, ideas, health literacy levels, habits, concerns and motivations within local target groups.

In school settings, it is important to provide tools and content to correctly communicate the importance of vaccinations and counteract fake news.

In the present study, focus group (FG) methodology was chosen as an instrument useful to observe knowledge, preconceptions and attitudes towards vaccination practice among students, to promote a favourable and aware attitude towards vaccination and to counteract the spread of fake news.

The FG methodology was chosen precisely because of its characteristics, since it is based on the social interaction of the participants and considers the group as a vehicle for the transmission of information, role awareness and cultural growth. Within each group, in fact, personal opinions are not solely the result of individual reflections but derive from collective discussion and comparison with other group members (2).

FG research is a type of qualitative data collection study designed to gather information beyond the scope of quantitative analysis. In this type of technique the

social actors are not considered as mere sources of information, but as protagonists of the research, able to jointly elaborate a vision of the phenomenon under investigation.

This crucial aspect represents the first important feature of the method and, for this reason, differs from traditional group interviews where interaction takes place from time to time between the participants and the moderator.

FGs can be applied to different research contexts, especially those with a low degree of structuration, and their conduct can be useful to detect complex opinions, delve into the positive and negative aspects of a phenomenon and explore attitudes, opinions and expectations.

It is a particularly useful method for exploring in depth the opinions, attitudes or behaviour of a community and examining the attitudes underlying human thought and behaviour (3).

Starting from the assumption that the acceptance of infectious disease prevention methods is influenced by proper communication, the aim of this work was to detect, by means of FG analysis, the effects of a short informational-scientific, technological (video) or traditional (lecture) intervention on the opinion of a class of students with respect to the topics of 'vaccination' and 'fake news'.

Materials and methods

In a school in Apulia in March 2023, two FG sessions were conducted with students belonging to the same class. The FG sessions were part of an educational project performed by the school teachers and approved by the School Council and involved a class group recruited on voluntary basis among the classes of the 5th grade. Before the start, all student were informed about the content of the project by their teachers. In addition, before each FG session, all participants were provided with a written form containing a detailed description of the method and information on the use of personal data. The signed form were given back and saved by the teachers. No personal data were collected and analysed by the researchers.

The selected sample of 23 students was randomly divided, by the means of a simple draw system, into two groups, group A of 12 (including 3 males) and group B of 11 (including 4 females) participants. A standard, close-ended questionnaire was distributed to the students in order to collect the overall attitude of

the students regarding vaccines and fake news.

Each FG included the presence of a moderator supported by an observer with the task of ensuring legitimate outcomes and reducing bias in the discussions. Group A was conducted at the end of the exposure to an informative video conducted by an expert on the topic of vaccinations and fake news. Group B attended a short lecture by the teacher followed by a discussion on the same topics.

The guiding questions that the moderator considered in both groups for the topic of vaccinations investigated the importance and usefulness of vaccines and trust in political authorities (Are vaccines important? Are vaccines useless or dangerous? Do you suspect that they do not tell us the whole truth about vaccines?).

The total duration of the focus groups, during which the students were able to freely discuss the various topics proposed at the table, was respectively 1 hour and 20 minutes for group A and 1 hour and 10 minutes for group B.

A self-administered questionnaire was distributed to each participant after the FG sessions in order to evaluate the perceived quality and collect feedback on the FG experience. Collected information were only relevant for the quality improvement process of the researchers and are not analysed and reported in this paper.

As per standard procedure, all focus group sessions were recorded and transcribed in full, indicating the discussion domain and marking each participant's intervention with an identification number from 1 to 12 for group A and from 1 to 11 for group B.

The transcribed texts were then imported into the ATLAS.ti software which, exploiting artificial intelligence (AI) technology, performed qualitative

content analysis. In ATLAS.ti, categories can be renamed, deleted, grouped and joined together by the experimenters (4).

