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'Social' media? How Swiss hospitals used social media platforms during the early months of the COVID-19 pandemic crisis

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A B S T R A C T

Objectives: This paper about social media platforms of Swiss hospitals refers to the period between 10 February 2020 and 6 July 2020. The study included in-depth insights into the use of platforms, content analyses of posts and resonance of the posts. The study's objective was to get insights into social media post creation by and corresponding resonance in pandemic crisis.
Study design: This study included collection and analyses of posts created by a selection of Swiss hospitals during the period of study. All university hospitals and a variety of private and regional hospitals in all regions of Switzerland are represented. The data collection started before the official shutdown in Switzerland.
Methods: This study used mixed method approach and content analysis to evaluate 2,326 posts during the study period related to the COVID-19 pandemic.
Results: During the first phase of the pandemic, hospitals used social media platforms more frequently than normal. Especially in the first month, the number of posts rose disproportionally. The numbers dropped back to the initial situation after only 4 months into the COVID-19 pandemic. Most hospitals used Facebook and Twitter, whereas Instagram and YouTube's use were marginal. University hospitals used social media platforms differently than regional hospitals.
Conclusion: Most posts generated only a very low response with a median of 2. Hospitals were therefore not able to create engagement of their followers. However, hospitals that publish actively were able to build a more active community. Only a small number of posts led to heated discussions in the comments. These viral posts shared information on the illness, the vaccination, children and COVID-19.

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Introduction

The coronavirus pandemic has hit world's society hard in the first half of 2020, disrupting every detail of social life. The need for information was enormous as well as the amount of information exchange on social platforms. Studies have shown that when emerging infectious diseases occur, the public often turn to social media for information.[1] This was also evident during the corona pandemic, where Instagram was one of the most important sources of information/news for young people during the (first full) lockdown in Switzerland.[2] In addition, more than 70% of Swiss respondents said they had searched for health information on the Internet and social media in the last 3 months.[3]

This mass adaptation of social media in the private sphere as a personal everyday enrichment also increases its importance as a communication channel for organisations.[4] Social media platforms are considered a fast and interactive method to provide information, set up an open channel for discussions and build trust for organisations.[5] Numerous studies demonstrate that communication plays an essential role in the management or containment of health crises.[6,7] Social networks have become established and represent important communication channels in health crises.[8,9] The (potentially) beneficial use of social media in health crisis situations is repeatedly highlighted by researchers.[10–13] Beier and Früh[14] compiled the first and only comprehensive study on the use of social media platforms through Swiss hospitals. It is largely unclear what content and interaction patterns are to be found in the communication of hospitals on social media.[14] Therefore, this study precisely addresses these points.

In social media communication, resonance is formed from the totality of user reactions to published posts. Depending on the platform, different reactions and thus participation options are

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made available.[15] On Facebook, this resonance can be seen in the number of likes, shares and comments achieved by a post. Since 2015, Facebook has offered an extended variant for the like button in the form of various emoticons, the so-called reactions such as 'Love', 'Hug', 'Haha', 'Wow', 'Sad' and 'Angry'.[16,17] Twitter also has a like function (favourite), a share function (retweet) and a comment function (reply).[18] On Instagram, it is only possible to like and comment; sharing is only possible through a private direct message to individual networked persons.[19] YouTube also has variants of the reaction options. Besides the like function, there is also the negative equivalent, the dislike button. And of course, it is possible to comment and share.[20]

Content must first attract a certain amount of attention from users in order for them to interact with posts via the basic reactions of likes, shares and comments. The three types of reactions can be differentiated based on their varying degrees of activation[21] and different intentions for action behind the reactions. A like is considered the simplest form of reaction and minimally active, as it only requires a single click but goes beyond passive reading. Sharing a post already requires a stronger activation of the users than a like[21] because the users make the post their own to a certain extent, possibly add to or change it and publish and disseminate the content themselves a second time in their own community.[22] A comment creates the possibility of a dialogue,[23] which enables a kind of self-expression by expressing one's own opinion and interacting with other users.[24] In summary, it can be said that likes are easier to achieve, whereas a high level of engagement must be present for both sharing and commenting. A higher number of shares and comments is more difficult for an organisation to obtain.

