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Click, Ignore or Repost: Subjective Assessment of the Reliability and Relevance of Information on COVID-19 in the Infodemic

Galina Soldatova ^a, Elena Rasskazova ^a, Svetlana Chigarkova ^{a, *}, Ludmila Dementiy ^b

^a Lomonosov Moscow State University, Russian Federation

^b Omsk State University, Russian Federation

Abstract

The COVID-19 pandemic was accompanied by “infodemic”, including the spread of excessive amount of information regarding coronavirus. The study aimed to reveal which role the source and online context of COVID-related information takes in the probability of clicking and reposting this information and its relationship to the reaction to the pandemic, individualism and collectivism. 396 adults who did not have COVID-19 and lived in Central (n = 207), Siberian (n = 63) and Far Eastern (n = 126) regions of the Russian Federation evaluated their expectations and subjective probability of clicking and reposting four COVID-related messages (from politician – president, health specialist – president of WHO, journalist – link to a broadcast, personal story) on the four possible backgrounds (Ministry of Health Care website, Yandex news, Facebook, WhatsApp). Then the participants filled in the Monitoring Information About Coronavirus Scale and Coronavirus-Related Anxiety Scale, modification of the brief Positive and Negative Affect Scale. Facebook was seen as equal or more trustful than Yandex. People are more ready to click the links about COVID-19 if they expect the message to be important, trustful for them and clarifying the situation, regardless of what kind of emotional changes they predict. People are more ready to repost the links about COVID-19 if they expect this message to change their mind or behavior. “Infodemic” includes not only the social processes of the spread of information but also the psychological processes of evaluation, clicking, reading and reposting.

Keywords: COVID-19; infodemic; source of information; online links; probability to click and repost.

1. Introduction

Over the past decades, digital technologies have introduced significant changes to the way of handling information. The phenomenon of “infodemic”, which was described in regard to the COVID-19 pandemic, is clearly the evident demonstration of these changes. Political scientist and journalist David J. Rothkopf first coined the concept of “infodemic” to describe an information epidemic mixed with mis/disinformation, fake news, rumors, and conspiracy theories spread considering the SARS-CoV epidemic in 2003 (Rothkopf, 2003). The term has become particularly common in the context of the COVID-19 pandemic. It was defined by WHO as “overabundance of information – some accurate and some not – that makes it hard for people to find trustworthy sources and reliable guidance when they need it” (World..., 2020). Infodemic has turned out to be a

* Corresponding author

E-mail addresses: soldatova.galina@gmail.com (G.U. Soldatova),
e.i.rasskazova@gmail.com (E.I. Rasskazova), chigars@gmail.com (S.V. Chigarkova)

complex challenge for the digital society. The global abundance of news headlines often leads to fear, anxiety, prejudice, disgust, discrimination and stoking panic (Hu et al., 2020). There's some evidence that misinformation might cause adverse effects on individual behavior that increases the spread of the virus (Cinelli et al., 2020). Besides direct effects on human, there might be indirect and delayed effects of the infodemic as the spread of misinformation might increase a distorted perception of the COVID-19 pandemic (Zarocostas, 2020). Therefore, it is crucial to understand how people select information sources during high-risk events, and how information dynamics affect risk perception and behavioral dynamics (Cinelli et al. 2020; Leitner, 2020; Sharot, Sunstein, 2020).

Modern theories cover various phenomena that allow investigating the mechanisms of dealing with information: information need, information seeking, information ignorance, information sharing etc. (Belkin 1980; Chaiken et al., 1989; Griffin et al., 1999; Kuhlthau, 1991). Information need is a broadly used term depicting the motivators for information seeking (Huurne, Gutteling, 2008; Savolainen, 2012). The analysis of the motivation for information consumption highlights its instrumental, hedonic and cognitive utility (Sharot, Sunstein, 2020). Instrumental utility is determined by the amount of information needed for achieving a certain end goal. Hedonic utility is associated with pleasure or other positive emotions that information will produce minus the amount of pain or other negative emotions it would induce. Cognitive utility quantifies the degree to which information will strengthen internal mental models. Anticipatory utility defined by the meaningfulness of information in the individual decision making process is also highlighted (Falk, Zimmermann, 2016; Kobayashi, Hsu, 2019). While selecting information, a person can rely on any of these motives. Thus, there are not only social processes of information spread but also psychological processes of choosing, clicking, reading, reacting and reposting information.