Data were analysed using inductive thematic analysis (5), which benefits from theoretical flexibility and the ability to categorise, organise and describe students' experiences through the identification of key themes and sub-themes. The transcribed texts were imported into ATLAS.ti software, which also exploited artificial intelligence (AI) technology to perform qualitative content analysis. In ATLAS.ti, categories can be renamed, deleted, grouped and joined together by the experimenters (6). Two researchers independently examined the coding of the texts and further refined it after discussion and consensus. Codes and sub-codes were grouped into themes, ensuring that these were consistent, clear and distinct.

Results

The responses to the initial questionnaire revealed high variability between the groups, although they were randomly selected (Tables 1 and 2).

Transcripts of the dialogues were categorised by ATLAS.ti into 204 total codes and 87 categories, which were then combined to form more and more generic categories with related themes. Ultimately, within the themes, the following 6 macro-categories were identified and analysed:

1. Communication;
2. Emotions;
3. Beliefs;
4. Health Perception;

Table 1 - Results of initial evaluation questionnaire on vaccines (1 = Absolutely not; 10 = Absolutely yes)

How do you evaluate the following statements: We list some hotly debated topics on vaccines, can you give us your opinion?	Average of responses Group A	Average of responses Group B
Vaccines expose you to the risk of even serious side effects	2.75	3.92
Vaccines are important for your health	9.58	9.82
Vaccines are effective	9.33	9.18
Serious side effects from vaccines are often kept hidden	3.75	5.00
Children are given too many vaccinations at once	2.58	3.64
Vaccines protect against little or no serious diseases	6.33	4.91
You feel anxious about getting vaccinated	2.82	1.91
You support the introduction of compulsory vaccination to attend school	6.67	6.45
Achieving full vaccination coverage of the population (over 95%) is necessary to protect the youngest children and the weakest people who cannot be vaccinated	9.8	9.73
Vaccines are above all an economic business for pharmaceutical companies	2.50	3.55

Table 2 - Results of the initial evaluation questionnaire on fake news (1 = Absolutely not; 10 = Absolutely yes)

How do you evaluate the following statements: We list some statements on the topic of fake news, can you give us your opinion?	Average of responses Group A	Average of responses Group B
Fake news poses a health risk	7.83	8.36
Fake news is a problem for democracy	8.25	7.00
Fake news is actually an opportunity to spread opinions that are often kept hidden	2.50	3.36
Fake news poses no risk because it is easy to identify them and not fall into the trap	3.33	3.73
I think I am not particularly inclined to believe in fake news	7.92	7.91
In my group of friends and acquaintances I often receive news that I later discover is fake news	5.25	5
I have, even unintentionally, spread fake news	2.42	2.18
Governments are the first to take advantage of fake news to cover up inconvenient truths	5.08	3.18
It is difficult to label news as fake news because there are no absolute truths	3.83	4.27
Every time I read something that has to do with my health I check what the source of the information is	9.67	8.73

5. Digital Literacy;

6. Personal experiences.

The knowledge, preconceptions and attitudes towards vaccination practice and fake news of the 23 secondary school students included in the study were framed in a model of favourable and hindering factors divided into 4 thematic domains specifically adapted to the school context (Table 3). The questions and topics addressed during the discussion sessions have been summarised in Table 4.

1. Beliefs about vaccines

With the questions inherent to this domain, the personal attitudes and prior knowledge with regard to vaccinations were investigated in the two groups of adolescents.

The analysis of the FG transcripts revealed concordant views between the two groups with respect to the experience of each participant:

“Yes, also because of the demonstration that diseases, i.e. vaccines, have improved and changed with time; so if, for example, it took five years to test the vaccine regarding smallpox, as technology improves, the time decreases and the effectiveness

of this vaccine also improves, reducing the effects...” (Student 4, group A)

“As was the case with smallpox, it is possible to eradicate the disease. You have to take into account that vaccines have been created for a hundred years, maybe even less. It’s right to think of a long-term effect, i.e. the possibility of eliminating certain diseases that are a serious problem at the moment but that may become solutions in the future. That is, there may be a solution to them” (Student 8, Group B).

2. Perception of risk

In relation to the perceived risk of disease, students discussed the importance of prevention in order to reduce the spread of the virus. In particular, within the ‘perception of risk’ domain, two main themes emerged relating to the perception of the current severity of Covid-19 in the community at large and in the family.