Furthermore, user reactions play a central component in the visibility of posts. Studies show that posts that are frequently liked, commented on or shared can reach a much larger circle of users.[25,26] Through the user reactions of the 'primary audience', the subscribers/followers of the profile, the post becomes visible in their user circles, the so-called 'secondary audience', who in the best case also react to it to make the post visible again in further user circles[25] see also 'first-degree followers' and 'second-degree followers' according to Jacobs and Spierings.[26] A like gives the content creator the 'advantage' that the content is spread beyond his or her circle of followers. A like does not open up a new interaction channel but expands the existing one by increasing the visibility and responsiveness of non-followers.[24] Sharing, in turn, opens new channels of interaction and can also gain a much wider reach through chains of sharing. Shared content can be liked and commented on by new audiences in a new 'space'. Sharing thus represents the most important means of resonance and visibility.[24] The comment can be seen by the commenting user's community in their news feed, making the original post visible and 'responsive' to non-followers. A comment under the post can be commented on and liked by the audience it reaches. From the point of view of information dissemination, a great advantage of the comment function is that it can be done repeatedly. Each individual comment increases the chance of visibility so that a heated debate between users under a post can be useful for information dissemination.[24]

In summary, it can be said that an overall high resonance within the various audiences increases the probability for the post owner, here the hospitals, to reach the broadest possible audience on social media.[16] This is related to the algorithmic control/selection of the social media platforms. Not all posts are shown to users in the feed with the same priority. For example, it is not always the most recent posts that appear at the top. Whether a post is visible depends, among other things, on user interests, friendships or the number of user reactions to the posts.[27] However, the algorithms are constantly being changed and are not accessible to the public.

Hospitals are considered opinion leaders and are viewed as acknowledged experts.[28] They occupy an important role in spreading credible and reliable information about medical issue, for example, during the current coronavirus pandemic. Hospitals could now use social media channels as a crisis communication tools to connect with their followers and provide facts and information for patients, staff, media and other stakeholders. Social media platforms are often faster in distributing information than traditional news media. They could be installed for early detection, raise awareness of outbreaks and incidences, timely news feed, syndromic surveillance and validate behaviour and attitude relevant for the crisis.[29] Almost all age categories are widely represented on social media platforms making it easy for hospitals to reach their most important stakeholders.[30] For example, in Switzerland in particular, journalists and politicians are reached on Twitter in addition to private individuals.[31] Thus, especially in times of a pandemic, the public visibility that can be achieved through social media is a relevant component for healthcare organisations such as hospitals and will be investigated in this study. Therefore, the following questions will be investigated.

RQ1: How did different Swiss hospitals use social media during the important first phase of the corona pandemic?

RQ2: Were hospitals able to achieve mobilisation of the public, indicated by the resonance of their posts as a proxy for user engagement?

RQ3: Which content of Swiss hospitals' posts achieved the most resonance with the public?

Methods

Data collection

The hospitals' social media posts and the associated metadata were collected by a specialised media monitoring tool. Unicepta Technologies enables users to continuously monitor relevant topics on the Web, for example, social media. The social media content is initially rendered as a mention ('snippet'). Structured and unstructured data are recorded that enable access to the content. All metadata provided by the social media platforms are included in the data export, enabling ordering. Excluded sources are private news and non-public communication; password-protected forums or Web sites; Web sites that take technical precautions to avoid being searched. The German law on ancillary copyright applies. In compliance with the law, in terms of content, only a snippet is initially specified. The full text is accessed via the original link. Ubermetrics Technologies GmbH (later Unicepta Technologies), founded in spring 2011, is a spin-off of the Humboldt University of Berlin (https://www.humboldt-innovation.de/de/spinoffs/Ubermetrics-36.html), which is follow-up financed by the High-Tech Gründerfonds.

All posts published on the social media profiles of the selected hospitals were collected in the period from the week beginning 10 February 2020 until (and including) the week beginning 6 July 2020. The following social media platforms were considered: Facebook, Twitter, Instagram and YouTube. Unfortunately, LinkedIn, although an important platform for hospitals, could not be considered, as it does not make data from professionals that it does not own accessible via its Business API. The period was deliberately chosen before the first corona case in Switzerland reported by the Federal Office of Public Health (FOPH) on 25 February 2020.

