AWARENESS CAMPAIGNS EFFECTIVENESS ON THE FENTANYL CRISIS, A SURVEY BY THE PUBLIC

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ABSTRACT

BACKGROUND: At the end of 2016, the death-count for fentanyl related overdoses climbed to almost 1000 lives in BC alone. Fentanyl, an opioid that was originally developed to aid those with chronic pain, is being abused due to its ability to induce a heroin-like trip from mere micrograms of product. Combating this crisis is the Ministry of Health and local police departments as well as multiple Health Service establishments and associations. A series of awareness programs have been developed to increase awareness about fentanyl and its dangers but their effectiveness remains unknown. This study assessed the level of public knowledge in relation to the Fentanyl crisis, which may assist in the development of programs and campaigns to identify target areas and audiences.

METHODOLOGY: An online survey posted on Social media sites was used to gather responses from the public on their knowledge relating to the Fentanyl crisis. The survey was posted by the researcher, to gather responses and ensure the results of the survey were representative of the population. The survey ran from Jan. 25, 2017 to Feb. 19, 2017. It included questions about participants’ age, gender, and profession, as well as asked skill testing questions based on similar fentanyl awareness campaigns.

RESULTS: The results of a series of Chi square tests showed p values of 0.68, 0.58, and 0.38, concluding that there is no association between a person’s age, gender, or previous drug use and their level of knowledge pertaining to the Fentanyl crisis. Those 30 and under, and those greater than 30 years were equal on their knowledge in regards to the crisis. The results also indicated that even though the public is lacking knowledge on this crisis, awareness campaigns are reaching the general population equally.

CONCLUSIONS: Based on the results of this study, additional awareness campaigns directed specifically at different age groups and programs are needed to educate the population on prevention information and the dangers of fentanyl. Current campaigns as well as the Naloxone program are not enough to combat this outbreak that still has no end in sight.

KEY WORDS: fentanyl, fentanyl crisis, awareness campaigns, public knowledge, health, opioid
2016 has marked the year for more illicit drug related deaths than ever before seen in Canada. Since the appearance of fentanyl and fentanyl containing drugs on our streets “the annual mortality rate due to illicit drug overdose in BC has risen from 4.7 per 100,000 in 1992” (BCCDC, 2016) to more than 10.8 per 100,000 in 2015 as shown in Figure 1. In 2016 the number of fentanyl overdoses rose to 914 in BC alone.

**Figure 1 – Illicit Drug Overdose Deaths and Death Rate per 100,000 Population (Coroners Service of BC, 2016).**

In April of 2016, the BC Provincial Health Officer Dr. Perry Kendall declared a public health emergency for the province (Ellis, 2016) under the **Public Health Act**. “This allows for information to be collected, reported, and interpreted in real-time across the healthcare system to determine where the risks are arising and what actions need to be taken to protect people” (BC Ministry of Environment, Sept, 2016). Other provinces agree that the federal government of Canada needs to make the crisis official and announce a federal public health emergency since “we have not seen the response that this type of epidemic requires” (Johnson, 2017).

Fentanyl is an opioid much like oxycodone and morphine, only one hundred times stronger. Typically, the drug is used to help treat chronic pain in cancer patients. But since the fentanyl opioid patch was developed, people began to use the patch for their own pleasure. Currently, fentanyl is typically found in heroin and cocaine. In addition, there have been reports where fentanyl has been mixed with more commonly used drugs including marijuana (Reynolds, 2015). This raises concern on potential populations at risk since more young adults and teenagers are taking up the smoking of marijuana to relieve anxiety and stress.

Fentanyl was first synthesized in 1960 by Dr. Paul Janssen (Stanley, 2014). It was a beneficial creation that helped numerous patients with chronic pain. Being a lipid soluble compound fentanyl could cross the blood-brain barrier easier than other opioids and thus relieve pain more quickly and effectively. The opioid also displayed fewer side effects than other opioids and was easier and inexpensive to synthesize within a lab.

