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OF COURSE A HANDGUN CAN TAKE DOWN A HELICOPTER:
CULTIVATION EFFECTS OF MILITARY-STYLE VIDEO GAMES

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June 2010

submitted in partial fulfillment of requirements for the degree

MASTER OF APPLIED COMMUNICATION THEORY & METHODOLOGY

at the

CLEVELAND STATE UNIVERSITY

May 2012

THESIS APPROVAL

SCHOOL OF COMMUNICATION

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ACKNOWLEDGEMENTS

There are many individuals whom I wish to thank for being a part of this long and treacherous process known as “the thesis.” First and foremost, it is an honor for me to thank my advisor, Dr. Paul Skalski. In reality, without his support and genuine enthusiasm for my ideas and direction for this paper, it would not exist. Throughout the process of my thesis, Dr. Skalski has been an outstanding advisor, mentor, and friend.

I also owe my deepest gratitude to my committee members, Dr. Francis Dalisay and Dr. Kim Neuendorf. Without their encouragement and insightful comments, my ideas would have never fully blossomed. Dr. Dalisay has been an excellent teaching mentor, and Dr. Neuendorf has made statistics understandable and not so scary.

I would like to thank my colleagues in the Master of Applied Communication Theory & Methodology program at Cleveland State University, for with whom my misery found company.

I cannot overstate my appreciation for my significant other, Megann, who can recite this thesis with more emotion and passion than a professional actor reciting Act II, Scene 2 of Shakespeare’s *Hamlet*. Through all my working, she never let my visage wan.

I am also grateful to my family, especially my brother, Brandon, and my Gram and Papa, for their absolute confidence in me.

Lastly, I want to thank my son, Nathan, whose countless hours immersed in military-style video games inspired the idea for this thesis.

**OF COURSE A HANDGUN CAN TAKE DOWN A HELICOPTER:
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MICHAEL J. KURTZ

ABSTRACT

The goal of this study is to add to the literature that extends the theory of cultivation into the realm of video games. Video game studies incorporating cultivation stress the importance of specifying a single genre of video games and measuring the cultivation effect, due to the lack of homogenous content between video games. It is possible that video games are actually an antithesis to the theory of cultivation because of content that is user-generated, which not only dissolves homogeneity between different games, but also the same game. Cultivation research has also suggested that second-order cultivation effects (on attitudes and beliefs) are moderated by factors that affect the experience during the encounter of information. This study looks at exposure to military-style video games to help better understand how video games may lead to a variety of cultivation effects. It includes measures of the independent variables of video game habits, gaming skill, traditional media use, political orientation, and contact with the military, and the dependent variables of first- and second-order cultivation effects, and self-efficacy.

TABLE OF CONTENTS

	Page
ABSTRACT.....	iv
LIST OF TABLES.....	vii
CHAPTER	
I. INTRODUCTION	
1.1 Rationale.....	1
1.2 Purpose.....	2
II. LITERATURE REVIEW	
2.1 Television and Cultivation Effects.....	4
2.2 Processes Underlying Cultivation Effects: First- and Second-Order Effects.....	7
2.3 Video Games and Cultivation Effects.....	11
2.4 Factors Affecting the Video Game Experience.....	14
2.5 Military-Style Video Games.....	16
2.6 Hypotheses and Research Questions.....	18
III. METHODS	
3.1 Overview.....	21
3.2 Participants.....	21
3.3 Instrument and Procedure.....	22
3.4 Measures.....	23
IV. RESULTS	
4.1 Hypothesis Results.....	29
4.2 Research Question Results.....	31

V. DISCUSSION

5.1 Hypothesis Questions..... 53

5.2 Research Questions.....57

5.3 Limitations..... 60

5.4 Future Research..... 61

5.5 Future Data Analysis.....62

5.6 Conclusion..... 63

REFERENCES..... 64

APPENDICES

A. Survey..... 71

B. Multiple Regression Tables for RQ2: Test for Suppressor Effects.....86

C. Means, Standard Deviations, and Frequency Bar Charts for Variables in
Multiple Regressions..... 88

D. Consent Form..... 140

LIST OF TABLES

TABLE	Page
1. Factor Analysis of Second-Order Items.....	24
2. Hierarchical Multiple Regression Predicting First-Order Effects with Game Exposure.....	33
3. Hierarchical Multiple Regression Predicting Self-Efficacy about Being a Skilled Soldier with Game Exposure.....	37
4. Hierarchical Multiple Regression Predicting First-Order Effects with Specific Game Usage.....	40
5. Hierarchical Multiple Regression Predicting Violence Acceptability with Specific Game Usage.....	43
6. Hierarchical Multiple Regression Predicting Self-Efficacy about Being a Skilled Soldier with Specific Game Usage.....	47
7. ANOVA Test for Military Support – Game Exposure and Game Skill.....	48
8. ANOVA Test for Violence Acceptability – Game Exposure and Game Skill.....	49
9. ANOVA Test for Military Support – Game Exposure and Military Contact.....	51
10. ANOVA Test for Violence Acceptability – Game Exposure and Military Contact.....	52
B1. Hierarchical Multiple Regression Predicting Military Support with Game Exposure.....	86
B2. Hierarchical Multiple Regression Predicting Violence Acceptability with Game Exposure.....	87

CHAPTER I

INTRODUCTION

1.1 Rationale

Society has seen vast advancement in communication technology over the years. Communication technology has become so advanced that it can allow one to see and experience entirely different worlds and realities. Television, the Internet, video games, the radio, and books are all gateways to imagined realities beyond our own. However, those realities may not seem so different from ours. In fact, it may seem so similar that people's perceptions of the "real" world become merged with the visions of other worlds and realities. Bandura (2009) argued that mankind would be severely retarded if human beings did not have the capacity to learn from vicarious sources and models. Gerbner (1969) posited a theory known as "Cultivation Theory," which states that people, over time, may begin to perceive their reality as being similar to the realities portrayed on television if the portrayals are consistent. If television can create a cultivation effect

because of the realities it portrays, one can postulate that other forms of media can also produce a cultivation effect from the realities they depict.

Although television is still one of the most prominent forms of media used by consumers, the popularity of video games has been on the rise for several years. According to the most recent data from the Entertainment Software Association (ESA) (2011), 72% of American households reported that someone residing in the home plays computer or video games, 33% of gamers say that playing computer or video games is their favorite entertainment activity, and gamers spent \$25.1 billion on gaming hardware, software and other accessories. The recent data also show that the average length of time gamers have been playing video games is 12 years. These data show that a large portion of the population plays video games, and have been playing video games for a long time.

1.2 Purpose

The theory of cultivation was originally created on the assumption that media was homogenous, and that vast audiences were experiencing the same content. However, with communication technology advancement, individuals are gaining controlling power over their media. The introduction of VCRs, DVRs, DVDs, the Internet, and many other forms of user-controlled media into society has allowed people to not only choose when they want to watch TV, but what they watch on TV. These new communication technologies have seemed to create a paradigm shift in the cultivation theory from a homogenous media (i.e., the audience having to watch the same shows at a certain time) to a more content-specific approach (i.e., audiences being able to choose the content they want to watch when they want to watch it). However, even though individuals have the ability to choose the content they would like to view, that content is still similar to other audience

members if they also decide to watch specific content (e.g., two individuals watching the same episode of *Law and Order* will experience the same content).

Extending the theory of cultivation to video games is much more complex than one would anticipate (Mierlo & Bulck, 2004). What makes this extension so difficult is the fact that homogenous content no longer exists. It is possible to argue that the eradication of homogenous content in video games is actually an antithesis to the theory of cultivation. With television, even if audience members choose to only view certain shows, the content is still the same for all audience members who view that particular program. However, if two individuals play the same video game, the content can be drastically different because of the way one plays the game. The content in a video game only unfolds if the player provides specific actions to do so. This notion may be taking the theory of cultivation into yet another paradigm shift - user-generated content. User-generated content takes the theory of cultivation from a macro-level, to a micro-level effect.

The current study looks at video game habits and first and second-order cultivation effects. The study also looks at gaming skill, military experience, and military contact as moderating variables for second-order cultivation effects, and individuals' sense of self-efficacy in relation to content of video games. To truly understand how the theory of cultivation can be linked to the medium of video games, past cultivation research must be reviewed.

CHAPTER II

LITERATURE REVIEW

2.1 Television and Cultivation Effects

George Gerbner and his colleagues developed the theory of cultivation to investigate the potential consequences of long-term television exposure (Gerbner, 1969). The theory was originally meant to explain social control effects through the use of television, but it has become widely used to study how people's perceptions of reality differ between heavy viewers of television and light viewers of television.

Gerbner first developed the methodology with Gross to test cultivation (Gerbner & Gross, 1976). First, the researcher must conduct a message system analysis which involves the examination of television drama to reliably delineate selected features and trends that television provides to the audience (Morgan, Shanahan, & Signorielli, 2009). Once these features and trends are understood, surveys are conducted asking questions about individuals' attitudes and perceptions about aspects of life and society. The responses are then examined, comparing the individuals who are heavy viewers of

television and those who are light viewers of television. The goal is to determine if heavy viewers of television are more likely to perceive reality in ways that are reflected on television than those who are light viewers of television.

As intended by the theory of cultivation, some studies have looked at total television viewing. Gerbner, Gross, Morgan, and Signorielli (1980) found that individuals who were considered heavy viewers of television estimated that more people were victims of violence than those who were light viewers. Results of another study showed that amount of television viewing directly influenced estimations of frequency of violence occurring in society and the intentions to engage in protective precautions against crime (Nabi & Sullivan, 2001).

As time advanced, so did technology and the amount of media individuals acquired access to, progressing from a three-network system to a state of proliferation. As the abundance of media outlets increased, the amount of time individuals engaged with media increased. However, although time with media increased, the time spent with any one medium alone decreased, leading to an increase in media ‘multi-tasking’ (Hill & Stephens, 2005). It is now possible to have power and choice over media, allowing viewers to choose what to watch and when to watch it. If a person so desires, one may watch nothing but shows with specific content such as crime shows, romantic comedies, soap operas, sitcoms, or reality television. Certain technologies that have led to this control over the media are VCRs, DVRs, DVDs, the “On Demand” feature from cable and satellite television, Netflix Instant Streaming, and content being available on the Internet.

The change in how media are presented described above is one possible reason for the

shift in cultivation research from total television viewing to content-specific contexts instead of the media as an aggregate. Segrin and Nabi (2002) conducted a survey that showed that the viewing of romantic genre programming (e.g., soap operas) is positively related to idealistic expectations about marriage. Romer, Jamieson, and Aday (2003) looked at the effects of crime-saturated local news and found that viewing local news was related to increased fear of crime.

In a recent study, Quick (2009) found that heavy viewers of *Grey's Anatomy* perceived the show as credible which acted as a mediating variable for perception of real-world doctor courageousness and patient satisfaction.

In another study, Hetsroni (2008) found that heavy viewers of television had higher prevalence estimates regardless of topics being overrepresented or underrepresented in television programs compared to medium and light viewers. A content analysis was first conducted for four content domains (i.e., criminality, occupations, demography, and sex life) to code two non-mutually exclusive indicators, one that was overrepresented and one that was underrepresented. For criminality, the indicators were violent crime (overrepresented) and property crime (underrepresented). For occupations, the indicators were the share of lawyers in the workforce (overrepresented) and salesmen in the workforce (underrepresented). For demographic beliefs, the indicators were single-parent families (overrepresented) and the share of people who are over the age of 65 who live in the country (Israel; underrepresented). For sex life, the indicators were the share of teens under the age of 18 who are sexually active (overrepresented) and the share of people over the age of 65 who are sexually active (underrepresented). Results showed that heavy viewers of television (3.5+ hours/day)

gave higher estimates than medium viewers (2.5 hours/day), and medium viewers gave higher estimates than light viewers (less than 2.5 hours/day). Results also showed that the size of the cultivation effect for overrepresented and underrepresented topics varied considerably across content domains. T-test results showed differences were significant for demographic and sex life beliefs, but not for criminality or occupations. The findings of this study did confirm that heavy viewers have a more distorted vision of reality based on television than medium and light viewers do, but also suggest that topic and content do, in fact, matter.

The argument over aggregate or content-specific television viewing is a debate that is important. Television viewers had little choice in the programs they wanted to watch when there was a three-network system. The programs being viewed were controlled by the time individuals had available to watch television (Morgan, Shanahan, Signorielli, 2009). However, with technology today, people can record their favorite programs, watch them online, or order DVDs through the mail allowing them to watch shows at their discretion. Much like video games, time spent watching TV is beginning to rely on one's choice of content rather than an individual just watching whatever is available during leisure time. This does not mean that total television viewing does not still have an effect; it just suggests that there may be a paradigm shift for those who study the theory of cultivation.

2.2 Processes Underlying Cultivation Effects: First- and Second-Order Effects

Shrum (1995) proposes that it is possible to understand cultivation effects through the use of mental processing strategies when making judgments. One advantage to using cognitive models is that “[They have] the potential to render implausible certain

alternative explanations for the effect” (Shrum, 2009, p. 57-58). He mentioned the use of heuristic processing, but laments that there is a distinction between first-order effects and second-order effects. First-order effects are memory-based judgments. These judgments are recalled from memory when needed through heuristic cognition such as availability and simulation. These effects are aided by frequency, recency, vividness, and distinctness (Shrum, 2004). First-order effects are related to probability and prevalence of issues. Riddle, Potter, Metzger, Nabi, and Linz (2011) found that individuals who were able to recall more vivid acts of violence on television programs gave a higher prevalence of real-world crime and violence than those who had less vivid memories.

Second-order effects are judgments that are formed as information is encountered (Shrum, 2004). These are the beliefs and attitudes of a person. Since these types of messages are made at the point of encounter and lead to beliefs and attitudes, they can be seen as persuasive, with factors at the time of media exposure playing a role (Chong, Teng, Siew and Skoric, 2010).

German daily talk shows have been shown to have limited first- and second-order cultivation-effects on adolescent viewers when exposed to sequences involving lesbian or gay-male relationships, transsexuality and tattooing (Rössler & Brosius, 2001). In this study, the independent variable was conceptualized by either watching (treatment) or not watching (control) morally controversial talk content. Over the course of one week, the treatment group watched 105 minutes of content that expressed understanding and support for lesbian or gay male relationships, transsexuals, and those who practice body adornment. The control group watched content that did not contain any moral or sexual statements; conduct of the topics was neutral.

In regards to first-order effects, it was found that the experimental group gave significantly higher estimations of lesbians and gay males in German society. The experimental group also gave higher estimations of the amount of lesbian or gay relationships in German society. However, it was not statistically significant.

In regards to second-order effects, adolescents in the experimental group gave a less restrictive assessment of public opinion toward the issue of lesbian and gay male relationships than adolescents in the control group. The direction was as expected in relation to body adornment. However, it was not statistically significant. An effect on individual beliefs were also observed, but was not statistically significant.

Hetsroni (2010) examined the amount of time individuals in Israel devoted to reading the newspaper and their estimates and views concerning the economic aspects of Iceland. A survey was conducted in May 2009, shortly after the 2008 Iceland economic crisis. During this time Israel's newspaper stories in economic and general papers shifted from a positive outlook on Iceland to a negative outlook.

Average monthly salary and the current economic status in Iceland were the questions measuring first-order effects. For average monthly salary, "3,500 Euro" was the non-cultivated answer and "7,000 Euro" was the cultivated answer. For current economic status, "negative" was the non-cultivated answer and "positive" was the cultivated answer. Heavy newspaper readers gave more exaggerated cultivation answers which corresponded to the pre-crisis media image of Iceland than light newspaper readers. However, this was only statistically significant for economic papers. General paper reading was not significant when controlling for gender and other demographics.

Consideration of immigrating to Iceland because of economic appeal, and opinion of change in standard of living, were the questions measuring second-order effects. For immigration consideration, “surely no, or likely no” was the non-cultivated answer, and “surely yes, or likely yes” was the cultivated answer. For change in standard of living, “it would not improve” was the non-cultivated answer, and “it would improve” was the cultivated answer. Heavy readers of general newspapers gave more cultivated answers for both measures than light readers of general newspapers. However, heavy readers of economic newspapers only gave cultivated answers for believing in improvement in the standard of living, but did not give cultivated answers for immigration consideration.

Overall, this study did show partial support for both first- and second-order effects. Individuals who reported being heavy readers displayed estimates and attitudes that were considered more positive. One large possibility for these findings is those individuals have been exposed to content portraying Iceland positively for many years and have a cultivated positive view of Iceland.

In another study that extends the current knowledge of second-order effects, Shrum, Lee, Burroughs, and Rindfleisch (2010) showed that only individuals who reported experiencing narrative transportation (being highly involved and cognitively engaged in the program) showed a second-order cultivation effect for the personal value of materialism. Narrative transportation, in this case, acted as a moderating variable (or factor) for second-order judgment formation and second-order effects.

2.3 Video Games and Cultivation Effects

Based on the literature review above, much of cultivation research still puts a majority of its focus on how television viewing affects people's perceptions. The medium of video games is beginning to receive recognition as a viable source for communication research, and scholars have made great strides in video game studies. However, there is still a lack of research in the realm of video games and cultivation effects. Some researchers have attempted to extend the theory of cultivation to the realm of video games.

Anderson and Dill (2000) had one of the first studies that attempted to investigate the effect of video games on real-world perceptions of crime and safety. No significant relationship was found between video game use and real-world perceptions on crime and safety after gender was controlled for. Unlike previous cultivation research, cultivated answers were not compared to real-world statistics. Rather, Anderson and Dill made the argument that the heavy gamers could simply be compared to light gamers testing to see if the means of heavy gamers were higher than the means of light gamers.

Mierlo and Bulck (2004) were the first to truly look at the potential of cultivation effects in video games. They discussed at great length the possible difficulty of linking cultivation theory to video games. It was stated that violence in television is arguably different than violence in video games because of the "passive" role of television viewers and "active" role of video game players. Television viewers do not have the ability to influence what happens and can only watch and await the preset outcome. Video game players, on the other hand, are in control of how and when the events unfold. TV viewers only observe violence occurring, while video game players enact the violence. The idea

of “passive” versus “active” role is the central focus for video games, requiring higher involvement and may have a bigger impact than television (Dill & Dill, 1998). Next, the authors discussed the realism of video games. They stated that games were pretty unrealistic in the past, but have made remarkable strides toward realism in recent years. They finished this argument by stating that video game realism can still not compete with “perfect” realism that is portrayed on television. In other words, a computer generated world and characters cannot compete with real people and real settings when it comes to believability of events. Finally, the authors talked about the importance of selectivity for video game players. They argue that video games are chosen at the moment players want to play them. Some games may contain messages and trends that other games simply do not have. This makes it difficult to implement the thought of a “homogenous” format between video games. The study found support for first-order effects and second-order effects for TV viewing, but not for video game play when looking at the same measures (perception of violence, causes of death, crime likelihood, safety, fear of crime, law and order, and anomie). Violent video game play did predict higher estimates of prevalence of violent crime and the number of policemen in the total workforce, but multiple caveats were given with these results. Regardless, the results from Mierlo and Bulck suggest possible cultivation potential in video games for first-order effects.

Williams (2006) conducted a longitudinal experiment of video game play and cultivation effects. The treatment group played the Massive Multiplayer Online Role-Playing Game (MMORPG) *Asheron's Call 2* for one month, while the control group did not play the game. The study showed findings for first-order effects and video game play. Participants who were in the treatment group were more likely than those in the control

group to say that people in the real world would experience robbery with weapons. All second-order effects (physical assault, rape, and murder) were deemed non-significant. First-order effects were defined as content that was directly related to the game being played, while second-order effects were defined as content that was not directly related to the game being played. All variables were measured with estimates on the percentage chances (0-100%) of each crime event occurring. This differs from Shrum's (2004) definition of first-order effects being about estimates and prevalence and second-order effects being attitudes and beliefs, which are the definitions focused on for this study. Williams also stresses the importance of selectivity of a specific game genre when studying video games and cultivation.

In a study closely replicating the methodology of Williams' (2006), Chong, Teng, Siew and Skoric (2010) conducted a longitudinal experiment spanning three weeks. Throughout this duration, each participant in the treatment group totaled 12 hours of game play. Results found some support for first-order effects. Two of seven variables were found as significant (percentage of deaths from car accidents and percentage of deaths from drug overdose). The treatment group reported higher estimates of percentage of deaths from car accidents and percentage of deaths from drug overdose than the control group. However, weak support was found for second-order effects. Two of 30 variables were found as significant (safety on the streets, and difficulty of stealing a vehicle). An interesting finding to note from this study is that the second-order effects were actually counter-intuitive. The participants played *Grand Theft Auto IV*, which allows players to commit crime on the streets and steal cars for quick transportation.

However, the participants in the treatment group actually reported feeling safer on the streets and that it was more difficult to steal cars than those in the control group.

The video games and cultivation effects literature puts forth fairly unified support for first-order effects, but shows minimal support for second-order effects. Shrum et al. (2010) stated that second-order effects required a moderating variable (narrative transportation) that acted as a factor affecting the television viewing experience. It is possible that the deficiency of second-order support in video games is due to a lack of accounting for factors that affect the video game experience. For this study, gaming skill, military experience, and military contact have been chosen as important factors affecting the video game experience.

2.4 Factors Affecting the Video Gaming Experience

Gaming Skill. A factor that research has found to affect the video gaming experience is an individual's level of gaming skill. Bracken and Skalski (2006) reported that gaming skill affected the level of presence the participants experienced. Participants who reported lower skill level reported a higher sense of presence than those who reported a higher skill level. It is suggested that gaming skill may affect other gaming experiences, but presence was the focus of Bracken and Skalski's study.

Gaming skill is a factor that every individual differs on. If video game players perform an active role in the information presented from video games, gaming skill may be a factor that affects judgment formation.

Military Experience and Contact. The intergroup contact theory, also known as the contact hypothesis, states that greater interpersonal contact, under optimal conditions, is one of the most effective ways for reducing prejudice between majority and minority

groups (Allport, 1954). An important argument Allport made was that prejudice would reduce only when four features of the contact situation are present: equal status between the groups in the situation; common goals; intergroup cooperation; and the support of authorities, law, or custom (for a detailed overview of these conditions, see Pettigrew 1998).

Pettigrew and Tropp (2006) conducted a meta-analysis of intergroup group theory examining 713 independent samples from 515 studies. It was found that intergroup contact typically reduces intergroup prejudice and that the theory, although originally designed for racial and ethnic encounters, can be extended to other groups (e.g., the military). Another result from the meta-analysis showed that the four conditions Allport (1954) stated were essential for prejudice reduction do lead to greater prejudice reduction, but are not essential.

The intergroup contact theory was designed with a focus on prejudice when placed in a face-to-face context, but some studies have begun to look at the effects of media on stereotypes. Armstrong, Neuendorf, and Bentar (1992) discovered that media content type was associated with college students' perceptions of Black's socioeconomic status (SES). They found that students who watched copious amounts of television perceived Black Americans as having a higher SES than the average American household, while students who watched large amounts of news programming perceived Black Americans as having a lower SES than the general public. In addition, Fujioka (1999) argued that television portrayals, whether negative or positive, greatly influence viewers' stereotype of African-Americans. Fujioka also exemplified that television

images have a large effect on viewers' perceptions when first-hand knowledge is not present.

Reviewing this research shows that direct interaction can moderate direct interaction, and media interaction can moderate direct interaction. One has to wonder if direct interaction can moderate media interaction (e.g., having experience in the military or knowing people in the military affecting individuals' perception of military-style video games, thus having an impact on cultivation effects).

2.5 Military-Style Video Games

As suggested by the video games and cultivation literature, the present study focuses on a specific genre of video game: military-style video games. These games can be defined as first-person or third-person shooter games in which the player assumes the role of a soldier and battles enemies.

Media effects research is warranted for military-style games for many reasons. One reason is popularity. Copious numbers of people are playing this type of game as evident in the sales figures. One of Activision's releases in the *Call of Duty* series, *Call of Duty: Black Ops*, brought in \$1 billion in less than six weeks and was the best selling game in the U.S. in 2010 (Halliday, 2010). Activision's CEO did not hesitate to mention that other than *Call of Duty: Black Ops*, the only other occurrence of entertainment to hit the billion-dollar revenue milestone this quickly was the theatre release of James Cameron's *Avatar*. Activision's most recent release, *Call of Duty: Modern Warfare 3*, brought in \$775 million after being on the shelves for only five days (Snider, 2011) and has broken the record set by *Call of Duty: Black Ops* (LeJacq, 2011). Microsoft's latest installment for the *Halo* series, *Halo: Reach*, generated more than \$200 million in the

U.S. and Europe in the first 24 hours of release. *Halo: Reach's* predecessor, *Halo 3*, grossed \$170 million in the first 24 hours of release in the U.S. alone (Crecente, 2010).

Another reason for studying these types of games is that war is very prevalent, emotional and usually controversial. Generally, the military in military-style video games is portrayed in a positive light as heroes and conquerors of evil. Some first-order cultivation effects that may be possible due to heavy exposure to military video games could be a greater estimate of combat encounters, running covert operations, and death rates. Some second-order cultivation effects that may be possible due to heavy exposure to military video games could be an increased support for the United States military since the protagonists represent “good-guy” soldiers in an army similar to that of the U.S., an attitude that there is always a threat or an enemy to be eradicated, and an overall greater acceptance of violence.

In addition, an interesting variable to observe would be an individual’s self-efficacy about being a soldier. Bandura (1977) defined self-efficacy as the extent to which an individual feels as if they have control over their actions, or can complete a task. Mierlo and Bulck (2004) talked about the passivity of television viewing, and the activity of engaging in a video game. If individuals are exposed to and engage in these simulations of combat activities and being a soldier in military-style video games, not only might their general feelings towards the military be impacted, but their attitudes and beliefs about how well they would do in the military might also be influenced.

Bandura (1977) shapes the theory of self-efficacy in the paradigm of an individual engaging in a behavior that will have an ensuing outcome. In short, engaging in such behavior is reliant on two factors: (1) expectations about the outcomes that will result

from engaging in a behavior, and (2) expectations about one's ability to accomplish the behavior. Both of these factors are based on beliefs. Thus, it is a person's perception about their abilities that may influence behavior. From a persuasive standpoint, assessing if military-style video games create a stronger sense of self-efficacy would provide practical evidence to the feasibility of using military-style video games for military recruitment.

2.6 Hypotheses and Research Questions

Based on the literature on cultivation and television and cultivation and video games, along with considerations specific to military-style video games, the present study proposes the following hypotheses and research questions.

Cultivation research characteristically dichotomizes the independent variable into heavy and light exposure groups. Using this dichotomized variable, means between the two groups are compared in regards to cultivation effects. Chong et al. (2010), Williams (2006), and Mierlo and Bulck (2004) all suggested potential cultivation effects from video games. Replicating the technique of dichotomization of heavy and light exposure groups and building on the foundation of past video games and cultivation literature, three hypotheses are posited.

H1: Individuals who report heavier exposure to military-style video games will report higher first-order effects than individuals who report lighter exposure to military-style video games.

H2: Individuals who report heavier exposure to military-style video games will report higher second-order effects than individuals who report lighter exposure to military-style video games.

H3: Individuals who report heavier exposure to military-style video games will report a higher sense of self-efficacy about being a soldier than individuals who report lighter exposure to military-style video games.

Video games and cultivation research has tested the impact of independent variables of interest when controlling for other independent variables (Anderson & Dill, 2000; Williams, 2006). Replicating this technique, six research questions are posited.

RQ1: Will exposure to military-style video games have first-order effects when controlling for demographics, military contact, and traditional media usage?

RQ2: Will exposure to military-style video games have second-order effects when controlling for demographics, military contact, and traditional media usage?

RQ3: Will exposure to military-style video games have an impact on self-efficacy about being a soldier when controlling for demographics, military contact, and traditional media usage?

RQ4: Does playing specific military-style video games have an impact on first-order effects?

RQ5: Does playing specific military-style video games have an impact on second-order effects?

RQ6: Does playing specific military-style video games have an impact on self-efficacy about being a soldier?

Shrum et al. (2010) suggested that second-order effects required a moderating variable. Participants who experienced second-order effects also had to experience narrative transportation (a factor affecting the viewing experience). The reason given for a moderating effect only being viable for second-order effects is because second-order judgments are made through an online process (i.e., judgments are formed during the viewing/gameplay process). Perceptions of gaming skill, military experience, and military contact have been chosen as factors that may affect the gaming experience and inspired the final research questions.

RQ7: Is there an interaction effect between military-style video game exposure and gaming skill on second-order effects?

RQ8: Is there an interaction effect between military-style video game exposure and military experience on second-order effects?

RQ9: Is there an interaction effect between military-style video game exposure and military contact on second-order effects?

CHAPTER III

METHODS

3.1 Overview

The survey used for this study was created with and completed using surveymonkey.com. There were 317 respondents in total. However, after accounting for respondents who opted not to complete the survey or provided extremely skewed, corrupted data, a total of 256 responses were retained. This study was approved by the Institutional Review Board (IRB). The consent form that was approved by the IRB can be viewed in Appendix D.

3.2 Participants

Participants were recruited using a variety of techniques. Some participants were undergraduate communication students at a medium-sized Midwestern university who were eligible for extra credit or course credit. Other participants were recruited through snowball sampling using the social networking website, Facebook, the popular technology blog website, Reddit, and a variety of video gaming forums. The only

differentiation between sources that was coded for was if participants were students at the university where the study was conducted or not. There were 126 participants who were students at the university and 130 who were not students at the university. It was decided to integrate the sample to increase the overall sample size. The participants consisted of 154 males and 102 females with an average age of 23.73.

