Assessing the Effect of Various Knowledge Translation Platforms on Patient Care during the COVID-19 Pandemic

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Acknowledgements

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Assessing the Effect of Various Knowledge Translation Platforms on Patient Care During the COVID-19 Pandemic

Following the outbreak of the COVID-19 pandemic from Wuhan, China, approximately 250,000 people in the United States have been affected as of April 2020. Given this large scale of infections, it is essential that healthcare workers are capable of saving as many lives as possible. In order to be able to save as many lives as possible, healthcare workers must be up-to-date with current COVID-19 information. Thus, the reliability of these sources of knowledge translation and the sources' effect on patient care treatments used at the bedside were assessed. Our team proposed that healthcare professionals acquired information on the COVID-19 pandemic from medical-based Internet sources, and information from these sources may not always be up-to-date. Thus, it was proposed that these current measures of knowledge translation have resulted in the dissemination of non-evidenced based recommendations that had the potential for harm in patient care. The study consisted of a survey that was administered to healthcare workers in the tri-state area, as that was where the virus was most prominent during the early stages of the pandemic. Approximately fifty healthcare workers completed the survey, which contained questions asking about the reliability of these sources, the comfort levels with the patient care treatments used, and the sources through which COVID-related information was obtained from. Upon submission of this transcript, a logistical regression analysis had been initiated but not completed. Through analyzing the survey data, our team hopes to elucidate whether medical-based Internet sources were helpful or harmful to patient care at the onset of the COVID-19 pandemic. Based upon these findings, healthcare workers can be better informed on where to obtain accurate, up-to-date information for future potential pandemics. There were no statistically significant results regarding the effect of the knowledge translation platforms on patient care and the reliability and usefulness of the current knowledge translation platforms.

1.0 Introduction

In December of 2019, the SARS COV-2 virus, known now as the COVID-19 pandemic, emerged from Wuhan, China. Within the first four months of 2020, this virus spread to the rest of the world, infecting approximately 250,000 people in the United States alone (Figure 1), with a mortality rate of approximately 8%. Given the large scale of infections and deaths, it is critical that healthcare professionals on the front lines are able to save as many lives as possible. In order to be able to save as many lives as possible, physicians must be up-to-date with the current COVID-19 practices and treatments.

Presence of COVID-19 in Early April

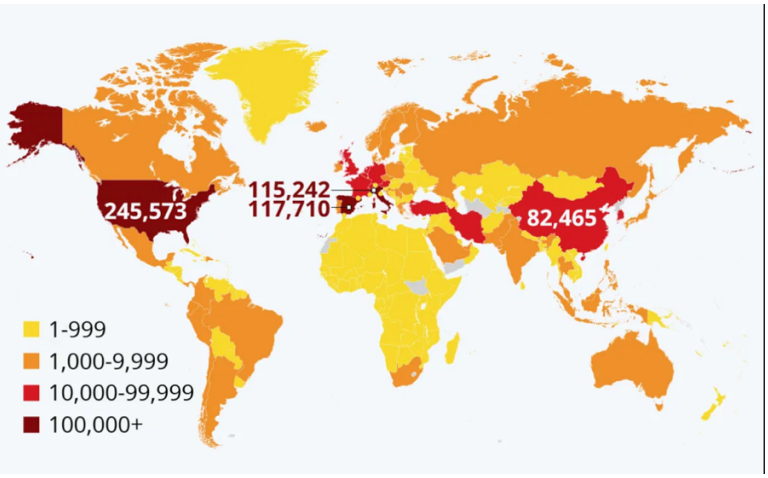

Figure 1. Spread of COVID-19 Pandemic as of April 2020 (Kashmira 2020)

During the pandemic, platforms such as digital forums, social media groups, podcasts and virtual programs were rapidly developed to share knowledge and pass information regarding the novel coronavirus. A serious delay between scientific discovery and its dissemination to the public has always existed. Most recently, this delay has extended for up to 17 years (Alberta Health Services 2019). After the outbreak of the novel coronavirus, healthcare workers around the globe were under immense pressure from the increase in infections and from all of the unknown factors that this virus posed. It is critical that all medical personnel receive accurate, reliable information in a timely fashion in order to properly combat this pandemic.