2.1 Perception of the current severity of COVID19 in the community at large

“It is important to get vaccinated in the first place to protect our health and the health of the most fragile people because maybe not everyone has the possibility to get vaccinated for medical reasons. If you go for vaccination, you protect yourself but also the more delicate and fragile people” (Student 8, group B)

2.2 Perception of the current severity of COVID19 in the family

“If a friend of mine did not want to get vaccinated,

Table 3 - Tables and Domains

	Domain
1	Perception of disease risk
2	Emotional aspects
3	Beliefs about vaccines
4	Attitudes towards fake news

Table 4 - Discussion Topics

Domain	Question	Discussion points
Beliefs about vaccines	How would you explain the importance of vaccination to a non-present partner? What beliefs have adolescents developed about vaccines?	You consider vaccines important for your health; Vaccines serve to protect the population and especially the weakest.
Perception of disease risk Perception of current severity of COVID19 in the general community and family	What beliefs have adolescents developed with respect to vaccines?	Severity of COVID19 (lethality, severity of illness, impact on absence from school or work) Perception of the current severity of COVID19 in frail individuals; Perception of the importance of diagnosis for setting specific therapy for COVID19.
Emotional aspects	Are vaccines useless or dangerous? What emotions do you feel at the idea of vaccinating yourself?	Children are given too many vaccinations at once; Vaccines protect against diseases that are not serious or have almost disappeared; Fake news poses a health risk; Fake news poses a problem for democracy
Attitude towards fake news What role does fake news play in communication? Do you think you are prone to fall for fake news or have you fallen into the trap of fake news? When you hear statements such as 'they are hiding something from us, who knows what they are injecting us with instead of vaccines', what do you think?	Attitude towards fake news What role does fake news play in communication? Do you think you are prone to fall for fake news or have you fallen into the trap of fake news? When you hear statements such as 'they are hiding something from us, who knows what they are injecting us with instead of vaccines', what do you think?	Fake news poses no risk because it is easy to identify it and not to fall into the trap; Fake news is actually an opportunity to spread opinions that are often kept hidden; Governments are the first to benefit from fake news to cover up inconvenient truths; I believe that I am not particularly inclined to believe in fake news; In my group of friends and acquaintances, I often receive news that I later discover to be fake news.; I have, even unintentionally, spread fake news; It is difficult to label a piece of news as fake news because there are no absolute truths; Whenever I read something that has to do with my health I check what the source of the information is; Serious side effects from vaccines are often kept hidden; Vaccines are primarily an economic business for pharmaceutical companies.

I would tell him to do it to protect not only ourselves, but also the elderly people in our family; for example, our grandparents, who may already have diseases. So our not getting vaccinated could first of all circulate the virus and then attack them as well who could be affected more, because it could also be lethal” (Student 12, Group A).

“It is important to vaccinate in the first place to protect our health and the health of the most fragile people because maybe not everyone has the possibility to vaccinate for medical reasons. If you go for vaccination, you protect yourself but also the more delicate and fragile people. We heard, with regard to the fake news earlier, the talk about the rubella vaccine and everything that happened in the 1990s with regard to the fake news of the autism vaccine, and frankly knowing and having the knowledge about

vaccines and perhaps being aware of the vaccine one is going to have, gives us a way to go towards solutions” (Student 8, group B).

Vaccinations therefore represent, for the participants in the two FGs, a benefit not only for the individual but also for the whole community.

3. Emotional aspects

Within the domain under investigation for both groups, mixed feelings of fear of side effects and trust in science predominated.

The emotional impact was multifaceted and diverse with some students reacting to the vaccination practice with proactive and proactive attitudes, while others experienced deleterious effects on their psyche, with anxiety, frustration, inadequacy and loneliness prevailing.

3.1 Fear of the side effects of vaccines

"Vaccines have side effects, so maybe a person can have an important pathology and it can interfere and they might get sick or, even on a genetic level, you might inherit a disease from relatives and, if it hasn't manifested itself yet, one thinks about it more; maybe the vaccine doesn't do anything to me now and later it will, if it's related to a chronic or inherited pathology" (Student 1, Group B).