The first data set consisted of a total of 4,979 entries. The data set was filtered in the tool according to the following keywords: Coron* OR Covi* OR Covid-19 OR Sars* OR Virus OR Pandem* OR Pandém*. This ensures that only posts that deal directly with the corona topic are analysed. This resulted in the final data set of 2,326 contributions on social media from Swiss hospitals.

Hospital selection

To evaluate the social media platforms of the hospitals, the authors decided on the following selection: first, all five hospitals associated with a university were included in this study. The following main selection is based on the seven major regions of Switzerland according to the Federal Statistical Office.[32] The hospitals of the major regions were further subdivided into the categories of private hospital and regional hospital, analogous to the classification of the members of the industry association H+ and the Bundesamt für Gesundheit.[33] In each region, one large, medium and small general and acute care hospital or cantonal hospital (if available) and one large, medium and small private hospital (if available) were selected. The large, medium and small hospitals were equally divided across all 26 cantons of Switzerland, if possible. If this was not the case, the hospital with the most followers on Facebook or Twitter was chosen. A detailed overview of the hospitals by type can be found below and in Table 1.

a) University hospitals (all): Universitätsspital Zürich (USZ), Universitätsspital Basel (USB), Inselspital Bern (Insel), Hôpitaux Universitaires Genève (HUG), Centre hospitalier universitaire vaudois (CHUV)
b) Switzerland-wide private hospitals: Hirslanden and Swiss Medical Network
c) Hospitals in major regions
   ○ Geneva region: Hôpital de La Tour, Hôpital Riviera-Chablais, Hôpital du Valais.
   ○ Central Plateau region: Solothurner Spitäler, Réseau hospitalier neuchâtelois, Michel Gruppe AG, freiburger spital (HFR).
   ○ Region of Northwestern Switzerland: Kantonsspital Aarau, Claraspital.
   ○ Zurich region: Spital Zollikerberg, Stadtspital Zürich (formerly Stadtspital Waid und Triemli), Kantonsspital Winterthur, Kantonsspital Baden.

   ○ Region of Eastern Switzerland: Kantonsspital St. Gallen (KSSG), Kantonsspital Graubünden (KSGR), Spital Oberengadin, Spital Linth.
   ○ Region of Central Switzerland: Kantonsspital Obwalden, Luzerner Kantonsspital.
   ○ Ticino: Ente Ospedaliero Cantonale.

Categories

For the qualitative analysis of the 37 most resonant or viral posts, the first step was a categorisation. The content of the posts in the social media was categorised following the Thematic Analysis Approach of Clarke and Braun.[34] Posts could also be assigned to multiple categories. The following categories were identified. 'Recognition of work' is found in social media posts where hospitals thank their collaborators for their immense extra work. 'Information' means all posts that provide medical (in a broad sense) information about the virus, the illness and the vaccine. Within the category 'Call to Action', all posts with a request were categorised. This could be a call to get tested or a call to stay at home during the shutdown. 'Solidarity' were posts that expressed the solidarity between healthcare workers and the general population. Under the category 'Reassurance', one will find posts that reassure the public, visitors and patients. Posts that may have information but with humour are labelled 'Infotainment'. The last two categories are 'Call for donations' and 'Job offers, call for support'.

Data preparation

The data set was prepared and visualised with analytical methods via Jupyter notebooks, running the programming language Python. The majority of posts had zero or very little resonance, leading to the creation of a subset of the most viral posts (2%), which is explained below.

Table 1
Number of posts across different platforms and total resonance per hospital.