3.3 Instrument and Procedure

The survey was conducted in March 2012 over the course of a two-week period. The questionnaire asked the respondents a variety of questions measuring multiple items. First, the participants were asked to answer questions that provided estimates and prevalence of certain military activities relating closely to military-style video games. Second, the participants were asked to answer questions that measured their attitudes and beliefs towards the United States Military. Next, using the methods from Anderson and Dill (2000), participants were asked to list their three favorite games and answer several questions related to that game. Participants were then asked to report how often they played certain specific video game franchises or video games (e.g., *Call of Duty*, *Battlefield*, *World of Warcraft*). Questions pertaining to everyday traditional media use comprised the next section of the survey. The following section explored specific type of media content in a variety of media contexts (e.g., books, TV shows, movies). Perceptions of video game skill were measured using a modified version of Bracken and Skalski's (2006) Game Playing Skill (GAPS) scale ($\alpha = .97$). Direct experience of currently being in or having been enlisted in the military was measured, as well as any direct contact with individuals who are or have served in the military. Finally, political

philosophy and demographics were measured. The full questionnaire is included in Appendix A.

3.4 Measures

First-Order Effects. Participants' first-order effects were measured using a 3-item scale ($\alpha = .731$). According to the definition of first-order effects, questions should relate to estimates and prevalence for certain issues that are considered specific to the medium. The three questions asked for estimates on three issues that are often portrayed in military-style video games. The first question was, "How often do active-duty military personnel engage in combat?" The answer was an 11-point Likert-scale (0-10) with 0 being "Rarely" and 10 being "Often." The second question was, "How often does the military run covert operations?" The answer was an 11-point Likert-scale (0-10) with 0 being "Rarely" and 10 being "Often." The third question was, "How high are the death rates in the military?" The answer was an 11-point Likert-scale (0-10) with 0 being "Low" and 10 being "High."

Second-Order Effects. A factor analysis was conducted on 20 items related to attitudes and beliefs, shown in Table 1 below. Although five factors with eigenvalues over 1 emerged, the decision was made to only use the first two factors in subsequent analyses for two reasons. First, factors 3-5 had eigenvalues far below those of the first two factors. Second, factors 3-5 could not be interpreted cleanly as the first two - they made little sense, in fact. Given that these would likely add little value to the study, they were dropped, which still left two strong second-order effects factors. Factor 1 was named Military Support and Factor 2 was named Violence Acceptability. Factor Analysis

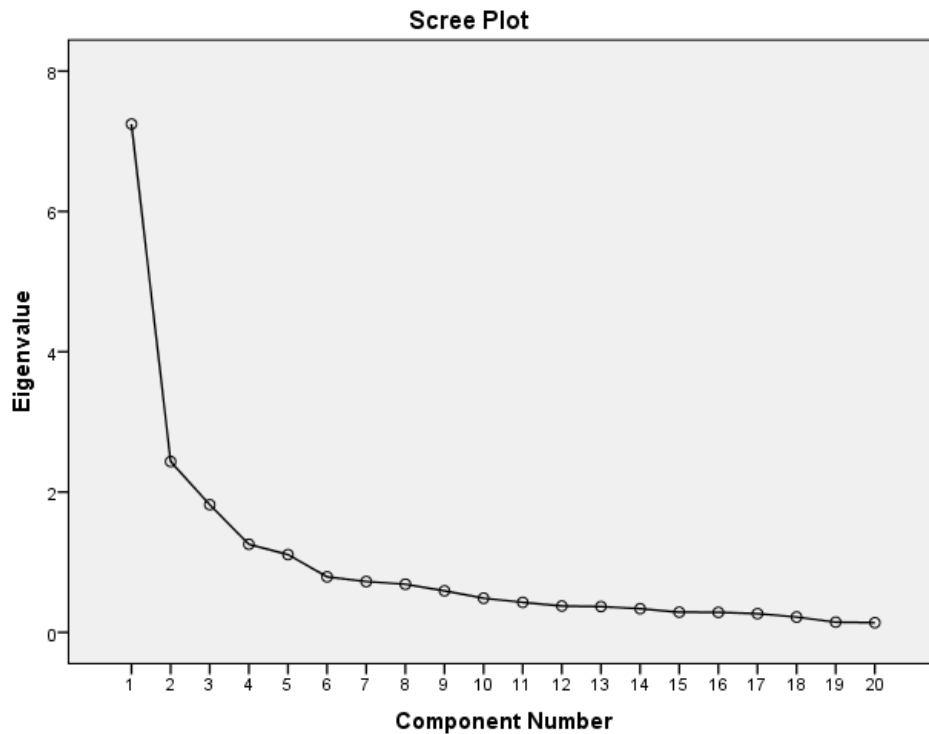
results are in Table 1. Items that loaded on each factor were summed and averaged to create scales, described in the next sections.

Table 1
Factor Analysis of Second-Order Items

	Factor Loadings						Communality at 5 Factors
	Military Support	Violence Acceptance	Awards	Weapon Use	???		
B5. The U.S. Military makes me proud of my country.	.890	.093	.075	-.094	.016		0.82
B2. The U.S. Military protects the freedom of the United States.	.876	.050	.143	-.073	.066		0.80
B1. I support the U.S. Military.	.873	.194	.097	-.044	.055		0.81
B4. The U.S. Military protects my family.	.806	.057	.250	-.126	.010		0.73
B9. The U.S. Military is crucial for our nation's security and welfare.	.795	.235	.103	-.047	.128		0.72
B8. Working for the U.S. Military is a noble career choice.	.761	.318	-.044	-.140	.020		0.70
B3Rev. I do not trust the U.S. Military's actions.	.717	.063	-.323	.013	-.135		0.64
B7. The U.S. Military is valuable.	.701	.375	.060	-.030	.215		0.68
B6Rev. Those who serve in the U.S. Military are victims of lies and false promises.	.664	.052	-.408	.066	-.077		0.62
B16. There is a constant threat to the United States.	.629	.145	.474	.127	.134		0.67
B13/C4. Using violent force against enemies is the best solution in some cases.	.184	.828	-.016	.002	.117		0.73
B11/C2. When faced with conflict, sometimes violence is the only way to resolve it.	.079	.815	-.069	-.006	.132		0.69
B12/C3. Gun violence is justifiable in many cases.	.190	.799	.126	.011	-.091		0.70
B10/C1. Violence is an acceptable solution to problems.	.239	.788	.039	-.055	-.178		0.71
B20. Soldiers are awarded for specific actions (e.g., headshots, killing more than one enemy).	.200	.004	.775	.009	-.060		0.64
B18. Weapons are easily accessible.	.094	-.161	.253	.742	.038		0.65
B19Rev. Using weapons requires extensive training.	-.206	.094	-.286	.700	-.094		0.63
B15. The U.S. is always actively engaged in war.	-.323	.072	.436	.449	.034		0.50
B17. Fighting a war is easy.	-.057	.233	.289	.140	-.759		0.74
B14. The government has weapon technology that the general public does not know about.	.103	.255	.285	.103	.704		0.66

Eigenvalue	6.367	3.144	1.734	1.350	1.270		13.87
Percent of Total Variance	31.83%	15.72%	8.67%	6.75%	6.35%		69.32%
Percent of Common Variance	45.92%	22.68%	12.51%	9.74%	9.16%		100.00%

KMO Measure of Sampling Adequacy = .900
Bartlett's Test of Sphericity: approx. chi-square = 2565.225; df = 190; p<.001



Second-Order Effects – Military Support. Participants’ support for the military was measured using the variables in factor one, forming a 10-item scale ($\alpha = .935$). According to the definition of second-order effects, questions should relate to the attitudes or beliefs of an individual. As previously mentioned, the military is often portrayed as the protagonist in military-style video games. Therefore, if second-order effects were to occur, individuals who are exposed to more military-style games should think more positively of the military, scoring high on the second-order effects scale. The 10 items were “The U.S. Military makes me proud of my country,” “The U.S. Military protects the freedom of the United States,” “I Support the U.S. Military,” “The U.S. Military protects my family,” The U.S. Military is crucial for our nation’s security and welfare,” “Working for the U.S. Military is a noble career choice,” “I do not trust the

military's actions (recoded as 'I do trust the military's actions')," "The U.S. Military is valuable," "Those who serve in the military are victims of lies and false promises (recoded as 'Those who serve in the military are not victims of lies and false promises')," and "There is a constant threat to the United States." All answers for the items consisted of an 11-point Likert-scale (0-10) with 0 being "Disagree" and 10 being "Agree."

Second-Order Effects – Violence Acceptability. Participants' violence acceptability was measured using the four variables that loaded on the second factor, forming a 4-item scale ($\alpha = .843$). The four items were "Using violent force against enemies is the best solution in some cases," "When faced with conflict, sometimes violence is the only way to solve it," "Gun violence is justifiable in many cases," and "Violence is an acceptable solution to problems." All answers for the items consisted of an 11-point Likert-scale (0-10) with 0 being "Disagree" and 10 being "Agree."

Sense of Self-Efficacy. Participants' sense of self-efficacy was measured with one question, "I would be a skilled soldier." A single item was used here because a specific type of self-efficacy was being asked about. Note that the item has high face validity. The answer for this item consisted of an 11-point Likert-scale (0-10) with 0 being "Disagree" and 10 being "Agree."

Favorite Games. Participants' favorite games were measured by replicating the methods from Anderson and Dill (2000). Participants were asked to list their three favorite video games. In addition to listing their favorite video games, they were asked to answer questions relating specifically to the aforementioned game. The questions measured how often the participant played the game, how often it utilized using a team,

how often the game gives missions to perform, and how realistic the weapons portrayed in the game are. Items are listed in Appendix A.

Specific Video Game Exposure. To measure participants' specific video game exposure, they were asked to report how often (i.e., Not at all, Rarely, Sometimes, Often, All the time) they played specific game franchises or video games that were provided. The list consisted of current popular military-style video games (e.g., *Call of Duty*, *Battlefield*), and other current popular video games (e.g., *World of Warcraft*, *Elder Scrolls: Skyrim*). The reason for this contrast in the list was an attempt to limit demand characteristics that may have formed if the participant realized the purpose of the study. After following sections that ask about specific military attitudes and estimates, a list of purely military-style video games may have given the purpose of the study away leading to bias data. Items are listed in Appendix A.

General Video Game Exposure. Participants' general video game exposure was measured by asking participants to report how many hours they play military-style video games, motion controlled games, mobile games, and sports games on an average day. Measurements were explored for participants playing these types of video games by themselves and with others (online or offline). General military-style video game exposure was measured by combining the amount of time participants played military-style video games alone and with others. Items are listed in Appendix A.

Traditional Media Exposure. Participants' traditional media exposure was measured through a series of questions that asked for the amount of hours the participants spent using a variety of traditional media (e.g., Television, radio). Items are listed in Appendix A.

Exposure to Specific Content in Certain Media Contexts. To measure participants' exposure to specific content in certain media contexts, they were asked to report how often (i.e., Not at all, Rarely, Sometimes, Often, All the time) they viewed certain content using certain media. For example, participants were asked how often they read books with content revolving around the military, or, how often they watch movies with content revolving around horror. The military items were included for control purposes. Items are listed in Appendix A.

Perceptions of Gaming Skill. Participants' perception of their gaming skill was measured by having participants complete a modified version of the "GAPS" questionnaire created by Bracken and Skalski (2006). The modified scale consisted of 12 items (Cronbach's alpha = .972). Items are listed in Appendix A.

Military Experience and Contact. Participants' military experience and contact were measured with direct questions. Participants were asked if they "are currently serving in the military," or if they "have ever served in the military." They were asked to give a number approximating how many individuals they had contact with who are or have served in the military. Finally, participants were asked to report numbers regarding specific relationships with these military personnel (e.g., How many of these individuals are Immediate Family? How many of these individuals are a Close Friend?). These items were also included to be used as controls. Items are listed in Appendix A.

Political Philosophy. Participants' political philosophy was measured by asking participants to indicate whether they were Strong Conservative, Lean towards Conservative, Middle of the Road, Lean towards Liberal, Strong Liberal, or Refused/Don't Know.

CHAPTER IV

RESULTS

4.1 Hypothesis Results

A t-test was conducted to test H1, which predicted that individuals who report heavier exposure to military-style video games will report higher first-order effects than individuals who report light exposure to military-style video games. Many participants indicated that they do not play military-style video games on an average day. It was decided to dichotomize the independent variable as non-exposure and exposure. A total of 131 participants reported not playing military-style video games either alone or with others, while a total of 125 participants reported playing military-style video games ($M = 2.74$ hours/day; $SD = 2.84$). The t-test concluded that there was a statistically significant difference between the two groups, $t(254) = 3.98, p < .01$. However, the effect was in the opposite direction than originally hypothesized. The non-exposure group showed higher first-order effects ($M = 4.7; SD = 1.94$) than the exposure group ($M = 3.8; SD = 1.96$). H1 was not supported.

T-tests were again conducted to test H2, which predicted that individuals who report heavier exposure to military-style video games will report higher second-order effects than individuals who report lighter exposure to military-style video games. The same dichotomous independent variable reported for H1 was used to divide participants into non-exposure and exposure groups. The dependent variables were second-order effects factor 1: military support and second-order effects factor 2: violence acceptability. The first t-test revealed a non-significant difference in military support between participants with exposure to military-style video games ($M = 5.56, SD = 2.47$) and no exposure to military-style video games ($M = 6.07, SD = 2.47$), $t(254) = 1.64, p = .102$.

The second analysis showed that the exposure group reported higher violence acceptability ($M = 4.41, SD = 2.34$) than the non-exposure group ($M = 3.87, SD = 2.54$), as predicted. However, the t-test concluded that this second-order effect between the two groups only approached significance, $t(254) = -1.78, p = .08$. H2 was therefore not supported overall.

Another t-test was conducted to test H3, which predicted that individuals who report heavier exposure to military-style video games will report a higher sense of self-efficacy about being a soldier than individuals who report lighter exposure to military-style video games. The dichotomous independent variable used to test H1 and H2 was again used to divide participants into exposure and no exposure to military-style video game groups. The t-test concluded that there was a statistically significant difference between the two groups, $t(254) = -2.29, p < .05$. The exposure group reported higher self-efficacy about being a skilled soldier ($M = 3.62; SD = 3.25$) than the non-exposure group ($M = 2.73; SD = 3.0$). H3 was supported.

4.2 Research Question Results

RQ1 asked if exposure to military-style video games will have an impact on first-order effects when controlling for demographics, military contact, and traditional media and usage. An initial bivariate correlation test showed that exposure to military-style video games related significantly to first-order effects ($r = -.241; p < .001$). In addition to exposure to military-style video games, seven other variables showed statistically significant zero-order correlations with first-order effects. The variables that were statistically significant were age ($r = .222; p < .001$), gender ($r = -.316; p < .001$), race ($r = -.262; p < .001$), enrolled in college ($r = .191; p < .01$), how often books with military content are read ($r = -.148; p < .05$), how many hours of TV watched per day ($r = .164; p < .01$), and hours spent on the internet yesterday ($r = -.168; p < .01$)

Next, a hierarchical multiple regression was conducted to test the impact of military-style video game exposure when controlling for demographics, military contact, and traditional media use. There were a total of four blocks: (1) demographics, (2) military contact, (3), traditional media use, and (4) military-style video game exposure. Results are shown in Table 2. Means, standard deviations, and bar chart frequencies for all variables used in this multiple regression are in Appendix C.

An inspection of final tolerances and of condition indexes revealed no problems with multicollinearity. The lowest tolerance was .502 for watch movies with military content, well above the .10 threshold recommended by Hair, Black, Babin, and Anderson (2010). Thus, the set of independent variables does not suffer from extreme multicollinearity, and pass this test for inclusion in a multiple regression.

The first block, demographics, included political philosophy, age, gender (maleness), household income, race (whiteness), and enrollment in college. The analysis indicated an R^2 change of .227, meaning these variables accounted for 22.7% of the total variance in first-order effects (significant at $p < .001$). Age ($\beta = .256$), gender ($\beta = -.262$), race ($\beta = -.185$), and enrollment in college ($\beta = .159$) were significant individual predictors in block one.

The second block, military contact, included currently serving in the military, previously served in the military, and number of people in contact with who are or have served in the military. The analysis indicated an R^2 change of .01, meaning these variables accounted for 1% of the total variance in first-order effects after accounting for block one. The contribution of this block was not significant ($p > .05$).

The third block, traditional media use, included how often books with military content are read, how often TV shows with military content are watched, how often movies with military content are watched, how many hours of TV watched per day, how many hours of radio listened to per day, how many days last week the newspaper was read, how many hours were spent on the internet yesterday, and how many movies were watched within the last month, either on DVD or video. The analysis indicated an R^2 change of .015, meaning these variables accounted for 1.5% of the total variance in first-order effects after accounting for blocks one and two. The contribution of this block was not significant ($p > .05$).

The fourth block, military-style video game exposure, included the dichotomous variable of exposure and no exposure to military-style video games. The analysis indicated an R^2 change of .003, meaning this variable accounted for .03% of the total

variance in first-order effects after accounting for blocks one, two, and three. The contribution of this block was not significant ($p >.05$). When controlling for demographics, military-style video game exposure does not have a statistically significant impact on first-order effects.

Individual variables that significantly contributed to first-order effects in the total model included age ($\beta = .220$), gender (maleness; $\beta = -.231$), race (whiteness; $\beta = -.177$), and enrollment in college ($\beta = .151$).

Block Name and Number	Variables	<i>r</i>	β at enter	Final β	R^2 Change
1: Demographics					.227***
	Political Philosophy	0.036	-0.006	-0.014	
	Age	.222***	.256***	.220**	
	Gender (Dummied to Maleness)	-.316***	-.262***	-.231**	
	2011 Income	-0.073	-0.071	-0.08	
	Race (Dummied to White)	-.262***	-.185**	-.177**	
	Enrolled in college	.191**	.159**	.151*	
2: Military Contact					0.01
	Currently Enlisted In Military	-0.121	-0.053	-0.06	
	Previously Enlisted In Military	-0.098	-0.081	-0.072	
	Contact with people in military	0.032	0.093	0.1	
3: Traditional Media Use					0.015
	Read books with military content	-.148*	0.018	0.027	
	Watch TV shows with military content	-0.07	-0.019	-0.013	
	Watch movies with military content	-0.064	0.02	0.026	
	Watch television per day	.164**	0.076	0.071	
	Listen to radio per day	-0.031	-0.052	-0.055	
	Days read newspaper last week	-0.103	-0.021	-0.02	
	Hours on the internet yesterday	-.168**	-0.036	-0.032	
	Movies watched on DVD and/or video	-0.087	-0.089	-0.083	
4: Military-Style Game Exposure					0.003
	High or Low Military-Style Game Exposure	-.241**	-0.068	-0.068	

Total Model (Equation)	* = $p < .05$
$R^2 = .255$	** = $p < .01$
Adjusted $R^2 = .197$	*** = $p < .001$
$F_{(18,231)} = 4.401^{***}$	

RQ2 asked if exposure to military-style video games will have an impact on second-order effects when controlling for demographics, military contact, and traditional media usage. Bivariate correlations were first performed to see if military-style video game exposure related significantly to second-order effects factor 1: military support, and second-order effects factor 2: violence acceptability. The results showed that military-style video game exposure did not relate significantly to either military support ($r = -.102$; $p = .102$) or violence acceptability ($r = .111$; $p = .076$). It can be assumed that if zero-order correlations were not statistically significant, then exposure to military-style video games would not have an impact when controlling for other variables, unless there were suppressor effects. Results of multiple regression tests suggested that this was not the case, however, and that there was no effect of military-style video game exposure on second-order effects when controlling for other variables. Tabled results for these multiple regression tests can be found in Appendix B.

RQ3 asked if exposure to military-style video games will have an impact on self-efficacy about being a soldier when controlling for demographics, military contact, and traditional media and other video game usage. An initial bivariate correlation showed that exposure to military-style video games related significantly to the self-efficacy question, “I would be a skilled soldier” ($r = .142$; $p = .023$). In addition to exposure to military-style video games, six other variables showed statistically significant zero-order correlations with self-efficacy. The variables that were significant included age ($r = .135$; $p < .05$), gender ($r = .264$; $p < .001$), previously enlisted in the military ($r = .301$; $p < .001$), number of people in contact with who are or have served in the military ($r = .225$;

$p < .001$), how often TV shows with military content are watched ($r = .289$; $p < .05$), and how often movies with military content are watched ($r = .259$; $p < .05$),

A hierarchical multiple regression was conducted to test the impact of military-style video game exposure on self-efficacy when controlling for demographics, military contact, and traditional media and other video game usage. There were a total of four blocks: (1) demographics, (2) military contact, (3), traditional media use, and (4) military-style video game exposure. Results are shown in Table 3. Means, standard deviations, and bar chart frequencies for all variables used in this multiple regression are in Appendix C.

An inspection of final tolerances and of condition indexes revealed no problems with multicollinearity. The lowest tolerance was .487 for both watch TV shows with military content and watch movies with military content, well above the .10 threshold recommended by Hair, Black, Babin, and Anderson (2010). Thus, the set of independent variables does not suffer from extreme multicollinearity, and pass this test for inclusion in a multiple regression.

The first block, demographics, included political philosophy, age, gender (maleness), household income, race (whiteness), and enrollment in college. The analysis indicated an R^2 change of .130, meaning these variables accounted for 13.0% of the total variance in self-efficacy of being a skilled soldier (significant at $p < .001$). Gender ($\beta = .290$), race ($\beta = -.185$), and income ($\beta = .129$) were all significant individual predictors in block one.

The second block, military contact, included currently serving in the military, previously served in the military, and number of people in contact with who are or have

served in the military. The analysis indicated an R^2 change of .073, meaning these variables accounted for 7.3% of the total variance in self-efficacy of being a skilled soldier after accounting for block 1 (significant at $p < .001$). Currently serving in the military ($\beta = -.150$), previously served in the military ($\beta = .228$), and number of people in contact with who are or have served in the military ($\beta = .138$) were all significant individual predictors.

The third block, traditional media use, included how often books with military content are read, how often TV shows with military content are watched, how often movies with military content are watched, how many hours of TV watched per day, how many hours of radio listened to per day, how many days last week the newspaper was read, how many hours were spent on the internet yesterday, and how many movies were watched within the last month, either on DVD or video. The analysis indicated an R^2 change of .057, meaning these variables accounted for 5.7% of the total variance in self-efficacy of being a skilled soldier after accounting for blocks one and two (significant at the $p < .05$). Hours on the internet yesterday was the only significant individual predictors in this block ($\beta = -.170$).

The fourth block, military-style video game exposure, included the dichotomous variable of exposure and no exposure to military-style video games. The analysis indicated an R^2 change of .001, meaning this variable accounted for .1% of the total variance in first-order effects after accounting for blocks one, two, and three. The contribution of this block was not significant ($p > .05$). When controlling for demographics, military contact, and traditional media use, military-style video game

exposure did not have a statistically significant impact on self-efficacy of being a skilled soldier.

Individual variables that significantly contributed to self-efficacy of being a skilled soldier in the total model included gender (maleness; $\beta = -.246$), income ($\beta = .118$) currently enlisted in the military ($\beta = -.145$), previously enlisted in the military ($\beta = .222$), number of people in contact with who are or have served in the military ($\beta = .147$), and hours on the internet yesterday ($\beta = -.170$).

Block Name and Number	Variables	<i>r</i>	β at enter	Final β	<i>R</i> ² Change
1: Demographics					.130***
	Political Philosophy	0.09	0.114	0.07	
	Age	.135*	0.114	-0.006	
	Gender (Dummied to Maleness)	.264***	.290***	.231**	
	2011 Income	0.097	.129*	.118*	
	Race (Dummied to White)	-0.102	-.176**	-0.121	
	Enrolled in college	-0.042	-0.023	-0.023	
2: Military Contact					.073***
	Currently Enlisted In Military	0.064	-.150*	-.145*	
	Previously Enlisted In Military	.301***	.228**	.222**	
	Contact with people in military	.225***	.138*	.147*	
3: Traditional Media Use					.057*
	Read books with military content	0.224	0.084	0.088	
	Watch TV shows with military content	.289*	0.103	0.105	
	Watch movies with military content	.259*	0.026	0.029	
	Watch television per day	0.02	0.069	0.067	
	Listen to radio per day	0.042	-0.013	-0.014	
	Days read newspaper last week	0.042	-0.008	-0.008	
	Hours on the internet yesterday	-0.108	-.172**	-.170**	
	Movies watched on DVD and/or video	-0.058	-0.072	-0.07	
4: Military-Style Game Exposure					0.001
	High or Low Military-Style Game Exposure	.142*	-0.032	-0.032	

Total Model (Equation)	* = $p < .05$
$R^2 = .260$	** = $p < .01$
Adjusted $R^2 = .203$	*** = $p < .001$
$F_{(18,231)} = 4.515***$	

RQ4 asked if playing specific military-style video games has an impact on first-order effects. Bivariate correlations were first performed to see if playing specific military-style video games related significantly to first-order effects. Six of the seven military-style video games tested showed statistical significance: *Call of Duty* ($r = -.129$; $p = .038$); *Battlefield* ($r = -.341$; $p < .001$); *Halo* ($r = -.230$; $p = .048$); *Gears of War* ($r = -.124$; $p = .048$); *Tom Clancy's (Ghost Recon, Rainbow Six)* ($r = -.236$; $p < .001$); *Medal of Honor* ($r = -.150$; $p = .016$). *Lost Planet* was the only game that was non-significant ($r = .009$; $p = .885$). These results are consistent with previously reported findings in this study concerning the cultivation effects of military-gaming exposure (i.e., negative relationships with outcomes). The more these individuals played these games, the lower their estimates and prevalence. In addition to the specific military-style video games that had statistically significant zero-order correlations, seven other variables were statistically significant. The variables that were significant included were age ($r = .222$; $p < .001$), gender ($r = -.316$; $p < .001$), race ($r = -.262$; $p < .001$), enrolled in college ($r = .191$; $p < .01$), how often books with military content are read ($r = -.148$; $p < .05$), how many hours of TV watched per day ($r = .164$; $p < .01$), and hours spent on the internet yesterday ($r = -.168$; $p < .01$).

Next, a hierarchical multiple regression was conducted to test the impact of these military-style video games when controlling for demographics, military contact, and traditional media and other. There were a total of four blocks: (1) demographics, (2) military contact, (3), traditional media use, and (4) specific military-style video game use. Results are shown in Table 4. Means, standard deviations, and bar chart frequencies for all variables used in this multiple regression are in Appendix C.

The first block, demographics, included political philosophy, age, gender (maleness), household income, race (whiteness), and enrollment in college. The analysis indicated an R^2 change of .227, meaning these variables accounted for 22.7% of the total variance in first-order effects (significant at $p < .001$). Age ($\beta = .256$), gender ($\beta = -.262$), race ($\beta = -.185$), and enrollment in college ($\beta = .159$) were all significant individual predictors in block one.

The second block, military contact, included currently serving the military, previously served in the military, and number of people in contact with who are or have served in the military. The analysis indicated an R^2 change of .01, meaning these variables accounted for 1% of the total variance in first-order effects after accounting for block one. The contribution of this block was not significant ($p > .05$).

The third block, traditional media use, included how often books with military content are read, how often TV shows with military content are watched, how often movies with military content are watched, how many hours of TV watched per day, how many hours of radio listened to per day, how many days last week the newspaper was read, how many hours were spent on the internet yesterday, and how many movies were watched within the last month, either on DVD or video. The analysis indicated an R^2 change of .015, meaning these variables accounted for 1.5% of the total variance in first-order effects after accounting for blocks one and two. The contribution of this block was not significant ($p > .05$).

The fourth block, specific military-style video game use, included the six military-style video games that were statistically significant in the bivariate correlation. The analysis indicated an R^2 change of .038, meaning these variables accounted for 3.8%

of the total variance in first-order effects after accounting for blocks one, two, and three. However, the contribution of this block was not significant ($p > .05$). After controlling for demographics, playing specific military-style video games did not have a significant impact on first-order effects.

Individual variables that significantly contributed to first-order effects in the total model included age ($\beta = .182$), gender ($\beta = -.192$), race ($\beta = -.171$), and playing *Battlefield* ($\beta = -.178$), although playing *Battlefield* was in a block that did not contribute significant variance so this significant result should be interpreted with caution.

Block Name and Number	Variables	<i>r</i>	β at enter	Final β	R^2 Change
1: Demographics					.227***
	Political Philosophy	0.036	-0.006	-0.024	
	Age	.222***	.256***	.182**	
	Gender (Dummied to Maleness)	-.316***	-.262***	-.192**	
	2011 Income	-0.073	-0.071	-0.059	
	Race (Dummied to White)	-.262***	-.185**	-.171**	
	Enrolled in college	.191**	.159**	0.122	
2: Military Contact					0.01
	Currently Enlisted In Military	-0.121	-0.053	-0.068	
	Previously Enlisted In Military	-0.098	-0.081	-0.048	
	Contact with people in military	0.032	0.093	0.093	
3: Traditional Media Use					0.015
	Read books with military content	-.148*	0.018	0.06	
	Watch TV shows with military content	-0.07	-0.019	0.006	
	Watch movies with military content	-0.064	0.02	0.033	
	Watch television per day	.164**	0.076	0.069	
	Listen to radio per day	-0.031	-0.052	-0.053	
	Days read newspaper last week	-0.103	-0.021	-0.022	
	Hours on the internet yesterday	-.168**	-0.036	-0.033	
	Movies watched on DVD and/or video	-0.087	-0.089	-0.1	
4: Specific Military-Style Game Usage					0.038
	Call of Duty	-.129*	0.073	0.073	
	Battlefield	-.341***	-.178*	-.178*	
	Halo	-.230***	-0.103	-0.103	
	Gears of War	-.230***	0.036	0.036	
	Tom Clancy's (Ghost Recon, Rainbow Six, etc.)	-.236***	-0.06	-0.06	
	Medal of Honor	-.150*	-0.013	-0.013	

Total Model (Equation)	* = $p < .05$
$R^2 = .290$	** = $p < .01$
Adjusted $R^2 = .218$	*** = $p < .001$
$F_{(23,226)} = 4.014^{***}$	

RQ5 asked if playing specific military-style video games will have an impact on second-order effects. Bivariate correlations were first performed to see if playing specific military-style video games related significantly to second-order effects. None of the military-style video games provided were significantly related to second-order effects factor 1: military support. Three of the seven military-style video games provided in the study were significantly related to second-order effects factor 2: violence acceptability: *Call of Duty* ($r = .154; p = .014$); *Battlefield* ($r = .130; p = .037$); *Tom Clancy's (Ghost Recon, Rainbow Six)* ($r = .125; p = .046$). In addition to the specific military-style video games that had statistically significant zero-order correlations, seven other variables were statistically significant. The variables that were significant were political philosophy ($r = .262; p < .001$), gender ($r = .157; p < .05$), currently enlisted in the military ($r = .212; p < .01$), previously enlisted in the military ($r = .148; p < .01$), how often books with military content are read ($r = .208; p < .01$), and how often TV shows with military content are read ($r = .272; p < .001$)

A hierarchical multiple regression was conducted to test the impact of these three military-style video games on violence acceptability when controlling for demographics, military contact, and traditional media. There were a total of four blocks: (1) demographics, (2) military contact, (3), traditional media use, and (4) specific military-

style video game use. Results are shown in Table 5. Means, standard deviations, and bar chart frequencies for all variables used in this multiple regression are in Appendix C.