"Eh look, actually when I did the COVID vaccine, when I went the first time I had to do the first dose, I was fainting before I even went in, because I was afraid...It can happen to one person out of a thousand people, out of billions...maybe I'm just the person, I don't want to!" (Student 9, group A).

3.2 Trust in science

"I have always done vaccines quietly, without being afraid of anything" (Student 8, group A).

"In my opinion, we live in a society that is now used to the idea of the vaccine. We know well or badly what side effects we can have. So to me it conveys confidence to get the vaccine because we now know what the side effects can be, which are quite mild" (Student 10, group B).

4 Attitudes towards fake news

This domain explored participants' attitudes towards sources of information (institutional and non-institutional) and views on the government's handling of communication during the Covid-19 pandemic, revealing conspiracy theories and a low sense of trust towards political and health authorities.

The students reported a generalised sense of confusion regarding communication during the pandemic period, which emphasised, in many of them, previous perplexities.

4.1 Possible conspiracy theories

"In my opinion there is always something going on, because you don't know the whole truth anyway..." (Student 6, group A)

"But it was in the first year of the pandemic, but I can say COVID like other viruses. I think we were sort of used to it in that respect anyway. I take the first summer of covid and I take football into consideration; I noticed in the summer that they hid the number of infections within the team, within the club and within the stadiums, in order to restart the league, in order to restart something that would be financially profitable for the clubs" (Student 4 - group A).

"I see it from the other side of the coin, in the sense

that they have pushed so much on the seriousness of the virus, on the fact of the deaths, on the fact of the many contagions; you could hear very high numbers on television when Conte was on, talking about the new decrees. In my opinion, they really pushed people to vaccinate to try to reduce the severity". (Student 7, group A).

"Instead, I always wondered, when the quarantine period began, I went to the statistics, to the graph of COVID patients and I saw that from the March period to the June period there were about three thousand deaths a day; when the summer came, they dropped dramatically and we're talking about thirty, forty deaths a day. For me it was a strange thing, because they hid the deaths in order to revive the summer economy, tourism and everything" (Student 2, Group B).

"But they did! In the sense that at the beginning, when they said all those contagions, they said that the disease COVID was many things...They did psychological terrorism. From that moment on they started to hide the contagions, as happened this Christmas, that at the beginning of January all the infected started to come out again and during the Christmas holidays, although they said everyone was positive they didn't hear that there was a definite infected" (Student 5, group B).

4.2 Trust placed in political and health authorities

The qualitative analysis revealed the students' critical attitude towards the governmental system that led the battle against Covid-19 and disagreement with some of the political choices made regarding compulsory vaccination:

"But I disagree with one thing: the moment they put the obligation, we are no longer in a democratic country because so many people who remained consistent with their thinking, stayed at home and lost their jobs. In my point of view, they were wrong, because you can't force a person to do something they don't want to do because otherwise..." (Student 9 group A).

"But they told you: 'do you want to go to dinner? you have to do it', 'do you want to go to the stadium? you have to do it'". (Student 3, Group B).

4.3 Searching for official sources of information

Analysis of the FG transcripts explored different attitudes of the participants in relation to searching for information on the pandemic, with some students making their personal judgements based on comparison with non-institutional sources (such as

family members) and others preferring to search for information on official sources.

"I have an experience on the contrary, always something related to my father, to the army; he told me that the American army was provided with all this material, while the Italian army was not. The State did not pass them on because they thought it was not harmful. This is unimportant fake news, more so, but contrary to what you are saying...if I think that a son lost a father because of fake news..." (Student 1, group A).

"I had the first COVID vaccination around the time the second one was coming out, so I went quite quiet, because my father, my mother and my brother had already had it, so I thought: 'If nothing happened to them, why should something happen to me?'" (Student 5, group B).

Although both group A and group B expressed that they researched information through the use of non-institutional sources, only a few students in group B emphasised the importance of official sources as a means of defence against fake news.