Name of Swiss hospital	Type of hospital	Total posts	Posts				Total resonance	Average resonance per post
			Facebook	Twitter	YouTube	Instagram		
Hôpitaux Universitaires Genève (HUG)	University hospital	913	107	585	163	58	87,330	95.7
Hôpital du Valais	Regional hospital	290	147	104	0	39	17,818	61.4
Inselspital Bern (Insel)	University hospital	145	55	90	0	0	5753	39.7
Ente Ospedaliero Cantonale	Regional hospital	144	103	41	0	0	15,645	108.6
Centre hospitalier universitaire vaudois (CHUV)	University hospital	110	69	41	0	0	31,594	287.2
Universitätsspital Zürich (USZ)	University hospital	100	37	39	8	16	27,428	274.3
Swiss Medical Network	Private hospital	79	47	0	16	16	1897	24.0
Hirslanden-Gruppe	Private hospital	75	42	24	5	4	4563	60.8
Réseau hospitalier neuchâtelois	Regional hospital	64	63	1	0	0	8350	130.5
L'Hôpital de La Tour	Private hospital	58	35	4	5	14	2033	35.1
Kantonsspital Baden	Regional hospital	47	33	0	0	14	11,014	234.3
Stadtspital Zürich	Regional hospital	36	36	0	0	0	10,482	291.2
Universitätsspital Basel (USB)	University hospital	35	0	23	7	5	736	21.0
Kantonsspital Aarau	Regional hospital	26	18	5	2	1	1288	49.5
Kantonsspital Obwalden	Regional hospital	25	12	6	0	7	799	32.0
Claraspital	Private hospital	25	23	2	0	0	3847	153.9
Kantonsspital Graubünden	Regional hospital	24	13	11	0	0	3533	147.2
Kantonsspital Winterthur	Regional hospital	23	22	0	1	0	7717	335.5
Hôpital Riviera-Chablais	Regional hospital	20	20	0	0	0	3293	164.7
freiburger spital (HFR)	Regional hospital	20	0	20	0	0	9	0.5
Kantonsspital St.Gallen	Regional hospital	17	17	0	0	0	1686	99.2
Spital Linth	Regional hospital	17	13	0	0	4	1181	69.5
Solothurner Spitälern	Regional hospital	14	10	2	2	0	796	56.9
Spital Oberengadin	Regional hospital	7	5	0	0	2	346	49.4
Michel Gruppe	Private hospital	6	3	2	0	1	216	36.0
Luzerner Kantonsspital	Regional hospital	5	0	0	2	3	0	0.0
Spital Zollikerberg	Regional hospital	1	1	0	0	0	230	230.0
Total		2326	931	1000	211	184	249,584	107.3

Results

The 2,326 posts from 27 hospitals across Switzerland were analysed between 10 February 2020 and 6 July 2020. In this study period, the authors found posts quantity between 1 and 913 between all hospitals. Likewise, the achieved resonance, between 87,330 and 0, as well as the average of resonance and contributions show great differences.

Twitter and Facebook are the most used

A simple breakdown by platforms shows that Twitter accounted for almost half of the posts made during this period. Facebook was also heavily used. Twitter and Facebook together shared 83.0% of all posts.

Fig. 1 shows that university hospitals in particular are significantly more active on social media than other hospitals in other categories. Their posts account for 56.0% of all posts. In contrast, regional hospitals accounted for 33.5% of posts and private hospitals for only 10.4%.

In the evaluation of the posts in the category of university hospitals, HUG comes out on top. The HUG has produced 70.0% of the posts in the specified period. The USB on the other hand is far behind with 2.7%, as are all the other university hospitals. The Insel has produced 11.1% of the posts.

University hospitals prefer the Twitter platform to Facebook (see Fig. 2). Twitter accounted for 59.7% of all posts or tweets. The university hospitals thus produced an above-average amount of content for this social media platform in contrast to the other hospital types.

While university hospitals mainly use Twitter, regional hospitals tend to use Facebook (65.8%). The use of Instagram is similarly low in all hospital categories.

Number of posts peaked around early April

On 25 February 2020, the first case of the novel coronavirus is confirmed in Switzerland. As expected, the number of posts across all hospitals increased strongly at the start of the pandemic. On 16 March, the Federal Council placed the country in an unprecedented lockdown by declaring an 'extraordinary situation'. Subsequently, the number of contributions from Swiss hospitals increased rapidly,

reaching a peak at the end of March, and then falling steadily, especially from the end of April onwards (see Fig. 3). The resonance (not shown) across all posts shows a similar shape and peak in April and a relatively rapid decline thereafter.

A closer analysis of 913 posts of HUG (who contributed 39% of all posts) over time shows that in the week beginning 6 April, almost 160 posts were released, with a total resonance of almost 20,000. The weekly posts are shown in Fig. 3 for all hospitals (blue) and for HUG (orange).

Results of the 37 most viral posts

Most posts have very little resonance, with a median of around 2 (mean of 107.0) across all 2,326 posts. Thirty-seven of these posts were evaluated as being viral, which corresponds to approximately 2% of all posts. Here, viral was defined as resonance of over 1,000 in the observed weeks from February to July 2020.

