Quantitative Research Article: A Critical Appraisal

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The focus of the quantitative research in the selected article was how effective the use of a program to quit smoking was for veterans suffering from other substance abuse disorders. Within the nursing practice, many clients present with multiple issues related to the abuse of substances. Since spending a clinical rotation learning more about substance abuse while earning my bachelor's degree in nursing, I have taken an interest in learning as much as I can about substance abuse disorders and what nursing interventions can be implemented for these individuals. It is important to understand the science behind substance abuse as well as what other factors a person may have that contributes to both the abuse of a substance and the want to quit. In my current practice, I work with many clients who have cardiac issues. Many of these are also veterans and struggling with the addiction of smoking and other substances, especially alcohol. I chose this article so that I could have a better understanding of how each plays a part on the other as well as to have a better understanding as to how I can help people quit smoking, a huge risk factor in cardiovascular health that can be eliminated if the patients are provided with the right interventions.

Problem Statement

The problem statement for this research article could be identified in the abstract of the paper. It reads "Persons who use tobacco in addition to alcohol and other drugs have increased health risks and mortality rates" (Vest, Kane, DeMarce, Barbero, Harmon, Hawley, & Lehmann, 2014, pg. 333). While it is not clearly identified as the problem statement, a reader of the article is able to identify it because of the supporting information given in the introduction. The writers open with how prevalent smoking still is among those with mental illnesses, how a lot of those patients are veterans being cared for by the Veterans Administration (VA), and how when it is all

combined, leads to those individuals having a high morbidity and mortality rate, typically related

to illnesses caused by tobacco use (Vest et al., 2014).

Study Purpose, Research Question, and Hypothesis

This leads into the purpose of the study, first acknowledged in the abstract and re-stated

in the introduction. Vest et al. (2014) write, "the purpose of this study was to evaluate the

impact of participation in a tobacco cessation program on tobacco, alcohol, and other drug use in

a population seeking treatment for substance abuse disorders (SUDs)" (pg. 333). The purpose is

then mentioned in the introduction as it begins the paragraph that goes on to name what type of

framework is used for the study, the transtheoretical model, and gives a hypothesis.

While a specific research question is not within the article itself, references to what the

research is exploring sets up what the researchers are seeking to answer with their study. That

question revolves around whether the participation in an added program to the SARRTP that

focused on tobacco cessation could lessen substance use overall (Vest et al., 2014). This allows

for the hypothesis to be developed in which the researchers predict that for those veterans who

participated in the Substance Abuse Residential Rehabilitation Treatment Program (SARRTP)

Tobacco Cessation Group, there would be an improvement in substance use outcomes for those

individuals (Vest et al., 2014). Both the purpose of the study and hypothesis are clearly

identified.

Independent and Dependent Variables

The independent variable in this study is the inclusion of a formal tobacco cessation

program for veterans who use tobacco within the usual treatment program used for SUDs (Vest

et al., 2014). As Polit and Beck (2017) explain, the independent variable is what changes to

influence or impact the dependent variables. Thus, the dependent variable, also referred to as the

outcome variable, is the behavior that the researcher is trying to explain or predict how the

independent variable will impact it (Polit & Beck, 2017). In this current study, there are three

dependent variables, the usage, if any, of alcohol, drugs, and tobacco by the veterans over a

course time that tobacco cessation program takes place (Vest et al., 2014). While these variables

are used within the tables and identified as variables, the variables are not specifically mentioned

within the article as the independent and dependent variables. Other variables, including

descriptive, categorical, and continuous variables, were briefly discussed, but of those, no

significant differences statistically were found (Vest et al., 2014).

There is a casual relationship between the independent variable and dependent variables

in this study. The research question that this study seeks to answer is whether or not adding a

tobacco cessation program can help reduce or eliminate the use of tobacco by participants as well

as other substances, including other drugs and alcohol. This demonstrates a cause-and-effect, or

casual, relationship, which, as explained by Polit and Beck (2017), the independent variable

causes an effect on the dependent variables. In this case, the addition of the tobacco cessation

program led to a decrease or in some cases, abstinence, from tobacco, alcohol, and other drugs

by the participants (Vest et al., 2014).