"If I read something, in anything, I don't just rely on an article; I go and do some research. I rewrite the same thing on the search bar and I compare who's talking about it, if I'm talking about, for example, certified newspapers or newspapers that are actually scientific, OK, maybe I start relying on those... but if the sites are all absurd sites, with strange names or with something that doesn't fit, I realise there's something I can't rely on". (Student 8, group B).

Discussion

The COVID-19 virus has emerged and spread globally culminating in a worldwide pandemic; mysterious emergence and speed of dissemination has generated a proliferation of spurious information and a plethora of misinformation and conspiracy theories. Hoaxes and misinformation are very dangerous when they concern health and it is often not easy to distinguish between millions of pieces of information (7). In particular, for children and adolescents it is difficult to assess the truthfulness of the content of texts, images, and videos. The present study intends to present the results of a qualitative investigation that was carried out by means of FGs on a class of adolescents, in order to explore in depth their opinions, attitudes or behaviour towards vaccination practices, to promote informed peer discussion on vaccination and to counteract the spread of fake news.

The qualitative analysis revealed singular insights and the FG method allowed for spontaneous and stimulating conversations, highlighting the young participants' keen critical sense and lively interest in the topics under discussion.

The "Fake News" category, with 97 mentions, was the most discussed by the students within all the domains explored. A specific reflection on the use of digital technology during the pandemic is needed. In fact, the limitation of physical interaction in daily life increases the possibility of entering the spiral of conspiracy, with the difference that, in a situation of isolation as in the pandemic phase, spreading false information touches the deeper and more complex process of sharing social representations and consensus-building mechanisms. Adolescents were more likely to be overwhelmed by conspiracy theories, precisely because they were more exposed to online news.

An analysis of the discussions that emerged among the teenagers revealed a high level of sensitivity and interest in the topic; there was a generalised sense of confusion about the communication of the pandemic period that emphasised, in many of them, previous perplexities. This result confirms a recent study which revealed that four out of ten adolescents cannot distinguish between real and fake news (8). Greškovičová et al suggests that although adolescents are frequent Internet users, most are unable to clearly identify fake news, the only exception being click-bait headlines, which evidently arouse adolescents' distrust (8).

In fact, adolescents are a 'vulnerable' group, precisely because of the developmental stage they are in, they are the age group most sensitive to information from the digital world, which is often misleading. Although about 71% of teenagers use the Internet, many are not able to 'filter' health information (9). Misinformation, and in particular misinformation about health issues, is a serious public health concern, with an increased prevalence of fake health news on social media platforms in recent years. Previous research has shown that online health messages are mostly incomplete and inaccurate and contain potentially harmful health information (10-14).

As far as trust in political and health authorities is concerned, our study group showed a general tendency of distrust; public health policies, criticised by the participants, led to the development of a sceptical and conspiratorial attitude towards the authorities, claiming economic interests behind certain management choices. The lack of trust in the institutions was

fostered by the lack of clear media communication in agreement with the most up-to-date scientific content, leaving room for the rooting of personal convictions that were not always scientifically grounded.

In relation to the category 'Emotions', the groups mentioned the emotional sphere 63 times, confirming the importance of emotions on the personal experience of adolescents during the pandemic. The emotional impact was multifaceted and diversified with some students reacting to the vaccination practice by showing proactive and proactive attitudes, while others experienced deleterious effects on their psyche, with anxiety, frustration, inadequacy and loneliness prevailing.

Vaccination scepticism, noted in the previous category, has, in fact, leveraged states of fear, uncertainty, and misinformation, as well as finding fertile ground in the operational algorithms of social media. In the discussions, scepticism gave way to hesitancy with respect to vaccination adherence, in line with recently published research showing that belief in conspiracy is correlated with negative attitudes of fear and anxiety towards vaccination (15, 16).

Many students also expressed concern about the consequences of the spread of the virus among family members and in the community at large; the discussions that emerged in this regard suggest a good ability on the part of adolescents to correctly perceive the risk of the disease, even if thoughts of bewilderment and confusion caused by fake news and the infodemic about vaccines and Covid prevail.