Focusing on the viral posts, 37 posts by nine different hospitals have been identified, with the majority being Facebook posts (31) with the rest being Instagram (see Fig. 4). No Twitter nor YouTube posts have created any high resonance.

For a qualitative evaluation of the 37 viral posts in the study, the following categories were identified:

Recognition of work (17 posts out of 37 with resonance >1'000): Example by HUG (originally in French, translated by authors).

https://www.instagram.com/p/B-g_WyEH0P8/

Teams — Masks, gloves, protective gowns and even respirators delivered by the Swiss Army would not reach doctors and frontline caregivers without the Transportation, Distribution and Warehouse Service (TDWS). "To deliver meals, our distributors must now enter covid-19 units. Often with fear in their stomachs. But they don't back down. What amazes me the most? The speed with which we have adapted to this crisis. Everyone, at all levels, is finding solutions. Sometimes within hours. The HUG liner has been transformed into a formula 1," says Marie-Paule Kellner, head of the sector.

The TDWS transports patients between its various sites and ensures the distribution of consumables and goods for the entire HUG. The team of the HUG Transport, Distribution and Warehouse Service thanks the population for its support and generosity during this time of crisis.
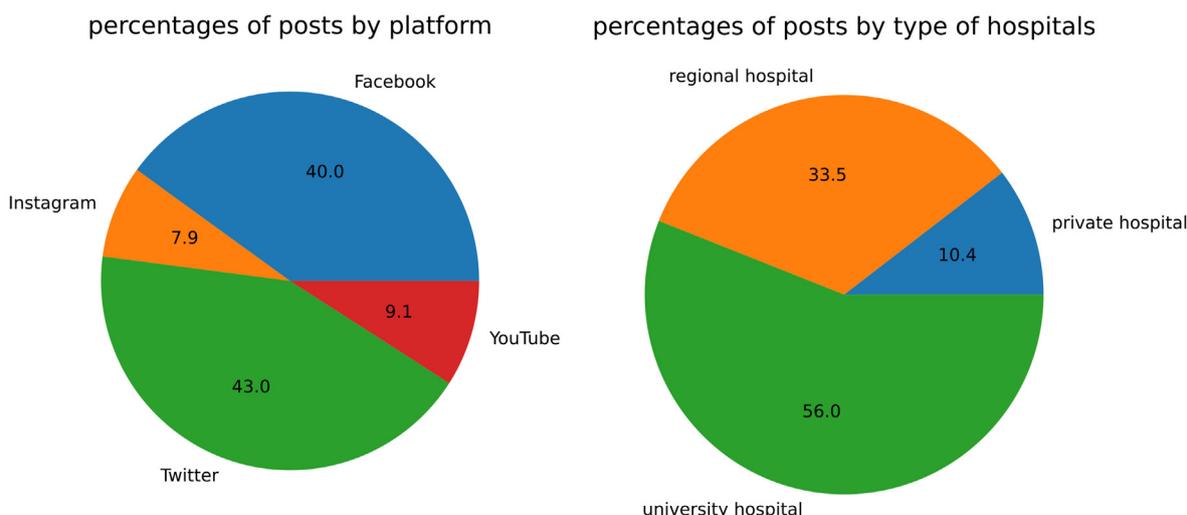
Fig. 1. Percentage of posts across different social media platforms and across different hospital types.
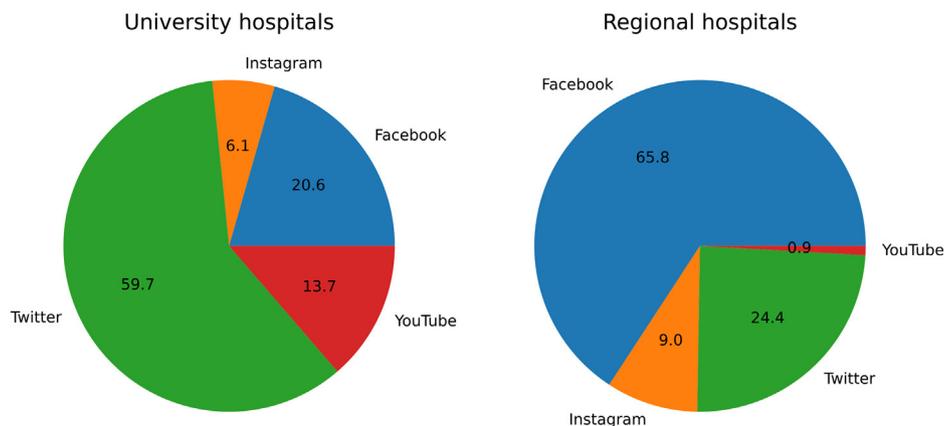
University hospitals

Regional hospitals

Fig. 2. Percentage of posts across different social media platforms, split by type of hospital.