“As more ways of administrating fentanyl and its supply increased more fentanyl related deaths began to occur” (Stanley, 2014). Increased illicit drug use is common for any new opioid, however this became a concern since most of the patients using this opioid were on home care outside of the hospitals. Patients could not be monitored on a 24-hour basis and thus made it impossible for doctors to tell if patients were using their supply as prescribed.

The drug itself was also hard to control. Fentanyl could be illicitly produced as a pill, powder, spray, or patch as depicted by Figure 2 (Stanley, 2014). It could also easily be mistaken for heroin or another opioid substance since its general appearance is that of a white powder. Its potency made minuscule amounts deadly to those who abused it. “An amount of fentanyl that weighed the same as a single grain of salt was enough to trigger a heroin-like bliss while
an amount that weighed two grains could lead to a fatal overdose in some adults” (Howlett, 2017). “With the line between euphoria and death so thin” (Howlett, 2017), the drug is highly dangerous.

Figure 2 – Characteristics of the Rapid-onset opioids currently available and being developed (Stanley, 2014).

<table>
<thead>
<tr>
<th>Formulation</th>
<th>Route of Administration</th>
<th>Administration Time Requirements</th>
<th>Bioavailability</th>
<th>Onset of Action (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FENTANYL CITRATE</td>
<td>Buccal Lomage</td>
<td>Consumed over 15 min</td>
<td>50%</td>
<td>10-15</td>
</tr>
<tr>
<td></td>
<td>Buccal Tablet</td>
<td>Dissolution time 14 – 23 min</td>
<td>63%</td>
<td>15 minutes</td>
</tr>
<tr>
<td></td>
<td>Buccal Film</td>
<td>Dissolves within 15 – 30 min</td>
<td>71%</td>
<td>13 minutes</td>
</tr>
<tr>
<td></td>
<td>Sublingual Tablet</td>
<td>1 – 5 sec</td>
<td>34%</td>
<td>10 minutes</td>
</tr>
<tr>
<td></td>
<td>Intranasal Spray</td>
<td></td>
<td>EDT 60%</td>
<td>10 minutes</td>
</tr>
<tr>
<td></td>
<td>Sublingual Spray</td>
<td></td>
<td>EDT 70%</td>
<td>5 minutes</td>
</tr>
<tr>
<td>FREE FENTANYL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LITERATURE REVIEW

AWARENESS PROGRAMS AND FENTANYL CONTROL

One of the first awareness plans used to control fentanyl was the Transmucosal Immediate-release Fentanyl Risk Evaluation and Mitigation Strategy (TIRF REMS) Access Program (Stevenson, 2016). The program attempted to control:

- Prescribing and dispensing of the drug to patients only
- Preventing stigma in relation to fentanyl products and users
- Preventing accidental exposure to children
- Educating prescribers and patients on its misuse and potential addiction.

It was in 2013 the Canadian Community Epidemiology Network on Drug Use (CCENDU) reported that illicit drug deaths relating to fentanyl were rising in Canada (Young et al., 2015). However, this rise in drug deaths did not cause too much of an impact. Looking back this should have been a main concern at the beginning of the outbreak. The ignored alerts could have raised many questions regarding our health policies and helped to identify which areas we should have put our efforts towards to control illicit drug use. Young et al. suggested that had the illicit drug marketplace been detected and acted upon earlier, this outbreak may have been prevented. Early warning systems are important to view trends throughout the country however they

Early detection and educational awareness campaigns were launched to help control the outbreak and provide information to the public. These campaigns educate the population on safe drug use, and alert the public on the current crisis within our country. Know your source, rethink, Men’s health Initiative: Fentanyl awareness, and Take-home Naloxone programs are just a few examples on what Canada has developed to control this outbreak (Alberta Health, 2016), (Health Initiative For Men, 2013), (VPD et al, 2016), (BC Ministry of Health et al., 2016).