High perceived risk, as described by the 'risk as feelings' model published in Social Science & Medicine, correlates directly with the frequency of the hazardous event (17). Risks are perceived as more dangerous when they are infrequent, unclear to science, and characterised by a catastrophic nature, as is the case with Covid-19, which correlates with high risk perception (18, 19). The high perception of risk discussed by the students can, therefore, be explained by the fact that the topic of discussion focused on a new disease, unknown until recently to both scientists and citizens, of a catastrophic nature and with an unpredictable outcome.

The peculiar characteristic of the participants to express their thoughts in the discussion sessions with anecdotes and personal experiences, underlined a sense of strong participation and emotional involvement towards all the topics addressed in the focus groups. Observation of the group dynamics revealed the figure of the leader who influenced, in both study conditions (group A and group B),

the students' opinions, particularly on the subject of fake news. In a situation of confusion or scarce information, individuals' cognitive processes 'latch on' to information derived from the opinions of others, especially if the sources are considered authoritative, as in the case of the opinion leader (20). A line of research on intragroup regulation processes, i.e. those processes that concern the functioning and conduct of social life in groups, has shown how the moral dimension is central to the definition of the self both individually and socially, thus influencing the choice and evaluation of the groups to which one wishes to belong (21).

Media literacy seems to be more important for adolescents in relation to risk behaviour and deciding what to avoid than for promoting healthy disease prevention behaviour. The low level of trust placed in institutions by FG participants is favoured by the lack of effective media communication, which has left room for the spread of personal beliefs that are, more often than not, wrong. Institutions and schools should therefore focus on disseminating clear and targeted messages to help combat misinformation and non-compliant behaviour.

The ingroup to which the students belonged acquired, during the FG, great power in defining their opinion on vaccinations; during the discussions, the leader's presence modified the students' thoughts and prompted them to shape their beliefs according to the group's prototypical characteristics, i.e. those characteristics that consensually defined the group's essence. On the basis of the above, one member of Group A and one of Group B were able to represent the fundamental characteristics of the two groups, and to influence the members to a greater extent than the training interventions, proposed on video or through the frontal lecture, since they were perceived as less representative in the short term.

As far as the experimental conditions used in the following study are concerned, watching the video or the frontal lecture did not have a different effect on the students' opinion; the starting questionnaire identified differences in attitude between the two groups already at the beginning. It does not therefore seem possible to stimulate a certain mentality or attitude to vaccinations at least with the presentation of a single stimulus for a short time. Further studies could curb this limitation and show different results if a real educational programme on public health issues, structured over several meetings, is presented to the class group. However, it is possible to discuss the data concerning the analysis of the conspiracy beliefs of the group that

emerged where the leader's opinion influenced that of the participants more; it is likely that, in a period like the pandemic where physical distance was felt very strongly, the communicative exchange between the young people works more than the information video. Media hype about vaccination, as well as distrust of traditional sources of information, may further contribute to confusion or misunderstanding. When information is more confusing, the opinion of a leader is more likely to influence the thoughts of the group.

Finally, the choice of the FG as a research technique, in accordance with what was suggested by Di Nubila (22), responded to the need to address increasingly complex and topical issues such as that of vaccines, with multiple possibilities of interpretation and food for thought in order to better address current public health situations.

The study presented some limitations. Even if the two groups were randomly selected, a significant difference in the knowledge and attitude towards vaccines and fake news was revealed before the intervention. Dishomogeneity may be due to the small sample size. In addition, the research has been conducted in one school in a Southern Italian province, hence the results cannot not be inferred to the whole Italian students' population. On the other hand, the in depth analysis allowed by the FG method allows the collection of relevant insights notwithstanding the paucity of observations and the limited generability of the results.

Conclusions

The analysis of the FGs revealed several interesting points of reflection, which shed light on peculiar elements for taking actions aimed at reducing young people's mistrust and distrust of vaccinations and improving their ability to discern health information coming from the web.