An important phenomenon determining human behavior in the information environment is not only information seeking but also information avoidance (Hertwig, Engel, 2016; Gigerenzer, Garcia-Retamero, 2017; Golman and Loewenstein, 2018; Golman et al., 2017). Even though uncertainty can lead to positive effects such as excitement or curiosity, uncertainty within information seeking has typically been connected with negative emotions (Savolainen, 2012). Obtaining information and resolving uncertainty include the risk of possible disappointment or excitement rather than simply maintaining your previous expectations (Golman et al., 2017). Noting that information can be disruptive and cause confusion and distress rather than comfort and certainty, the classic paper on the Information Search Process raised the issues of uncertainty and emotion (Kuhlthau, 1991).

The spread of social networks mediates the process of handling information. Technologies for tracking personal user preferences provide a special information environment producing the so-called «filter bubble» effect (Pariser, 2011). The sharing of information and news between Internet users is also starting to play a special role in producing certain information flows (Choi, 2016; Ma et al., 2011).

The *aim* of the study was to reveal which role the source and context of online COVID-related information takes in the probability of clicking and reposting this information and its relationship to the reaction to the pandemic and self-isolation recommendations. We *hypothesized* that:

1. In different regions (Central, Siberian and the Far Eastern federal regions of the Russian Federation), the perception (subjective importance, impact, trust etc.) of COVID-related messages and probability of clicking a link and reposting it would depend not only on the source of information (health care representative, politician, popular journalist, personal story) but also on the context in which this information was received (official medical site – the Ministry of Health Care website background, news website – Yandex news, social network – Facebook, messenger – WhatsApp).
2. To different extent, the subjective probability of clicking and reposting a link about COVID-19 would depend on its subjective importance, impact, trustfulness, expectations about clarifying the situation and emotional change. In other words, subjective reasons to click the link and read it would differ from subjective reasons to repost this link.
3. Subjective importance, impact, trustfulness and the probability of clicking and reposting COVID-related links would be connected to larger monitoring of COVID-related information, higher anxiety over being infected and consequences of the coronavirus, negative emotions regarding softening self-isolation regime (e.g. anxiety about it) and belief that official

statistical information about COVID-19 is overestimated or accurate. We hypothesized that if statistics were seen as overestimated, people would not trust online information about the pandemic in the country.

2. Materials and methods

We expected that the psychological reaction to the infodemic should depend on the place of living. Therefore, we included three samples from three different regions (Central, Siberian and the Far Eastern federal regions) to find and describe the results that are reproduced not only in Moscow and its region but also in Siberia and the Far East.

The participants aged 18-65 were invited to take part in the online (based on Google Forms' platform) anonymous study through using personal contacts of colleagues and students in three universities (Moscow State University (Moscow, Russia), Vitus Bering Kamchatka State University (Petropavlovsk-Kamchatsky, Russia), Omsk State University (Omsk, Russia). It should be noted that there are different socioeconomic, employment and COVID-19 situations in these regions which makes it difficult to obtain comparable data (in terms of gender, age, education, COVID-related experience) (For instance, males in Petropavlovsk-Kamchatsky are mostly sailors and military personnel which leads to the greater proportion of females in research). The participants filled in questionnaires in the period from 28.05.2020 to 10.06.2020. In Russia, this period came more than one month after the first government recommendations on self-isolation and just in time for the first official announcements about softening self-isolation regime.

412 adults participated in the study. Six people were excluded because they did not live in Moscow or Moscow region, Omsk or Omsk region, Petropavlovsk-Kamchatsky or Kamchatka region. Ten people were excluded because a certified doctor diagnosed they contracted COVID-19. The final sample included 396 adults aged 18-66 (Table 1). In general, one third of the participants was male. More than a half of them graduated from universities, and most were working adults. The number of single and married people was similar, and almost a half of the respondents had one or more children.

As we expected, comparing to Moscow and its region's sample, there were more females and lower number of graduated participants in Omsk and its region as well as Petropavlovsk-Kamchatsky and its region's samples ($\chi^2 = 15.60$, $p < .01$, Cramer's $V = .20$ for gender and $\chi^2 = 49.67$, $p < .01$, Cramer's $V = .25$). Age difference was small in size ($F = 7.80$, $p < .01$, $\eta^2 = .04$), and post hoc (Scheffe criterion) comparisons reveal that the only difference is that Omsk and its region's sample is younger than Moscow and its region's sample ($p < .01$). Based on these differences, below we analyze the data on three samples, including the sample as a covariate or adjusting for it. Also, we focus on similarities between them (not regional differences) to reveal the general factors of perceiving infodemic-related information.