When it comes to the Health Authorities and other health professionals, they are taking a front seat on the delivery of awareness campaigns, and are also involved in tracking trends, and handling public relations surrounding the fentanyl crisis. Environmental Health Officers (EHOs) working within the Health Authorities have since been involved with this crisis. EHOs work alongside the Center for Disease Control (CDC) and other departments in identifying trends of the outbreak in Canada. They have aided in the development of awareness plans regarding illicit drug use. Primarily, EHOs are known for their enforcement work, however they consider themselves to be educators first. EHOs teach operators and consult on issues which relate to public health and work to eliminate health hazards that pose a risk to public safety. With this unexpected rise in mortality rates and the risk this outbreak poses to public safety, there is little doubt that EHOs, and other health professionals, should be putting this crisis at the top of their to-do lists.
must work in tandem with the local
governments, health care providers, and
community programs to make any impact.
Thus, fentanyl-use has continued to rise as well
as the death toll.

Even with numerous awareness campaigns the
rate of illicit drug mortality continues to rise.
The campaigns are targeted more towards young
adults and men at risk. However, are these
campaigns enough to control this outbreak?
Awareness campaigns in regards to fentanyl
surround three main key points; knowing your
source, how to tell if someone has overdosed,
and informational lines to call should you have
questions or in the event of an emergency
(Health Initiative For Men, 2013), (Judd, 2016),
(Passik, 2014).

With the emergence of fentanyl into the market,
questions have been raised on why the drug is
more addictive than its counterparts. One study
by Passik et al. considered aberrant drug related
behavior during a 12-week period on patients
taking either Traditional Short-acting opioids or
Fentanyl Buccal Tablets for persistent pain
(Passik, 2014). The results of the study showed
that patients taking the fentanyl buccal tablet had
the same chance of developing aberrant drug
related behavior (18%) as the patients taking the
traditional short-acting opioids (20%). This
study tried to show that fentanyl wasn’t any
more addictive then other opioids. The
characteristics of fentanyl which make it so
dangerous is its low lethal dose, its appearance
to look like other drugs, and its ability to be
created and packaged easier than other illicit
substances.

Fentanyl is being used as a filler in other drugs,
making it almost impossible to tell which
supplies have fentanyl in them. Short of a
reading from a mass spectrometer there is no
way to tell if drugs supplies have been
contaminated with fentanyl (Burgmann, 2016).
Another control in regards to this outbreak is the
drug use during music festivals such as the
Pemberton Music Festival or Shambhala. Both
these festivals are known environments for
recreational drug use. The AIDS Network
Kootenay Outreach and Support Society
(ANKORS) has asked for government funding
to check a person’s drug supply (Burgmann, 2016).
However, there are limitations as the machine is
only able to detect certain varieties of fentanyl;
should a new type come out there would be no
way to tell if a person’s source was
contaminated or not.

Even with all the current campaigns to control
this outbreak more resources and programs are
needed. Funding should be targeted more
towards prevention and treatment rather than
enforcement (Boddiger, 2006). Law
enforcement is an important aspect of control
however it fails to address the root of the
problem. Addiction treatment and outreach
programs will make a greater impact and help to
explain why drugs are dangerous in the first
place and will help those already addicted.

The program that has made the greatest
contribution to the fentanyl crisis is the
Naloxone Take-Home program (Alberta Health,
2016). Naloxone is a drug which counteracts the
effects of a fentanyl overdose. Alberta was the
first to develop a Naloxone Take-home program.
Clinics and hospitals all over Alberta have been
stocked with Naloxone to be given out to anyone
who has a potential risk of overdosing (Alberta
Health, 2016). Much like safe injection sites
naloxone aids those who are using drugs to use
them safety. BC has also jumped on board with
the idea. Naloxone is now being stored at
almost all clinics and hospitals around Metro
Vancouver (Young et al. 2015). The kits are
given to those who have a potential for
overdosing and to educate the user on how to
administer the drug should it be needed. First
responders are also now trained on how to
administer Naloxone and carry kits that can be
used if necessary.