Moreover, the effect of this dissemination of knowledge needs to be further understood. In order ensure that medical personnel receive/obtain information accurately, this study assessed the sources of knowledge translation that healthcare workers utilized most frequently to obtain knowledge regarding the COVID-19 pandemic.

1.1 Review of Literature

Through this literature review, a description of the novel coronavirus. Then, the most common patient care treatments for dealing with the SARS-CoV-2 virus were detailed. Finally, the knowledge translation process and the main roles of knowledge translation platforms were discussed. An example of the use of knowledge translation platforms was also given in a medical-related study.

1.1.1 SARS- CoV-2 Virus Overview

On December 31, 2019, Chinese health officials informed the World Health Organization of several cases of pneumonia of an unknown cause in Wuhan City, located in central China. Many patients were associated with the local Human Seafood Wholesale Market as the disease began to propagate throughout December (Harapan 2020). In the beginning of January, a genomic study provided evidence that the virus most likely spreads through person-to-person transmission of tiny respiratory droplets when one person with the disease coughs or sneezes (Harapan 2020). So far, the incidence of the SARS-CoV-2 infections is noted most often in adult males between 34 and 59 years old. Additionally, this virus tends to have a greater impact on individuals with chronic issues such as cardiovascular and cerebrovascular diseases, or individuals with underlying pneumonic conditions. Clinical manifestations of the COVID-19 infection indicate that the most common symptoms of this virus include high fever, dry cough, chest pain, and mild fatigue; less common symptoms include dizziness, abdominal pain, nausea, and vomiting (Harapan 2020). Upon submission of this study, there is neither a specific antiviral cure for the COVID-19 infection nor is there an available vaccination.

In order to prevent the spread of this virus in community settings, it is recommended that infected personnel isolate themselves for at least fourteen days. All people are encouraged to mitigate the number of social gatherings and wear masks when in close contact with others. In health care settings, it is recommended that patients be placed in a separate, properly ventilated room with negative air pressure and medical workers should wear PPE facemask, gowns, and eye protection equipment (Harapan 2020).

1.1.2 Patient Care Treatments during COVID-19 Pandemic

Some of the most common patient care treatments that have been administered so far during the COVID-19 pandemic are prone ventilation, anticoagulation, convalescent plasma, and lab orders. In this study, the effect of the knowledge translation sources on such treatments was assessed.

Treatment Option	Description
Prone Ventilation	Refers to the delivery of mechanical ventilation when lying in the prone position (Malhotra & Kacmarek 2019)
Anticoagulation Therapy	Anticoagulation therapy is utilized to prevent the formation of new blood clots and to prevent the existing blood clots from growing larger in size. (Ogbru 2019)
Convalescent Plasma	Blood plasma taken from people who have recovered from the novel coronavirus in order to save the lives of other patients (Commissioner 2020)
Lab Orders (d dimer)	A degradation product of crosslinked fibrin resulting from plasma cleavage which is used to predict the occurrence of pulmonary embolism in those with the novel coronavirus. (Schutgens 2020)

Figure 2. Patient Care Treatments used by healthcare physicians in the COVID-19 Pandemic (Omudhome)

1.1.3 Knowledge Translation

Knowledge translation (KT) is defined as " the synthesis, dissemination, exchange and ethically-sound application of knowledge to improve health, health service delivery and the healthcare system" and encompasses all of the processes between the creation of new knowledge and its application to benefit society as a whole. Through implementing knowledge translation (KT), researchers can properly define research questions, develop hypotheses to these questions, and select appropriate research methods to answer these questions- all fundamental principles of the research cycle (Figure 2). Throughout the research cycle, knowledge translation, particularly the interactions, communications, and partnerships that encompass knowledge translation, can be utilized best in several different stages.