Validity of the Study

In reviewing the problem statement, purpose of this study, research question, and the

variables above, congruency is identified among these components. The study is seeking to

explore the impact that an intervention program for tobacco cessation has on the use of other

drugs and alcohol. The dependent variables focus on the abstinence from tobacco, alcohol, and

other drugs, and are what is being measured through self-report methods. This would be content

validity, which is described as "the extent to which a research instrument accurately measures all

aspects of a construct" (Heale & Twycross, 2015). The tools of measurement that will be used to measure the dependent variables will focus on the use or abstinence of tobacco, alcohol, and other drugs in order to determine whether the intervention of a tobacco cessation program had any impact on those variables.

Quantitative Research

Quantitative research revolves around the use of deductive reasoning that allows researchers to make predictions that can be tested in the everyday world (Polit & Beck, 2017). The process is typically systematic moving from the definition of a problem to selecting concepts that will be the focus of finding a solution to the problem following the scientific method (Polit & Beck, 2017). The process occurs within a controlled manner, meaning that conditions are imposed to the situation with the minimization of any bias and the maximization of precision and validity (Polit & Beck, 2017). The evidence that is gathered by researchers is empirical, rooted in objectivity and collected through sight, sound, touch, taste or smell, grounding the findings in reality (Polit & Beck, 2017). Typically, but not always the case as Polit and Beck (2017) point out, the information that is collected is numeric, obtained through formal measurement and is statistically analyzed.

This method fits the overall purpose of the study as the researchers were determining whether or not the addition of a tobacco cessation program would help reduce the use of tobacco as well as other drugs and alcohol. Various methods of collecting the data were used to help support the findings. As Vest et al. (2014) pointed out, "The study involved a large, diagnostically diverse sample and longitudinal data collection" (pg. 337).

Vest et al. (2014) followed a process systematically, first identifying a problem that led to a purpose for the study and determining that the concept of adding a tobacco cessation program

would help not only help participants reduce or quit tobacco use, but also other drug and alcohol usage. The study was controlled as it included veterans who were admitted to the Salem Veterans Affairs Medical Center's SARRTP during specific dates and had also indicated the use of tobacco within the past month (Vest et al., 2014). Each participant was enrolled in the tobacco cessation program, and data was collected regarding their use of tobacco, alcohol, and other drugs at four different times, at admission, two weeks following admission, discharge, and at a one-month follow-up point (Vest et al., 2014). Vest et al. (2014) indicated that this data was determined through various methods, including urine drug screens, breathalyzer readings, and self-report.

Type of Quantitative Research Design

The design of this study was non-experimental. While an intervention was applied to participants, there was no manipulation by the researchers, and the intervention applied to all participants that used tobacco. There was not a separate group that did not receive the intervention. As Polit and Beck (2017) describe, in a non-experimental study, the researchers standby collecting the data without intervening in any way during the data collection. Furthermore, the research is non-experimental in the fact that there is not a random assignment of participants to one condition or not (Price, 2015).

Descriptive Study

Specifically, this is a descriptive study. In this specific class of nonexperimental studies, the purpose of it is to observe, describe, and document what occurs within a situation as it occurs naturally (Polit & Beck, 2017). Vest et al. (2014) further identified that "the study involved a large, diagnostically diverse sample and longitudinal data collection" (pg. 337). Additionally, it

monitored the different stages of change that occurred from admission throughout the course of treatment and the progress that was made by the participants (Vest et al., 2014).

Longitudinal Data Collection

Looking specifically at the longitudinal data collection aspect, Polit and Beck (2017) describe this as a type of study in which data is collected over an extended period of time. For this particular study, the longitudinal design can be further identified as a follow-up study. This type occurs when a group of individuals has received a specific intervention and are followed to determine the effects that intervention has on the group (Polit & Beck, 2017). The research done in this article fits this description as an intervention, a tobacco cessation program, was provided to a group of veterans and data was collected at various time points to identify the impact that the intervention had (Vest et al., 2014). Data was collected at admission, after two weeks, at discharge, and again at a one month follow-up (Vest et al., 2014). While the four different points of data collection was reasonable, the duration of the program, which was 28 days, and the overall short time span involved in data collection may not have provided the best data. Vest et al. (2014) identify this as a limitation as well, showing how progress was made during the 28 day program, but that ongoing support is likely needed to continue to see such results and maintain the change that had been made regarding the use of tobacco and other drugs.

Additionally, attrition occurred. Attrition is a common, major problem with longitudinal studies and is defined as the loss of participants after data is collected initially (Polit & Beck, 2017). Polit and Beck (2017) explain that this is an issue because typically those that dropped out differ In ways that are important to the study verses those that are still participating, which can result in potential biases.