CAMPAIGN EFFECTIVENESS
Little evidence supports that these campaigns
have made an impact. There hasn’t been any
direct research into if their campaigns are
working or not. However, after reviewing
accounts from first responders and other health
practitioners they support all the campaigns and
believe that they have truly made an impact if
we look at the populations at risk (Burgmann, August 2016). Further education towards the public is still going to be needed to control this outbreak as well as funding directed to prevention and treatment programs.

**METHODOLOGY**

**MATERIALS AND SOFTWARE**

The materials used for this project included an electronic knowledge questionnaire, with a cover letter explaining the survey and its importance. The survey was developed using Google Forms which allowed cover letters and consent forms to be integrated into the survey. The initial script for the survey was posted alongside the survey link on social media in Facebook posts, and on Reddit. The questions for the survey were created by the researcher in regards to the key reminders within current awareness campaigns. These key messages, such as knowing your source, were changed to form questions and assess the knowledge of the participants.

**DISTRIBUTION METHODS**

Survey questionnaires were distributed through various means of social media including Facebook, and Reddit. Electronic survey distribution was selected since it has a broad instantaneous reach with is appropriate for a major public health issue such as the Fentanyl crisis. The researcher for this project also chose to use an electronic survey to save on costs and time with survey distribution. After completing the survey, participants were asked to share the survey by reposting and asking others to take the survey as well. The reposting of this survey caused a snow-ball effect and aided in targeting potential participants on social media to help gather a variety of responses from people of all different backgrounds and cultures. Also, with the ability to share media posts and send to others, the survey was distributed more effectively than handing them out in person, saving the researcher time and allowing the survey to run for a longer period.

The survey was initially posted by the on January 25th, 2017 and was available for completion until February 19th, 2017. Every five days into the run time the researcher reposted the survey and thanked all those who had participated up until that point. At the end of the day on February 19th, 2017 the researcher posted once again to thank all participants for their time and effort before closing the survey.

**INCLUSION AND EXCLUSION OF THE STUDY**

The survey was open to the public, specifically anyone with access to social media including Facebook, or Reddit. Participants must have been 18 years of age or older to participate and given their consent to the study (Health Canada, 2014). Participants must have been able to understand the English language as the survey was only available in the one language. Those with occupations in the law enforcement and/or health service field were included in the study to ensure the survey covered a representative group of the public.

**ETHICAL CONSIDERATIONS**

Since this study was conducted on human participants it is important to consider the ethical considerations of this study. This study was in no way to make participants feel uncomfortable or to cause them harm in any way upon its competition. A pilot test helped to ensure the questions asked for the survey were non-discriminatory and simple to answer. A participant was in no way obligated to complete the questionnaire should they so choose. All completed questionnaires were assessed and scored using an answer key to remain consistent and confidential.

**SURVEY DETAILS**

Survey Links were posted with an introduction section explaining the purpose of this study and a question of informed consent to be checked by each participant at the beginning of the survey.

Survey Knowledge Questions

1. What is Fentanyl’s intended use?
2. How much stronger is Fentanyl compared to other opioids?
3. Is there a general test to determine if Fentanyl has been mixed with other drug supplies?
4. Which drug has fentanyl typically been mixed with?
5. What is the key reminder on health awareness campaigns relating to Fentanyl?
6. What is not a sign of an overdose?
7. About how many people have died in BC since 2016?
8. What does Naloxone do to someone who has overdosed?
9. What is the main cause of death from a fentanyl overdose?

DATA TYPE

Questionnaires completed by the public were assessed and placed into one of three categories depending on how many of the nine knowledge testing questions each participant answered correctly. Those receiving a score of 78% or higher (7-9 out of 9 correct) were placed into the ‘Very Knowledgeable’ category. Those receiving a score of 44-67% (4-6 out of 9 correct) were placed into the ‘Somewhat Knowledgeable’ category. Lastly those receiving a score of 38% or less (0-3 out of 9 correct) were placed into the ‘Unaware’ category. After participants were placed into one of the three categories the groups were further compared by age group, gender, and previous use of recreational drugs. The initial data collected for this study was numeric, as it came from questionnaire answers which were then translated into nominal and numeric data for comparison.