Knowledge Translation in Research Cycle

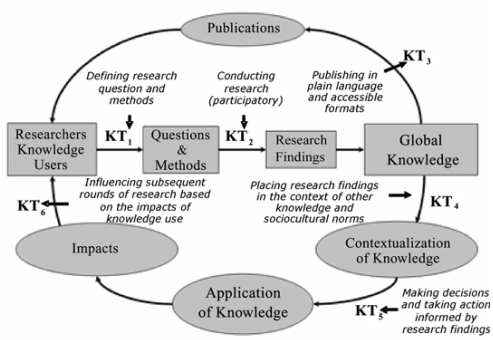

Figure 3. Role of Knowledge Translation in Resear ch Cycle (Ktdrr)

1.1.4 Roles of Knowledge Translation Platforms during the COVID-19 Pandemic

Due to the COVID-19 pandemic, health systems and economies around the globe have been severely disrupted. There is unprecedented pressure on healthcare workers to make quick decisions, often in the face of uncertainty and with the lives of millions at stake. Thus, with the best available research evidence and data to guide these decision makers, a huge difference could be made between life and death. Organizations, initiatives, and networks that aim to inform the public play an important role in providing relevant information (El-Jardali-2020). One particular entity, known as knowledge translation (KT) platforms, is more important than ever before, particularly in areas where the public health systems are overburdened.

The most important role of these knowledge translation platforms is that they can harness the large body of knowledge that is generated at an unprecedented speed to inform policy and practice (El-Jardali-2020). Parts of the information that are presented about the COVID-19 pandemic can be reliable and other parts are often unreliable. These platforms are able to filter the current best available evidence from all relevant sources and studies and provide decision makers with reasonable syntheses that address priority issues in a suitable manner.

1.1.5 Example of the effect of a means of Knowledge Translation

One common type of knowledge translation platform is social media platforms. These platforms are collaborative online applications which encourage participation and conversation between users. Several research studies have studied the relation between social media and knowledge exchange. In the study presented by Katherine Inge in 2017, it was reported that utilizing knowledge translation platforms to provide support to individuals with traumatic brain injury could be an effective option.

Doctors that deal with patients who suffer from traumatic brain injury (TBI) want to provide their patients with the most valuable support and information regarding their path to recovery. In the past, vocational rehabilitation (VR) was one possible option to provide individuals with TBI with some support that did lead to some success (Inge 2017). However, information about VR can be quite difficult to navigate. The objective of this study was to compare the effect of a knowledge translation strategy (e-news) and the use of a private Facebook group at delivering information to those afflicted with TBI (Inge 2017). The study was conducted through a randomized pretest-posttest control group design. One group received information through Facebook and the other group, the control group, received information via e-news. When participants were assessed on the knowledge on TBI, both groups gained a significant amount of knowledge (Figure 4). However, the knowledge translation platform was more effective at disseminating this information than the private social media group.

Knowledge Before/After use of a Facebook group and Knowledge Translation Source (e-News)

Means and standard deviations for baseline and post-intervention knowledge assessment

	Baseline Mean (*SD*)	Post-Intervention Mean (*SD*)	*n*
Group			
Facebook	2.93 (2.03)	4.67 (2.25)	30
e-News	2.93 (2.43)	5.07 (2.03)	30

Figure 4. Results of TBI using Knowledge translation platform and Facebook group (Inge 2017)

1.2 Statement of Purpose

1.2.1 Problem Statement

Due to the lack of empirical evidence regarding this pandemic, medical professionals learned new information about COVID, while responding to the increasing number of cases. Therefore, it is essential

that researchers have a strong understanding of the means by which information relating to the COVID-19 pandemic is disseminated and its impact on patient care.