An inspection of final tolerances and of condition indexes revealed no problems with multicollinearity. The lowest tolerance was .494 for Watch movies with military content, well above the .10 threshold recommended by Hair, Black, Babin, and Anderson (2010). Thus, the set of independent variables does not suffer from extreme multicollinearity, and pass this test for inclusion in a multiple regression.

The first block, demographics, included political philosophy, age, gender (maleness), household income, race (whiteness), and enrollment in college. The analysis indicated an R^2 change of .108, meaning these variables accounted for 10.8% of the total variance in violence acceptance (significant at $p < .001$). Political Philosophy ($\beta = .279$) and gender ($\beta = -.262$) were significant individual predictors in block one.

The second block, military contact, included currently serving in the military, previously served in the military, and number of people in contact with who are or have served in the military. The analysis indicated an R^2 change of .019, meaning these variables accounted for 1.9% of the total variance in violence acceptability after accounting for block one. The contribution of this block was not statistically significant ($p > .05$).

The third block, traditional media use, included how often books with military content are read, how often TV shows with military content are watched, how often movies with military content are watched, how many hours of TV watched per day, how many hours of radio listened to per day, how many days last week the newspaper was read, how many hours were spent on the internet yesterday, and how many movies were

watched within the last month, either on DVD or video. The analysis indicated an R^2 change of .039, meaning these variables accounted for 3.9% of the total variance in violence acceptability after accounting for blocks one and two, but the contribution of this block was not statistically significant ($p > .05$).

The fourth block, specific military-style video game use, included the three military-style video games that were statistically significant in the bivariate correlation. The analysis indicated an R^2 change of .005, meaning these variables accounted for 0.5% of the total variance in violence acceptability after accounting for blocks one, two, and three. The contribution of this block was not statistically significant ($p > .05$). When controlling for demographics, specifically political philosophy and gender, other blocks are not statistically significant predictors of violence acceptability.

Political Philosophy ($\beta = .196$) was the only individual predictor that significantly contributed to violence acceptability in the total model.

Block Name and Number	Variables	<i>r</i>	β at enter	Final β	R^2 Change
1: Demographics					.108***
	Political Philosophy	.262***	.279***	.196**	
	Age	0.026	0.017	0.05	
	Gender (Dummied to Maleness)	.157*	.176**	0.095	
	2011 Income	0.07	0.061	0.065	
	Race (Dummied to White)	-0.012	-0.025	0.004	
	Enrolled in college	0.04	0.036	0.086	
2: Military Contact					0.019
	Currently Enlisted In Military	.212**	0.124	0.124	
	Previously Enlisted In Military	.148**	0.062	0.055	
	Contact with people in military	0.02	-0.086	-0.089	
3: Traditional Media Use					0.039
	Read books with military content	.208**	0.073	0.074	
	Watch TV shows with military content	.272***	0.162	0.152	
	Watch movies with military content	.200**	-0.004	-0.017	
	Watch television per day	-0.051	-0.015	-0.019	
	Listen to radio per day	0.013	-0.008	0	

	Days read newspaper last week	0.014	-0.024	-0.028	
	Hours on the internet yesterday	-0.039	-0.02	-0.014	
	Movies watched on DVD and/or video	-0.085	-0.073	-0.079	
4: Specific Military-Style Game Usage					0.005
	Call of Duty	.154*	0.064	0.064	
	Battlefield	.130*	0	0	
	Tom Clancy's (Ghost Recon, Rainbow Six, etc.)	.125*	0.033	0.033	

Total Model (Equation)	* = $p < .05$
$R^2 = .172$	** = $p < .01$
Adjusted $R^2 = .099$	*** = $p < .001$
$F_{(20, 229)} = 2.371^{**}$	

RQ6 asked if playing specific military-style video games will have an impact on self-efficacy about being a skilled soldier. Bivariate correlations were first performed to see if playing specific military-style video games related significantly to self-efficacy about being a skilled soldier. Four of the seven military-style video games tested showed statistical significance: *Call of Duty* ($r = .193$; $p = .002$); *Battlefield* ($r = .125$; $p = .045$); *Halo* ($r = .126$; $p = .044$); *Medal of Honor* ($r = .135$; $p = .031$). In addition to the specific military-style video games that had statistically significant zero-order correlations, six other variables showed statistically significant zero-order correlations. The variables that were statistically significant were age ($r = .135$; $p < .05$), gender ($r = .264$; $p < .001$), previously enlisted in the military ($r = .301$; $p < .001$), number of people in contact with who are or have served in the military ($r = .225$; $p < .001$), how often TV shows with military content are watched ($r = .289$; $p < .05$), how often movies with military content are watched ($r = .259$; $p < .05$),

Next, a hierarchical multiple regression was conducted to test the impact of playing these military-style video games when controlling for demographics, military contact, and traditional media. There were a total of four blocks: (1) demographics, (2) military contact, (3), traditional media use, and (4) specific military-style video game use.

Results are shown in Table 6. Means, standard deviations, and bar chart frequencies for all variables used in this multiple regression are in Appendix C.

An inspection of final tolerances and of condition indexes revealed no problems with multicollinearity. The lowest tolerance was .487 for Watch movies with military content, well above the .10 threshold recommended by Hair, Black, Babin, and Anderson (2010). Thus, the set of independent variables does not suffer from extreme multicollinearity, and pass this test for inclusion in a multiple regression.

The first block, demographics, included political philosophy, age, gender (maleness), household income, race (whiteness), and enrollment in college. The analysis indicated an R^2 change of .130, meaning these variables accounted for 13.0% of the total variance in self-efficacy about being a skilled soldier (significant at $p < .001$). Gender (maleness; $\beta = .290$), income ($\beta = .129$), race (Whiteness; $\beta = -.176$), were significant individual predictors in block one.

The second block, military contact, included currently serving in the military, previously served in the military, and number of people in contact with who are or have served in the military. The analysis indicated an R^2 change of .073, meaning these variables accounted for 7.3% of the total variance in self-efficacy about being a skilled soldier after accounting for block one (significant at $p < .001$). Currently serving in the military ($\beta = -.143$), previously served in the military ($\beta = .228$), and number of people in contact with who are or have served in the military ($\beta = .145$) were all significant individual predictors in this block.

The third block, traditional media use, included how often books with military content are read, how often TV shows with military content are watched, how often

movies with military content are watched, how many hours of TV watched per day, how many hours of radio listened to per day, how many days last week the newspaper was read, how many hours were spent on the internet yesterday, and how many movies were watched within the last month, either on DVD or video. The analysis indicated an R^2 change of .057, meaning these variables accounted for 5.7% of the total variance in violence acceptability after accounting for blocks one and two (significant at $p < .05$). Hours on the internet yesterday ($\beta = -.172$) was the only significant individual predictors for this block.

The fourth block, specific military-style video game use, included the four military-style video games that were statistically significant in the bivariate correlation. The analysis indicated an R^2 change of .018, meaning these variables accounted for 1.8% of the total variance in self-efficacy about being a skilled soldier after accounting for blocks one, two, and three. The contribution of this block was not statistically significant ($p > .05$). When controlling for demographics, military contact, and traditional media use, playing specific military-style video games does not have an impact on self-efficacy.

Individual variables that significantly contributed to self-efficacy about being a skilled soldier in the total model included gender ($\beta = .208$), income ($\beta = .126$), currently enlisted in the military ($\beta = -.143$), previously enlisted in the military ($\beta = .219$), number of people in contact with who are or have served in the military ($\beta = .145$), hours on the internet yesterday ($\beta = -.160$), and playing *Call of Duty* ($\beta = .153$), although again this game variable was in a block that did not contribute significant variance.

Block Name and Number	Variables	<i>r</i>	β at enter	Final β	R^2 Change
1: Demographics					.130***
	Political Philosophy	0.09	0.114	0.053	
	Age	.135*	0.114	0.03	
	Gender (Dummied to Maleness)	.264***	.290***	.208**	
	2011 Income	0.097	.129*	.126*	
	Race (Dummied to White)	-0.102	-.176**	-0.124*	
	Enrolled in college	-0.042	-0.023	-0.023	
2: Military Contact					.073***
	Currently Enlisted In Military	0.064	-.150*	-.143*	
	Previously Enlisted In Military	.301***	.228**	.228**	
	Contact with people in military	.225***	.138*	.145*	
3: Traditional Media Use					.057*
	Read books with military content	0.224	0.084	0.105	
	Watch TV shows with military content	.289*	0.103	0.099	
	Watch movies with military content	.259*	0.026	0.004	
	Watch television per day	0.02	0.069	0.061	
	Listen to radio per day	0.042	-0.013	-0.003	
	Days read newspaper last week	0.042	-0.008	-0.014	
	Hours on the internet yesterday	-0.108	-.172**	-.160*	
	Movies watched on DVD and/or video	-0.058	-0.072	-0.092	
4: Specific Military-Style Game Usage					0.018
	Call of Duty	.193**	.153*	.153*	
	Battlefield	.125*	-0.05	-0.05	
	Halo	.126*	-0.004	-0.004	
	Medal of Honor	.135*	-0.034	-0.034	

Total Model (Equation)	* = $p < .05$
$R^2 = .277$	** = $p < .01$
Adjusted $R^2 = .211$	*** = $p < .001$
$F_{(21, 228)} = 4.169^{***}$	

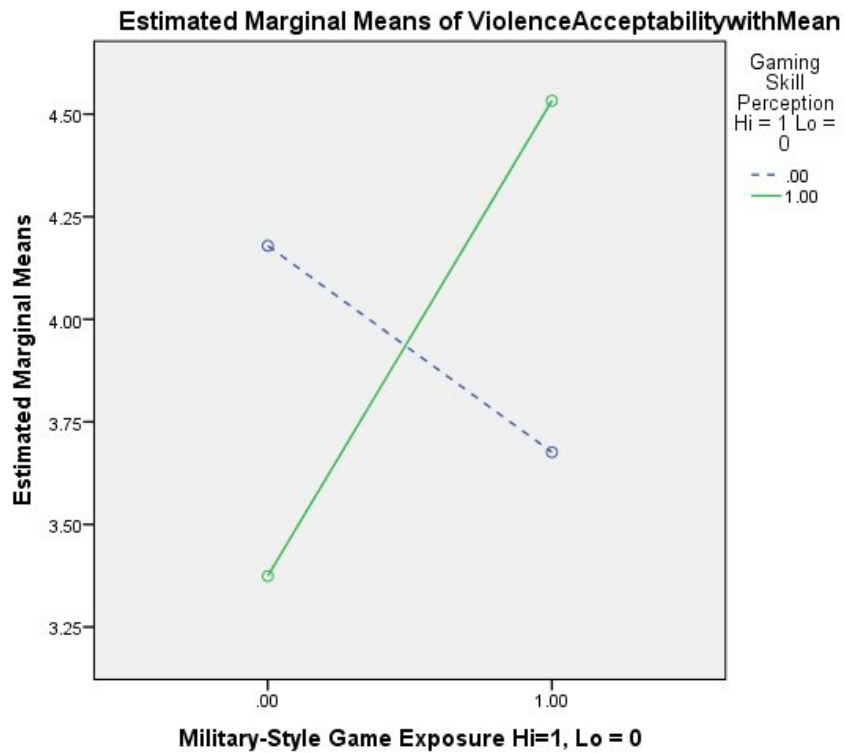
RQ7 asked if there was an interaction effect between military-style video game exposure and gaming skill on second-order effects. A two-way ANOVA analysis, with dichotomized exposure (exposure versus no exposure) and skill (perceived high skill versus perceived low skill) variables as independent variables, was used to test for an

interaction effect on second-order effects factor 1: military support. The results indicated that the interaction effect was not statistically significant ($F(1,252) = .424, p > .05, \eta^2 = .002$). However, there was a significant main effect for gaming skill, $F(1,252) = 5.36, p < .05, \eta^2 = .021$. Participants with more perceived gaming skill reported less support for the military ($M = 5.44; SD = 2.58$) than participants who perceived they have less gaming skill ($M = 6.44; SD = 2.17$). Results are shown in Table 7.

Another two-way ANOVA, with the same dichotomized independent variables, was used to test for an interaction effect on second-order effects factor 2: violence acceptability. The interaction was significant, $F(1,252) = 4.84, p < .05, \eta^2 = .017$. Players with high perceived skill but low military-style game exposure found violence least acceptable ($M = 3.37; SD = 2.20$), while players with high perceived skill and high military-style game exposure found violence the most acceptable ($M = 4.53; SD = 2.36$). Results are shown in Table 8. A chart for the interaction effect is also provided.

ANOVA test for Military Support – Game Exposure and Perceived Game Skill							
Source	Means	Sum of Squares	df	Mean Squares	F	Sig.	Power
High or Low Military Game Exposure		1.012	1	1.012	0.17	0.681	0.069
0=Low	6.0706						
1 – High	5.5636						
High or Low Game Skill Perception		32	1	32	5.361	0.021	0.636
0= Low	6.4357						
1 = High	5.443						
High or Low Military Game Exposure*High or Low Game Skill Perception	-	2.531	1	2.531	0.424	0.516	0.099
Error		1504.356					
Corrected Total		1566.657					

ANOVA test for Violence Acceptability – Game Exposure and Perceived Game Skill							
Source	Means	Sum of Squares	df	Mean Squares	F	Sig.	Power
High or Low Military Game Exposure		4.426	1	4.426	0.752	0.387	0.139
0=Low	3.8658						
1 – High	4.4093						
High or Low Game Skill Perception		0.028	1	0.028	0.005	0.945	0.051
0= Low	4.0867						
1 = High	4.1588						
High or Low Military Game Exposure*High or Low Game Skill Perception	-	28.466	1	28.466	4.839	0.029	0.591
Error		1482.516					
Corrected Total		1532.907					



RQ8 asked if there was an interaction effect between military-style video game exposure and military experience (currently enlisted or previously enlisted in the military) on second-order effects. A two-way ANOVA analysis, with dichotomized exposure (exposure versus no exposure) and military experience (yes versus no) variables as independent variables, was used to test for an interaction effect on second-order effects factor 1: military support. The results indicated that the interaction effect was not statistically significant ($F(1,252) = .387, p > .05, \eta^2 = .002$).

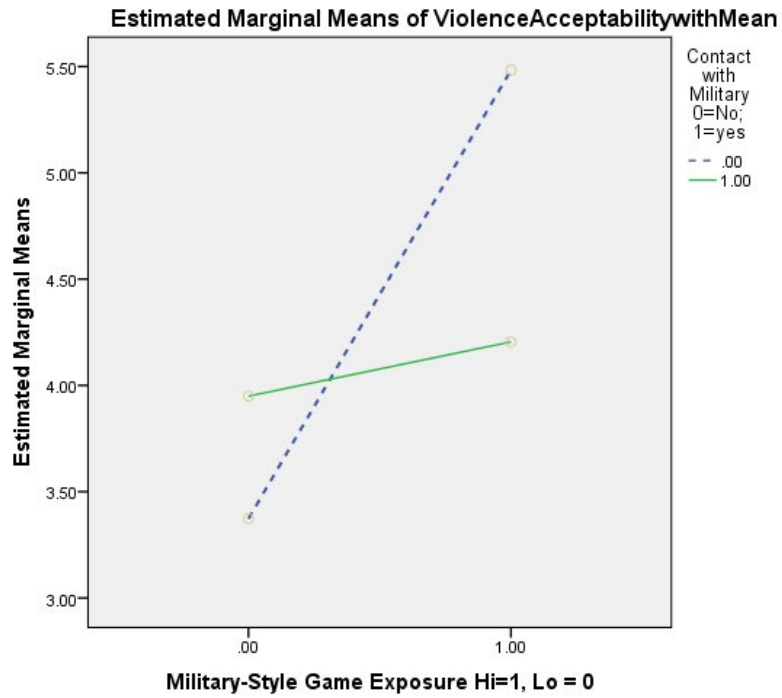
Another two-way ANOVA, with the same dichotomized independent variables, was used to test for an interaction effect on second-order effects factor 2: violence acceptability. The results indicated that the interaction effect was not statistically significant ($F(1,252) = .352, p > .05, \eta^2 = .003$).

RQ9 asked if there was an interaction effect between military-style video game exposure and military contact on second-order effects. A two-way ANOVA analysis, with dichotomized exposure (exposure versus no exposure) and military contact (yes versus no) variables as independent variables, was used to test for an interaction effect on second-order effects factor 1: military support. The results indicated that the interaction effect was not statistically significant ($F(1,252) = .128, p > .05, \eta^2 = .001$). However, there was a significant main effect for military contact, $F(1,252) = 4.09, p < .05, \eta^2 = .016$. Participants who have contact with people in the military reported more support for the military ($M = 5.96; SD = 2.47$) than participants who reported having no contact with people in the military ($M = 5.08; SD = 2.40$). Results are shown in Table 9.

Another two-way ANOVA, with the same dichotomized independent variables, was used to test for an interaction effect on second-order effects factor 2: violence acceptability. The interaction was significant, $F(1,252) = 4.84, p < .05, \eta^2 = .019$. Participants with no military-style video game exposure and no contact with people in the military find violence least acceptable ($M = 3.37; SD = 2.12$), while players with high military-style video game exposure and no contact with people in the military find violence most acceptable ($M = 5.48; SD = 2.10$). There was also a significant main effect for military-style video game exposure, $F(1,252) = 7.87, p < .01, \eta^2 = .030$. Participants with military-style video game exposure reported a higher acceptance of violence ($M = 4.41; SD = 2.34$) than participants who reported having no exposure to military-style video games ($M = 3.87; SD = 2.54$). Results are shown in Table 10. A chart for the interaction effect is also provided.

Table 9							
ANOVA test for Military Support - Game Exposure and Military Contact							
Source	Means	Sum of Squares	df	Mean Squares	F	Sig.	Power
High or Low Military Game Exposure		4.969	1	4.969	0.821	0.821	0.147
0=Low	6.0706						
1 - High	5.5636						
Military Contact		24.741	1	24.741	4.089	0.044	0.522
0= No	5.0795						
1 = Yes	5.9566						
High or Low Military Game Exposure*High or Low Game Skill Perception	-	0.772	1	0.772	0.128	0.721	0.065
Error		1524.841					
Corrected Total		1566.657					

ANOVA test for Violence Acceptability - Game Exposure and Military Contact							
Source	Means	Sum of Squares	df	Mean Squares	F	Sig.	Power
High or Low Military Game Exposure		46.227	1	46.227	7.865	0.005	0.798
0=Low	3.8658						
1 - High	4.4093						
Military Contact		4.07	1	4.07	0.692	0.406	0.132
0= No	4.4551						
1 = Yes	4.073						
High or Low Military Game Exposure* Exposure*Military Contact	-	28.424	1	28.424	4.836	0.029	0.591
Error		1481.144					
Corrected Total		1532.907					



CHAPTER V

DISCUSSION

This investigation began with the expectation that greater exposure to military-style video games would lead to first- and second-order effects, and a possible increase in self-efficacy.

5.1 Hypothesis Results

Findings for first-order effects, interestingly, were in the opposite direction than originally hypothesized. Participants who reported having exposure to military-style video games reported estimates and prevalence that were less than the non-exposure group. These results were not only opposite of what was hypothesized, but also opposite of most cultivation literature where more exposure leads to higher estimates and prevalence (Chong, Teng, Siew and Skoric, 2010; Gerbner, Gross, Morgan, and Signorielli, 1980; Hetsroni, 2008; Rössler & Brosius, 2001; Williams, 2006).

One possible explanation is that the non-exposure group, when answering a Likert-scale 0-10, had a mean of 4.7, very close to 5. In a 0-10 scale, a 5 can be

considered as the “neutral” or “I don’t know” answer. It is possible that participants who had no exposure to military-style video games felt as if they knew too little about the military to make an assumption on the first-order questions (i.e., “How often do the military engage in combat? How often do the military engage in covert operations? How high are the death rates in the military?). A rationale for combat engagement and running covert operations would coincide with the “neutral” and “I don’t know” rationalization. Individuals who have no exposure to these games may not have felt comfortable making an assumption on these questions due to little knowledge and averaged closer to 5.

Another possible explanation is that participants who have had exposure to military-style video games may not necessarily engage in a lot of combat while playing these games. It is important to reiterate that content in video games is user-generated due to its engaging nature. Military-style video games today allow the player a lot of freedom with choices of action. Gameplay has the ability to change slightly or significantly depending on the actions of the player. For instance, although military-style video games such as *Call of Duty* and *Battlefield* portray constant combat, one has to remember that the player is ultimately controlling his/her actions. In *Call of Duty* and *Battlefield*, the artificial intelligence (AI) characters help the player eradicate the enemy, allowing the player to engage in minimal combat if so desired. If the player chooses to not engage in many combat situations or covert operations, regardless of what is going on around them, this negative correlation for first-order effects does make sense. An interesting notion is that when playing video games, an individual puts so much focus into his/her own actions that what is happening in the environment around them bears little to no significance. The distinction Mierlo and Bulck (2004) make between “passive” and “active” media may be

an extremely important factor here. It is possible that in “passive” media, individuals take a more holistic approach to the ideals and images portrayed on the screen, while in “active” media, individuals may only find the actions of their character (i.e., one part of the whole) as significant. Research on the effects of in-game advertising supports this notion—it has been found that players who are intensely involved in playing a game experience a state of “flow” and notice background information such as ads less than people watching the game (Nelson & Waiguny, 2012). This would explain the exposure group estimating lower death rates than the non-exposure group.

Depending on the difficulty one plays these types of video games in, it is also important to understand that “dying” is difficult. Unlike in the real world, the characters played in these games have a regenerative ability (i.e., damage ensued heals quickly if damage is no longer being taken). This allows the player to continue the mission without so much as a flesh-wound, let alone death. Even if death does occur, the player simply has to push “continue” and is right back into the action. Regardless if characters are dying around them, death rates may be estimated lower simply because of the difficulty of dying, and the ability to respawn (return to life). If one uses the rationale that the player’s actions are more important than the actions in the environment, this finding also makes sense.

There were two factors used when measuring for second-order effects: Factor 1: military support, and factor 2: violence acceptability. The finding for factor 1: military support was not significant, and the means for the exposure and non-exposure groups went in the opposite direction than originally hypothesized. Chong et al. (2010) suggested that there might be a counter-intuitive mechanism at work with second-order effects, as

their findings also suggested that the lighter-exposure group had certain attitudes and beliefs higher than the heavier-exposure group (i.e., neighborhood safety, difficulty of stealing a car). These results were found even after the treatment group played a game that made the neighborhood look unsafe and stealing a car extremely easy. Once again, however, although the game has been said to make neighborhoods look unsafe and stealing a car easy, it is possible that members of the treatment group never experienced those messages. They may have generated different content through how they played the game. It is possible that, although military-style video games may intend to portray the military positively, the actions of the players create content that players perceive as negative portrayals of the military. This could reduce support for the military.

Another possible rationale for lack of support may be that individuals who play more military-style video games may feel desensitization towards the military. It is possible that these individuals may feel as though they know what the military does for our country, and instead of glorifying the military, it may make people who play these games feel, “Yeah, I can do that...” (self-efficacy) and actually believe the military is nothing special. Conversely, individuals who do not play military-style video games may feel a sense of mystery about what the military truly does for our country, and, ultimately, support their efforts.

Findings for factor 2: violence acceptability only approached significance; however, the means were in the hypothesized direction. Participants who played military-style video games did have a higher acceptance of violence ($M = 4.41$, $SD = 2.34$) than participants who did not play military-style video games ($M = 3.87$, $SD = 2.54$). Violence and video games have been a large area of research (Anderson & Dill, 2000;

Anderson, 2004; Sherry, 2001; Smith, Lachlan, & Tamborini, 2003). Although the results do show that individuals who play military-style video games have a higher acceptance of violence than those who do not, this finding only approaches significance and should be interpreted with caution.

Findings for self-efficacy about being a skilled soldier were consistent with the hypothesis. Participants who played military-style video games did believe they would be more of a skilled soldier ($M = 3.62$) than participants who did not play military-style video games ($M = 2.73$). The rationale for this may be the “active” nature of video games. Participants who play military-style video games should feel a sense of control over their actions. This may lead to the thought that, “If I can perform well here, I can perform well in the real world.” It was previously mentioned that this very thought of, “I can do that,” may have been a factor to the exposure group reporting a lower support for the military than the non-exposure group. From a practical and persuasive standpoint, the military using video games as a tool for recruitment is feasible. Military-style video games do increase individuals’ efficacy expectation, which could lead to the behavior of enlisting in the military.

5.2 Research Question Results

Although there were some interesting bivariate differences in cultivation outcomes between players and non-players of military-style video games, the multiple regression findings in this study suggest that the influence of military-style video game play on cultivation effects is small to negligible when other factors are considered. This study included many potential influences on first- and second-order effects beyond

military-style video game play. Despite the lack of unique contribution of game play, a number of interesting predictors were still found.

One interesting finding was in the results of the multiple regression for RQ2, which looked at impact of demographics, military contact, traditional media use, and military-style video game exposure on self-efficacy. Block two, military contact, was one of the significant blocks found in the analysis. One significant individual variable to note is currently enlisted in the military ($\beta = -.145$). This variable was coded as 0 = No and 1 = Yes. This can be interpreted as individuals currently enlisted in the military feel less self-efficacy as a skilled soldier than individuals who are not currently enlisted in the military. This is surprising at first, but one reason may be the actual reality of being in the military has given these individuals a chance to test their true abilities, lowering their self-efficacy. Individuals who are not currently enlisted in the military have not undergone any real militaristic training, and may naively think it will be easy for them, thus, increasing their self-efficacy.

Another interesting finding was in the results of the multiple regression for RQ5, which looked at the impact of demographics, military contact, traditional media use, and specific military-style video game use on second-order effects. For second-order effects factor 2: violence acceptability, political philosophy ($\beta = .196$) was the only individual variable that significantly contributed to the total model. Political philosophy was coded to be conservatism. Individuals who reported having more conservative ideals had a greater acceptance of violence.

Two more interesting findings were in the results of the multiple regressions for RQ4 and RQ6. RQ4 looked at the impact of demographics, military contact, traditional

media use, and specific military-style video games on first-order effects. Although *Battlefield* ($\beta = -.178$) was in a non-significant block, it is still worthy to note that this game was a significant individual predictor in the total model. RQ6 looked at the impact of demographics, military contact, traditional media use, and specific military-style video games on self-efficacy. Once again, although the block four, specific military-style video game use, was not significant, there was a significant individual variable, *Call of Duty* ($\beta = .153$). The non-significance of the overall blocks that these games are in require one to use extreme caution when interpreting the results; however, these significant individual predictors do show that more research is still required.

Two final noteworthy findings are the significant crossover interaction effect found for military-style video game exposure and gaming skill, and military-style video game exposure and military contact on second-order effects factor 2: violence acceptability.

As Shrum, Lee, Burroughs, and Rindfleisch (2010) suggested, a factor affecting the experience of engaging in media (perceived gaming skill/military contact) was required for individuals to experience second-order effects. Military-style video game players with high perceived skill found violence most acceptable, while military-style video game players with low skill found violence less acceptable than non-players with low skill. It may be that lower skilled players of military games are poor at winning through violence and need to use other methods, while highly skilled players are good at killing and therefore find violence more acceptable. Furthermore, highly skilled video game players who do not play military-style video games may choose not to play because they find the frequent violence in these types of games unacceptable.

Military-style video game players who did not have any contact with individuals in the military found violence most acceptable, while individuals who did not play military-style video games or have contact with anyone from the military found violence least acceptable. It is possible that individuals who play military-style video games with no direct contact with people in the military accept the violence in warfare because they do not have family or loved ones who are risking their life for their country. With the significant main effect of military-style game exposure (exposure group accepts more violence) on violence acceptability, this interaction creating the highest amount of violence acceptability does make sense. Furthermore, the group that does not play military-style video games or have contact with anyone in the military may have no reasons to justify violence. They do not justify violence through violent acts in these games to advance to the next level, nor are they in contact with individuals who justify violence with protection of our country.

Regardless of the explanations, the significant interaction effects found for RQ7 and RQ9 support and strengthen the argument of Shrum et al. (2010) that factors affecting media experiences like skill and military contact are important to take into consideration.

5.3 Limitations

As with all research, the present study did present some limitations. The first limitation was a systematic one. The choice to use Likert-scales to record participants' answers seemed logical during the design of the study. However, after data collection and more thought about how cultivation data is normally collected, a Likert-scale may not have been the best approach. As aforementioned, the Likert-scale was an 11-point scale

(0-10). Although “5” was not designated as the “neutral” or “I don’t know” answer, it may be assumed as such since it is the middle. This means that even if individuals provided a higher mean (close to 5) that it doesn’t necessarily mean they have a higher estimate about events in the military, support for the military, or acceptance for violence. It may simply mean that the participants simply did not know, or took a neutral stance. The 11-point scale was used with no intention of “5” being a neutral answer, and it is not even certain that it was treated as such. However, there is still that possibility, and a notable limitation.