Information (12 of 37): Example by CHUV

https://www.facebook.com/watch/?v=2601664790107083.

■ *CORONAVIRUS* ■ *What does it mean to be cured of COVID-19? Is one then immune or can one be infected a second time?*

Answers from Prof. Thierry Calandra, Head of the Infectious Diseases Department of the CHUV/Centre hospitalier universitaire vaudois 📷: @louisbrissetphotographer.

Call to action (5 of 37): Kantonsspital Winterthur

https://www.facebook.com/141348992583972/posts/3031108733607969.

Stay at home. The KSW remains there for you. ❤️.

Solidarity (4 of 37): Example by Ente Ospedaliero Cantonale

https://www.facebook.com/52581576779/posts/10156756992531780.

It is certainly a special May 1 that we experience today. From Locarno Hospital, which has been on the front lines of the COVID emergency for weeks, we send a virtual hug to the staff, patients, their families and all the people who have felt the need to make a gesture, even a small one, of solidarity during these difficult times. A heartfelt thank you to everyone for the great humanity shown!

Reassurance (2 of 37): Example by HUG

https://www.facebook.com/206413169374157/posts/3391876200827822.

🏥 *As of March 17, 2020, the HUG is increasing its emergency capacity for people suffering from acute respiratory problems of recent*

onset (cough, fever, etc.). A 200 m² tent has been set up behind the hospital to ensure an initial triage of people coming for outpatient consultations and to carry out a screening test, if necessary. Gradually, the HUG are adapting their system according to the needs identified. Several specialized units are already dedicated to the care of patients suffering from COVID-19. Non-urgent operations are being postponed to avoid overloading the intensive care and recovery rooms and to be able to accommodate more patients. The HUG is also preparing to double its capacity in intensive care and acute care, notably by increasing the density of rooms. Since the end of January, the HUG have been working on several scenarios to be able to respond to an overload linked to the COVID-19 epidemic and to continue to ensure the care of all patients.

Infotainment (2 of 37): Example by USZ

https://www.facebook.com/514569845343656/posts/1959958967471396.

"How much longer?"

Want to know what it's really like in a USZ emergency and why we haven't lost our laughter despite Covid-19? This funny video will show you. Have fun!

Call for donations (1 of 37): Example by CHUV

https://www.facebook.com/975855452425631/posts/3501013153243169.

■ *CORONAVIRUS* ■ 👨‍⚕️👩‍⚕️ *United and united because without them, we can do nothing. Donate to the Mutual Aid Fund*
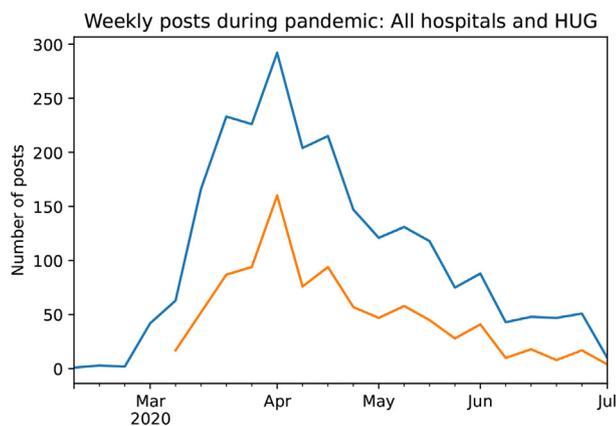