1.2.2 Goals

The primary objective of this study was to determine the platforms that were utilized by healthcare workers to obtain information about the SARS-CoV-2 virus during the COVID-19 pandemic. The secondary objectives of this study were to evaluate the effect of these platforms used to obtain information about the SARS-CoV-2 virus on patient care and to assess the reliability of these platforms. By investigating the effect of these knowledge translation platforms on patient care and assessing the reliability of these platforms, researchers would then be able to decide whether the current methods of disseminating information regarding the COVID-19 pandemic were beneficial for fighting this virus.

1.2.3 Hypotheses

Healthcare professionals acquired information on the COVID-19 pandemic from medical-based Internet sources. Due to the rapidly changing understanding of the COVID-19 pandemic, the information that is displayed may not always be up-to-date. Thus, it is proposed that the current measures of knowledge translation have resulted in the dissemination of non- evidenced based recommendations that had the potential for harm in patient care.

2.0 Methods & Materials

Due to the rapidly changing knowledge of the SARS-CoV-2 virus, the aim of this study was to assess the knowledge translation platforms most frequently used by healthcare workers to obtain information on this virus. This study was conducted by preparing a survey that was completed by healthcare workers in the tri-state area. Participants provided demographic information and then answered questions on knowledge acquisition, patient care, and the reliability of the knowledge acquisition platforms. The role of the student team was to prepare the survey questions and analyze the completed surveys. The role of the mentor was to oversee the project. Both the student team and the mentor were responsible for sending out the surveys.

2.1 Participants

Healthcare physicians/advanced practice providers were randomly selected from the tri-state area to participate in this study. The tri-state area was selected because this region was where the novel coronavirus was the most prevalent in March through May of 2020 in the United States. All of these participants were eighteen years or older and were permitted to withdraw from the study at any point in time. The participants were allowed to skip any questions that they did not wish to answer. Prior to

completing the survey, the healthcare workers consented to these terms. The information that the participants provided was kept confidential in a secure drive with password-required access. Only the research student team had access to this data and the survey responses are to be deleted one year after the completion of the study.

2.2 Survey

A survey was developed to assess COVID-19 knowledge translation. The survey was split into four parts: demographics, Knowledge Acquisition, Patient Care, and reliability of Knowledge Translation sources. This survey contained twelve questions and took approximately ten minutes for the participants to complete. Seven questions focused on demographics in order to obtain general background information on the participants. One question focused on knowledge acquisition in order to provide information on the usefulness of knowledge translation sources during the pandemic. Two questions focused on patient care in order to provide information on the patient care practices employed during March-May of the pandemic. The remaining two questions focused on the reliability of the knowledge translation sources in order to assess how accurate the information obtained from the knowledge translation sources was. The Likert scale was used to collect the data for all questions.

2.2.1 Response Table for Knowledge translation/Patient Care/Reliability Sections

1: Never Useful	2: Rarely Useful	3: Sometimes Useful	4: Often Useful	5: Very Often Useful
x				
		x		
	x			
		x		

Table 5. Example response table for certain questions (figure generated by student)

2.2.2 Demographics

Figure 6 depicts both the survey's demographic questions and why the research team asked these questions. Overall, this background information was asked to provide insight on the healthcare physicians regarding their experience with the novel coronavirus and past experiences regarding infections.

Question	Researchers' Motive for Including this Question
1. What is your primary professional role? Options: Physician, Advanced Practice Provider, Resident	To consider how the participant's role in the hospital affects the results of the study.
2. What is your primary work environment? Options: Non-Academic Hospital, Academic Hospital	To take into account whether the type hospital that participants work at will affect their responses.
3. What is your age? Options: 20-29, 30-39, 40-49, 50-59, 60-69, 70+	To determine whether the participants fit the target audience.

4. Which best describes the location of your hospital? Options: Rural, Suburban, Urban	To determine if the results of the study would be different in various locations.
5. What is your gender? Options: Male, Female, Non-Binary, Gender-Fluid, Transgender	Standard demographic question
6. How many years of experience do you have in your profession? Options: 0-5, 6-10, 11-15, 16-20, 21-25, 26-30, 30+	To take into account how much experience these healthcare professionals have in their respective fields.
7. What is the estimated yearly volume of your hospital's Emergency Department (total number of patients? Options: Less than 30,000, 30,000-50,000, 50,000-70,000, 70,000-100,000, Greater than 100,000	To take into account the amount of experience that the healthcare workers have with dealing with COVID-19 patients.