The second limitation was the lack of a content analysis in military-style video games. First-order questions were based off anecdotal evidence and logical assumptions for military-style video games. No real content analysis was performed, although it is suggested as a part of cultivation methodology (Gerbner & Gross 1976; Morgan, Shanahan, & Signorielli, 2009). Future content analyses of video games should seek to identify which, if any, aspects of the military are distorted in game worlds, to provide a better baseline for examining cultivation effects.

5.4 Future Research

There is much more that can be studied about military-style games. One concept that has been an important part of many video games studies is presence. Presence is the “perceptual illusion of nonmediation” (Lombard & Ditton, 1997). In other words, it is the sense of being in a virtual environment. How would presence affect first- and second-order effects? More interestingly, how would presence affect second-order effects since the feeling of presence may be viewed as a factor that affects the gaming experience?

Another variable that would be interesting to look at would be narrative transportation. Transportation is, in its simplest form, an immersion into a text (Green & Brock, 2000). In other words, transportation is the degree in which the recipient is cognitively and emotionally invested in a narrative (Slater & Rouner, 2002). Military-style video games do offer a campaign mode, which provides the player with a narrative to follow. Chong et al. (2010) mentioned that second-order effects may be seen as persuasive. If this is the case, narrative transportation (transportation being a persuasive theory) would be a very viable variable to measure in future studies. Narrative transportation may also be another factor that affects the gaming experience.

Finally, replicating this study with a stronger methodology may prove useful. Avoiding answers with a Likert-scale and using more objective indicators of first-order effects in particular may help give a better understanding of cultivation effects of military-style video games.

5.5 Future Data Analyses

One analysis that should be run in the future with these data is a multiple regression or ANCOVA to test for interaction effects. Although the two-way ANOVA analysis does offer an analysis for an interaction effect, its ability is limited due to its lack of including controls. A multiple regression or ANCOVA will allow for the addition of controls and provide stronger evidence for an interaction effect.

5.6 Conclusion

Military-style video games have become enormously popular. Whether individuals are playing them alone or with friends, people are still actively engaging in military content and entering these virtual realities. It is hoped that the ideas presented in this study help to pique curiosity and extend knowledge of video games and cultivation effects.

REFERENCES

- Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Addison-Wesley.
- Anderson, C., & Dill, K. E. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology, 78*, 772–790.
- Anderson, C. A. (2004). An update on the effects of playing violent video games. *Journal of Adolescence, 27*(1), 113-122.
- Armstrong, G. B., Neuendorf, K. A., & Brentar, J. E. (1992). TV entertainment, news, and radical perceptions of college students. *Journal of Communication, 42*, 153-176.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.
- Bandura, A. (2009). Social cognitive theory of mass communication. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (pp. 94-124). New York, NY: Routledge.
- Bracken, C. C., & Skalski, P. (2006) Presence and video games: The impact of image quality and skill level. Proceedings of the Ninth Annual International Workshop on Presence. Cleveland, OH: Cleveland State University.
- Chong, Y., Teng, K., Siew, S., & Skoric, M. (2010). Cultivation effects of video games: A longer-term experimental test of first- and second-order effects. *Conference Papers -- International Communication Association*.

- Crecente, B. (2010, September 16). *Halo: Reach's first day of sales hits \$200 million*. Retrieved from <http://kotaku.com/#!5639670/halo-reachs-first-day-of-sales-hits-200-million>.
- Dill, K. E., & Dill, J. C. (1998). Video game violence: A review of the empirical literature. *Aggression and Violent Behaviour, 3*, 407–428.
- Entertainment Software Association (2011, May). *Essential facts about the computer and video game industry*. Retrieved December 1, 2011 from http://www.theesa.com/facts/pdfs/ESA_EF_2011.pdf.
- Fujioka, Y. (1999). Television portrayals and African-American stereotypes: Examination of television effects when direct contact is lacking. *Journalism and Mass Communication Quarterly, 76*, 52-75.
- Gerbner, G. (1969). Toward “Cultural Indicators”: The analysis of mass mediated message systems. *AV Communication Review, 17*, 137-148.
- Gerbner, G., & Gross, L. (1976). Living with television: The violence profile. *Journal of Communication, 26*, 173-199.
- Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1980). The “mainstreaming” of America: Violence profile no. 11. *Journal of Communication, 30*, 10-29.
- Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Personality and Social Psychology, 79*, 701-721.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). New Jersey, NY: Pearson Prentice Hall.

- Halliday, J. (2010, December 22). *Call of duty: Black ops hits \$1bn sales mark*. Retrieved from <http://www.guardian.co.uk/technology/gamesblog/2010/dec/22/call-of-duty-billion-dollar-sales>.
- Hetsroni, A. (2008). Overrepresented topics, underrepresented topics, and the cultivation effect. *Communication Research Reports*, 25, 200-210.
- Hetsroni, A. (2010). When the wind changes direction: The impact of content shift on the cultivation shift. *Communications*, 35, 439-460.
- Hill, R. P., & Stephens, D. L. (2005) The multiplicity of selves and selves management: A leadership challenge for the 21st century. *Leadership*, 1, 127–140.
- Hodges, L. F., Kooper, R., Meyer, T. C., De Graaf, J. J., Rothbaum, B. O., Opdyke, D., Willford, J. S., & North, M. M. (1992). Presence as the defining factor in a vr application. *GVU Center Technical Reports*. Retrieved from <http://smartech.gatech.edu/bitstream/handle/1853/3584/94-06.pdf?sequence=1>.
- Lejacq, Y. (2011, November 11). *It's official, modern warfare 3 is the biggest thing ever*. Retrieved from <http://deltagamer.com/20272/its-official-modern-warfare-3-is-the-biggest-thing-ever>.
- Lombard, M., & Ditton, T. B. (1997). At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communication*, 3.
- Mierlo, J. V., & Bulck, J. V. (2004). Benchmarking the cultivation approach to video game effects: A comparison of the correlates of TV viewing and game play. *Journal of Adolescence*, 27, 97–111.

- Morgan, M., Shanahan, J., & Signorielli, N. (2009). Growing up with television. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (pp. 34-49). New York, NY: Routledge.
- Nabi, R. L., & Sullivan, J. L. (2001). Does television viewing relate to engagement in protective action against crime? A cultivation analysis from a theory of reasoned action perspective. *Communication Research*, 28, 802-825.
- Nelson, M. R., & Waiguny, M. K. (2012). Psychological processing of in-game advertising and advergaming: Branded entertainment or entertainment persuasion? In L. J. Shrum (Ed.), *The psychology of entertainment media: Blurring the lines between entertainment and persuasion* (2nd edition, pp. 93 – 146). New York: Psychology Press.
- Pettigrew, T. F. (1998). Intergroup Contact Theory. *Annual Review of Psychology*, 49, 65–85.
- Pettigrew, T. F., & Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent metaanalytic findings. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 93–114). Hillsdale, NJ: Erlbaum.
- Segrin, C., & Nabi, R. L. (2002). Does television viewing cultivate unrealistic expectations about marriage? *Journal of Communication*, 52, 247-263.
- Sherry, J. L. (2001). The effects of violent video games on aggression. *Human Communication Research*, 27, 409-431.
- Shrum, L. J. (1995). Assessing the social influence of television. *Communication Research*, 22, 402–430.

- Shrum, L. J. (2004). The cognitive processes underlying cultivation effects are a function of whether the judgments are on-line or memory-based. *Communications*, 29, 327–344.
- Shrum, L. J. (2007). Cultivation and social cognition. In D. R. Roskos-Ewoldsen & J. L. Monahan (Eds.), *Communication and social cognition: Theories and methods* (pp. 245–272). Mahwah, NJ: Erlbaum.
- Shrum L. J. (2009). Media consumption and perceptions of social reality: Effects and underlying processes. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (pp. 50-73). New York, NY: Routledge.
- Shrum, L. J., Lee, J., Burroughs, J. E., & Rindfleisch, A. (2010). An online process model of second-order cultivation effects: How television cultivates materialism and its consequences for life satisfaction. *Human Communication Research*, 37, 34-57.
- Slater, M. D., & Rouner, D. (2002). Entertainment-education and elaboration likelihood: understanding the process of narrative persuasion. *Communication Theory*, 12, 173-191.
- Smith, S. L., Lachlan, K., & Tamborini, R. (2003). Popular video games: Quantifying the presentation of violence and its context. *Journal of Broadcasting & Electronic Media*, 47, 53-76.
- Snider, M. (2011, November 17). *5-day sales for 'Call of duty: Modern warfare 3' top \$775M*. Retrieved from <http://www.usatoday.com/tech/gaming/story/2011-11-17/call-of-duty-sales-record/51276150/1>.

- Quick, B. L. (2009). The effects of viewing Grey's Anatomy on perceptions of doctors and patient satisfaction. *Journal of Broadcasting & Electronic Media*, 53, 38-55.
- Riddle, K., Potter, J. W., Metzger, M. J., Nabi, R. L., & Linz, D. G. (2011). Beyond cultivation: Exploring the effects of frequency, recency, and vivid autobiographical memories for violent media. *Media Psychology*, 14, 168-191.
- Romer, D., Jamieson, K. H., & Aday, S. (2003). Television news and cultivation of fear of crime. *Journal of Communication*, 53, 88-104.
- Rössler, P., & Brosius, H. B. (2001). Do talk shows cultivate adolescents' views of the world? A prolonged-exposure experiment. *Journal of Communication*, 51, 143-163.
- Williams, D. (2006). Virtual cultivation: Online worlds, offline perceptions. *Journal of Communication*, 56, 69-87.

APPENDICES

APPENDIX A

First-order Questions about Military Perceptions

First-Order Effects as defined by Shrum (2004; estimates and prevalence)

How often do active-duty military personnel engage in combat?

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

How often does the military run covert operations?

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

How high are the death rates in the military?

Low – 0 1 2 3 4 5 6 7 8 9 10 – High

First-Order Effects as defined by Williams (2006; content in medium; omitted from the study)

Important individuals of other countries are under constant surveillance.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

How successful would a soldier be in a combat situation?

Not successful – 0 1 2 3 4 5 6 7 8 9 10 – Successful

Boot camp is about learning how to kill your enemies.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Being shot fatally results in instant death.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Soldiers should reload after every combat engagement to ensure they have enough ammunition for the next battle.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

One soldier has the potential to win an entire war.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Explosives are not fatal if one is not directly on top of it.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The addition of a scope to a weapon guarantees accuracy when firing a weapon.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

It is easy to maneuver with any type of military load out (i.e., gear used in combat).

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

It is possible to take a helicopter down with a handgun.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Self-Efficacy

I would be a skilled soldier.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Second Order-Effects (Attitudes and Beliefs)

I support the U.S. Military.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The U.S. Military protects the freedom of the United States.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

I do not trust the U.S. Military’s actions. (R)

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The U.S. Military protects my family.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The U.S. Military makes me proud of my country.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Those who serve in the U.S. Military are victims of lies and false promises. (R)

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The U.S. Military is valuable.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Working for the U.S. Military is a noble career choice.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The U.S. Military is crucial for our nation’s security and welfare.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Violence is an acceptable solution to problems.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

When faced with conflict, sometimes violence is the only way to resolve it.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Gun violence is justifiable in many cases.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Using violent force against enemies is the best solution in some cases.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The government has weapon technology that the general public does not know about.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

The U.S. is always actively engaged in war.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

There is a constant threat to the United States.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Fighting a war is easy.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Weapons are easily accessible.

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Using weapons requires extensive training (R).

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Soldiers are awarded for specific actions (i.e., headshots, killing more than one enemy).

Disagree – 0 1 2 3 4 5 6 7 8 9 10 – Agree

Now, we would like to ask you some questions about your use of video games and other forms of media.

In this section, please name up to three of your favorite video games. After you name each one, answer the questions that follow to the best of your ability.

1. _____

How often do you play this video game?

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

This game allows you to utilize a team.

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

This game gives you missions to perform.

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

If the game has weapons, how realistic are the weapons in this game?

Not Realistic – 0 1 2 3 4 5 6 7 8 9 10 -Realistic

Which of the following categories best describes this game? You may circle more than one.

1. Action
2. Shooter (First-Person, Third-Person)
3. Adventure
4. Role-Playing Game (RPG)
5. Simulation
6. Strategy
7. Sports
8. Puzzle
9. Fighting
10. Dance/Rhythm
11. Survival Horror

2. _____

How often do you play this video game?

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

This game allows you to utilize a team.

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

This game gives you missions to perform.

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

If the game has weapons, how realistic are the weapons in this game?

Not Realistic – 0 1 2 3 4 5 6 7 8 9 10 -Realistic

Which of the following categories best describes this game? You may circle more than one.

1. Action
2. Shooter (First-Person, Third-Person)
3. Adventure
4. Role-Playing Game (RPG)
5. Simulation
6. Strategy
7. Sports
8. Puzzle
9. Fighting
10. Dance/Rhythm
11. Survival Horror

3. _____

How often do you play this video game?

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

This game allows you to utilize a team.

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

This game gives you missions to perform.

Rarely – 0 1 2 3 4 5 6 7 8 9 10 – Often

If the game has weapons, how realistic are the weapons in this game?

Not Realistic – 0 1 2 3 4 5 6 7 8 9 10 -Realistic

Which of the following categories best describes this game? You may circle more than one.

1. Action
2. Shooter (First-Person, Third-Person)
3. Adventure
4. Role-Playing Game (RPG)
5. Simulation
6. Strategy
7. Sports
8. Puzzle
9. Fighting
10. Dance/Rhythm
11. Survival Horror

Specific Game Exposure

Following are a list of games/game franchises. Please indicate the extent to which you play each....

Call of Duty

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Madden Football

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Battlefield

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Zelda: Skyward Sword

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Halo

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Gears of War

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Lost Planet

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Elder Scrolls: Skyrim

- Not at all
- Rarely
- Sometimes
- Often
- All the time

World of Warcraft

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Tom Clancy's (Ghost Recon, Rainbow Six)

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Medal of Honor

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Marvel vs. Capcom 3

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Diablo

- Not at all
- Rarely
- Sometimes
- Often
- All the time

On an average day, how many hours do you play military-style games by yourself?

On an average day, how many hours do you play motion controlled games (like Kinect or Move) by yourself?

On an average day, how many hours do you play sports games by yourself?

On an average day, how many hours do you play mobile games (on a phone, handheld, or other device) by yourself?

On an average day, how many hours do you play military-style games with others (either online or offline)?

On an average day, how many hours do you play motion controlled games with others (like Kinect or Move)?

On an average day, how many hours do you play sports games with others?

On an average day, how many hours do you play mobile games with others?

On an average day, how many hours do you play Massively Multiplayer Online (MMO) games?

Other Media Use Questions

How many hours of television did you watch yesterday?

How many hours of television per day do you usually watch?

How many hours did you listen to the radio yesterday?

How many hours of radio per day do you usually listen?

How many days last week did you read the newspaper?

Day(s): 1 2 3 4 5 6 7

How many different magazines do you read regularly?

In the past six months, how many books have you read?

In the past month, how many times have you gone out to see a movie at the theatre?

In the past month, how many movies have you watched on DVD and/or video?

Yesterday, about how many minutes did you spend on the Internet (i.e., Surfing, Netflix, Facebook, etc.)?

How often do you read books that have content revolving around horror?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you read books that have content revolving around the military?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you read books that have content revolving around the science fiction?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you read books that have content revolving around sports?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch TV shows that have content revolving around horror?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch TV shows that have content revolving around the military?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch TV shows that have content revolving around the science fiction?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch TV shows that have content revolving around sports?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch movies that have content revolving around horror?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch movies that have content revolving around the military?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch movies that have content revolving around the science fiction?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

How often do you watch movies that have content revolving around sports?

- Not at all
- Rarely
- Sometimes
- Often
- All the time

Gaming Skill

Here are some statements about your video game playing ability. Please answer each using the scale provided.

1. I often win when playing video games against other people.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

2. I often win when playing video games against the computer.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

3. I am a good video game player.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

4. I think about different video games strategies.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

5. I can easily figure out how to play new games.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

6. I have no problem handling the multiple buttons on currently popular game controllers.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

7. I can play games with complicated control systems well.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

8. I have good video game skills.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

9. I am a better video game player than most of my friends.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

10. I can finish video games quickly.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

11. I often score the most points when playing games online against other people.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

12. The single player mode of action games is very easy for me to complete.

Strongly Disagree – 1 2 3 4 5 6 7 8 9 10 – Strongly Agree

Contact Hypothesis Questions

Are you currently enlisted in the military?

1. Yes
2. No

Have you ever been enlisted in the military?

1. Yes
2. No

How many people do you have contact with who are or have been enlisted in the military?

How many of those people are...

- Immediate family (i.e., Parent, Child, Siblings, Spouse) _____
- Relative (i.e., Uncle, Cousin, Grandfather) _____
- Close Friend _____
- Friend _____
- Acquaintance _____
- Other _____

Political Philosophy

Which of the following categories best describes your political philosophy?

1. Strong Conservative
2. Lean Towards Conservative
3. Middle Of The Road
4. Lean Towards Liberal
5. Strong Liberal
6. Refused/Don't Know

Demographics

-Age

(1) What is your AGE? _____ Years

-Gender

(2) What is your gender? (Check ONE) _____Male or _____Female?

-Income

(3) What was your household's income in 2011? (Check ONE of the following)

- (a) \$10,000 or less
- (b) \$11,000-\$25,000
- (c) \$26,000-\$50,000
- (d) \$51,000-\$75,000
- (e) \$76,000-\$100,000
- (f) \$101,000-\$150,000
- (g) Over \$150,000

-Ethnicity

(4) What is your ethnic background? (Check all that apply)

- African-American
- Hispanic
- Asian
- White
- Other (If other, what is your ethnicity?)

-Years in school.

(5) How many years of formal education have you had? _____years

-College level

(6) What is your current level in college? (Check ONE)

- Freshman
- Sophomore
- Junior
- Senior
- Not currently enrolled in college

Thank you for your participation!

APPENDIX B

Table B1					
Hierarchical Multiple Regression Predicting Military Support w/ Game Exposure					
Block Name and Number	Variables	<i>r</i>	β at enter	Final β	R^2 Change
1: Demographics					.236***
	Political Philosophy	.358***	.311***	.223***	
	Age	.144*	.169**	0.069	
	Gender (Dummied to Maleness)	-.191**	-.114*	-0.127*	
	2011 Income	0.044	0.006	0.014	
	Race (Dummied to White)	-0.09	-0.053	0.013	
	Enrolled in college	.291***	.250***	.226***	
2: Military Contact					0.017
	Currently Enlisted In Military	0.085	0.016	0.031	
	Previously Enlisted In Military	.126*	0.124	0.107	
	Contact with people in military	0.071	0.95	0.022	
3: Traditional Media Use					.118***
	Read books with military content	-0.035	-0.061	-0.055	
	Watch TV shows with military content	.219***	.223**	.227**	
	Watch movies with military content	.125*	0.03	0.034	
	Watch television per day	-.196**	.157**	.154**	
	Listen to radio per day	0.016	-0.025	-0.027	
	Days read newspaper last week	-0.091	-0.033	-0.032	
	Hours on the internet yesterday	-.252***	-0.174**	0.172*	
	Movies watched on DVD and/or video	-.174**	-.196***	-.193*	
4: Military-Style Game Exposure					0.001
	High or Low Military-Style Game Exposure	-0.102	-0.082	-0.082	

Total Model (Equation)	* = $p < .05$
$R^2 = .372$	** = $p < .01$
Adjusted $R^2 = .324$	*** = $p < .001$
$F_{(18,231)} = 7.615***$	

Table B2					
Hierarchical Multiple Regression Predicting Violence Acceptability w/ Game Exposure					
Block Name and Number	Variables	<i>r</i>	β at enter	Final β	R^2 Change
1: Demographics					.108***
	Political Philosophy	.262***	.279***	.205**	
	Age	0.026	0.017	0.019	
	Gender (Dummied to Maleness)	.157*	.176**	0.123	
	2011 Income	0.07	0.061	0.065	
	Race (Dummied to White)	-0.012	-0.025	0.005	
	Enrolled in college	0.04	0.036	0.079	
2: Military Contact					0.019
	Currently Enlisted In Military	.212**	0.124	0.124	
	Previously Enlisted In Military	.148**	0.062	0.058	
	Contact with people in military	0.02	-0.086	-0.089	
3: Traditional Media Use					0.039
	Read books with military content	.208**	0.073	0.076	
	Watch TV shows with military content	.272***	0.162	0.164	
	Watch movies with military content	.200**	-0.004	-0.001	
	Watch television per day	-0.051	-0.015	-0.016	
	Listen to radio per day	0.013	-0.008	-0.009	
	Days read newspaper last week	0.014	-0.024	-0.023	
	Hours on the internet yesterday	-0.039	-0.02	-0.019	
	Movies watched on DVD and/or video	-0.085	-0.073	-0.071	
4: Military-Style Game Exposure					0
	High or Low Military-Style Game Exposure	0.111	-0.024	-0.024	

Total Model (Equation)	* = $p < .05$
$R^2 = .167$	** = $p < .01$
Adjusted $R^2 = .102$	*** = $p < .001$
$F_{(18,231)} = 2.578^{**}$	

APPENDIX C

Statistics

		First Order Effects With Mean	Military Support	Violence Acceptability with Mean	A1.How often do active-duty military personnel engage in combat?	A2.How often does the military run covert operations?
N	Valid	256	256	256	256	254
	Missing	0	0	0	0	2
Mean		4.2526	5.8230	4.1312	3.90	4.83
Std. Deviation		2.00560	2.47866	2.45182	2.171	2.732

Statistics

		A3. How high are the death rates in the military?	A5. I would be a skilled soldier.	B1. I support the U.S. Military.	B2. The U.S. Military protects the freedom of the United States.	B3. Recoded - I Trust The Military's Actions
N	Valid	256	256	256	256	255
	Missing	0	0	0	0	1
Mean		4.04	3.16	6.32	5.74	5.62
Std. Deviation		2.539	3.134	3.403	3.324	2.953

Statistics

		B4.The U.S. Military protects my family.	B5. The U.S. Military makes me proud of my country.	B6. Recoded - Those who serve in the U.S. Military are not victims of lies and false promises.	B7. The U.S. Military is valuable.	B8. Working for the U.S. Military is a noble career choice.
N	Valid	255	254	256	253	255
	Missing	1	2	0	3	1
Mean		5.07	5.27	5.66	7.03	6.42
Std. Deviation		3.453	3.532	2.973	2.614	2.972

Statistics

		B9. The U.S. Military is crucial for our nation's security and welfare.	B16. There is a constant threat to the United States.	B10/C1. Violence is an acceptable solution to problems.	B11/C2. When faced with conflict, sometimes violence is the only way to resolve it.	B12/C3. Gun violence is justifiable in many cases.
N	Valid	252	254	254	254	255
	Missing	4	2	2	2	1
Mean		6.56	4.52	3.22	5.41	3.51
Std. Deviation		3.047	3.074	2.803	3.178	2.850

Statistics

		B13/C4. Using violent force against enemies is the best solution in some cases.	GG1. Call of Duty	GG3. Battlefield	GG5. Halo	GG6. Gears of War
N	Valid	256	256	256	256	256
	Missing	0	0	0	0	0
Mean		4.39	.89	.65	.68	.39
Std. Deviation		3.075	1.138	1.082	.953	.744

Statistics

		GG7. Lost Planet	GG10. Tom Clancy's (Ghost Recon, Rainbow Six, etc.)	GG12. Medal of Honor	H21. How often do you read books that have content revolving around the military?	H25. How often do you watch TV shows that have content revolving around the military?
N	Valid	256	256	256	256	256
	Missing	0	0	0	0	0
Mean		.11	.34	.25	.87	1.16
Std. Deviation		.397	.739	.592	.913	1.060

Statistics

	H29.How often do you watch movies that have content revolving around the military?	H11.How many hours of television per day do you usually watch? - Open-Ended Response	H13.How many hours of radio per day do you usually listen? - Open-Ended Response	H14.How many days last week did you read the newspaper?	H18.In the past month, how many movies have you watched on DVD and/or video? - Open-Ended Response
N	Valid Missing	256 0	256 0	256 0	256 0
Mean		1.52	1.8072	1.1619	1.81
Std. Deviation		1.013	2.00201	2.33342	2.324
					13.896

Statistics

	H19.Yesterday, about how many hours did you spend on the Internet (i.e., Surfing, Netflix, Facebook, etc.)? - Open-Ended Response	Military-Style Game Exposure Hi=1, Lo = 0	Gaming Skill Perception Hi = 1 Lo = 0	Military Experience	Contact with Military 0=No; 1=yes
N	Valid Missing	256 0	256 0	256 0	256 0
Mean		4.56	.4883	.6172	.0586
Std. Deviation		3.509	.50084	.48703	.23532
					.36006

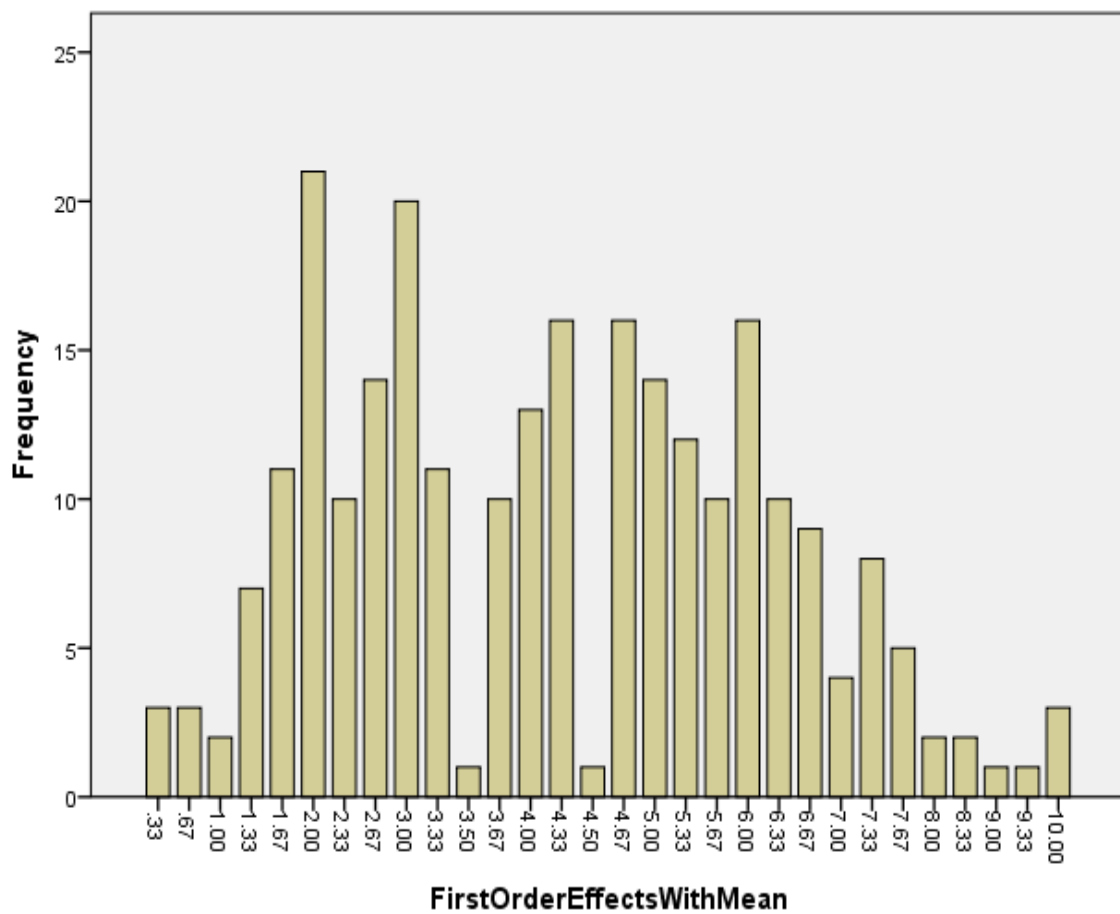
Statistics

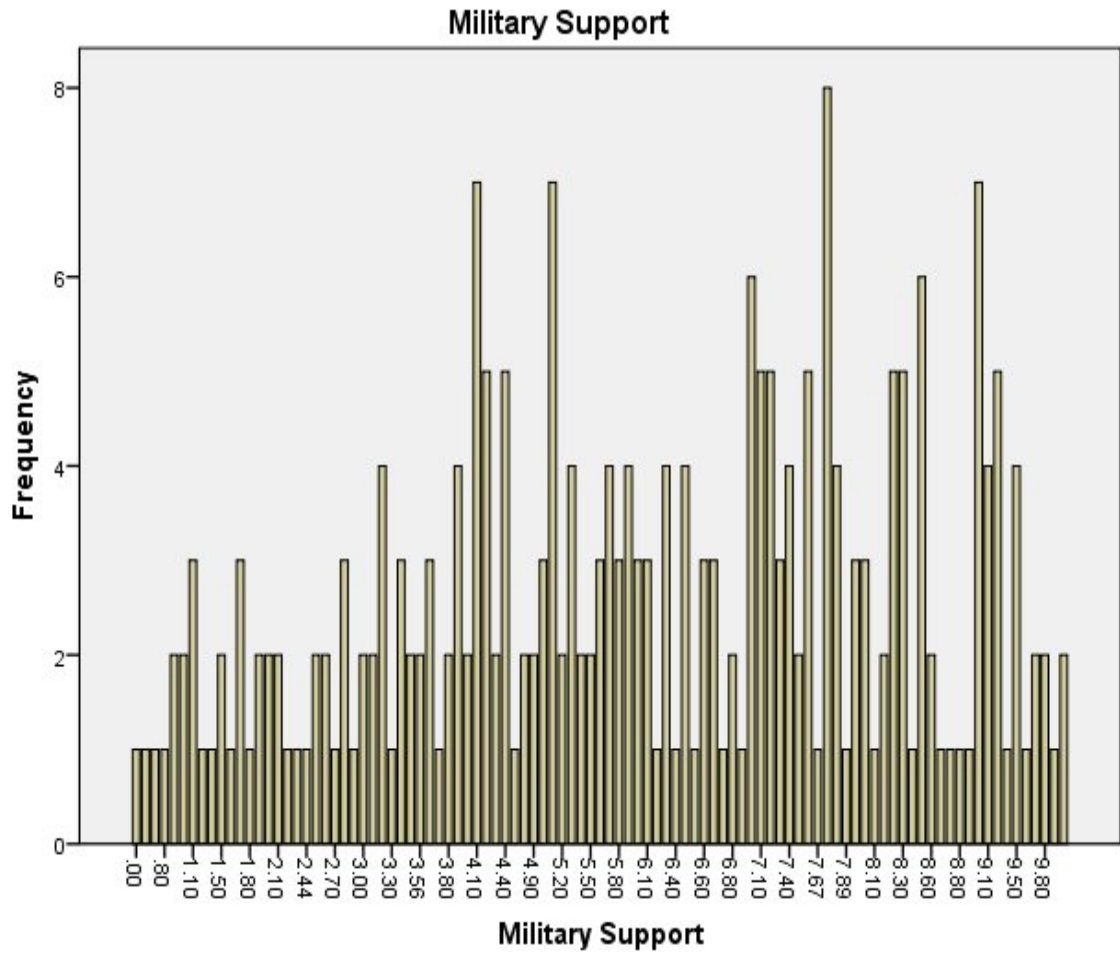
		K1.Which of the following categories best describes your political philosophy?	K3.What is your gender?	K4.What was your household's income in 2011?	K5.Whiteness	Are you in enrolled in college? 0=no; 1=yes
N	Valid	256	256	256	256	256
	Missing	0	0	0	0	0
Mean		2.12	.60	3.02	.79	.6953
Std. Deviation		1.253	.491	2.129	.409	.46118