Fig. 3. Number of weekly posts during the study period, or all hospitals (blue) and HUG (orange). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)
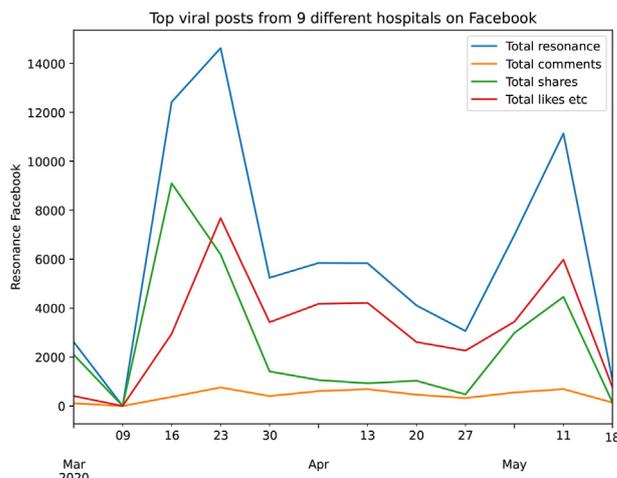

Fig. 4. Resonance of top viral posts.

which supports CHUV staff in precarious situations due to the COVID-19 crisis. Online at www.fondationchuv.ch or by SMS at 488. Just send CHUV with the amount of the donation to 488. Here is an example: CHUV 100 to 488 (For a donation of CHF 100.-). Created by the CHUV Foundation, the COVID-19 Mutual Aid Fund aims to help CHUV employees who are facing particularly complicated situations in this period of crisis.

For the past 6 weeks, the need for psychological, family, social and financial assistance has been mounting. These needs range from simple childcare in a department that operates 7 days a week, 24 h a day, to housing needs due to living with an elderly person, to complex travel arrangements. The staff, who play an essential role in the pandemic, are facing difficult situations to take care of the community. Thank you for your solidarity and generosity ❤️.

Job offer, call for help (1 of 37): Example by Kantonsspital Graubünden

https://www.facebook.com/104000326349557/posts/2870566709692891.

You are a qualified nurse? You have time capacities and are flexible? We are looking for you to support us during the Corona crisis. Please apply with your CV, last certificate, diploma or SRK recognition at hrcorona@ksgr.ch.

Comments and reactions varied between 11,133 from the Facebook video of USZ to 1,001 from the Hôpital du Valais. Interestingly, the most liked, shared and commented post of the USZ was also the post that made the least reference to corona. The video, which entertainingly recreated everyday life in the emergency ward, makes no reference to corona at all in the video and only writes in the accompanying text: "[…] why we haven't lost our laughter despite Covid-19?[…]". All other posts refer directly to the pandemic event or the COVID-19 disease itself.

Seven of the 37 posts led to discussion in the comments. Three of the 37 posts received a majority of positive responses in the comments, whereas the remaining 27 posts received exclusively positive responses. Here, a correlation with the date of the posts is less apparent than a correlation with the category. All posts that led to discussions with different opinions in the comments were assigned to the category Information. The exception was the CHUV's appeal for donations, which promoted the aid fund for employees in need and also led to discussions in the comments. Examples of posts with more pro/contra discussions than others in the comments:

Example 1. CHUV, Facebook

https://www.facebook.com/975855452425631/posts/3472148106129674: Link to the newly launched Web site of the CHUV with correct information (vs misinformation). This resulted in a discussion regarding ibuprofen during corona. The post was assigned to the category Information.

Example 2: CHUV, Facebook

https://www.facebook.com/975855452425631/posts/3586503361360814: Interview with Dr. Sandra Asne (paediatric infectiologist) on the topic of children and corona. The post was assigned to the Information category and led to discussions regarding whether children were drivers or not of the pandemic.

Posts in the appreciation category received a particularly large number of positive comments. This category included posts in which the hospital or clinic thanked its employees for their extra effort during the pandemic. These were particularly frequently recorded with 'thumbs up', 'likes' and hearts in the comments.

Example 1. Stadtspital Zürich, Facebook https://www.facebook.com/watch/?v=224939602208563: video of the people clapping as a thank you to the healthcare workers.

Example 2. HUG, Instagram https://www.instagram.com/p/B-g_WyEH0P8/

The HUG would like to thank the employees in the transport and magazine departments for the extra work they did during the pandemic.

The four posts in the solidarity category also received only positive comments, as the example of the Hôpital de Valais shows.

Example Hôpital du Valais, Facebook

https://www.facebook.com/150564764978991/posts/2877908865577887.

On behalf of the staff, the hospital would like to thank the population for a banner that says 'thank you' to the hospital's healthcare staff. The banner was apparently created by someone from the public.