Table 1. Description of the samples

Sociodemographic variables	Total	Moscow or Moscow region	Omsk or Omsk region	Petropavlovsk-Kamchatsky or Kamchatka region
N (%)	396 (100 %)	207 (52.3 %)	63 (15.9 %)	126 (31.8 %)
Gender N (%)	133 (33.6 %) males / 263 (66.4 %) females	88 (42.5 %) males / 119 (57.5 %) females	14 (22.2 %) males / 49 (77.8 %) females	31 (24.6 %) males / 95 (75.4 %) females
Age (m±δ)	18-65 years old (32.83±11.03 years old)	18-65 years old (34.56±11.99 years old)	18-62 years old (28.44±10.45 years old)	18-60 years old (32.18±8.87 years old)
Education N (%) Primary school or college / Student / Graduated from the University	67 (16.9 %) / 101 (25.5 %) / 228 (57.6 %)	20 (9.7 %) / 36 (17.4 %) / 151 (72.9 %)	10 (15.9 %) / 27 (42.9 %) / 26 (41.3 %)	37 (29.4 %) / 38 (30.2 %) / 51 (40.5 %)

All the participants signed an informed consent for the research and then filled in the sociodemographic information. Then they were quasi-randomly assigned to one of the four experimental conditions. All the participants saw and evaluated four COVID-related online messages from the president, president of WHO, famous and politically neutral journalist (Vladimir Pozner) and a personal story in terms of 24 items (using a 5 point Likert scale) on possible importance, impact, trustfulness, probability of clicking, reading and reposting a link.

All the messages had only titles without providing any specific content, were presented as the latest news (“The President Announced New Methods For Coronavirus Control”, “The Head of WHO Told About New Recommendations For Protection Against the Infection”, “30-Year-Old Muscovite Shared Her Experience Of Treatment For Coronavirus”, “Vladimir Pozner Discussed The Effects Of The Pandemic On Humanity”) and were presented as clickable links to detailed information with the photos of these people (Fig. 1). The order of the messages was randomized for different conditions. The background (image) of the messages varied in different experimental conditions: official online information (Ministry of Health Care website background), popular (but not very trustworthy) news website (Yandex news), social network (Facebook), Messenger (WhatsApp). The examples of the images are given in Picture 1. We used the “magic square” principle to divide experimental conditions. For instance, in Condition 1 the president was with Yandex news background, president of WHO – with Facebook, personal story – with the Ministry of Health Care website, Vladimir Pozner – with WhatsApp while in Condition 2 the president was with Facebook background, president of WHO – with WhatsApp, personal story – with Yandex, Vladimir Pozner – with the Ministry of Health Care website.

In Moscow and its region’s sample, distribution of the participants between four experimental conditions was 43, 53, 55 and 56 people. In Omsk and its region’s sample, it was 14, 21, 15 and 13, respectively. In Petropavlovsk-Kamchatsky and its region’s sample, it was 36, 30, 24 and 36, respectively.