Blinding

Vest et al. (2014) also state that the study was not blinded but that the testing that occurred, such as the urine drug screens and breathalyzers, were not performed by the investigator. Blinding is generally used to help ensure that a bias does not occur that stems from having an awareness (Polit & Beck, 2017). As Polit and Beck (2017) further explain, in a study such as this one in which the intervention is a tobacco cessation program, the participants are aware that they are receiving the intervention so blinding is not an option.

Reliability and Validity of the Instrument Utilized

For a majority of the data collected in this study, it was obtained through self-report from the participants themselves (Vest et al., 2014). The self-reported data included reporting any usage of tobacco, alcohol, and other drugs at specific assessment points during the study (Vest et al., 2014). Additionally, Vest et al. (2014) also used biomarkers, specifically urine drug screens and breathalyzers at various times in the study, though tobacco usage was assessed only through the use of self-report. Other tools included workbook progression and medication adherence for those prescribed pharmacotherapy (Vest et al., 2014).

Using self-report in this study was advantageous as it allowed for the researchers to gain retrospective data. Polit and Beck (2017) define this as being able to have the ability to gather data about past behaviors or events, such as in this case whether or not the participants abstained from tobacco, alcohol, and other drugs. However, the limitation is how valid and accurate the data from the individuals is (Polit & Beck, 2017).

Vest et al. (2014) discussed this limitation as they stated self-reporting on the use of tobacco is not a reliable tool when assessing cessation from tobacco in veterans, especially in those veterans who also cope with mental illness. However, Vest et al. (2014) provide research

from the Centers for Disease Control and Prevention showing that when self-reporting is used in

studies, there may be lower estimates verses if a biomarker were used, but that this

underreporting does not substantially change the estimates.

Sample for the Study

Convenience sampling was used in this study. This type of sampling is when the

participants for a study are most conveniently available for it (Polit & Beck, 2017). In the case

of this study, the participants selected were from a pool of veterans who were patients at the

Salem Veterans Affairs Medical Center's SARRTP between May 1st and December 31st, 2012

and who had reported using tobacco within the past month prior to their admission into the

program (Vest et al., 2014).

Sampling Technique

Since this study sought to evaluate whether or not those who were seeking treatment

already for SUDs would benefit from a tobacco cessation program that would additionally help

reduce the use of tobacco, alcohol, and other drugs, the sample taken for this study is appropriate

(Vest et al., 2014). The plan was clearly identified as it listed from which population the

participants would be taken from as well as what would make a participant eligible. To qualify,

a participant had to have been admitted to the SARRTP of the Salem Veterans Affairs Medical

Center and had used tobacco within the past month prior to admission (Vest et al., 2014).

Sample Size

The number of participants for the study who met the defined criteria equaled 137

persons (Vest et al., 2014). They were all between the ages of 24 and 70, with the average age of

the participants being approximately 48 and the majority, 96%, being male (Vest et al., 2014).

Additionally, Vest et al. (2014) reported that 57% of the participants were Caucasian, while 42%

were African-American, and the other two percent was split with one being Hispanic and the rest

being categorized as "other." When looking at the diagnoses of the participants, 84% had an

alcohol use disorder and 78% had a drug use disorder (Vest et al., 2014). Other characteristics

that were defined included marital status, education, and whether or not the participant had a co-

occurring mental health diagnosis, further broken down into PTSD, major depressive disorders,

schizophrenia, bipolar, and anxiety (Vest et al., 2014).

Overall, the sampling is diverse and fits a usual sample size used within a quantitative

study, which is usually fewer than 200 participants (Polit & Beck, 2017). The one weakness

with the sample for this study is that each person who met the criteria was included as a

participant, if they wanted to or not. Polit and Beck (2017) explain that this can be an issue

because the researchers are unable to identify the number and characteristics of those that did not

want to or declined to participate in the study. The participants of this study were not given the

option to not go through with the tobacco cessation program. While they did agree to do so and

go ahead with the self-reporting and other measurements of the study, their answers and

participation, or lack thereof, in the actual intervention may have caused some potential biases.