Figure 6. Demographics questions and the reasoning for why these questions were asked (figure generated by student)

2.2.3 Knowledge Acquisition

In the survey, participants were asked to rate different sources for their usefulness in providing information regarding treatment modalities. Sources include Facebook, Twitter, Instagram, Podcasts, YouTube, Blogs, Online News Media, Print News Media, Television News Media, Medical journals, Panel discussions, work place training, group chats, and SMS text messages. The research team intended to assess both the sources of knowledge translation and the extent to which these sources were used by healthcare physicians at the beginning of the pandemic. The most commonly used sources of knowledge translation to obtain information on past infections were included.

2.2.4 Patient Care

In the survey, participants were asked to rate which of the following practices they recall employing during the early stages of the pandemic. Practices that were rated included prone ventilation, early intubation for hypoxic patients, delayed intubation for hypoxic patients, anticoagulation of elevated d-dimers, ordering of D-Dimer, ordering of LDH, ordering of Ferritin, ordering of ESR, ordering of CRP, prescribing azithromycin, prescribing plaquenil, utilizing HFNC, utilizing BiPAP, and ordering ivermectin. Through this question, the research team intended to assess how the information obtained from the knowledge translation sources impacted the patient care treatments (Figure 6) that were utilized to treat those with the SARS-CoV-2 virus.

Participants were asked to rate how comfortable they were that they were using the most up-to-date based practice when managing COVID-19 patients at the bedside using the Likert scale. Through this question, the research team intended to assess how comfortable the participants were that they were the most using up-to-date patient care treatments based on the knowledge translation sources.

2.2.5 Reliability of Knowledge Translation Sources

The study asked participants to reflect on the reliability of the sources of information they used during the early stages of the pandemic. Participants were asked the following question: with the benefit of hindsight from the months of June - August, how would you rate the reliability of the information you

obtained from the following sources- Facebook, Twitter, Instagram, Podcasts, Youtube, Blogs, Online News Media, Print News Media, Television News Media, medical journals, panel discussions, work place training, group chats, and SMS messaging. Through this question, the research team intended to assess the reliability of the knowledge translation sources in providing information regarding the COVID-19 pandemic during March-May of 2020.

Lastly, participants were asked the following question: if there is a sudden change in clinical practice related to SARS-CoV-2, how are you most likely to find out about it? Participants were given the following choices: Facebook (including COVID forums), Twitter, Instagram, Podcasts (EM: RAP, EMCrit, etc), Youtube, Blogs, Online News Media, Print News Media, Television News Media, medical journals, panel discussions, work place training, group chats, and SMS messaging. Through this question, the research team intended to assess the most common popular translation source that conveyed information regarding the COVID-19 pandemic.

2.2.6 Survey Display and Software

The application Google Forms was utilized for the survey. Since this survey contains many different types of questions (multiple choice, Likert scale responses), the multiple choice and chart features on Google Forms were used.

The Microsoft Office Excel 2019 software was used to analyze the data collected. A multinomial logistic regression was performed using R in order to assess which platforms healthcare workers preferred for obtaining information regarding the COVID-19 pandemic, and how those sources impacted the patient care treatments that were administered.

2.3 Limitations

The main limitation of this study was sample size. Only a small number of healthcare workers completed the study. Not hearing from every Emergency Department healthcare worker in the tri-state area was a confounding factor. Health care workers' experiences with the knowledge translation in different parts of the tri-state area may actually be different, which would potentially lead to a different study outcome.

3. Results

In this study, the platforms most frequently used by healthcare professionals to obtain information regarding the COVID-19 pandemic and the effect of these platforms on patient care were assessed. It was hypothesized that these healthcare workers most frequently received information about the COVID-19 pandemic from Internet-based medical sources and that these sources had the potential for patient care harm due to them not always being up-to-date.