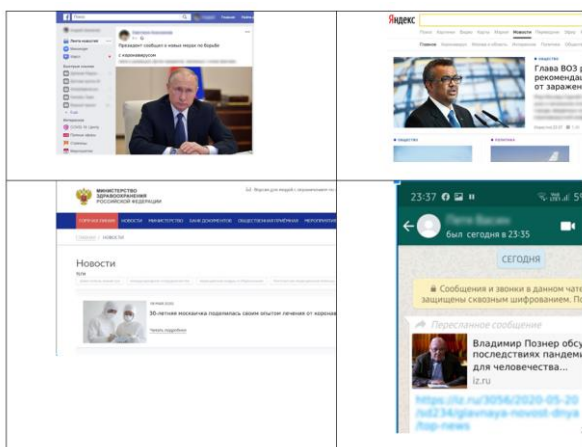


Fig. 1. Examples of stimulus material and backgrounds

Four items were processed separately (using a 5 point Likert scale): “How likely is it that you will click on this message to find out more?”, “What is the likelihood that you will forward it to other people without READING CAREFULLY?”, “In which case will you forward it to other people or repost”, “If in the end you decide that it is important to forward this message to other people, approximately how many people will get it from you?”. Other items were combined in the scales (two-three items in each scale): *Subjective Message Importance* scale (e.g., “In your opinion, how possible is that this information could be... - interesting, important, useful for you?”), *Subjective Message Impact* scale (“In your opinion, how possible is that this information could change your... - attitude to the coronavirus, protective behavior, decisions on how to behave during the pandemic”), *Repost Probability* (e.g., “What is the likelihood that you will forward it to other people without READING CAREFULLY?”, “In which case will you forward it to other people or repost”, “If in the end you decide that it is important to forward this message to other people, approximately how many people will get it from you?”), *Subjective Fake Probability* (e.g., “In your opinion, how much should you trust this message?” – reversed item; “What do you think is the probability that this is fake?”), *Subjective Clarifying Effect* (e.g., “In your opinion, can this message help with clarifying the situation?”, “In your opinion, will the situation become more clear for you after reading this message?”), *Expected Emotional Change (Negative)* scale (“How do you think your anxiety will change after reading this message?”, “How do you think your mood will change after reading this message?”). Cronbach’s alphas varied .65-.97 for different scales, three samples and four messages

After this experimental part of the study each respondent filled in a number of questionnaires:

1. *Monitoring Information About Coronavirus* scale includes three items (evaluated by a 5 point Likert scale) on frequency of communication about the coronavirus and monitoring information in the news and on social networks. It was developed and validated earlier in the period of self-isolation in Moscow and its region (Tkhostov, Rasskazova, 2020). For this study, Cronbach's alpha was .78.

2. *Coronavirus-Related Anxiety* scale (Tkhostov, Rasskazova, 2020) includes 8 items (evaluated by a 6 point Likert scale) referred to two subscales: anxiety related to the risk of infection (personal or family related; e.g. "I'm worried that I can be infected with the coronavirus") and anxiety related to the risks of long-term consequences of the pandemic (e.g. "I'm worried that I or my family will lose our jobs / earnings because of the epidemic"). In this study, principal component analysis with Varimax rotation fully supported this 2-subscale structure in our data (explaining 64.68% of variance, factor scores that were in accordance with the model varied .73-.85). Cronbach's alphas were .85 and .75, respectively.

3. *Beliefs in Over- and Underestimated Governmental Statistics* scale was developed for this study and included five statistical parameters ("Coronavirus incidence rates", "Coronavirus mortality rates", "Number of people who needs the coronavirus tests", "The number of people who needs special medical devices for treatment", "The number of patients with the coronavirus") regarding which the participants reported whether they think these parameters are over- or underestimated in their country's official statistics. Using a 5 point Likert scale, people evaluated if these parameters are underestimated or overestimated. Cronbach's alpha was .92 (.92-.95 for samples from three regions).

4. *Brief PANAS* (Watson, Clark, 1994) was shortened and modified to measure positive and negative emotions regarding the announcement about softening self-isolation regime. Positive emotions subscale included 3 items (factor loadings are .89-.91, Cronbach's alpha is .88) and negative emotions subscale included 4 items (factor loadings are .67-.81, Cronbach's alpha is .77).

The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of the Faculty of Psychology at the Lomonosov Moscow State University; it met the requirements of the Code of Ethics of the Russian Psychological Society.

Data were processed in SPSS Statistics 23.0.

3. Discussion

The role of the source and background of the message in the subjective perception of COVID-related online links. Regardless of the region and gender of the participants, people tended to perceive the message from the president as the most important, impactful and trustworthy while the personal story and broadcast from the journalist – as the least important, impactful and trustworthy. Against our intuition, the message from the official medical representative (the president of WHO) was evaluated as less important and interesting than the message from the president. In our opinion, this result could be explained by the long duration of the COVID-19 situation. It was shown that anxiety about negative consequences of the pandemic is higher in people than anxiety about infection (Tkhostov, Rasskazova, 2020), and therefore governmental information and recommendations could be more important for them.

It should be noted that, paradoxically, people expect less clarification of the situation from the president (especially if the message was presented with the Ministry of Health Care website background) comparing to the broadcast and president of WHO. Probably, from official sources of information, people expect to know about new changes in governmental politics regarding COVID-19. But if they need clarification, they rely more on medical and journalistic information.