In conclusion, the results of the present study suggest that, in the context of qualitative analysis, the FG method proves to be a useful tool to detect knowledge, preconceptions and attitudes towards vaccination practice. As far as educational tools are concerned, however, it would seem that using video or giving a frontal lecture on infectious diseases and vaccines does not induce any kind of change in the thinking tendencies of the adolescents surveyed. Since in the world of health, videos can play an important role as tools for information, prevention, and building

shared communities around health issues, it would be interesting to extend the study to a larger number of young people to refute the results.

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Riassunto

Informazioni di qualità e fake news su Covid-19 ed immunizzazione fra gli adolescenti: un'analisi qualitativa in ambiente scolastico

Introduzione. La corretta informazione è uno strumento essenziale per indirizzare pensieri, attitudini, e le decisioni quotidiane su questioni importanti su temi riguardanti la salute. Oggi è disponibile una vasta quantità di mezzi e fonti di informazione. Le aumentate possibilità di ottenere dati però richiede abilità di comprensione e posizionamento, con particolare riferimento alla capacità di navigare nell'oceano di informazioni per poter operare scelte senza il rischio di esserne sopraffatti.

Obiettivo. Nel presente studio è stata usata la metodologia del focus group come strumento di indagine in ambiente scolastico per studiare conoscenze, preconcetti e attitudini degli studenti nei confronti della pratica vaccinale, per promuovere atteggiamenti favorevoli e consapevoli sulla vaccinazione e contrastare la diffusione di fake news.

Materiali e Metodi. In un istituto scolastico in Puglia, nel marzo 2023, sono state condotte due sessioni di focus group con studenti arruolati su base volontaria in un progetto educativo deliberato dal Consiglio di Istituto. Il campione selezionato di 23 studenti è stato distribuito casualmente in due gruppi composti rispettivamente da 12 e 11 partecipanti. La conoscenza e l'atteggiamento di base sono stati valutati tramite un questionario strutturato all'inizio della giornata. Successivamente, prima delle sessioni di FG, al primo gruppo (A) è stato proiettato un video informativo condotto da un esperto sul tema della vaccinazione e delle fake news, mentre il secondo gruppo (B) ha partecipato a una lezione frontale sugli stessi argomenti. Le domande guida che i moderatori hanno considerato in entrambi i gruppi per il tema della vaccinazione hanno riguardato l'importanza, l'utilità dei vaccini e la fiducia nelle autorità politiche.

Risultati. Le risposte al questionario iniziale hanno rivelato una grande variabilità tra i gruppi, sebbene fossero stati selezionati casualmente. Le trascrizioni dei dialoghi sono state categorizzate da ATLAS.ti in 204 codici totali e 87 categorie, quindi combinate per formare categorie sempre più generiche unite da temi correlati. È stato sviluppato un modello specifico di fattori favorevoli e ostacolanti diviso in 4 domini tematici appositamente adattati al contesto scolastico: percezione del rischio di malattia, aspetti emotivi, credenze sul vaccino e atteggiamenti verso le fake news.

Discussione. La categoria "Fake News" con 97 menzioni risulta essere la più discussa dagli studenti in tutti i domini esplorati. Gli

adolescenti hanno una maggiore propensione a essere sopraffatti dalle teorie del complotto, probabilmente perché sono più esposti alle notizie online. Abbiamo potuto rilevare un senso generalizzato di confusione rispetto alla comunicazione del periodo pandemico che ha amplificato, in molti di loro, perplessità pregresse. Le politiche di sanità pubblica, criticate dai partecipanti, li hanno portati a sviluppare un atteggiamento scettico e complottista verso le autorità, sostenendo interessi economici dietro alcune scelte di gestione. La categoria “Emozioni”, con 63 citazioni, ha confermato il forte impatto della sfera emotiva, sfaccettata e diversificata, sull’esperienza personale degli adolescenti durante la pandemia.

Conclusioni. I risultati suggeriscono che un singolo intervento (video o lezione) non è in grado di cambiare atteggiamenti e tendenze di pensiero degli adolescenti esaminati. Inoltre, si è scoperto che la figura del leader presente in entrambi i gruppi influenzava, in entrambe le condizioni di studio (gruppo A e gruppo B), le opinioni degli studenti, soprattutto sul tema delle fake news, più di un intervento a breve termine.

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