The surveys were analyzed approximately three weeks after they were first released to healthcare professionals.

3.1 Survey Data

3.1.1 Demographics

Characteristic of Study Population	N (% of those answering question)
Primary Professional Role	
Attending Physician	26 (78.8%)
Advanced Practice Provider	5 (15.2%)
Resident-Physician	1 (3%)
Nurse practitioner	1 (3%)
Primary Work Environment	
Non-Academic Hospital	18 (54.5%)
Academic Hospital	15 (45.5%)
Age	
20-29	1 (3%)
30-39	16 (48.5%)
40-49	13 (39.4%)
50-59	2 (6.1%)
60-69	1 (3%)
70+	0 (0%)
Location of Hospital	
Rural (countryside)	0 (0%)
Suburban (outlying district of a city)	19 (57.6%)
Urban (a city)	14 (42.4%)
Gender	
Male	17 (51.5%)
Female	16 (48.5%)
Transgender Female	0 (0%)
Transgender Male	0 (0%)
Gender Variant/Non-Conforming	0 (0%)
Prefer not to answer	0 (0%)
Not listed (please specify)	0 (0%)
Years of Clinical Experience	
0-5	3 (9.1%)
6-10	14 (42.4%)
11-15	7 (21.2%)
16-20	5 (15.2%)
21-25	3 (9.1%)
26-30	1 (3%)
30+	0 (0%)
Estimated Volume of ED patients	
<30,000	3 (9.1%)
30,000 - 50,000	9 (27.3%)
50,000 - 70,000	15 (45.5%)
70,000 - 100,000	3 (9.1%)
>100,000	3 (9.1%)
Unsure	0 (0%)

Table 7. Demographics Questions Responses (generated by student)

3.1.2 Usefulness of Knowledge Translation Platforms

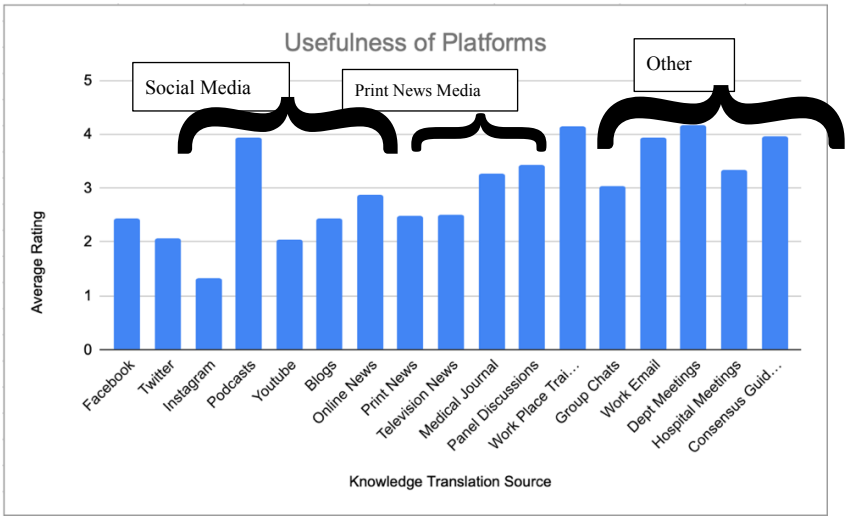

Figure 8. Usefulness Ratings Responses (figure generated by student)