HUG and CHUV with most viral posts

Within the 37 viral posts, two hospitals stand out: HUG with 17 posts and CHUV with 8. Other hospitals were represented significantly less frequently such as USZ,[4] Kantonsspital Winterthur[2] and 4 hospitals with one viral post each (Hirslanden, Hôpital du Valais, Stadtspital Zürich, Kantonsspital Graubünden and Ente Ospedaliero Cantonale (EOC)). The other 18 hospitals did not manage to post anything with significant resonance.

At both HUG and CHUV, the category of most viral posts showed a certain regularity of information. For example, CHUV made regular posts with medical information on the pandemic and on COVID-19 with interviews with professionals. HUG's most viral posts were all from the appreciation category. These posts followed the same structure, similar types of pictures and length of text.

Discussion

RQ1: How did different Swiss hospitals use social media during the important first phase of the corona pandemic?

As the study shows, Swiss hospitals used social media very differently during the first phase of the pandemic. This is shown by the total number of posts during the study period (see Table 1) and the different use of the various social media platforms (see Fig. 1).

Larger hospitals or hospital groups in particular had considerably more posts. This is probably because of the resources of the communication departments but cannot be confirmed by this study and requires further investigation.

It is not surprising that much less was published on YouTube because it always requires video production, which means a certain amount of effort. The frequent use of the versatile, established and widespread platform Facebook can also be explained. As in Switzerland, in particular, journalists and politicians can be reached via Twitter in addition to private individuals, the use here is also obvious. However, it is surprising that the very interactive and easy-to-use platform Instagram was used so little. Especially because Facebook and Twitter are integrated into the publication process via Instagram. It is particularly noticeable that university hospitals published much more on Twitter than on the other platforms, whereas regional hospitals relied mainly on Facebook. This could be because of usage habits or differently defined target groups. This also needs to be investigated further.

Commonalities can be found at the time of publication (see Fig. 4). All hospitals posted a lot, especially in the first month. At the end of the study period, just 4 months after the start of the pandemic, the number of weekly posts fell back almost to the normal level before the pandemic occurred. Hospitals thus saw a need to use social media much more than usual, especially in the first month.

RQ2: Were hospitals able to achieve mobilisation of the public, indicated by the resonance of their posts as a proxy for user engagement?

As the majority of posts generated only a very low response with a median of 2 (mean of 107.0), the answer to the second research question must unfortunately be negated. Looking at the average of response and post (Table 1) also confirms this picture.

If we look at the type of user reactions for the most viral posts using the example of Facebook (Fig. 4), it is noticeable that apart from the simplest and minimally active form, the like, the posts were mainly shared. Very few comments were made regularly. This shows that for the community, the focus was less on dialogue and more on disseminating the content.

It is interesting to note that of the nine hospitals that had the most viral posts all except two are also in the top 10 by number of posts as per Table 1. Hospitals that published a lot have thus also been able to build up a very active community. Exceptions are the Kantonsspital Graubünden (24 posts) and the Kantonsspital Winterthur (23 posts), which published a below average number of posts, but were able to trigger a high user response with individual posts that turned viral.

RQ3: Which content of Swiss hospitals' posts achieved the most resonance with the public?

Posts that were published as expressions of appreciation towards employees received a particularly high response. So-called hard facts, such as medical information about the pandemic, practical rules of conduct for the population or even organisational information such as opening hours and examination locations, did not meet with a high response and thus did not receive much visibility on social media.

The posts that received a lot of engagement by the users were mostly found in the category of 'appreciation of work'. The comments were practically exclusively positive comments, short videos with clapping hands and heart symbols.

Only a small number of posts led to discussion in the comments. All these posts were from the category 'information' and included information on the nature of the illness, the vaccination and COVID-19 in children. It is surprising how rarely users engaged in discussions on the social media platforms of hospitals in Switzerland during the study period.

This study shows the lack of engagement in most hospitals' posts generated in the early month of the pandemic crisis in Switzerland. Our study was not designed to identify the causes of this lack of response. Nevertheless, certain statements can be made about the relationship between volume and resonance. First, hospitals, especially HUG, that posted more than average also tended to achieve a higher response. Furthermore, posts that were dedicated to the category of 'appreciation' achieved more resonance. It could be that hospitals with fewer followers before the pandemic also received less response for their posts during the pandemic. However, this would be a circumstance for another, more detailed study.

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