Lower subjective probability of clicking and reposting the link could be partially explained by an expected emotional impact of the message (Sharot, Sunstein, 2020). In general, people expect more negative emotions after looking through the broadcast of the journalist and personal story that could affect their unwillingness to click them.

In line with Hypothesis 1, the perception of COVID-related messages depended not only on the source of information but also on where it was published online. In general, in all the three regions people perceive any information on the official medical website (the Ministry of Health Care website) as the most important and trustworthy, and any information that came from the

messenger (WhatsApp) as the least important and trustworthy (Gold, O'Sullivan, 2020). However, expected negative emotions about the message from the president and broadcast of the journalist with the Ministry of Health Care website background were the highest. We could suggest that typically, on the official medical site, people perceive information as more important and trustworthy. And if there are comments or a speech from non-medics (politicians, journalists), the same background makes people expect negative emotions from these messages.

The information demonstrated on the social network (Facebook) was perceived as at least as important and trustworthy as the information demonstrated on the news site (Yandex). But for the message from the president, Facebook background was as subjectively influential as the Ministry of Health Care website. Moreover, the subjective probability of reposting the message from the president and personal story with Facebook background was higher than with Yandex background and was second after the Ministry of Health Care website background. We could speculate that the spread of social networks can have a psychological impact on the message perception serving as the additional "proof" of the message importance and reliability for the necessity to spread information among others (Choi, 2016).

We found no differences between males and females in message evaluation, and only a few small in size differences in age, education, family status and number of children. We suggest that both men and women have similar strategies in dealing with COVID-related information. The younger people expect a bit greater impact from the message of the president of WHO and are more ready to repost it (Caumont, 2013) while the elder people evaluate the message from the president and personal story as more important and are more ready to click on them. It seems like the elder people with children have more trust in the messages from the president and expect them to be important while the younger people are more oriented to medical information about COVID-19. We also suggest that information shared through personal stories becomes more prominent among the elder people who already have some experience of different personal stories in their lives.

The role of subjective expectations from the messages in the probability of clicking and reposting the links. Hypothesis 2 suggested that the probability of clicking and probability of reposting could be related to different subjective expectations about the message. In our study, the major common factors for clicking and reposting were subjective importance, impact and truthfulness of the messages but not expectations about emotional changes. Except for the message from the president, for all the other messages the factor for the probability of clicking and reposting was the expectation of clarifying the situation. Importantly, if the decision of clicking the link highly correlates to subjective importance of the message, the decision to repost (especially without careful reading) is stronger related to the expectation that the message could change person's own mind and behavior. In other words, people tend to repost messages if, they think, they could change opinions and decisions.

Relations between the expectations from the COVID-related messages, reaction to the pandemic and self-isolation regime. We obtained mixed results regarding Hypothesis 3. General tendency to monitor information about COVID-19 had the most stable correlation with evaluation of the COVID-related messages as more important and impactful but not more trustworthy or clarifying. It was also related to the probability of clicking and reposting the links without careful reading. The possible role of seeking and reading COVID-related information in mental health complaints is widely discussed now (Moghanibashi-Mansourieh, 2020; Huang, Zhao, 2020). Our data suggest that this tendency to monitor COVID-related information underlies the spread of the infodemic decreasing personal potential to select information and increasing the probability of reposting without reading and analyzing. Higher anxiety about the pandemic could be another factor that is unrelated to clicking and reposting but could increase subjective importance of online messages and indirectly accelerate the infodemic. The result that the belief in over- and underestimation of the statistics on the coronavirus is related to lower subjective message importance is explained by the fact that the more a person believes in changes in official statistics, the less readily she would click and read these "misrepresented" messages.

4. Results

The Role of the Context and Background of Messages about COVID-19 in Subjective Expectations about Them and Readiness to Click and Repost the Link. For revealing the role of the source and context of messages and for controlling regional differences, we did 4 (four sources of messages) × 4 (four backgrounds) × 3 (region was used as a covariate) repeated measures ANOVA.

Only one small effect of sample was revealed in the analysis suggesting that in general the perception of COVID-related messages is common for people from the different regions, with the exception of the small difference in an expected emotional change ($F = 6.33, p < .05, \eta^2 = .02$). Comparing to the other two regions, the participants from Moscow and Moscow region expected a bit bigger negative emotional change from COVID-related messages.