3.1.3 Scientific Reliability of Knowledge Translation Platforms

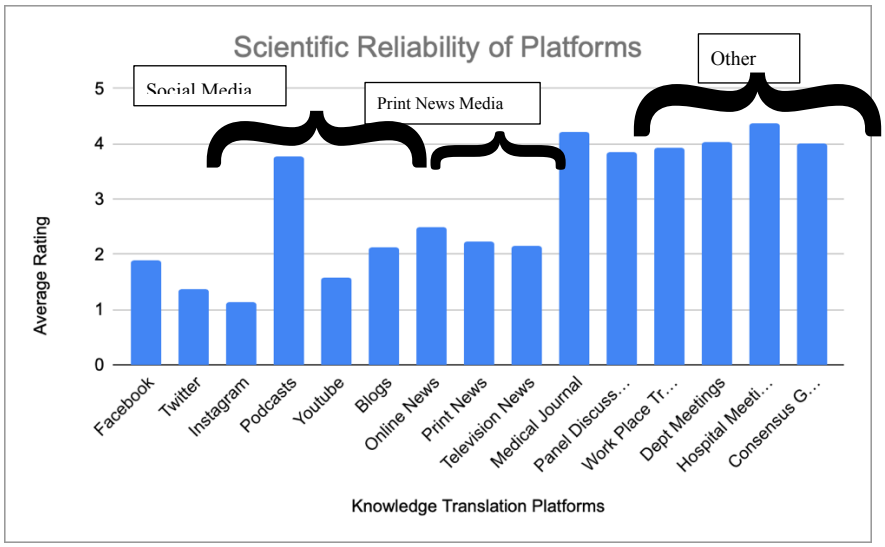

Figure 9. Scientific Reliability Ratings Responses (figure generated by student)

3.2 Statistical Analysis

Based on an OLS regression test, there were no statistically significant results regarding the effect of the knowledge translation platforms used to obtain COVID-related information on patient care and regarding its reliability and usefulness.

4. Discussion

It was hypothesized that healthcare professionals obtain information regarding the COV

ID-19 pandemic from Internet-based medical sources and that these sources had the potential for patient care harm due to them infrequently remaining up-to-date. From this data, it was clear that while there was no significant association between the knowledge translation platforms used to obtain COVID-related information and an effect on patient care. There was also no statistically significant correlation regarding the willingness and scientific reliability of these sources.

Some problems that were encountered throughout the study were trying to obtain a sufficient number of participants from the tri-state area to complete the survey. Some may have been hesitant to provide information due to the potential number of COVID cases in their hospital or the confidentiality of COVID-related practices and viewpoints. The main limitation in this study was the number of participants. In this study, there were only thirty-three participants. If there were more participants, researchers would probably have a clearer picture of the impact of these knowledge translation sources on patient care.

5. Conclusion

The knowledge translation sources that healthcare professionals used to obtain information about the COVID-19 pandemic and the effect of these knowledge translation platforms on patient care was assessed in order to determine whether these sources provided information that was useful in medical practice. A survey was developed and disseminated to healthcare professionals from the tri-state area to assess which sources were used and their effect on patient care. It was hypothesized that healthcare professionals obtain information about the pandemic from Internet-based medical sources and that these sources had the potential for patient care harm due to them often not being up-to-date.

Based on the survey analysis procedures, it was concluded that no statistical significance was observed between the knowledge translation platforms and patient care. There was also no statistical evidence regarding the usefulness or scientific reliability of any knowledge translation platforms. With this knowledge, healthcare workers can be better informed on reliable healthcare sources to guide their medical practice.

5.1 Future Research

In the future, this study can be performed on participants from other locations than just the tri-state area. In this way, the effectiveness of the knowledge translation sources on patient care can be assessed from various different angles.

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Knowledge Transmission Data

November 19, 2020

Contents

1 Loading Data

library(fastDummies)

```
library(xlsx)
```

```
jacovid <-read.xlsx("JACOVID.xlsx", sheetIndex = 1,  header = TRUE)
```