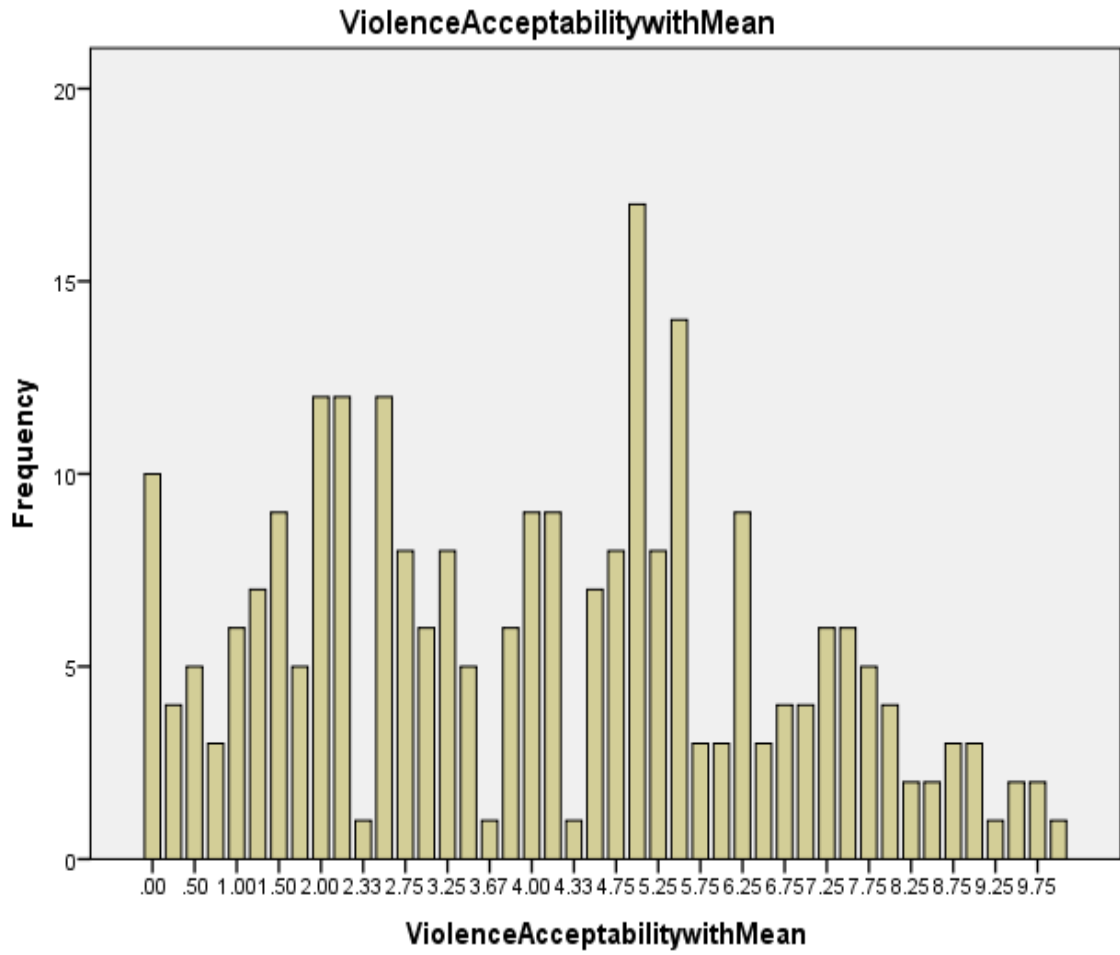
Statistics

		J1.Are you currently enlisted in the military?	J2.Have you ever been enlisted in the military?	J3.How many people do you have contact with who are or have been enlisted in the military? - Open-Ended Response
N	Valid	256	256	250
	Missing	0	0	6
Mean		.02	.06	7.74
Std. Deviation		.124	.235	22.368

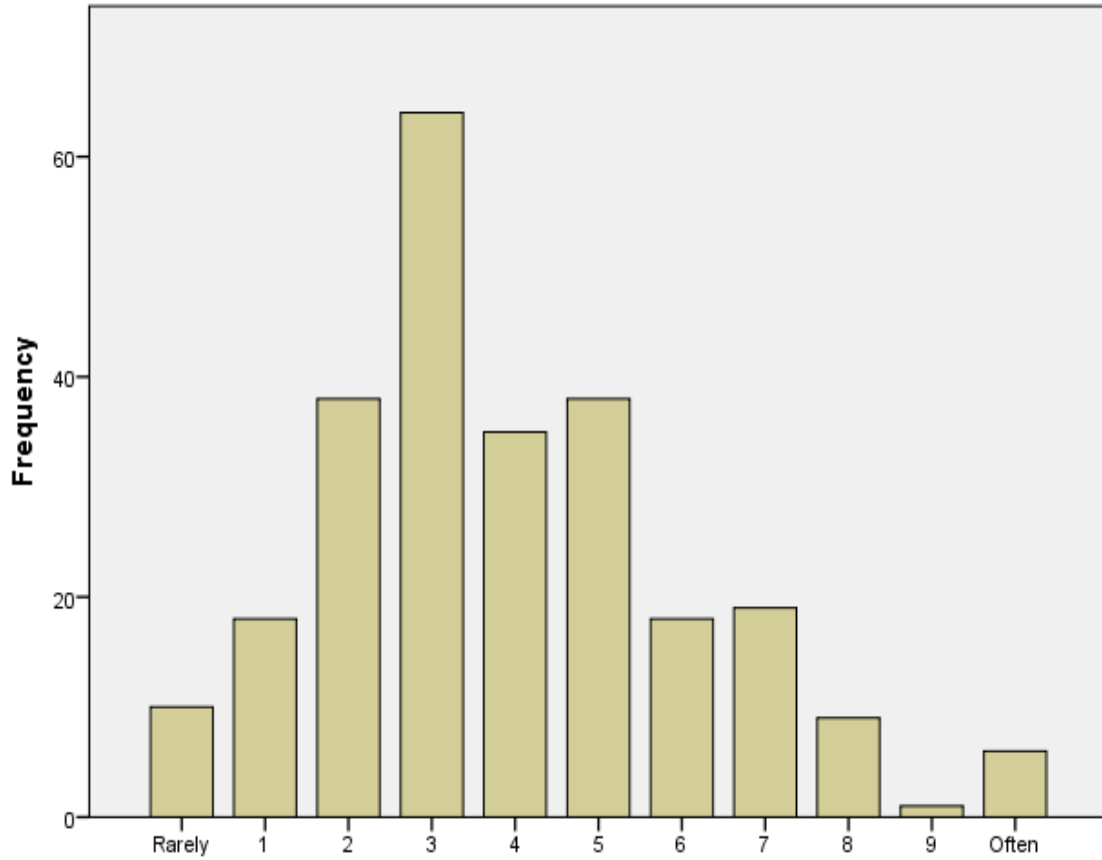
FirstOrderEffectsWithMean





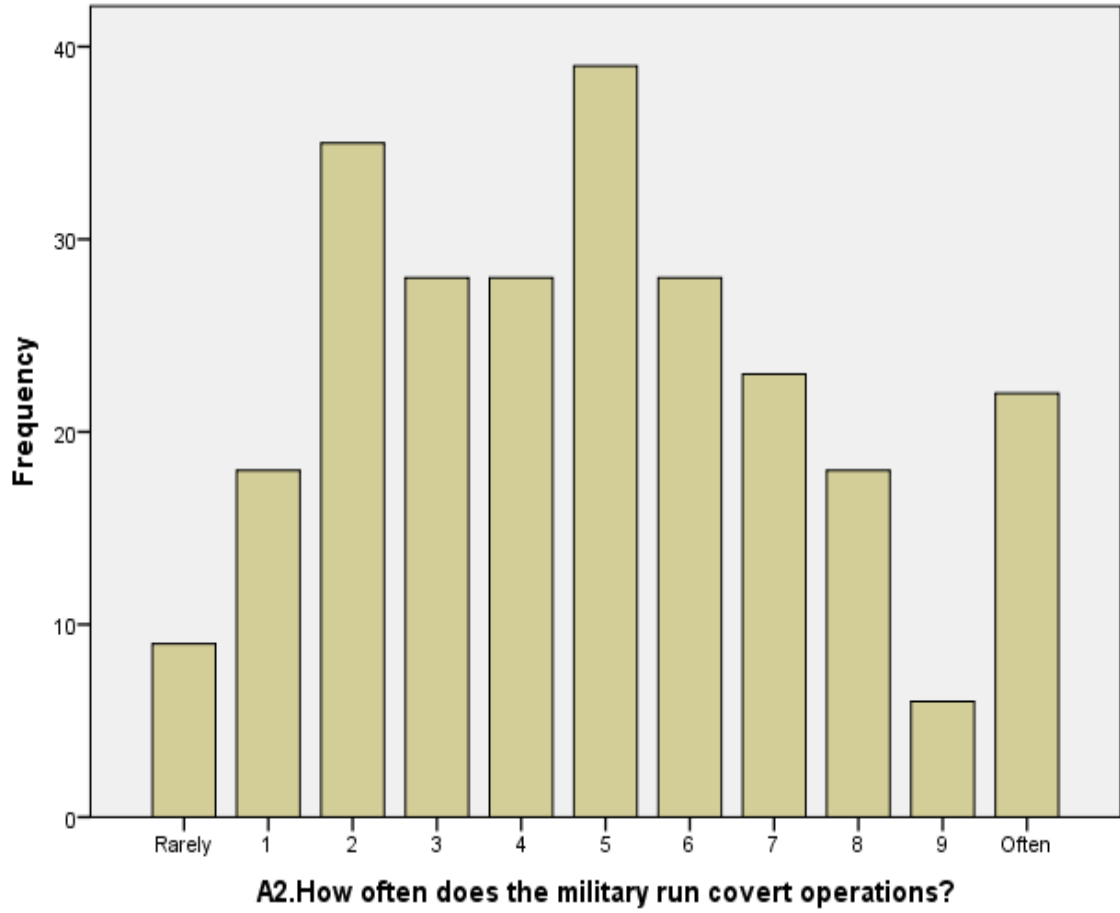


A1.How often do active-duty military personnel engage in combat?

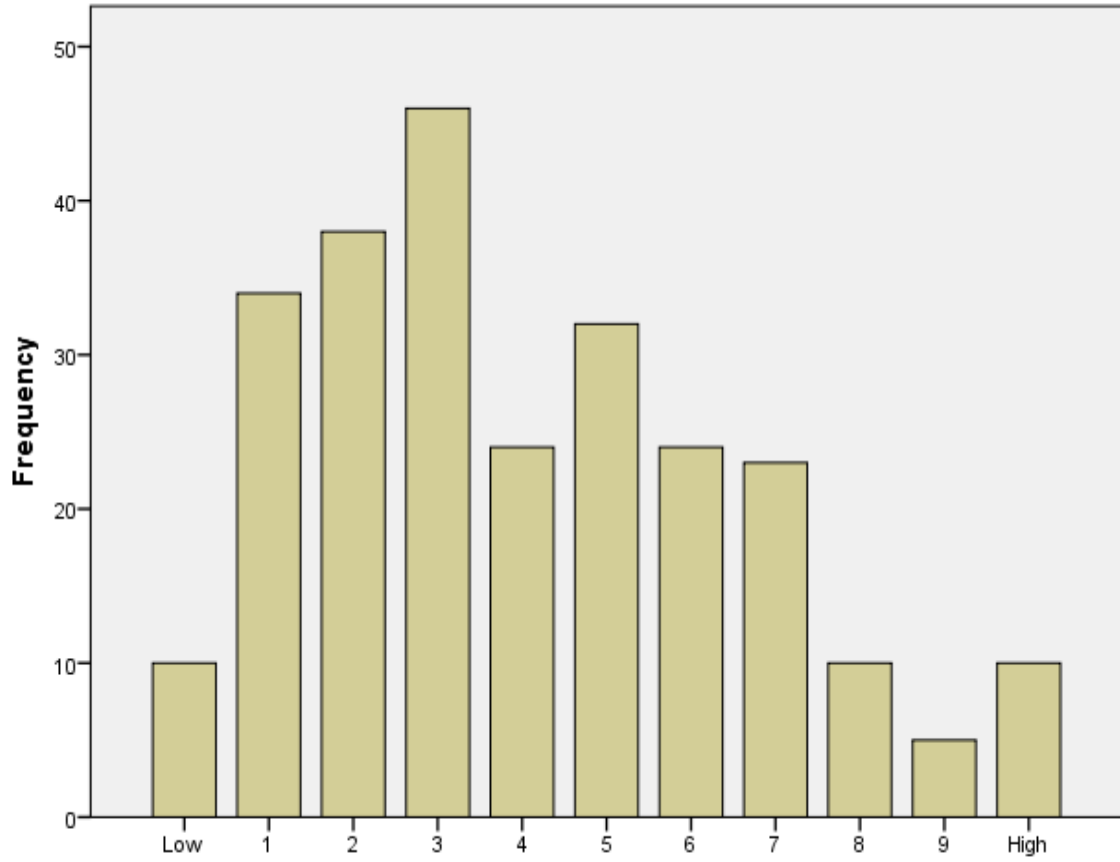


A1.How often do active-duty military personnel engage in combat?

A2.How often does the military run covert operations?

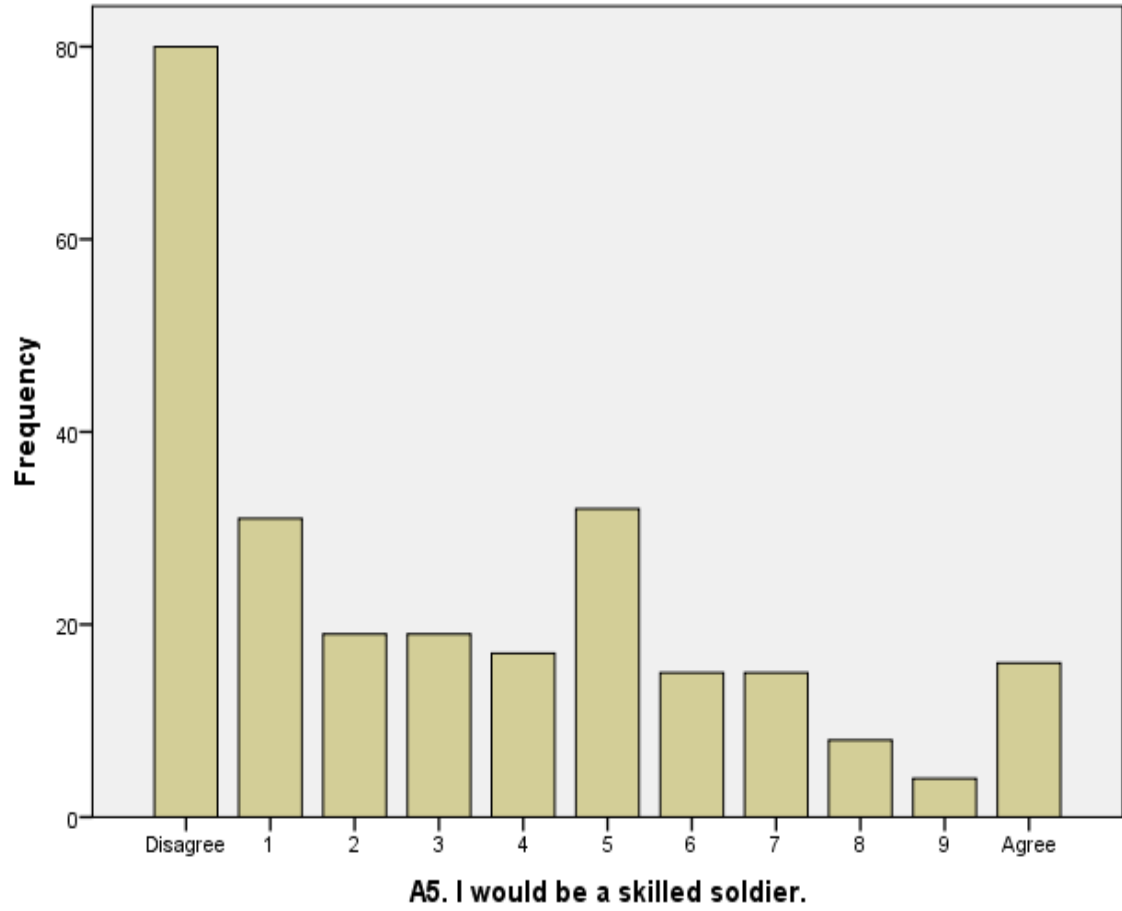


A3. How high are the death rates in the military?

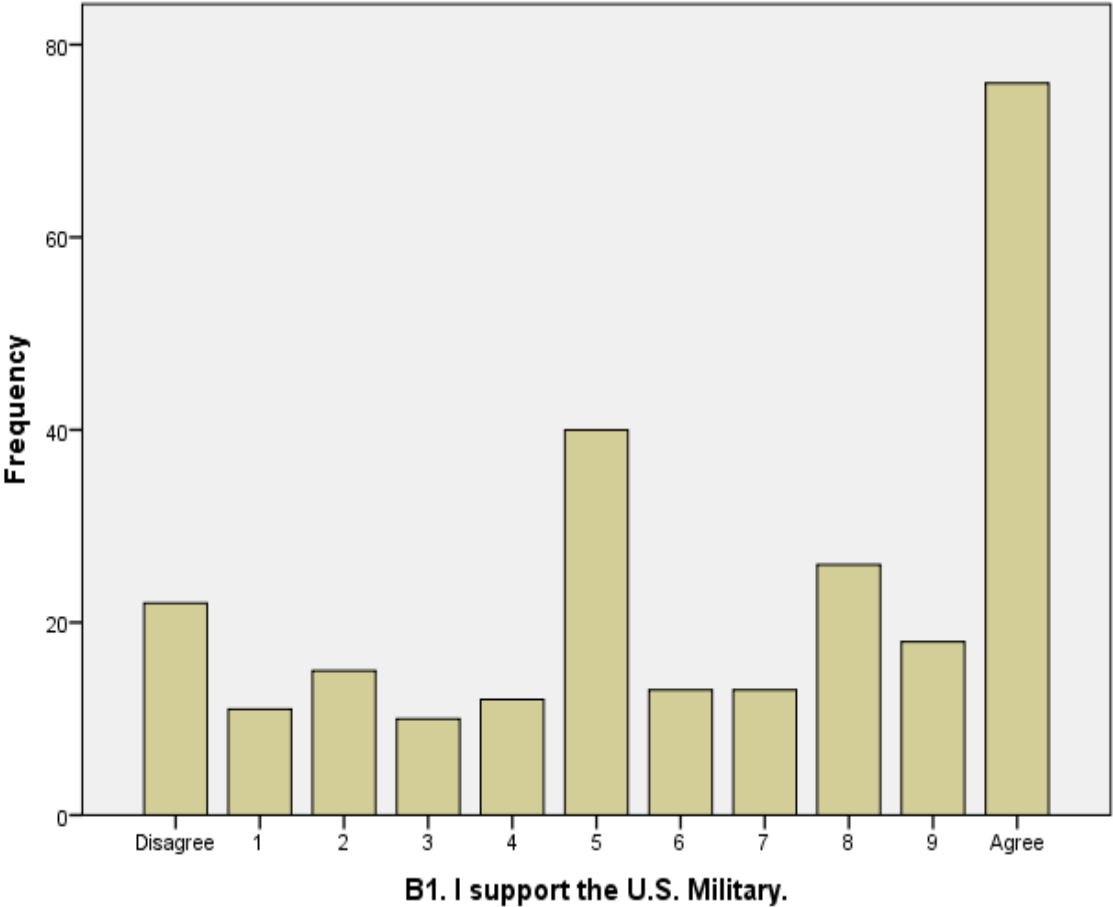


A3. How high are the death rates in the military?

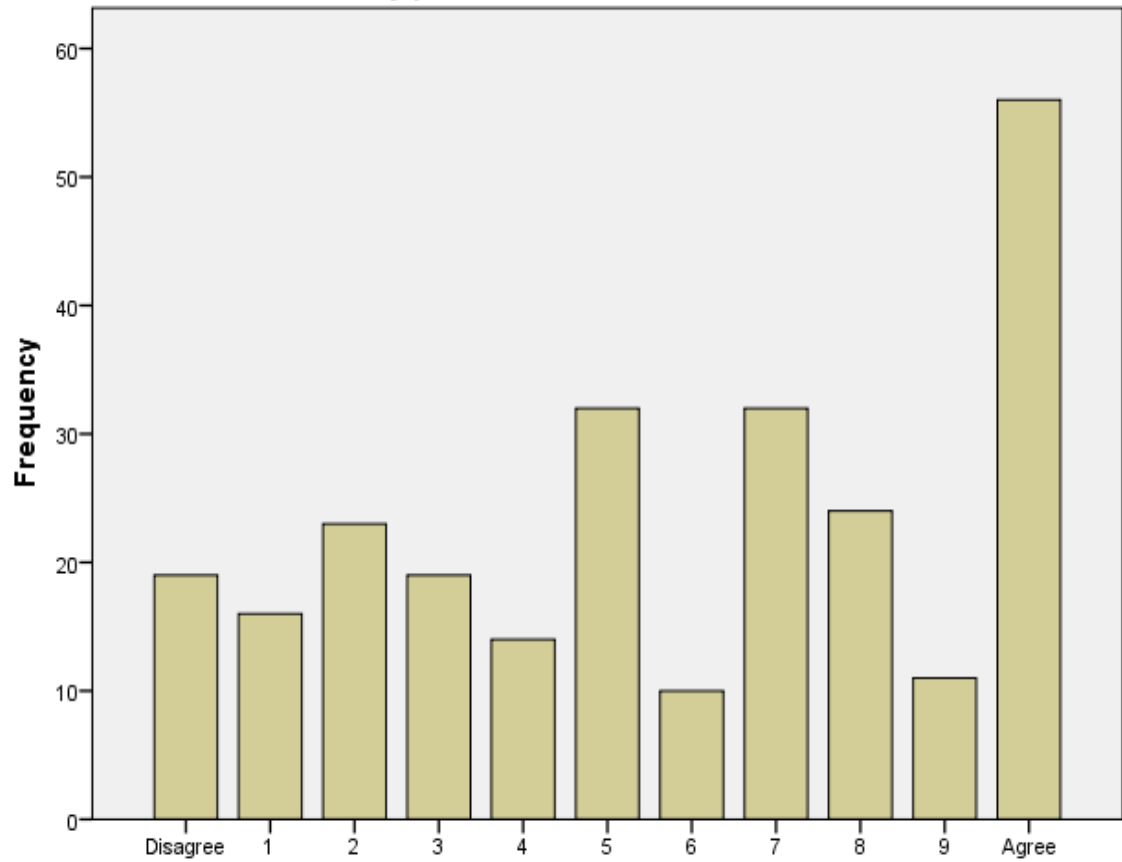
A5. I would be a skilled soldier.



B1. I support the U.S. Military.

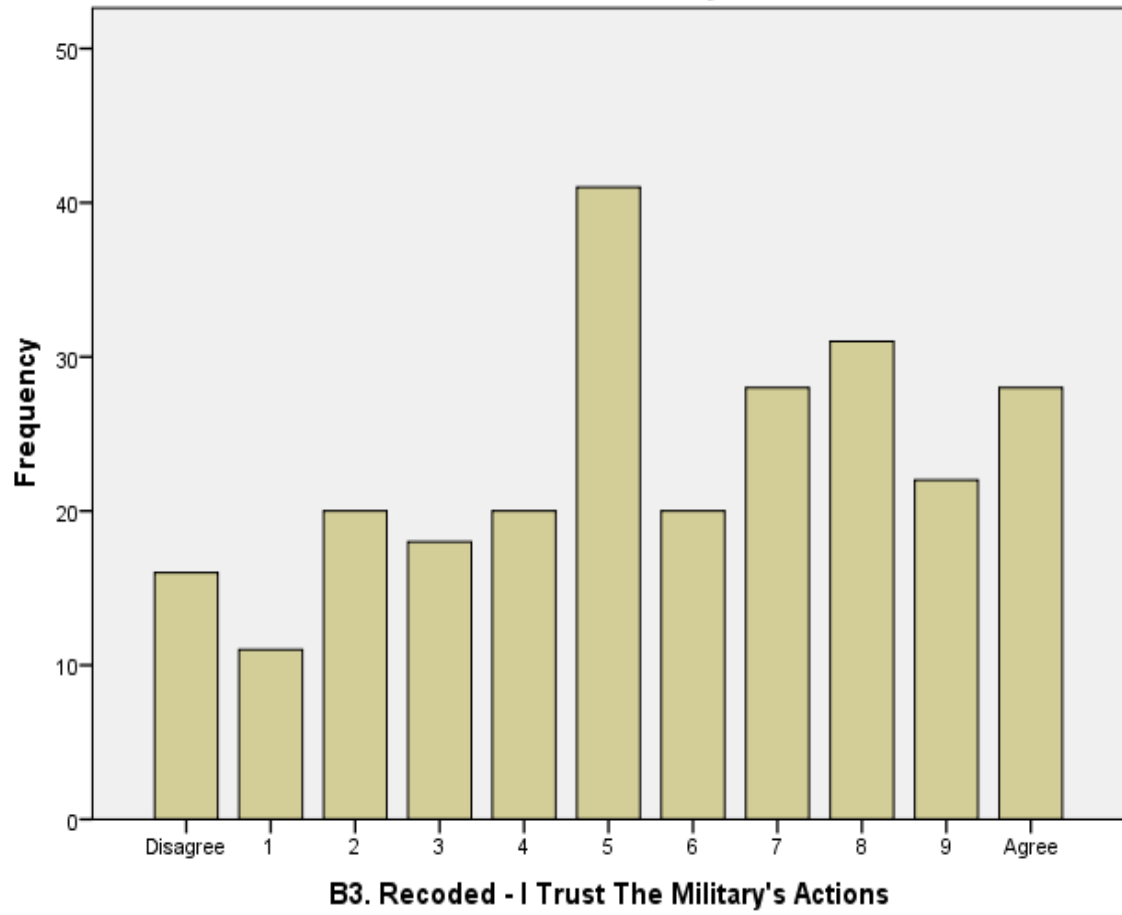


B2. The U.S. Military protects the freedom of the United States.

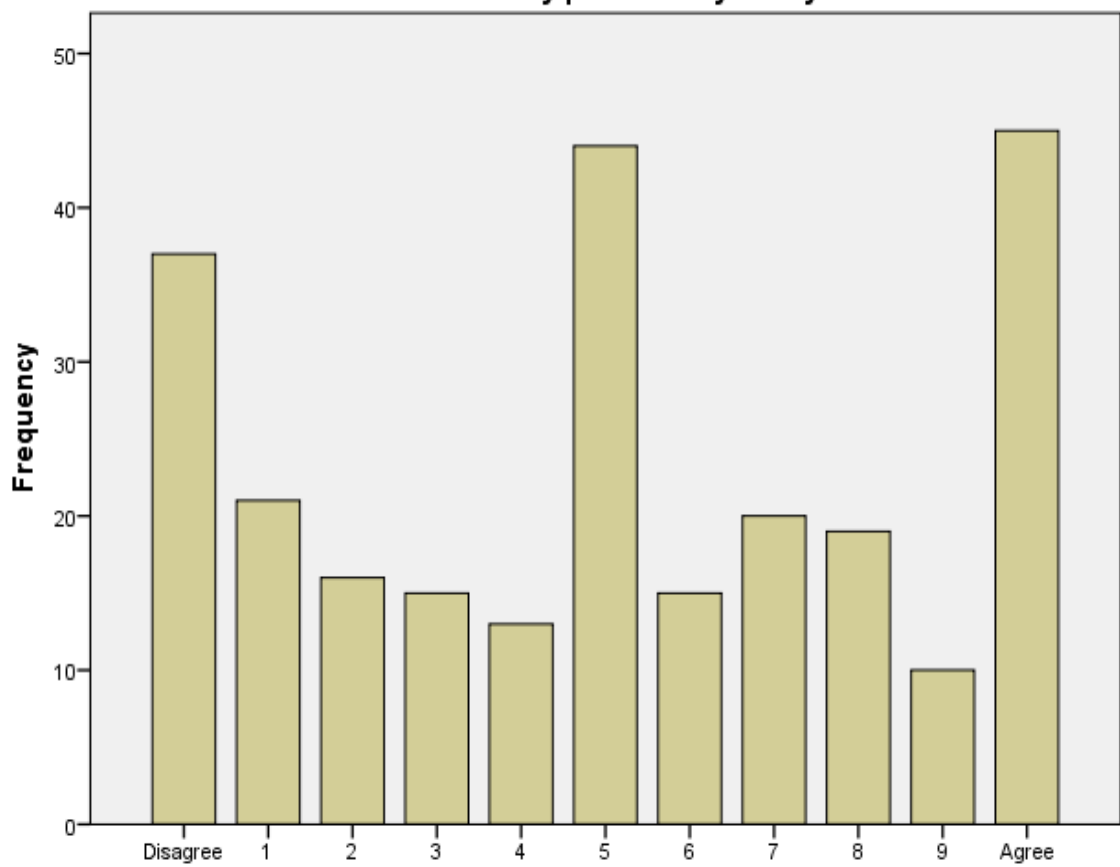


B2. The U.S. Military protects the freedom of the United States.