STATISTICAL PACKAGES AND TESTS

For the statistical analysis of this study the researcher used NCSS 11 for data analysis (NCSS, 2016). The data collected from this study was analyzed using a series of Chi Square tests to assess knowledge level of participants in association with each participant’s age, gender and previous use of recreational drugs.

RESULTS

DESCRIPTIVE STATISTICS

The nominal data collected from the survey was inputted into Microsoft Office Excel 2015 to determine the mean, median, and mode of the results. An average result of 46% was calculated at the end of the survey. This indicates that on average, participants from this survey were “Somewhat Knowledgeable” on the Fentanyl Crisis and its associated awareness campaigns.

Table 1 – Descriptive Statistical Analysis of results

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>46%</td>
<td>2%</td>
</tr>
<tr>
<td>Median</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Mode</td>
<td>56%</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>1-9</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>131</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1 – Number of correct answers from survey respondents

Figure 1 shows that respondents of the survey were knowledgeable on the intended use of fentanyl being a painkiller and on how fentanyl has been typically mixed with heroin.
Respondents were not knowledgeable when it came to number of fentanyl related deaths or on what the most important prevention measure is; it being knowing your source of drugs should you engage in recreational drug activity.

The results of the survey also helped to determine the most effective ways to reach people should more information on the crisis need to be sent out. Figure 2 shows that respondents to this survey primarily gather their information from the crisis by reading the newspaper and online articles.

**Figure 2 – Responses for Obtaining Fentanyl Information**

How do you, or would you obtain your information on Fentanyl? Please all that apply. (130 responses)

<table>
<thead>
<tr>
<th>Source</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Media</td>
<td>104 (80.0%)</td>
</tr>
<tr>
<td>TV or Radio</td>
<td>75 (58.1%)</td>
</tr>
<tr>
<td>Teacher/College</td>
<td>27 (20.8%)</td>
</tr>
<tr>
<td>Friends/Family</td>
<td>34 (26.2%)</td>
</tr>
<tr>
<td>Health Care</td>
<td>60 (46.2%)</td>
</tr>
<tr>
<td>Newspaper</td>
<td>90 (69.0%)</td>
</tr>
</tbody>
</table>

**HYPOTHESES**

**Table 2 – Null and Alternative Hypothesis**

**Analysis 1 – Knowledge Level Vs Age Group**

Ho: There is no association between knowledge of the fentanyl crisis and a person less than and equal to 30 or greater than 30.

Ha: There is an association between knowledge of the fentanyl crisis and a person less than and equal to 30 or greater than 30.

**Analysis 2 – Knowledge Level Vs Gender**

Ho: There is no association between knowledge of the fentanyl crisis and a person’s gender.

Ha: There is an association between knowledge of the fentanyl crisis and a person’s gender.

**Analysis 3 – Knowledge Level Vs Use of Recreational Drugs**

Ho: There is no association between knowledge of the fentanyl crisis and if the person has used recreational drugs other than medications or those prescribed by a physician.

Ha: There is an association between knowledge of the fentanyl crisis and if the person has used recreational drugs other than medications or those prescribed by a physician.

**INFERENTIAL STATISTICS**

The total responses collected from the survey was 131.

For Analysis 1, 130 of the 131 responses were used. One response was eliminated from this analysis due to the fact the participant did not indicate which age group they belonged to.

For Analysis 2, 130 of the 131 responses were used. One response was eliminated from the analysis due to the fact the participant selected “Neither” as their gender.

**Table 3 – Summary of Results**

<table>
<thead>
<tr>
<th>Ho and Ha</th>
<th>Tests Used</th>
<th>Result</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analysis 1</strong></td>
<td>Chi Square Test</td>
<td>P = 0.68</td>
<td>Do not reject Ho and conclude there is no association between a person’s knowledge on the fentanyl crisis and their age.</td>
</tr>
</tbody>
</table>
of the fentanyl crisis and a person less than and equal to 30 or greater than 30.