Another possible bias that could be seen in this study is the social desirability one. Polit

and Beck (2017) explain that this can occur in self-report as the participants tend to misrepresent

their answers so that the answer is more consistent with a social norm. Vest et al. (2014) point

this limitation out, stating that the use of tobacco may have been underreported because of the

relationship between the participant and the interviewer, especially since no biochemical

validation of tobacco abstinence was used. Vest et al. (2014) also identify that because it was a

convenience sampling that there is a possibility that other factors than just the tobacco cessation

intervention may have contributed to the decrease seen in substance use overall, including

completion of the SARRTP itself.

Data Collection

Various data was collected for this study. For information about substance abuse and

mental health disorders participants had, the data was retrieved from the electronic health record

of the participant (Vest et al., 2014). Data was also collected on whether or not participants

progressed through the workbook they were given as well as their adherence to medications if

they were prescribed pharmacotherapy (Vest et al., 2014). Lastly, results from urine drug

screens and breathalyzers given at various points were documented, and each of the participants

was interviewed to provide self-reported data about their abstinence from tobacco, alcohol, and

other drugs at four different times over the course of the study (Vest et al., 2014).

The method used to collect the majority of data in this study was structured self-report.

Polit and Beck (2017) indicate that a formal instrument is used for this method, which in this

study was an interview schedule as the questions were asked orally, face-to-face. During data

collection, the participants were asked various questions within specific categories including

stages of change, progression within workbooks, medication adherence, and usage of tobacco,

alcohol, and other drugs (Vest et al., 2014). Two biophysiologic measures were also used within

the study, which included the use of urine drug tests and breathalyzers.

This method of collecting data allowed for the researchers to remain consistent with the

aim of the study, which was to examine "the impact of a residential treatment program for SUDs

that included a formal tobacco cessation component on veterans who reported both the use of

drugs/alcohol and tobacco" (Vest et al., 2014, pg. 335). By looking at different components

when collecting the data, the researchers were able to identify what areas especially made an

impact. Researchers were also able to see what strategies helped contribute to a reduced usage of substances overall.

Because of that, I do not feel that too much data was collected from the participants or burdened them in any way. While some may have wanted the research to go deeper by exploring the thoughts and urges of the participants in regards to using substances, this would have been overwhelming for them. The researchers stayed within an acceptable boundary in the data that was collected and also collected enough information to identify that an impact does exist, even if it was limited in what may have specifically led to that.

That said, I would have liked examples of what types of questions that participants were asked that led to the data that was collected from the self-report method. I feel having the questions that were asked of the participants would have allowed for the findings of this study to be better understood and analyzed by its readers. The researchers also do not identify who collected the information, including the urine drug screens and breathalyzers or to what extent those individuals were trained to do those duties. It is also not indicated as to how the urine was collected to be tested, such as whether or not the participants were monitored in any sort of way to ensure it was their urine. No reliability or validity measures were reported for the data collected in this study.

Statistical Analysis of the Data

When looking at the statistics that focused on the study's hypothesis of predicting that the addition of a tobacco cessation program to the current SARRTP would improve substance use outcomes for veterans, various methods were used to determine those statistics (Vest et al., 2014). For instance, t-tests were used to compare the data from the month prior to treatment to that of the month following (Vest et al., 2014). The results showed a significant reduction in the

days of both alcohol and drug use over time and similarly, abstinence from other drugs and alcohol rates also significantly increased in that time frame (Vest et al., 2014).

To analyze the data from tobacco use, an analysis of variance (ANOVA) with repeated measures was used (Vest et al., 2014). While the mean days of tobacco use did not differ significantly, abstinence from tobacco did increase from 0% at baseline to 14.4% at the one month follow-up (Vest et al., 2014). When looking at the results on a whole, 14 out of the 137 that were originally enrolled abstained from all substances, drugs, alcohol, and tobacco at the one month follow-up, while over 90% of the remaining participants abstained from alcohol and nearly 92% abstained from other drugs (Vest et al., 2014). Based on these results, the research hypothesis was supported. A strength of the study was that it was large and diverse in sample size and longitudinal data collection occurred (Vest et al., 2014).

Results of the Study

The major result of this study was that the inclusion of a tobacco cessation program into the current SARRTP impacted substance use. Other findings were also gathered during the study. Perhaps the biggest takeaway from this study was, as Vest et al. (2014) wrote, "the results of this study may possibly serve as a model for the development of integrated tobacco cessation programming during SARRTP programs throughout the VA" (pg. 337). During the study, stages of change in relation to having no desire to quitting smoking to precontemplation and finally to taking action were observed (Vest et al., 2014). This study found that when veterans participated in a substance abuse program and were interested in quitting smoking, it is possible to work towards a tobacco free life if the right interventions are available (Vest et al., 2014). Vest et al. (2014) also looked at the use of medications to quit smoking during the study and collected data about the different ways the medications worked and what participants preferred or did not work

for participants, adding yet another way that these individuals can work towards being tobacco free.