B3. Recoded - I Trust The Military's Actions

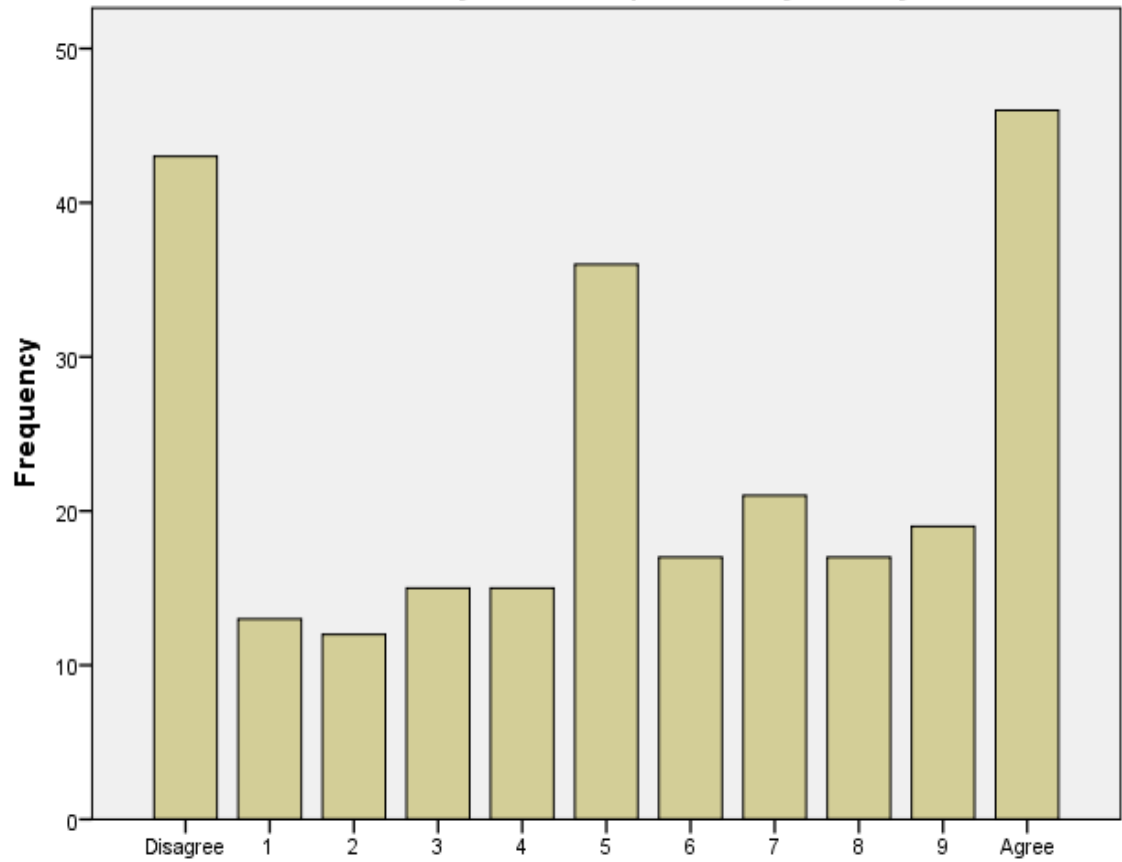


B4.The U.S. Military protects my family.



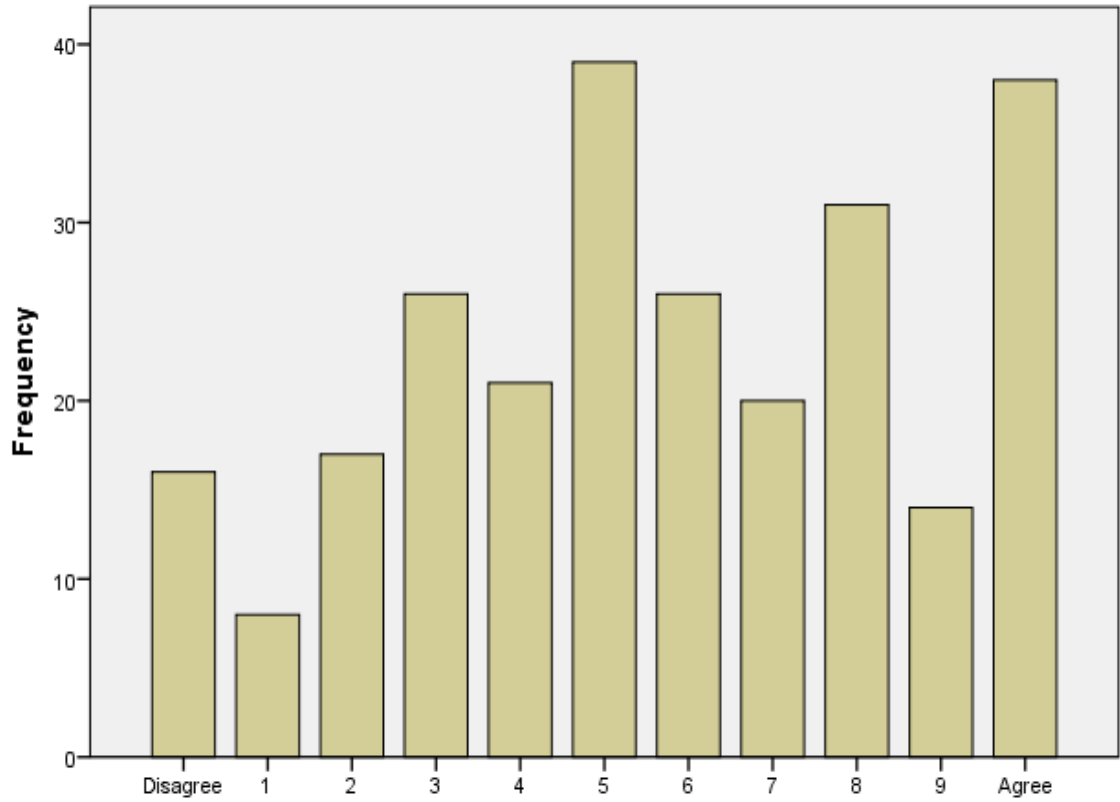
B4.The U.S. Military protects my family.

B5. The U.S. Military makes me proud of my country.



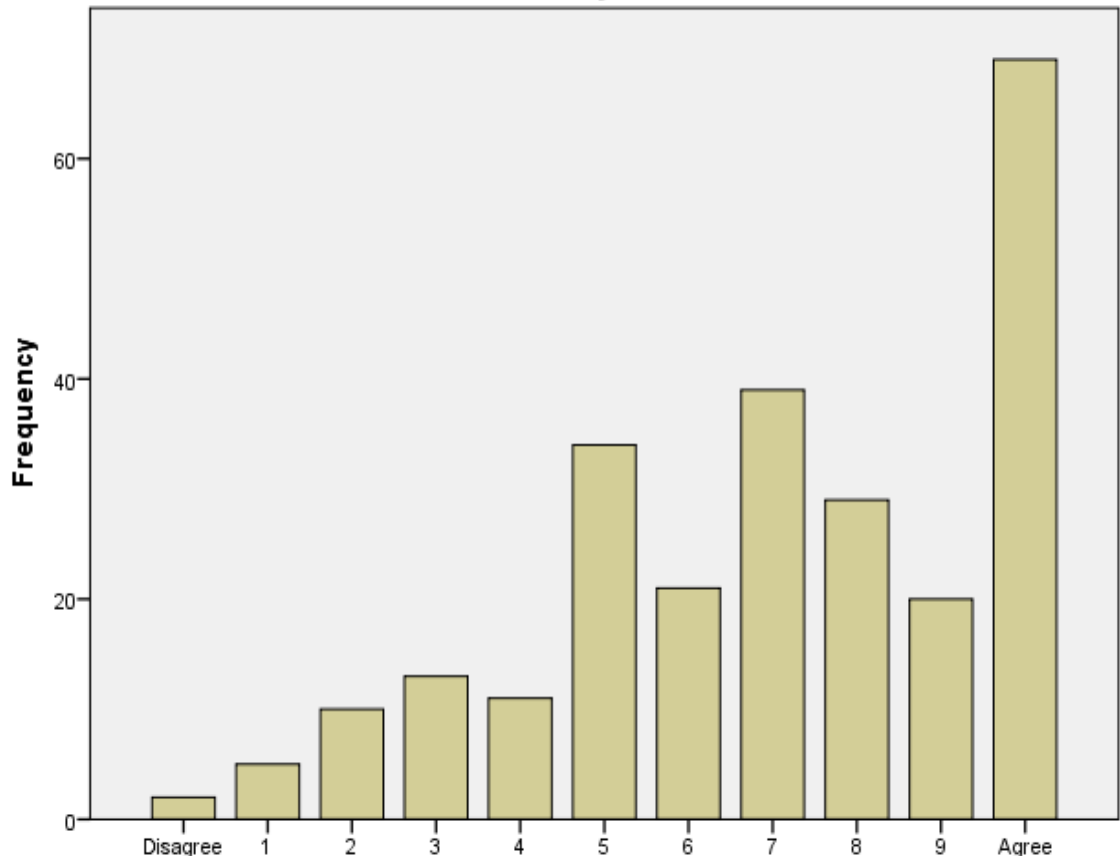
B5. The U.S. Military makes me proud of my country.

B6. Recoded - Those who serve in the U.S. Military are not victims of lies and false promises.



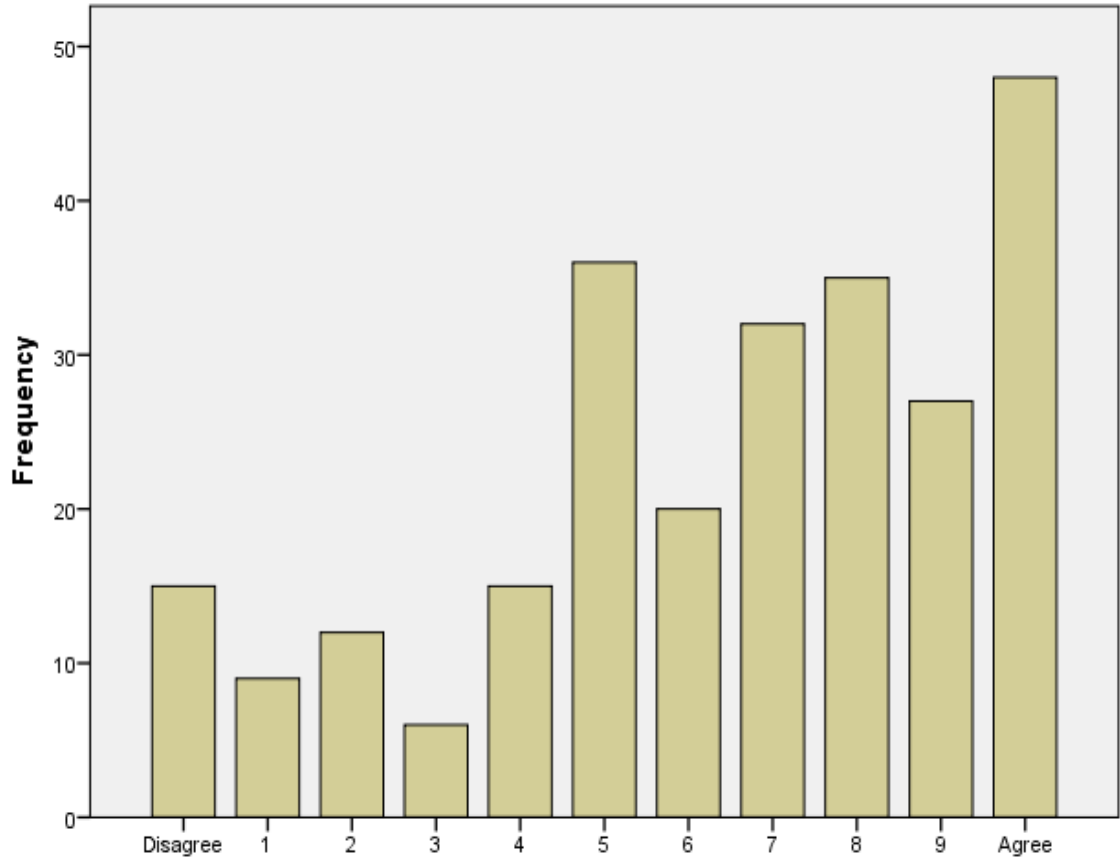
B6. Recoded - Those who serve in the U.S. Military are not victims of lies and false promises.

B7. The U.S. Military is valuable.



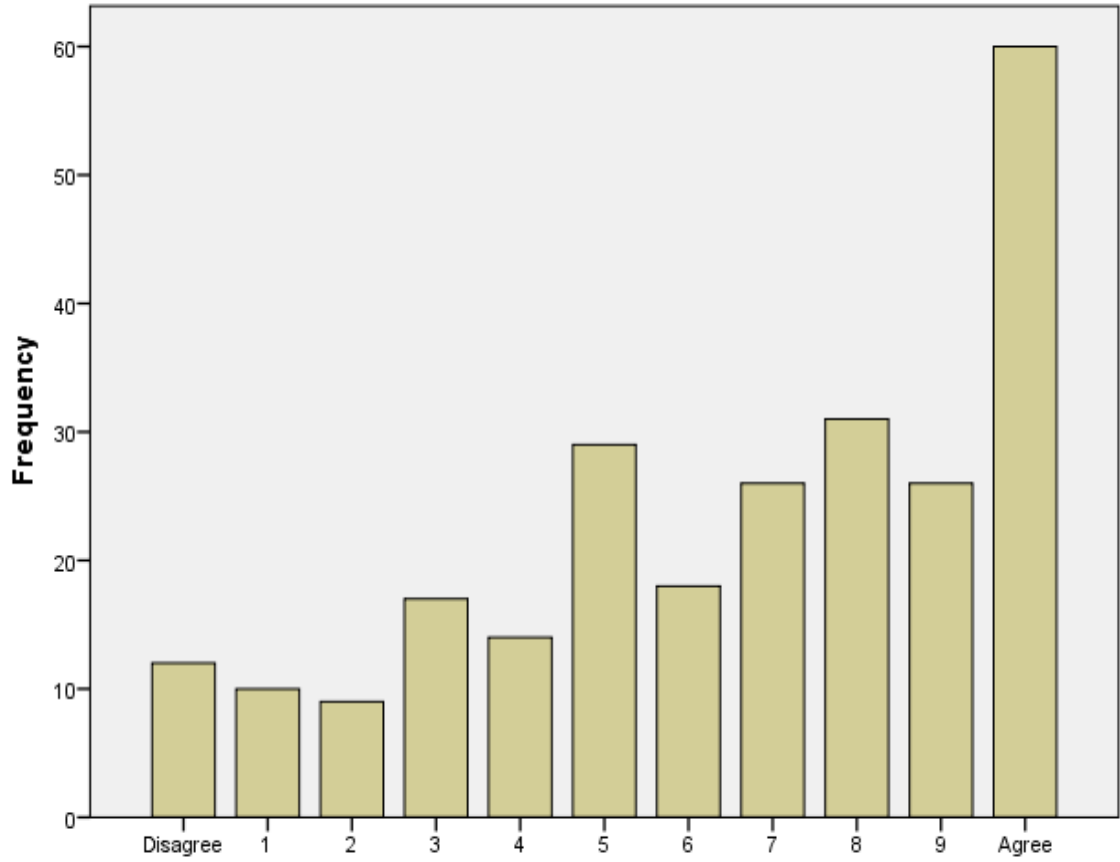
B7. The U.S. Military is valuable.

B8. Working for the U.S. Military is a noble career choice.



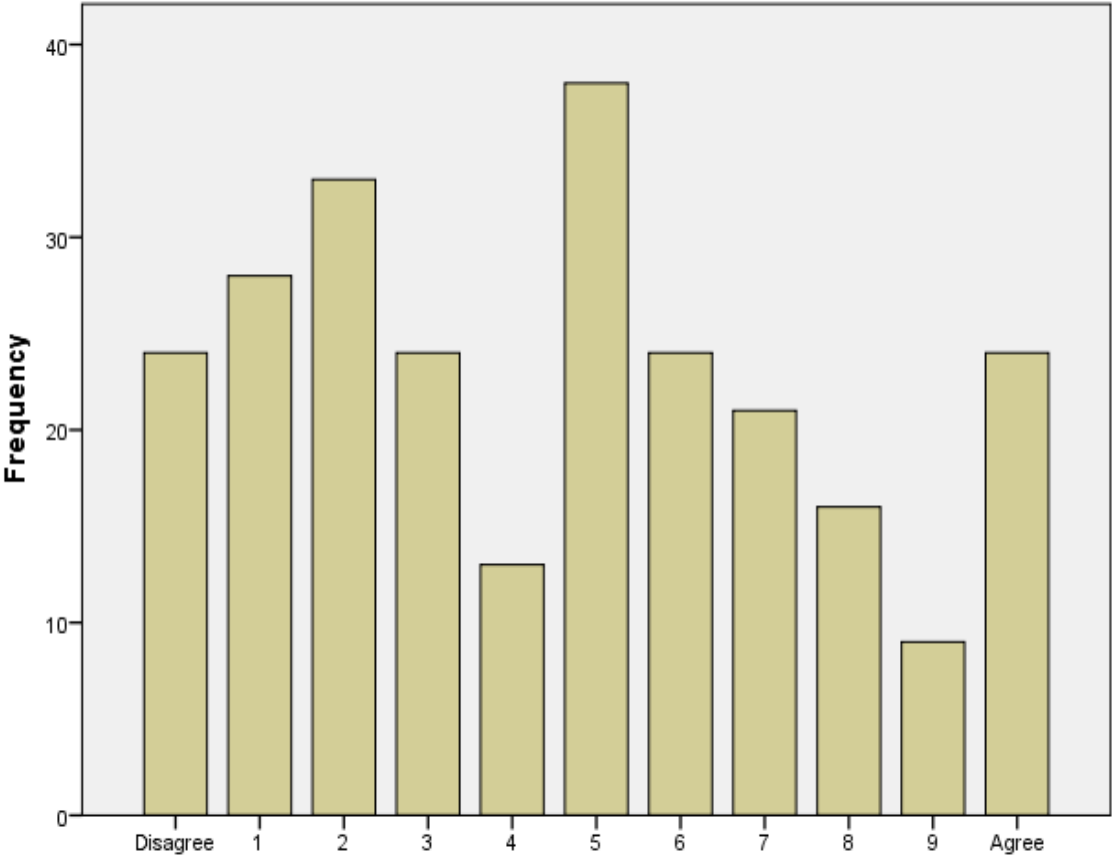
B8. Working for the U.S. Military is a noble career choice.

B9. The U.S. Military is crucial for our nation's security and welfare.



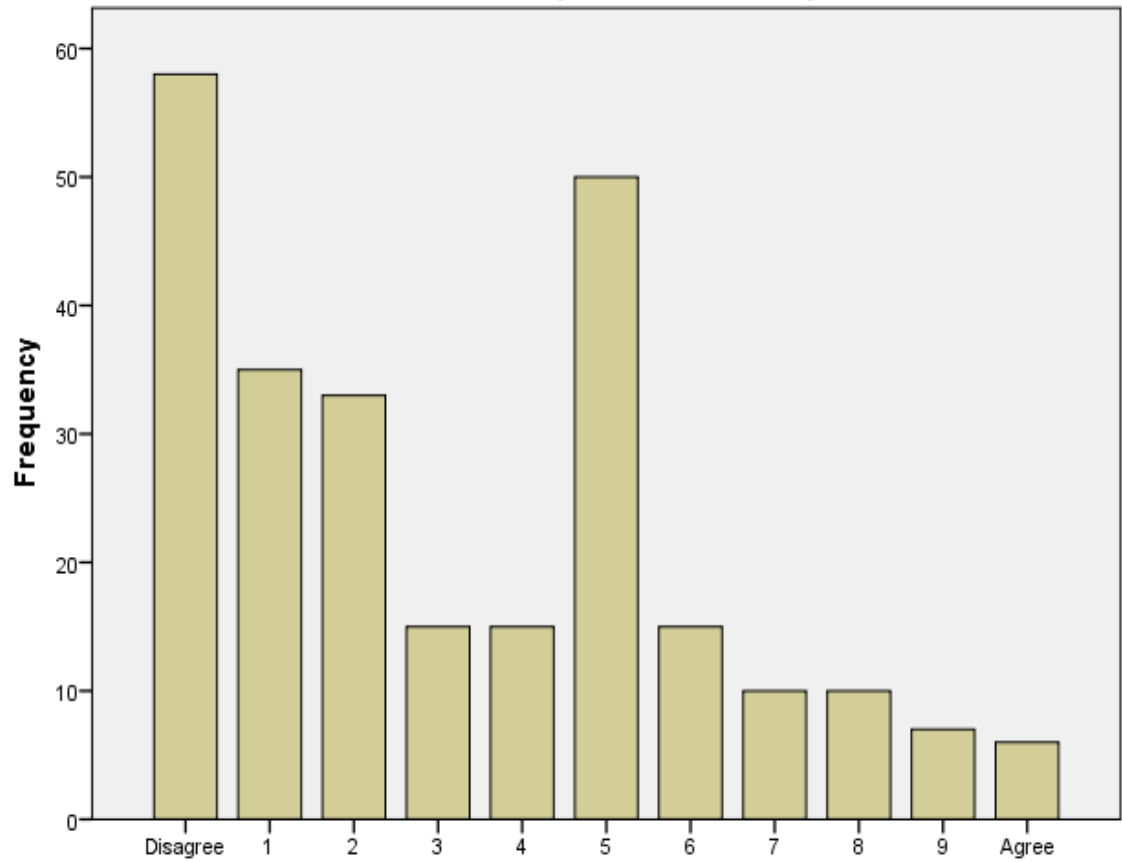
B9. The U.S. Military is crucial for our nation's security and welfare.

B16. There is a constant threat to the United States.



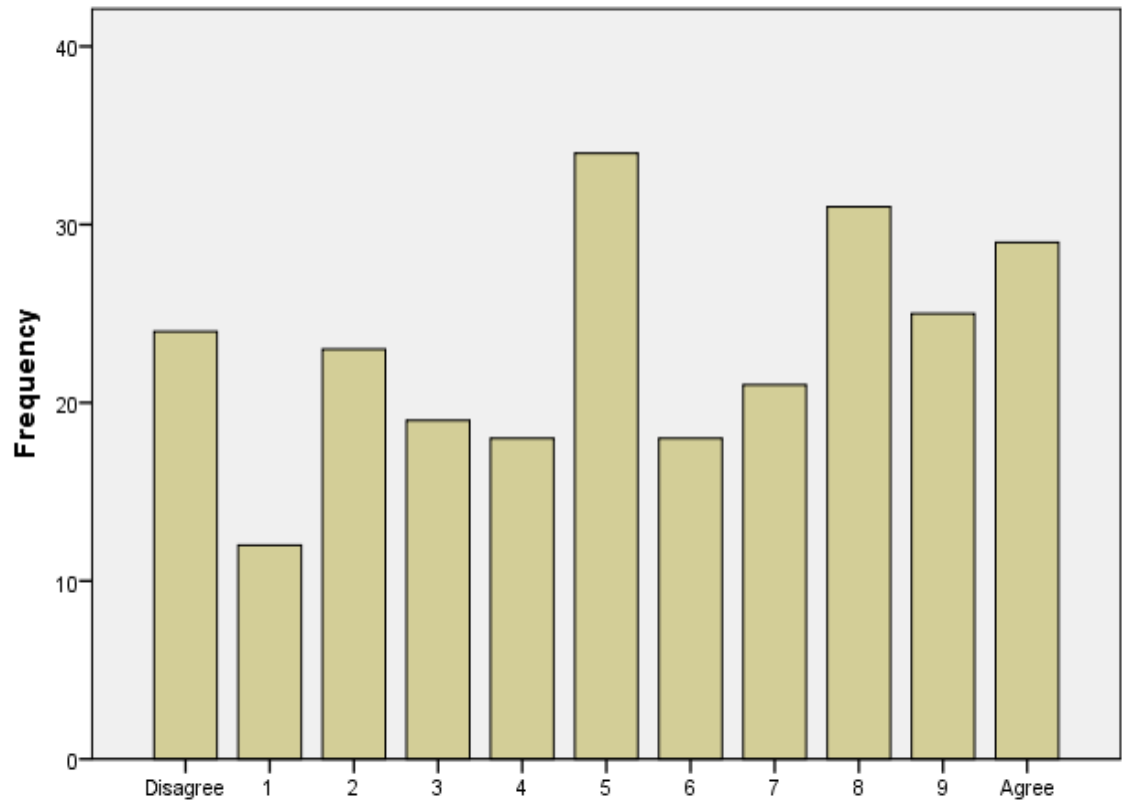
B16. There is a constant threat to the United States.

B10/C1. Violence is an acceptable solution to problems.



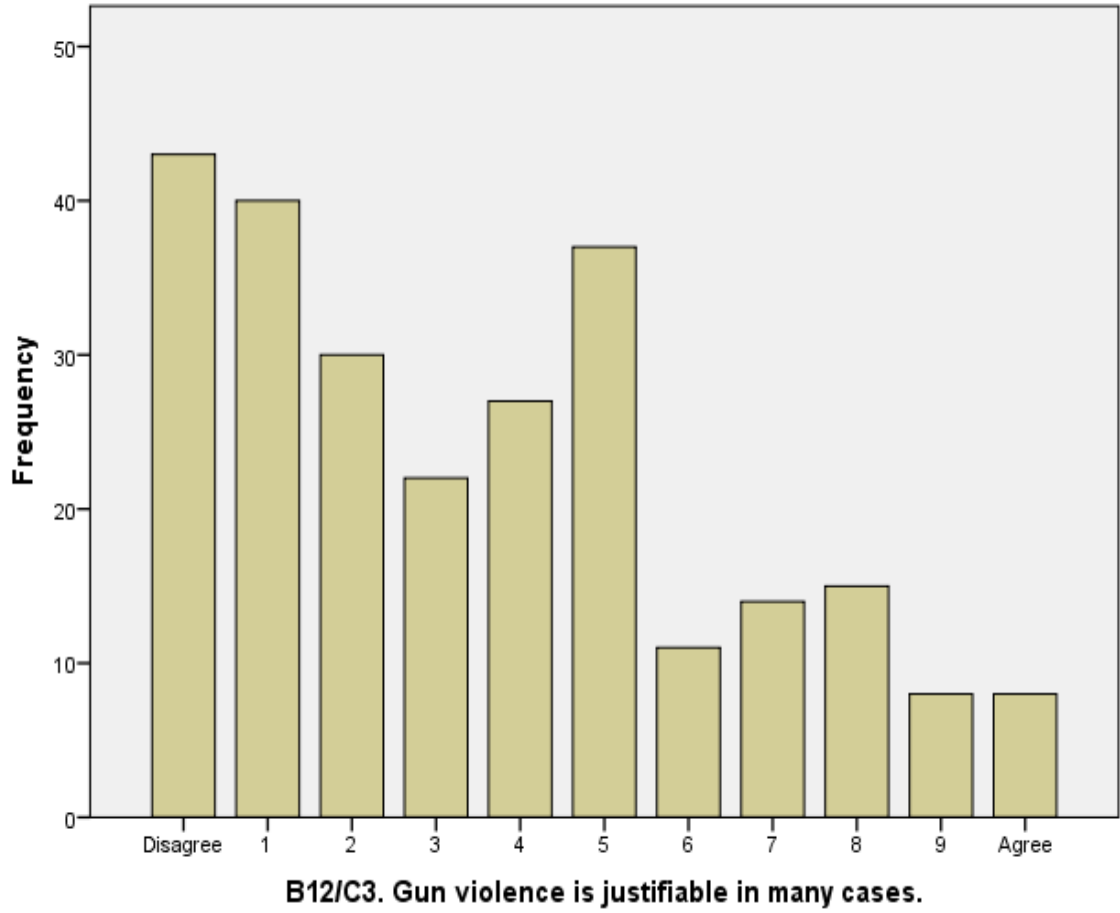
B10/C1. Violence is an acceptable solution to problems.

B11/C2. When faced with conflict, sometimes violence is the only way to resolve it.