<table>
<thead>
<tr>
<th>Analysis 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho: There is no association between knowledge of the fentanyl crisis and a person’s gender. Ha: There is an association between knowledge of the fentanyl crisis and a person’s gender.</td>
<td>Chi Square Test</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analysis 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho: There is no association between knowledge of the fentanyl crisis and if the person has used recreational drugs other than medications or those prescribed by a physician. Ha: There is an association between knowledge of the fentanyl crisis and if the person has used recreational drugs other than medications or those prescribed by a physician.</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Fentanyl use in British Columbia (BC) is a very serious public health concern. With the drug being mixed into supplies of heroin, cocaine, and even marijuana, the populations at risk includes chronic drug users, to recreational drug users, teens, and young adults.

Results from this survey showed no statistical association between a person’s age, gender and previous drug use, and their knowledge level of the fentanyl crisis.

A series of chi square tests were performed to explore associations between demographic variables and knowledge. The first test assessing a person’s age and their knowledge level on the fentanyl crisis resulted in a p-value of 0.680. This indicates that there is no association between a person’s age and their knowledge on the fentanyl crisis. Those less than or equal to 30 and those greater than 30 have similar knowledge levels.

The second chi square test investigated possible associations between a person’s gender and their knowledge level of the fentanyl crisis. A p-value of 0.582 was calculated. This once again shows that there is no association between a person’s gender and their knowledge on the fentanyl crisis. Both males and females have similar levels of knowledge.
The final chi square performed looked for an association between people who had used recreational drugs (not including medications or those prescribed by a physician) and their level of knowledge on the fentanyl crisis. A p-value of 0.376 was calculated: there is no association between a person’s use of recreational drugs and their knowledge on the fentanyl crisis.

While several awareness campaigns have been launched to combat this crisis, there is little documented evidence to show if they are working. One of the key questions within the survey was whether there is a general test to determine if Fentanyl has been mixed in with other drug supplies. Only 23% (30/131) of respondents answered this question correctly. There is no general test to determine if fentanyl has contaminated a drug supply. Drug supplies for hospitals and research institutions are checked using a mass spectrometer. When supplies are run through a mass spectrometer, the machine is only able to detect certain known strains of fentanyl (Burgmann, 2016). Should a new type come out, there will be no way to tell if a person’s source is contaminated or not. Additionally, although a large proportion of respondents answered incorrectly to that question, a similar low proportion (27%) answered correctly that “Knowing Your Source” is the key reminder on health awareness campaigns. The population received higher scores on questions relating to facts about fentanyl for example, 79% (103/131) of respondents knew that fentanyl is a painkiller.

The three key goals of fentanyl education are to educate the public on 1) Knowing your source 2) How to tell if someone has overdosed 3) Informational lines to call should you have questions or in the event of an emergency (Health Initiative for Men, 2016; Johnson, 2017; Passik et. al, 2014). The analysis of results show that these three main points have not been clearly communicated to the population, thus additional awareness campaigns and programs are needed to spread this information.

The awareness campaigns that have made the greatest impact are the ones surrounding Naloxone. Approximately 50% of participants in the survey answered the two questions relating to Naloxone correctly, indicating that this campaign has already made a large impact.

Overall, the results of the survey displayed an average score of 46%. This indicates that on average, respondents were within the ‘Somewhat Knowledgeable’ group. Even though the results indicate that more education is needed, they indicate that the awareness campaigns are reaching the general population equally. Since no group was more knowledgeable about Fentanyl than another, it suggests that they all received and knew some information.

While this survey was designed to assess the public’s knowledge level on the Fentanyl crisis the results should be taken with some skepticism. This project only received responses from 131 individuals. Which is a fraction of the BC population. More research into the effectiveness of awareness campaigns will add to the body of knowledge about the Fentanyl crisis currently raging in BC.

Even with all the current campaigns to control this outbreak, more resources and programs are needed. Funding should be targeted more towards prevention and treatment rather than enforcement as it fails to address the root of the problem. Addiction treatment and outreach programs will make a greater impact and help to explain why drugs are dangerous in the first place and will help those already addicted.