The researchers showed evidence of how tobacco is the leading cause preventable morbidity and mortality, and how, because of that, there is a need for providing more education, research, policies and leadership surrounding the control of tobacco (Vest et al. 2014). Furthermore, the evidence Vest et al. (2014) presented included information from a report from the Institute of Medicine on how problems of substance abuse currently exist in military personnel. Using this and the results of their study demonstrated a need for integrated care in helping individuals stop using all addictive substances, including tobacco all at the same time in order to promote the healthiest lifestyle possible for those persons (Vest et al., 2014). While the final data of the study showed that only 14 of the original 137 participants quit using tobacco, this is important as it demonstrates a huge need for developing the best and most effective tools to treat tobacco addiction (Vest et al., 2014).

A final point Vest et al. (2014) made and supported by research evidence was that for those that do participate in tobacco cessation programs, there will not be any negative impact to abstaining from other drugs and alcohol because of it. Research actually shows that participating in tobacco cessation increases the rates of abstinence long term (Vest et al., 2014). Vest et al. (2014) were able to show that the findings of their study were consistent with that research evidence and adding the intervention of tobacco cessation to the SARRTP did not adversely impact the other outcomes and actually showed some success for a small number of the participants.

Presentation of the Findings

The data that was relevant to what the researchers set out to explore was consistent, logical, and easy to follow. Descriptions of how the data was analyzed were given as well as the results of each factor were presented, each in its own subheading. Additionally, the results were presented in tables. A reader was easily able to identify the characteristics of the participants in one table, while a second table demonstrated the progression the participants made through the stages of change for quitting tobacco. The outcomes in relationship to abstinence, one of the key findings of the study, were set up in two different tables that analyzed the data in two different ways. However, while much of the research findings were significant, the introduction of the study and what was all being examined would have been beneficial to improving the flow of the findings.

Overall Understanding of the Article

The main aim of the study was to see if an added intervention impacted the usage of substances in a positive way. The final findings of the research did support the hypothesis, however, a lot of additional findings from the study were included that were not explained in regards to its significance. For instance, a lot was discussed and explored on both mental health disorders and pharmacotherapy options, and while that was important to the overall intervention application, the researchers seemed to be setting up ideas for future research instead. While it is appropriate for studies to lead to further research, the inclusion of the material within the study itself left the reader in a state of confusion verses being able to have their own thought process in determining what future research is needed.

Implications for Use of this Research Article

One recommendation that was made in this article was how more focus needs to be made on tobacco control and that it should have a high priority in education within healthcare, policy development, research, and leadership (Vest et al., 2014). This was supported in the article by evidence from the World Health Organization in how tobacco use is the one of the leading causes of preventable morbidity and mortality (Vest et al., 2014). Another recommendation by Vest et al. (2014) was the need for care that is integrated and that addresses quitting all substances that are addictive in order to promote a healthy lifestyle.

Future research suggested by the authors was to focus on interventions that were nurse led in regards to tobacco dependence treatment (Vest et al., 2014). Additionally, some research should work to evaluate advances that can be made in telehealth and other ways to reach rural veterans (Vest et al., 2014). Specifically to the VA, the use of the clinical reminder system that is already in place to assess and treat tobacco dependence needs to be better promoted and utilized more by nurses (Vest et al., 2014).

I believe that the results of this study are relevant to those persons who suffer from substance abuse disorders. As Vest et al. (2014) demonstrated in the article, research shows that typically those who abuse alcohol or other drugs also abuse tobacco. Those that receive help for substance abuse disorders can also benefit from tobacco cessation interventions.

For me personally, I feel I can apply this to my practice. I care for many patients who have other diagnoses that are also struggling with substance abuse disorders and use tobacco, all of which are contributing or complicating their other health issues. Usually, we look to treat the main concern and discharge them from the hospital. However, without addressing the use of tobacco, we are only setting up the patients to become ill again, either with the same issue or a

new one. By being more understanding of substance abuse disorders and what interventions there are to help quit all substances, I can work to provide that to patients to help put them on a track towards a healthier lifestyle.

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