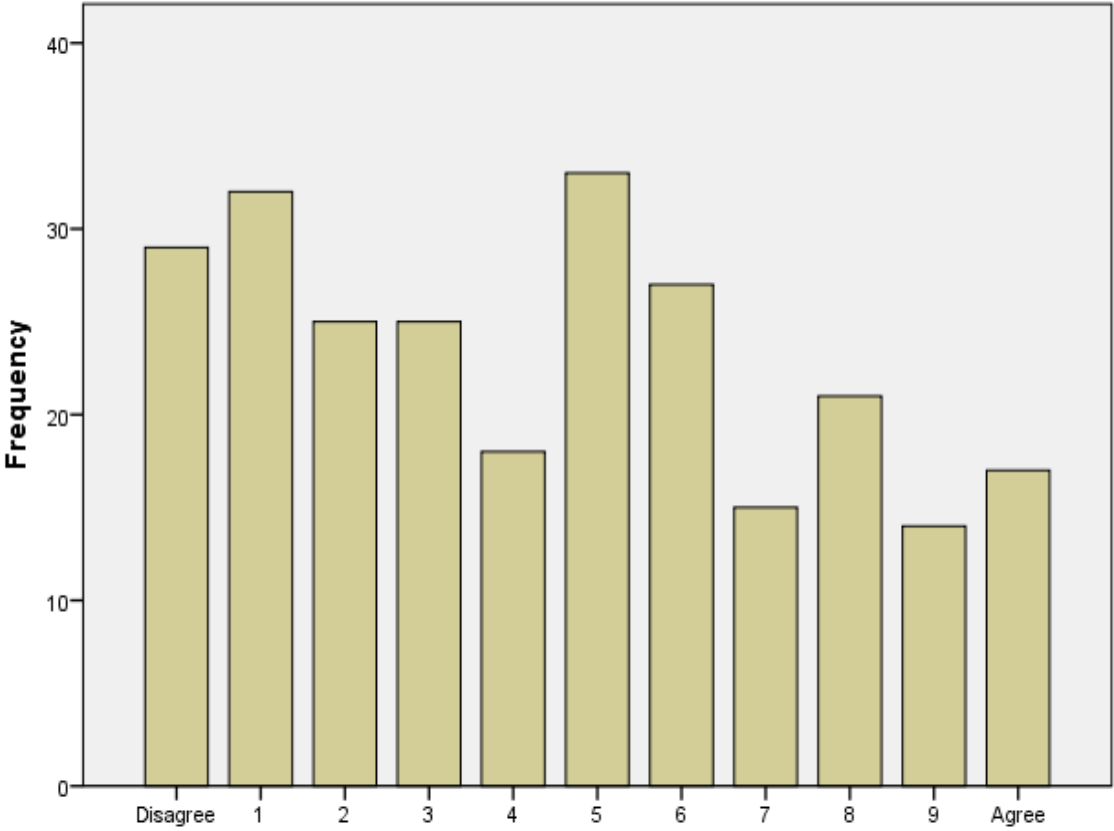


B11/C2. When faced with conflict, sometimes violence is the only way to resolve it.

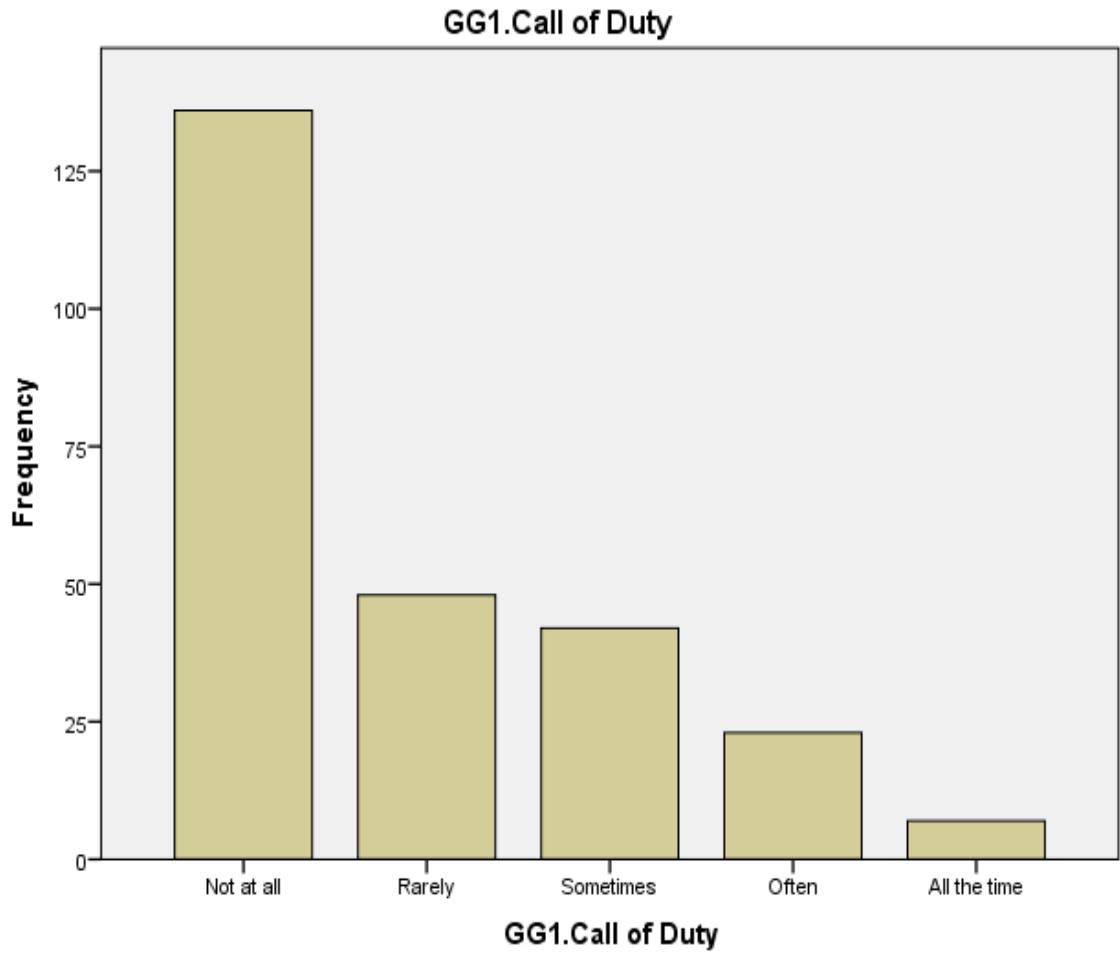
B12/C3. Gun violence is justifiable in many cases.

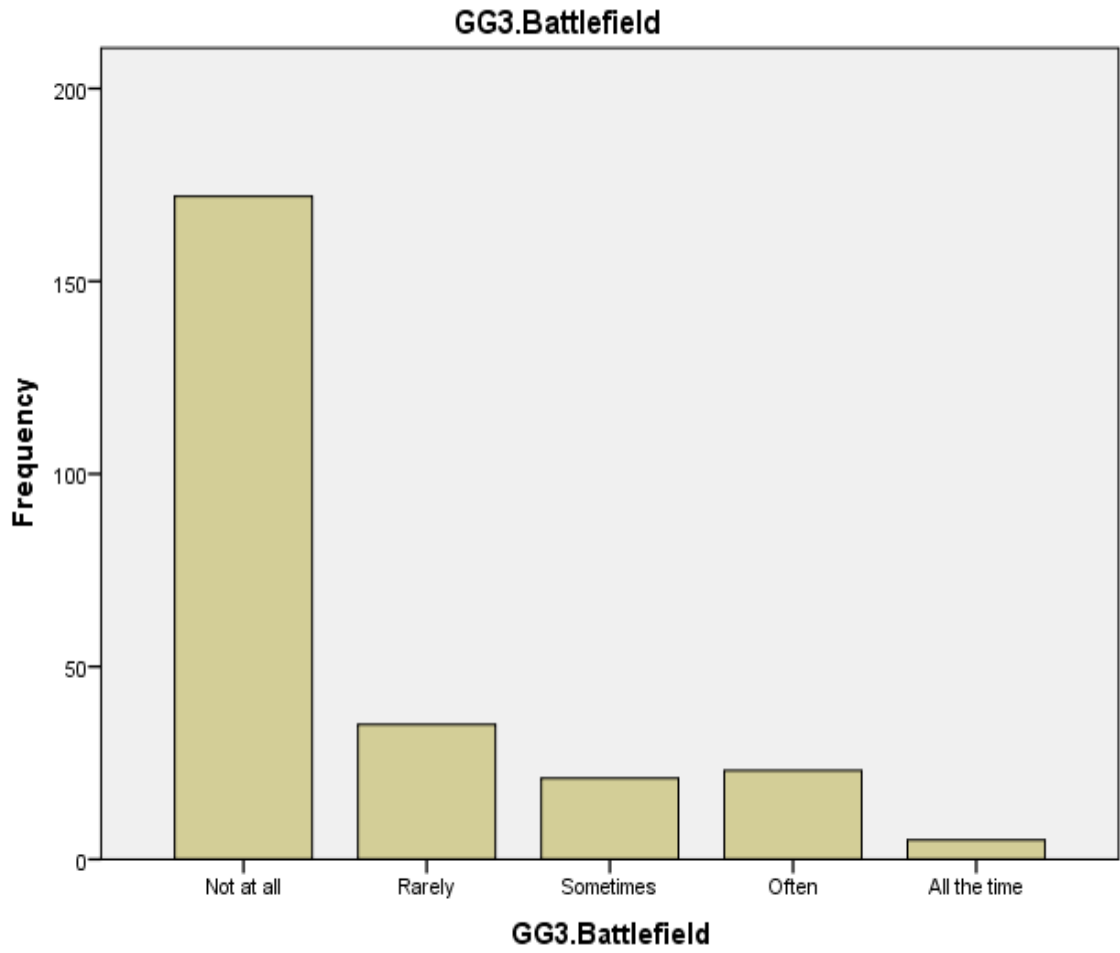


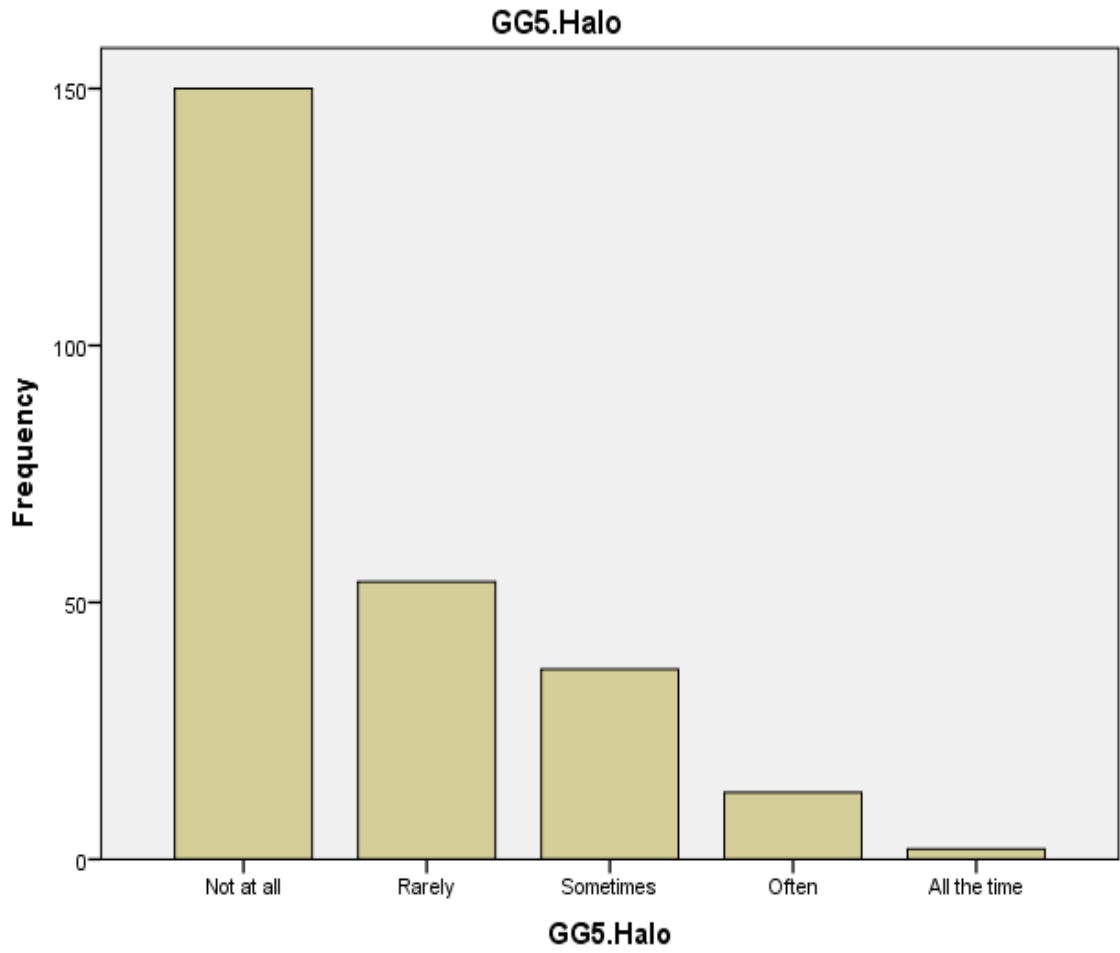
B13/C4. Using violent force against enemies is the best solution in some cases.

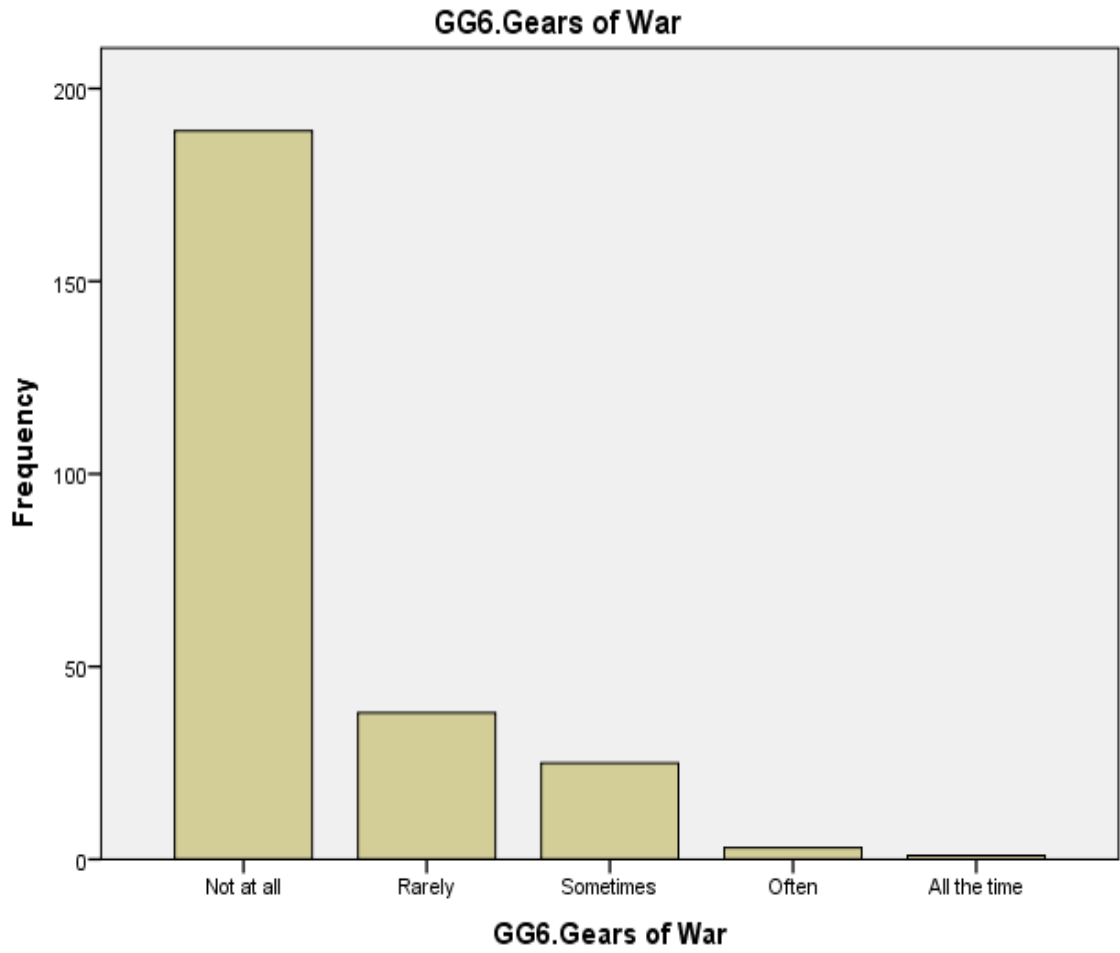


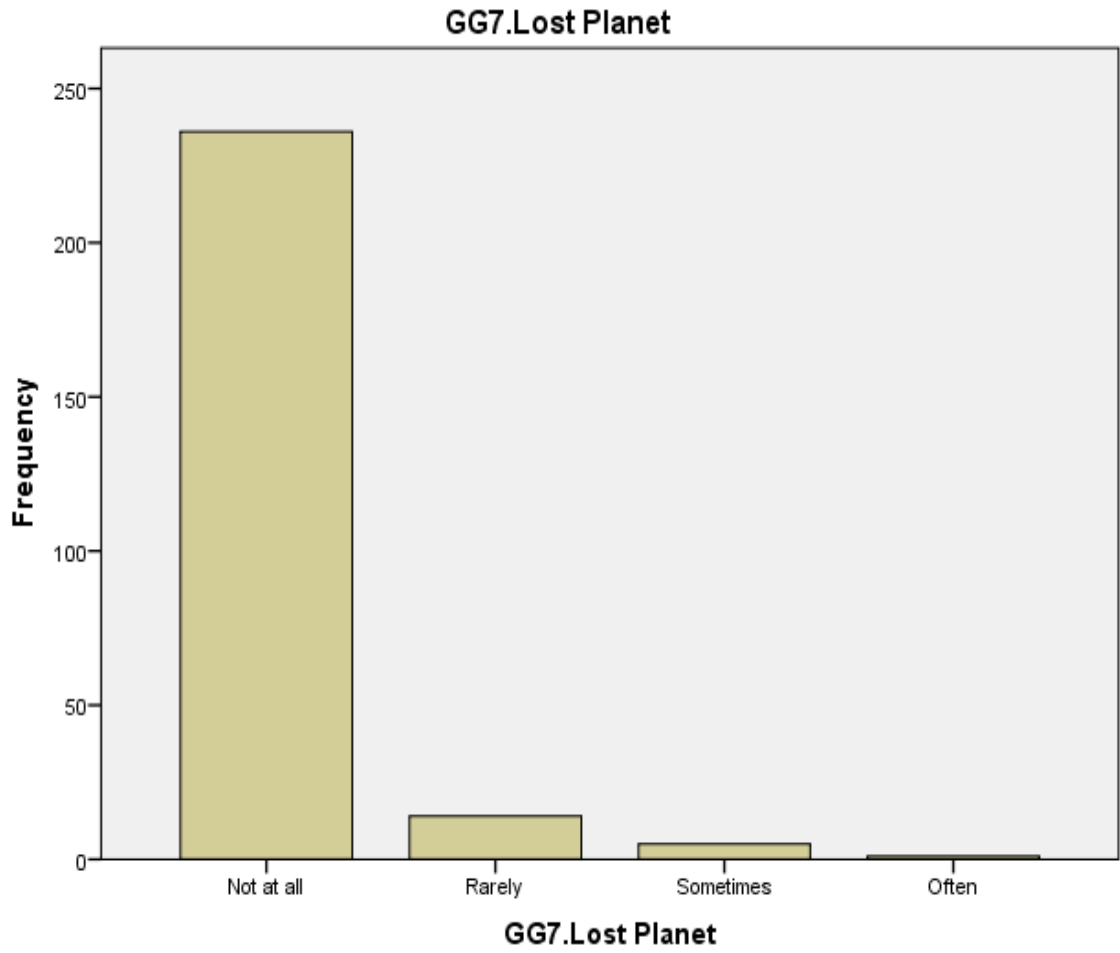
B13/C4. Using violent force against enemies is the best solution in some cases.

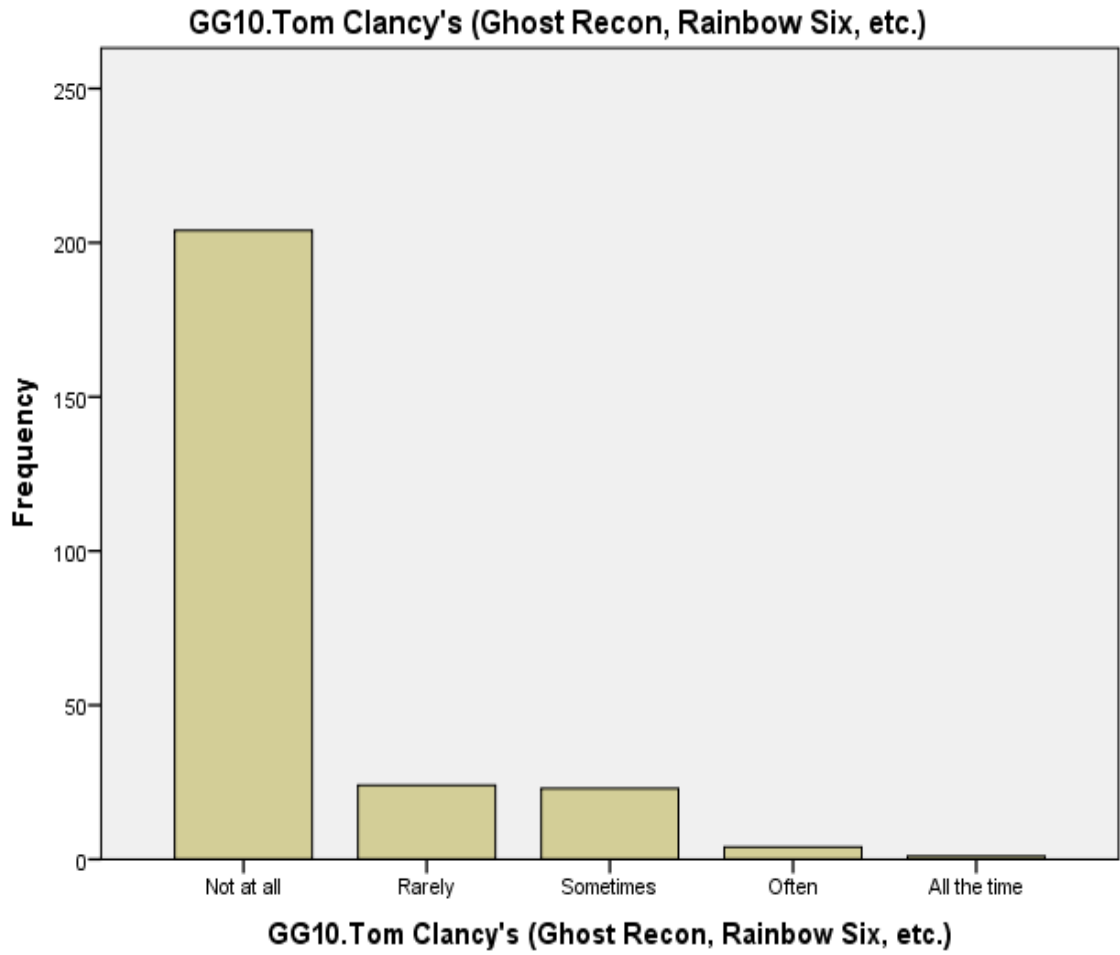


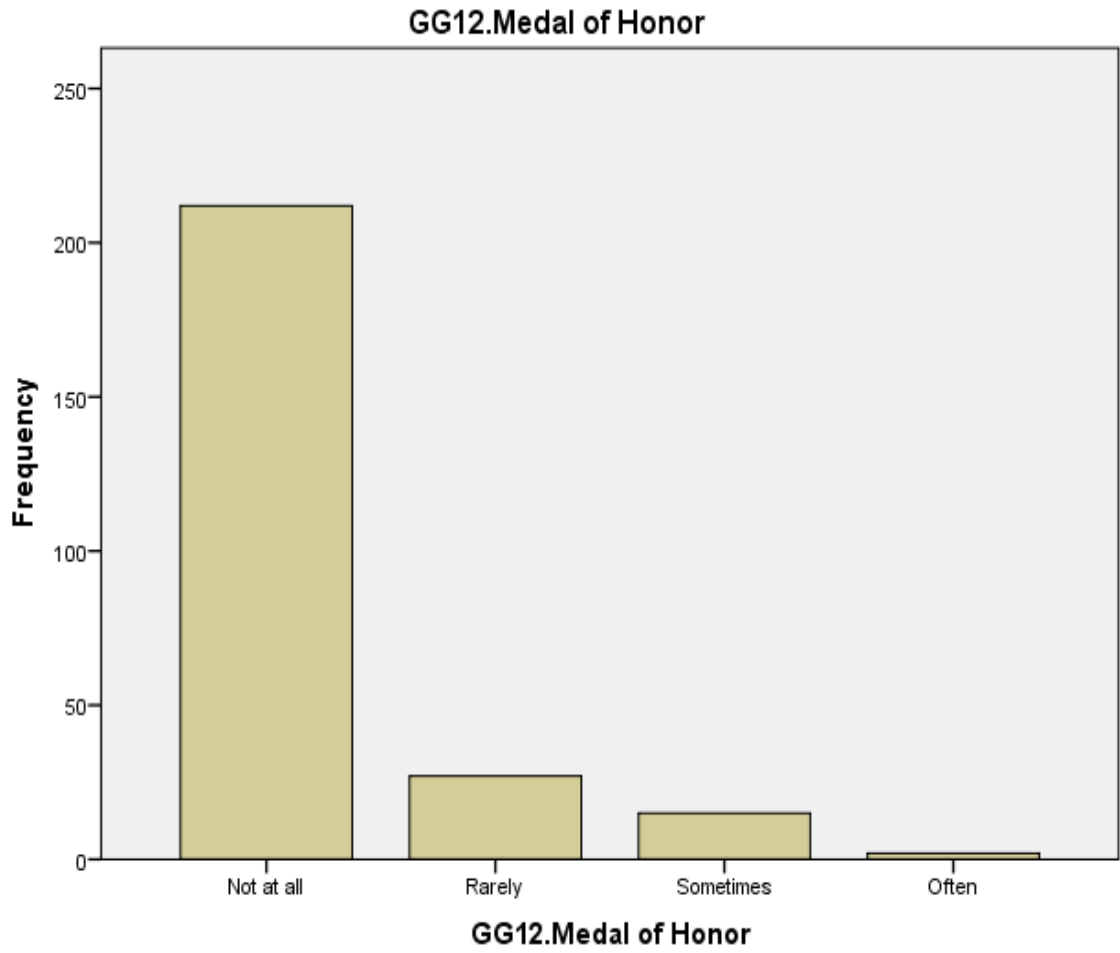




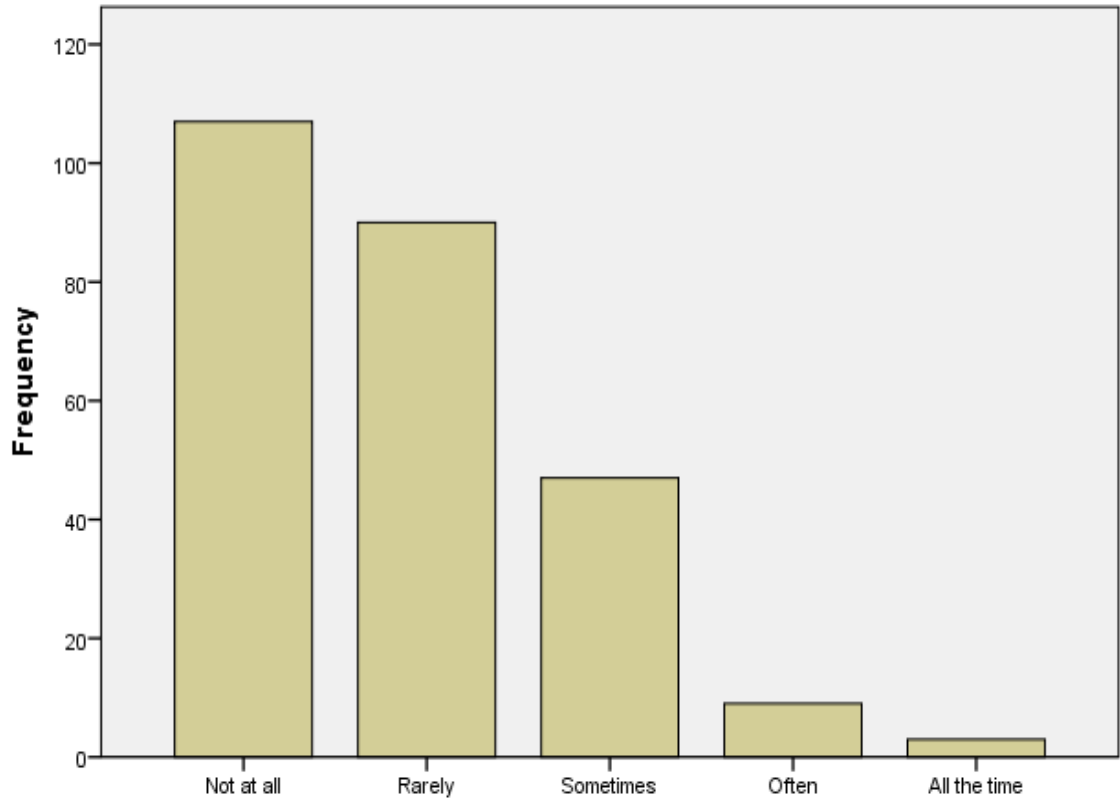






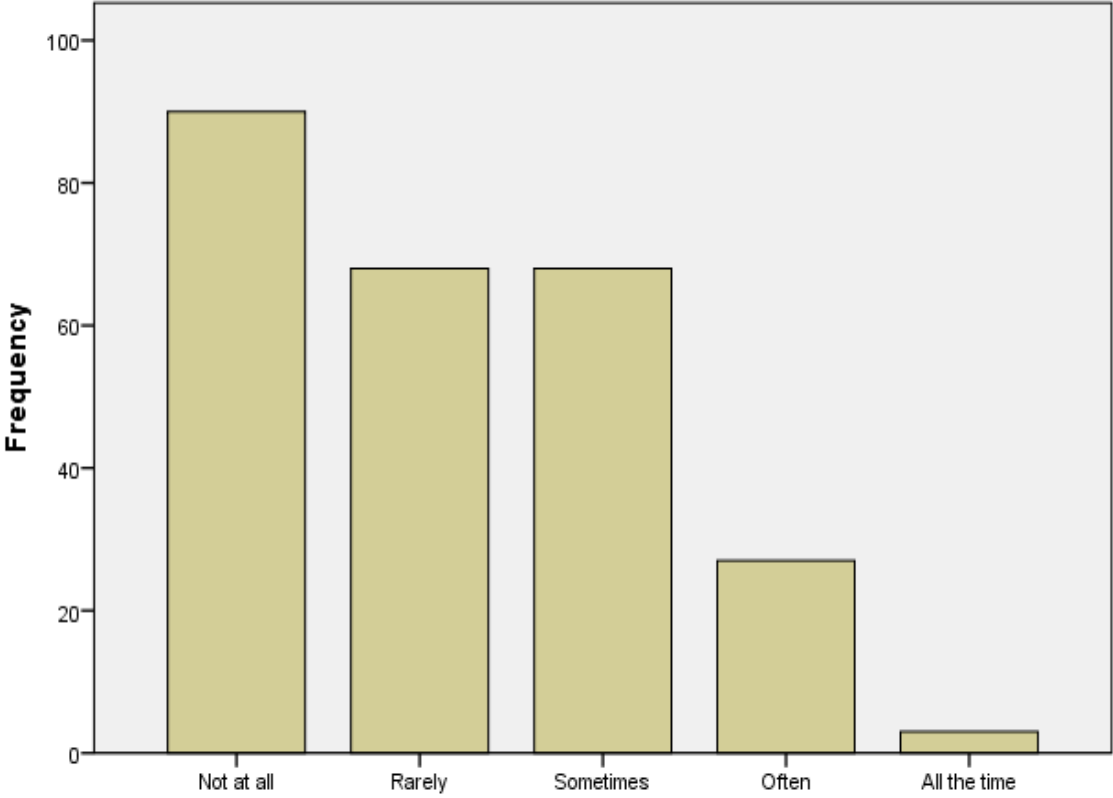


H21.How often do you read books that have content revolving around the military?