In all the three samples, the participants evaluated the probability of clicking and reposting the links on the coronavirus, subjective importance, emotional change and fake probability as a bit lower than average (means were 2-3 scores on a 5 point scale). The probability of reposting without careful reading and subjective impact of messages were appraised as low (means were around 1,5-2 scores on a 5 point scale).

The highest probability of clicking the online link was for the message from the president and the lowest was for the personal story and the famous person's broadcast ($F = 2.15, p < .01, \eta^2 = .03$). For different message contents, the background of the message changed the subjective probability in different ways (interaction effect: $F = 8.37, p < .01, \eta^2 = .06$). The probability of clicking the message from the president was almost equally high for the Ministry of Health Care website, Yandex and Facebook background and the lowest for WhatsApp background. The probability of clicking the message from the president of WHO and with the personal story was the highest with the Ministry of Health Care website background and the lowest with WhatsApp background. The probability of clicking the link to the broadcast of the journalist was the highest with the Ministry of Health Care website background and almost equally low for the other backgrounds.

Similar patterns of interaction were revealed for the subjective importance and impact of the message (major effects of the source of information: $F = 13.42, p < .01, \eta^2 = .03$ for importance and $F = 5.47, p < .01, \eta^2 = .01$ for impact; interaction effects: $F = 12.72, p < .01, \eta^2 = .09$ for importance and $F = 9.21, p < .01, \eta^2 = .07$ for impact). The participants consider the message from the president as the most important and impactful while the personal story and the broadcast from the famous journalist as the least important. The participants evaluated the message from the journalist with Yandex background as more important and impactful than with Facebook background but the message from the president with Facebook background as more impactful than with Yandex background.

The subjective fake probability was the highest for the personal story and broadcast with the famous journalist and the lowest for the president and the president of WHO ($F = 16.10, p < .01, \eta^2 = .04$). It was the highest for the messages with WhatsApp background and the lowest with the Ministry of Health Care website background. The message from the president with Facebook background was evaluated a bit more trustworthy than with the Yandex one while there were no differences between these two backgrounds for the other messages (interaction effect: $F = 26.92, p < .01, \eta^2 = .17$).

Difference in subjective situation clarification between the messages was small. On average, the participants expected more clarification from the president of WHO and the broadcast of the journalist than from the personal story and president ($F = 3.40, p < .05, \eta^2 = .01$). There was a major effect of the message context ($F = 6.02, p < .01, \eta^2 = .04$) and interaction effect between source and context of the message ($F = 8.74, p < .01, \eta^2 = .06$). Paradoxically, people expected less clarification from the message of the president if it was presented with the Ministry of Health Care website background than if it was presented with Yandex, Facebook or WhatsApp background. However, they expected more clarification from the president of WHO and broadcast of the journalist if they were with the Ministry of Health Care website background and almost equally less clarification if these messages were with the other backgrounds. The lowest expectations from the personal story were if it was with WhatsApp background and almost no difference for the other backgrounds.

The repost probability was the highest for the message from the president and the lowest for the personal story ($F = 8.62, p < .01, \eta^2 = .02$). The highest probability of reposting the message from the president and personal story was with the Ministry of Health Care website and Facebook backgrounds and the lowest with WhatsApp background (interaction effect: $F = 12.22, p < .01, \eta^2 = .09$). The repost probability for the broadcast of the journalist and the message of the president of WHO was the highest with the Ministry of Health Care website background and the lowest with WhatsApp background.

The participants expected the biggest negative emotional change from the broadcast of the journalist and personal story and the smallest negative change from the president of WHO

($F = 4.19$, $p < .01$, $\eta^2 = .01$). Interestingly, they predicted the strongest negative emotions from the president and broadcast if the link was with the Ministry of Health Care website background but the smallest negative emotional change from the message of the president of WHO if it was with the Ministry of Health Care website background ($F = 2.51$, $p < .01$, $\eta^2 = .02$).

After adjusting for the region of living, there were no gender differences in subjective expectations from the messages and in the probability of clicking and reposting the links ($p > .05$). The younger participants were more ready to repost the message from the president of WHO without reading it carefully (partial correlations after adjusting for dummy-coded region variables, $r = -.15$, $p < .01$) and evaluated higher the probability of changing their mind or behavior ($r = -.11$, $p < .05$). The elder people expected that the message from the president and personal story would be more important for them ($r = .15$, $p < .01$ and $r = .10$, $p < .05$, respectively), were more ready to click to the link of the personal story and read it ($r = .13$, $p < .01$) and did not expect that the message from the president could be fake ($r = -.17$, $p < .01$).