Knowledge Translation for Environmental Health Officers

LIMITATIONS

The study’s main limitations included sample size participation, time restraints, language restriction, and survey type restrictions.

The survey received 131 responses however, 131 participants is but a fraction of the BC population and does not statistically represent the city of Vancouver or surrounding area. The survey was sent through Facebook and Reddit to gather responses. After a participant completed the survey they were asked to share it to help gather more responses. Many respondents did
not share the survey after completion, limiting its reach. Input from stakeholders such as the BCCDC or the Vancouver Police Department (VPD) would have helped legitimize the survey and allowed it to reach a greater number of people.

Time restraint was another limitation of the survey. The survey ran from January 25th, 2017 to February 19th, 2017 for a total of 25 days. With a longer time frame a larger group of people could have responded and added to the results.

The survey was only available in English and did not compensate for those who did not read or understand the English language. The city of Vancouver has become very diverse over the last several years and a large proportion of the population does not have English as their primary language. By having the study available in different languages, it could have yielded a larger response rate.

Finally, the study was only available online. By having the researcher perform in-person surveys as well as the electronic copy, the researcher could have gathered more responses and yielded a large response rate to draw conclusions from.

BIAS AND OTHER POSSIBLE ERRORS

This survey relied upon respondents answering truthfully to the questions provided. There is the possibility that respondents used outside sources to search for answers while they were completing the survey. This would result in those individuals obtaining a different knowledge rating than what they should have received.

Also, since the survey was sent out on Facebook by the researcher, the direct respondents were similar in age and interests to the researcher. This resulted in a greater number of respondents being from the age group less than 30 years.

Additionally, this was a voluntary survey. Respondents of voluntary surveys are more likely to have stronger feelings towards the subject potentially swaying the results, and not providing an actual representation of the public’s knowledge level.

FUTURE RESEARCH

This study focused on assessing the public’s knowledge on fentanyl awareness campaigns to gauge their knowledge about the crisis in Canada. Future knowledge surveys specifically targeting fentanyl users and their knowledge on the crisis, or on what the police departments and health care professionals believe the public should know are two other avenues for future projects. Additionally, this crisis has brought safe injection sites into a brighter light. Looking at how these sites will mitigate the crisis and how they play into managing drug control would also be an interesting direction for additional studies.

CONCLUSION

Fentanyl was first synthesized to help treat pain in cancer patients. Since its development, fentanyl and fentanyl containing drugs have made a huge impact on the opioid industry as well as the illegal market. In 2013 the Canadian Community Epidemiology Network on Drug Use (CCENDU) first alerted Canada of the rising rate in illicit drug related deaths (Young et. al, 2015) and as of 2015, the mortality rate for illicit drug deaths has increased from 2 per 100,000 to 10 per 100,000 in BC (BCCDC, 2016).

To counteract the growing rate of overdose deaths Canada has launched a series of awareness campaigns. These campaigns help to educate the public on knowing your source, how to tell if someone has overdosed, and informational lines to call should a user have questions, or in the event of an emergency (Health Initiative for Men, 2016; Johnson, 2017; Passik et. al, 2014).

This study examined the knowledge level of the public on the fentanyl crisis and the extent to which awareness campaigns are spreading knowledge, and reaching the target populations they should. The results of this study indicate that overall knowledge about the crisis is low and that there was no association between a person’s age, nor gender, nor previous use of non-prescription drugs when compared to their
knowledge level on the crisis. The campaigns are still relatively new and it is hard to determine the extent of their impact and if they have helped to mitigate the spread of this outbreak. Fentanyl deaths are still on the rise and there has not been any concrete evidence to show whether the campaigns are making a difference. The results from this survey show that the average population still lacks knowledge on the fentanyl crisis. Further education directed at the public as well as funding directed at prevention and treatment programs is needed to control this outbreak. In addition this study will serve as a message to help educate the public on drug abuse and to aid EHOs, those working in law enforcement, and health service workers which information needs to be communicated more clearly to help educate the public on this crisis.

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COMPETING INTERESTS

The authors declare that they have no competing interests.

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