1.1 Regression Analysis for Comfort

```
ja <- lm(formula = jacovid$Comfort~ jacovid$Profession + jacovid$Hospital + jacovid$Age + jacovid$Locati

summary(ja)
```

```
##
## Call:
## lm(formula = jacovid$Comfort ~ jacovid$Profession + jacovid$Hospital +
##     jacovid$Age + jacovid$Location + jacovid$Gender + jacovid$Years +
##     jacovid$Volume + jacovid$SM, data = jacovid)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -2.5265 -0.6781  0.2974  0.8924  2.4450
##
## Coefficients: (2 not defined because of singularities)
##                                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)                          8.404144   2.698553   3.114  0.00711 **
## jacovid$ProfessionAPP               -2.708255   2.059343  -1.315  0.20822
## jacovid$ProfessionRP                -0.376937   3.659906  -0.103  0.91933
## jacovid$HospitalNon-Academic Hospital  0.707723   1.321604   0.536  0.60015
## jacovid$Age30-39                    -3.194388   2.792141  -1.144  0.27053
## jacovid$Age40-49                    -5.247823   3.528360  -1.487  0.15765
## jacovid$Age50-59                    -6.923209   4.520175  -1.532  0.14643
## jacovid$Age60-69                           NA         NA      NA       NA
## jacovid$LocationUrban                0.400251   1.288912   0.311  0.76043
## jacovid$GenderMale                  -0.002039   0.976415  -0.002  0.99836
## jacovid$Years11-15                   5.101788   2.696586   1.892  0.07796 .
## jacovid$Years16-20                   4.148083   2.609326   1.590  0.13275
```

```
## jacovid$Years21-25                    5.517961   2.795370   1.974  0.06710 .
## jacovid$Years26-30                          NA         NA      NA       NA
## jacovid$Years6-10                     0.984761   1.731711   0.569  0.57800
## jacovid$Volume>100,000               -2.016787   2.667433  -0.756  0.46131
## jacovid$Volume30,000-50,000           0.915112   1.934123   0.473  0.64292
## jacovid$Volume50,000-70,000           0.987203   2.225202   0.444  0.66363
## jacovid$Volume70,000-100,000         -2.425419   2.133910  -1.137  0.27354
## jacovid$SM                           -2.026979   1.310154  -1.547  0.14267
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.986 on 15 degrees of freedom
## Multiple R-squared:  0.4208, Adjusted R-squared:  -0.2355
## F-statistic: 0.6412 on 17 and 15 DF,  p-value: 0.8118
```

1.2 Regression analysis for Age and SM

View(jacovid)

```
library(jtools)

summary(ja2 <- glm(jacovid$SM ~ jacovid$Age, data=jacovid, family=binomial))
```

```
##
## Call:
## glm(formula = jacovid$SM ~ jacovid$Age, family = binomial, data = jacovid)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.1774  -0.8576  -0.8576   1.1774   1.5353
##
## Coefficients:
##                     Estimate Std. Error z value Pr(>|z|)
## (Intercept)      -1.757e+01  3.956e+03  -0.004    0.996
## jacovid$Age30-39  1.757e+01  3.956e+03   0.004    0.996
## jacovid$Age40-49  1.676e+01  3.956e+03   0.004    0.997
## jacovid$Age50-59 -1.030e-08  4.845e+03   0.000    1.000
## jacovid$Age60-69  3.513e+01  5.595e+03   0.006    0.995
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 44.252  on 32  degrees of freedom
## Residual deviance: 38.229  on 28  degrees of freedom
## AIC: 48.229
##
## Number of Fisher Scoring iterations: 16
```

```
summ(ja2, exp=TRUE, confint = TRUE)
```

Observations	33
Dependent variable	jacovid$SM
Type	Generalized linear model
Family	binomial
Link	logit

$\chi^2(4)$	6.02
Pseudo-R^2 (Cragg-Uhler)	0.23
Pseudo-R^2 (McFadden)	0.14
AIC	48.23
BIC	55.71

	exp(Est.)	2.5%	97.5%	z val.	p
(Intercept)	0.00	0.00	Inf	-0.00	1.00
jacovid$Age30-39	42544811.90	0.00	Inf	0.00	1.00
jacovid$Age40-49	18908805.29	0.00	Inf	0.00	1.00
jacovid$Age50-59	1.00	0.00	Inf	-0.00	1.00
jacovid$Age60-69	1810061038327565.00	0.00	Inf	0.01	0.99

Standard errors: MLE