Higher education was related to higher subjective probability of clicking the message from the president ($F = 3.75$, $p < .05$, $\eta^2 = .02$), and higher expectations about emotional change after looking through the broadcast ($F = 3.55$, $p < .05$, $\eta^2 = .02$) but lower probability of reposting the personal story without carefully reading it ($F = 4.58$, $p < .05$, $\eta^2 = .02$), and lower subjective fake probability for the broadcast from the journalist and the president ($F = 5.06$, $p < .01$, $\eta^2 = .03$ and $F = 9.27$, $p < .01$, $\eta^2 = .05$, respectively).

In comparison with the single respondents, the married people evaluated lower subjective importance of the message from the president of WHO ($F = 3.97$, $p < .05$, $\eta^2 = .01$) but more strongly expected arousing negative emotions after reading this message ($F = 8.71$, $p < .01$, $\eta^2 = .03$). And again in comparison with the single people, they also evaluated higher subjective fake probability of the broadcast from the journalist ($F = 5.42$, $p < .05$, $\eta^2 = .02$).

Subjective importance of the message of the president was higher in people having more children comparing to those without children or having one child ($F = 3.88$, $p < .05$, $\eta^2 = .02$).

Subjective Expectations from the Messages about COVID-19 and Probability of Clicking and Reposting the Link. The subjective probability of clicking and reposting the messages about COVID-19 (Table 2) was strongly related to expected subjective importance, impact of the message and lower subjective fake probability but was almost unrelated to an expected emotional change. Interestingly, the subjective probability of clicking the link is stronger correlated to subjective message importance while the subjective probability of reposting – to subjective message impact. The number of people who would see a repost is related to subjective message impact. The expectations about clarifying the situation are related to the probability of clicking and reposting the links but not for the message from the president.

Table 2. Partial correlations (adjusting for dummy-coded region variables) of the subjective probability of clicking and reposting the link about the coronavirus with subjective expectations from the message

Subjective expectations from the message	Subjective probability to click	Subjective probability to repost WITHOUT CAREFUL READING	Situation of repost (more – less careful reading and decision)	Number of people who would see a repost
Message importance – President	.79**	.52**	.51**	.32**
Message importance – WHO	.80**	.61**	.54**	.35**
Message importance – Personal story	.80**	.64**	.51**	.30**
Message importance – Broadcast	.82**	.54**	.54**	.39**
Message impact – President	.51**	.78**	.85**	.75**
Message impact – WHO	.58**	.82**	.86**	.71**
Message impact – Personal story	.53**	.77**	.87**	.75**
Message impact – Broadcast	.56**	.77**	.88**	.79**
Subjective fake probability – President	-.54**	-.34**	-.37**	-.25**
Subjective fake probability – WHO	-.60**	-.37**	-.38**	-.20**

Subjective fake probability – Personal story	-.53**	-.42**	-.39**	-.17**
Subjective fake probability – Broadcast	-.47**	-.27**	-.30**	-.17**
Expectations about situation clarification – President	.04	.19**	.09	.10*
Expectations about situation clarification – WHO	.61**	.45**	.34**	.24**
Expectations about situation clarification – Personal story	.60**	.53**	.48**	.31**
Expectations about situation clarification - Broadcast	.59**	.49**	.47**	.34**
Expected emotional change (negative) – President	.03	-.09	-.01	-.15**
Expected emotional change (negative) – WHO	-.19**	-.21**	-.12*	-.09
Expected emotional change (negative) – Personal story	.12*	.10	.18**	.09
Expected emotional change (negative) – Broadcast	.03	.01	.01	-.01

Note. * – $p < .05$, ** – $p < .01$.

Relation between Expectations from the Online Messages about COVID-19 and Monitoring Information about the Pandemic, Reaction to the Pandemic, and Softening Self-isolation Regime. The more time a person spends looking for and reading information about the pandemic, the more likely she will click and repost an online link about COVID-19, and the more she considers these messages to be important and impactful (Table 3). Higher anxiety about the pandemic is related to subjective message importance while higher anxiety about infection correlates to the expectations that the message will make the situation clearer. The belief that official statistics are underestimating risks is related to lower subjective message importance while emotions about softening self-isolation regime are unrelated to the perception of the messages.

Table 3. Partial correlations (adjusting for dummy-coded region variables) of the subjective probability of clicking and reposting the link about the coronavirus, subjective expectations from the message with reaction to the pandemic and softening self-isolation regime

Subjective expectations from the message	Monitoring information about COVID-19	Anxiety about infection	Anxiety about pandemic consequences	Beliefs in over- and underestimations of the coronavirus-related statistics	Positive emotions regarding the announcement about softening self-isolation regime	Negative emotions regarding the announcement about softening self-isolation regime
Subjective probability of clicking	.15** - .31**	.09 - .19**	.07 - .14**	-.16** - .10	-.07 - .07	-.02 - .06
Subjective probability of reposting WITHOUT CAREFUL READING	.11* - .24**	.04 - .17**	.05 - .14**	-.10* - .05	.03 - .08	.05 - .10*
Situation of repost (more - less careful reading and decision)	.09 - .24**	.03 - .15**	.07 - .19**	-.06 - .09	-.06 - .03	.07 - .12*
Number of people who would see a repost	.11* - .16**	.01 - .11*	.03 - .04	-.15** - -.06	.01 - .04	.06 - .10*
Message importance	.14** - .27**	.15** - .33**	.10* - .17**	-.17** - .13**	-.02 - .12*	.05 - .07
Message impact	.13** - .26**	.05 - .18**	.08 - .15**	-.12* - .02	-.01 - .05	.11

Subjective fake probability	-.23** - -.09	-.26** - -.08	-.09 - .00	-.06 - .20**	-.01 - .12*	-.01
Expectations about clarifying the situation	.06 - .17**	.14** - .28**	.06 - .11*	-.10 - .02	-.04 - .04	.05
Repost probability	.12* - .28**	.03 - .25**	.07 - .18**	-.14** - .07	-.05 - .08	.09
Expected emotional change (negative)	-.13** - .06	-.02 - .11*	.03 - .13**	-.03 - .09	.02 - .11*	.09 - .23**

Note: * - $p < .05$, ** - $p < .01$.

5. Conclusion

The expectations about subjective importance, impact, trustworthy and the probability of clicking and reposting the link were the highest for the message from the president and the lowest for the personal story and broadcast of the famous journalist. For all the messages, subjective importance, impact and the probability of clicking the link were the highest with the Ministry of Health Care website background and lowest with WhatsApp background. However, Facebook was perceived as equally or even more trustworthy than Yandex (especially for the message from the president). People expected the most clarification of the situation from the president of WHO and broadcast of the journalist. Paradoxically, they expected the least clarification from the message of the president with the Ministry of Health Care website background. People expected less negative emotional changes from the officially presented medical information and the most negative changes from the officially presented broadcast of the journalist and personal stories (regardless of the background of the message).

People are more ready to click the links about COVID-19 if they expect the message to be trustworthy, clarifying (with the exception of the message from the president that people do not consider as clarifying the situation) and important for them, regardless of what kind of emotional changes (negative or positive) they expect. People are more ready to repost the links about COVID-19 if they expect this message to change their (own) mind or behavior. The more changes in their mind and behavior people expect, the higher the number of people whom they will send the link.

The monitoring of information about COVID-19 was related to more subjective importance and impact of the messages and higher probability of clicking and reposting the links. Higher anxiety and belief that official statistics on the coronavirus is overestimated or accurate are related to higher subjective message importance. Neither individualism nor collectivism was related to the perception of the messages about the coronavirus.

The study design includes several limitations. First, due to experimental design, the study did not reflect the “real-life” experience of COVID-related information. We do not know whether evaluated subjective probabilities are related to behavior of participants. Second, it could be that not all the chosen stimulus material was a good example of some sources of information (for instance, the president as a famous politician, the president of WHO as a trustworthy medical representative etc.) and of some online resources (for instance, Ministry of Health Care website – as an example of an official medical website, WhatsApp – as an example of a messenger). Further studies asking participants to remember and describe online messages that were important for them during COVID-19 could be helpful to test these alternative hypotheses.

The other limitations concern sampling. We used three samples to reveal common processes of dealing with COVID-related online information but the data are not representative for the whole Russia and not fully representative in terms of age, gender and other sociodemographic characteristics.

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