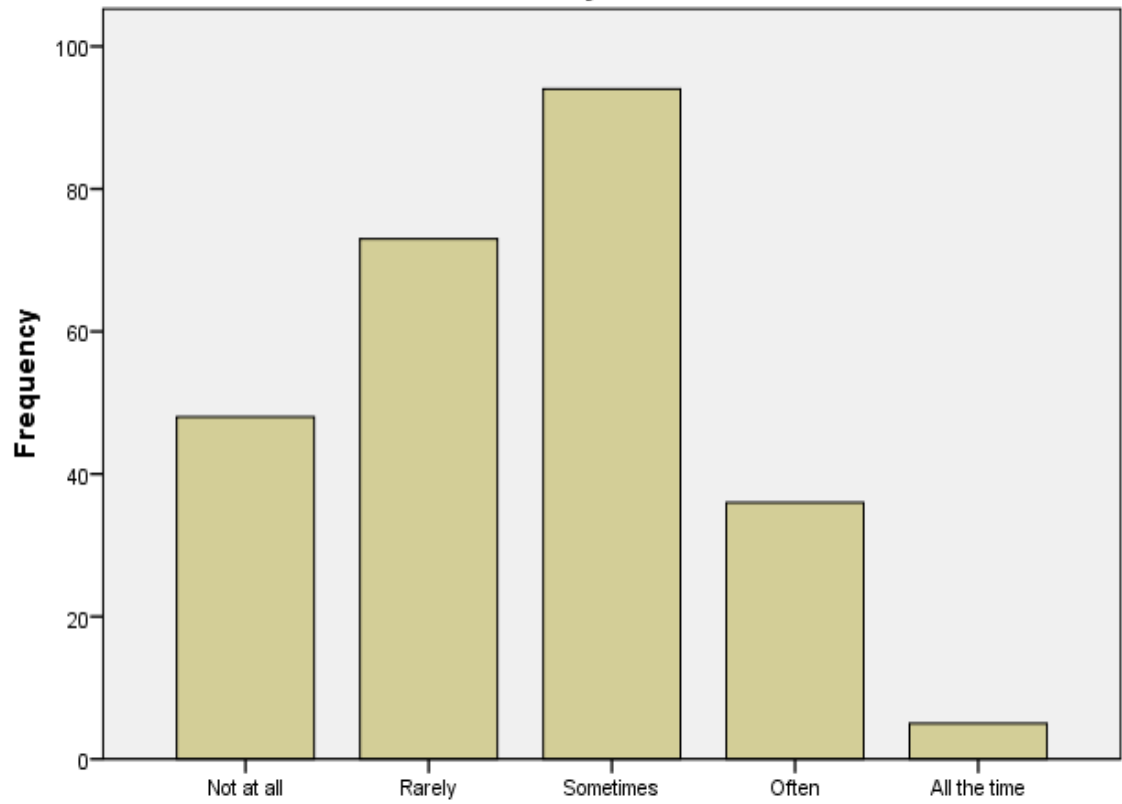
H21.How often do you read books that have content revolving around the military?

H25.How often do you watch TV shows that have content revolving around the military?



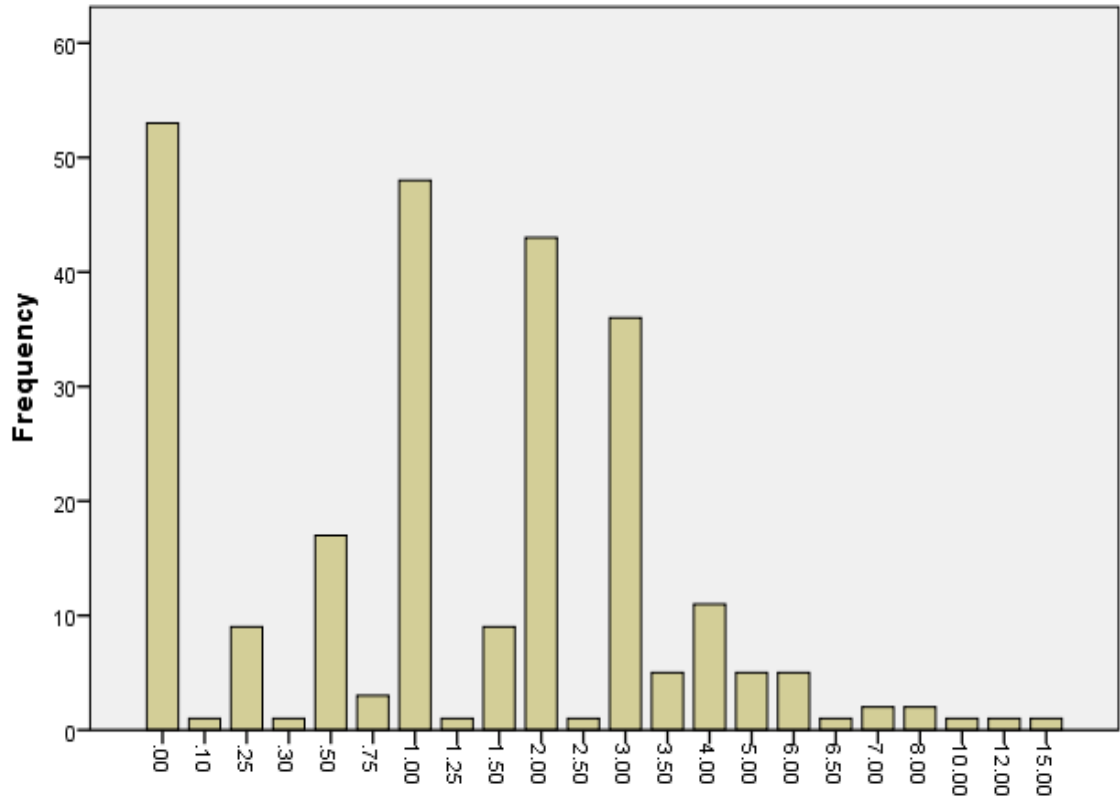
H25.How often do you watch TV shows that have content revolving around the military?

H29.How often do you watch movies that have content revolving around the military?



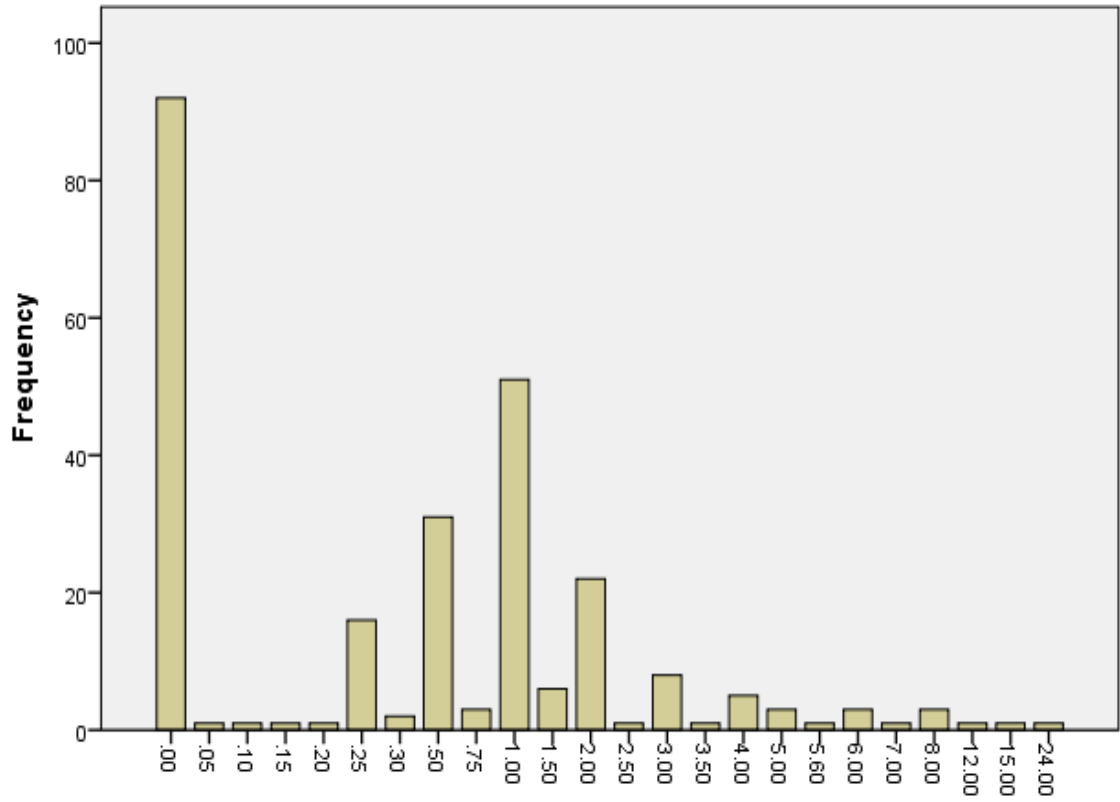
H29.How often do you watch movies that have content revolving around the military?

H11.How many hours of television per day do you usually watch? - Open-Ended Response



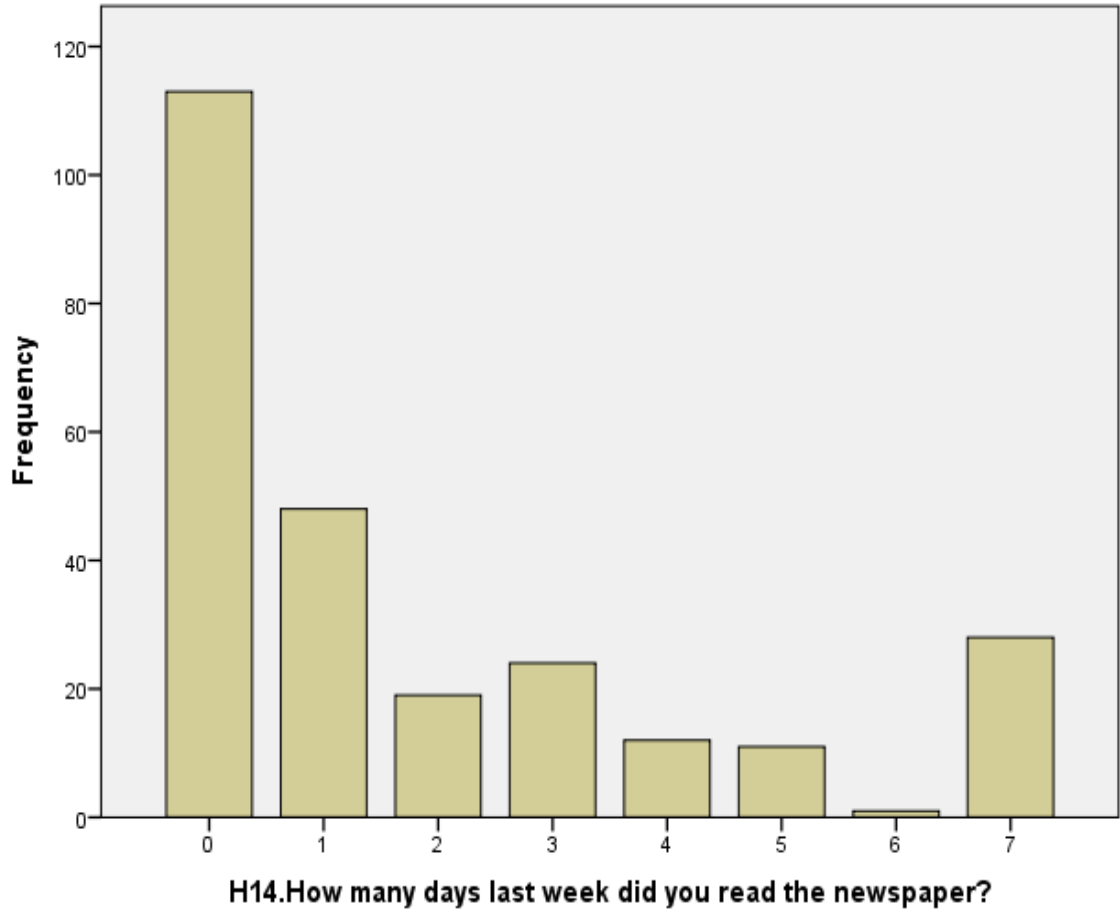
H11.How many hours of television per day do you usually watch? - Open-Ended Response

H13.How many hours of radio per day do you usually listen? - Open-Ended Response

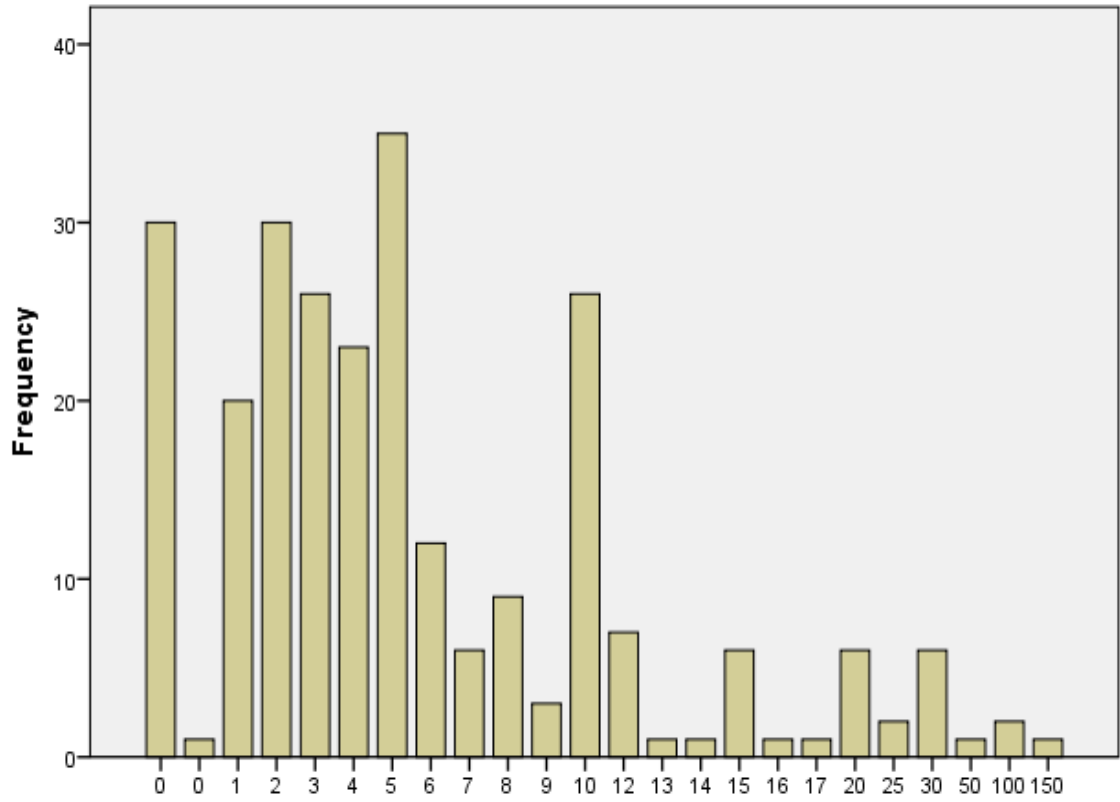


H13.How many hours of radio per day do you usually listen? - Open-Ended Response

H14.How many days last week did you read the newspaper?

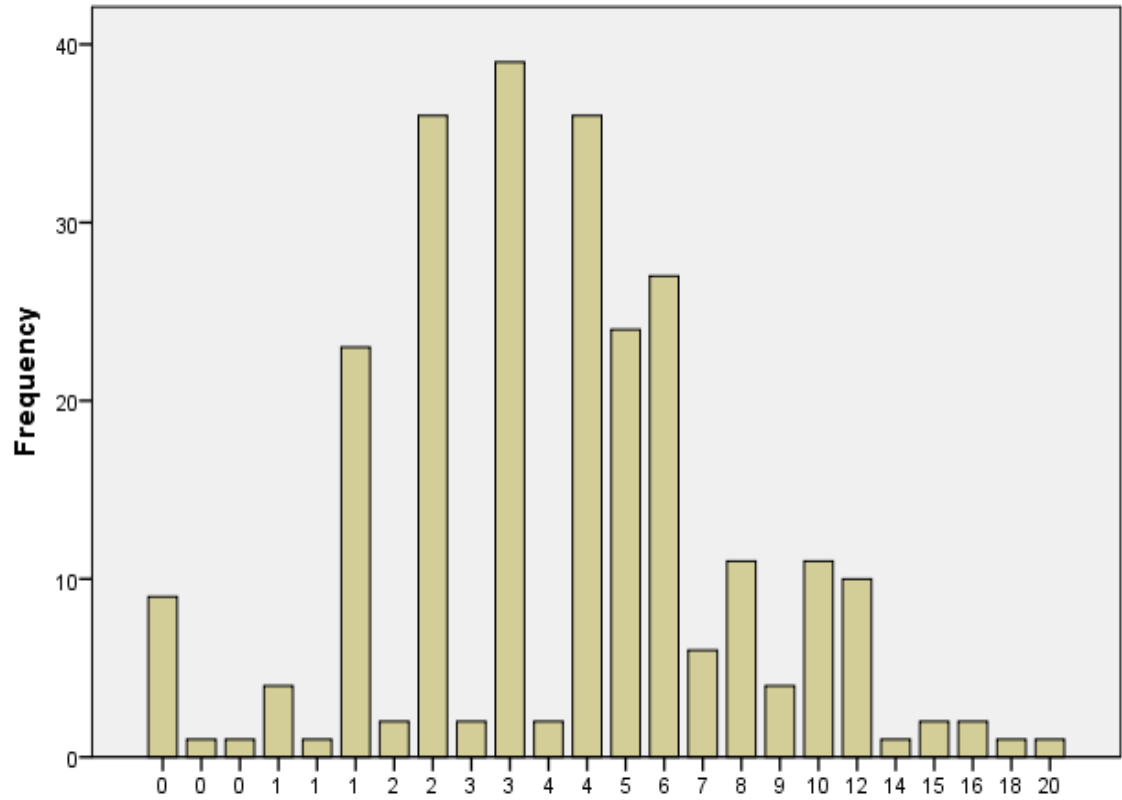


H18.In the past month, how many movies have you watched on DVD and/or video? - Open-Ended Response



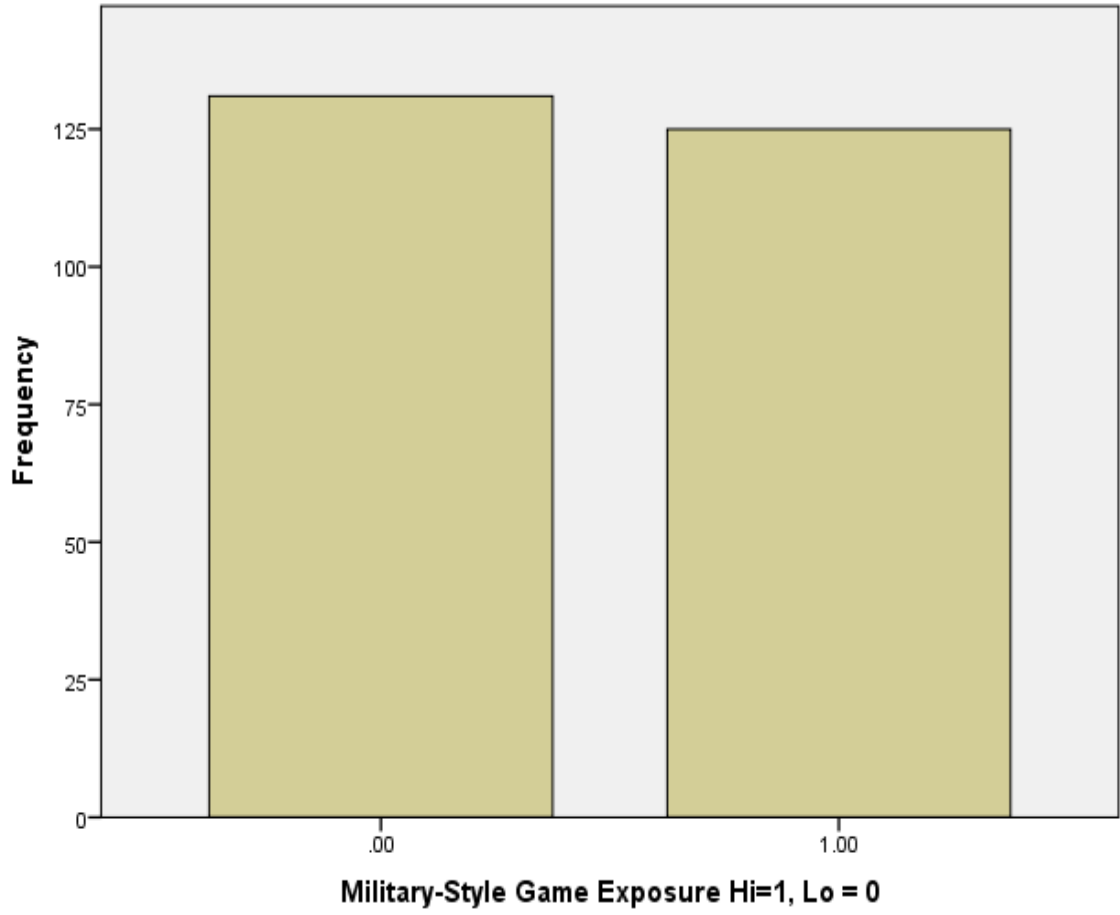
H18.In the past month, how many movies have you watched on DVD and/or video? - Open-Ended Response

H19.Yesterday, about how many hours did you spend on the Internet (i.e., Surfing, Netflix, Facebook, etc.)? - Open-Ended Response

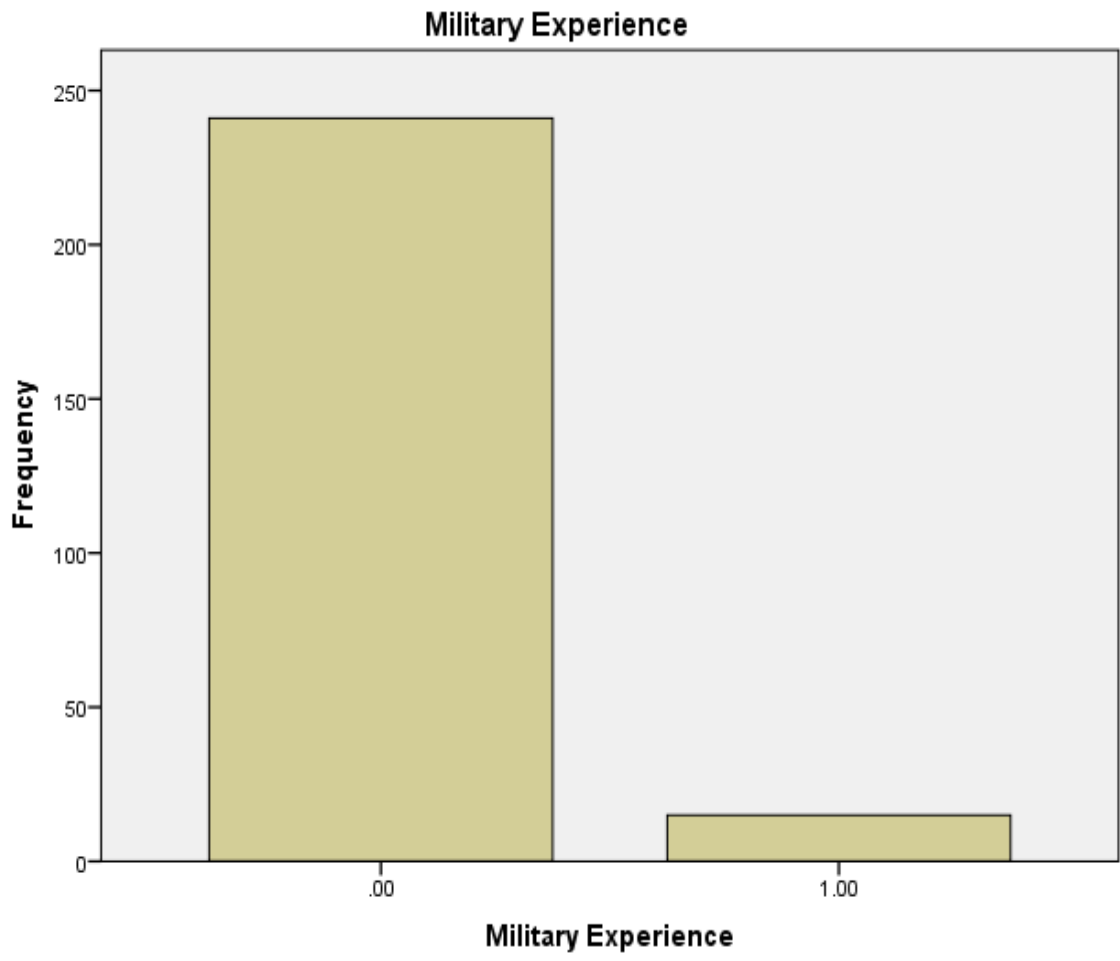


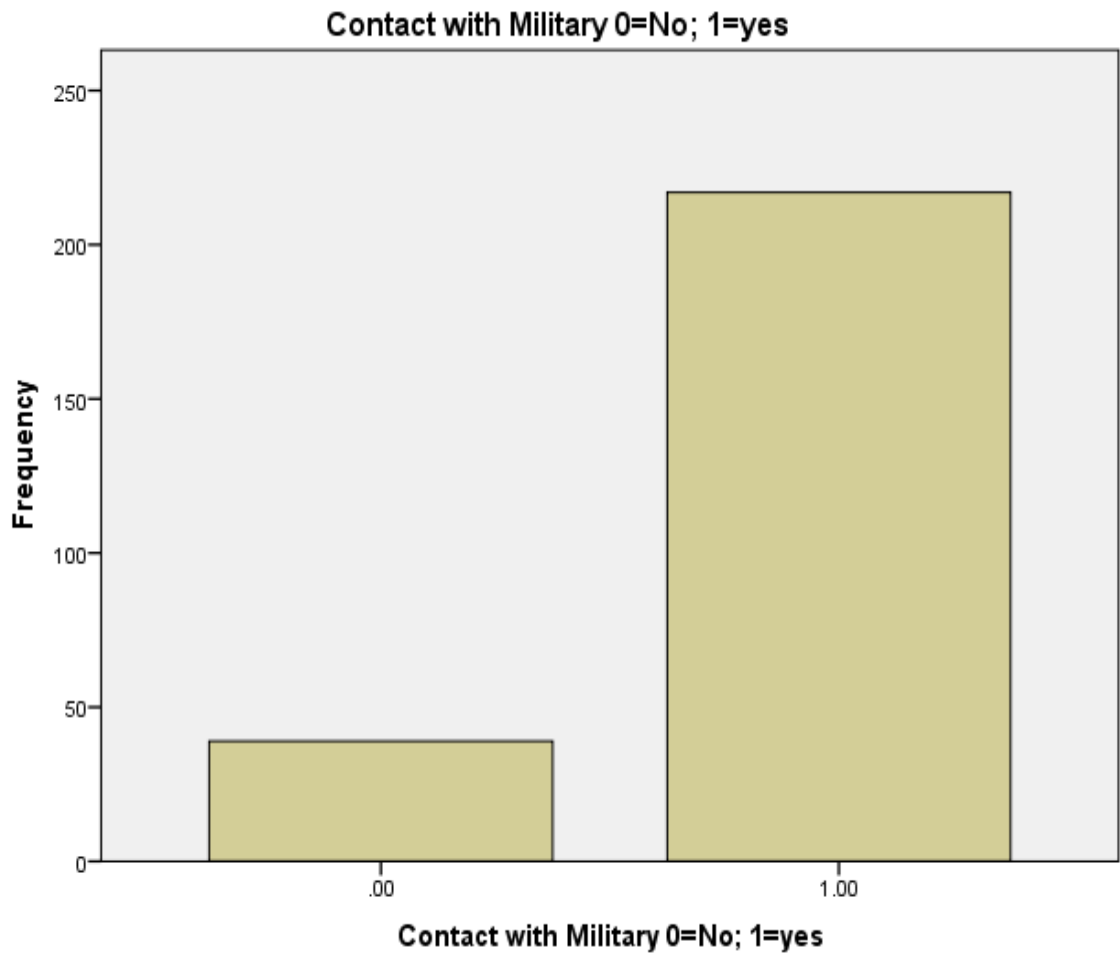
H19.Yesterday, about how many hours did you spend on the Internet (i.e., Surfing, Netflix, Facebook, etc.)? - Open-Ended Response

Military-Style Game Exposure Hi=1, Lo = 0

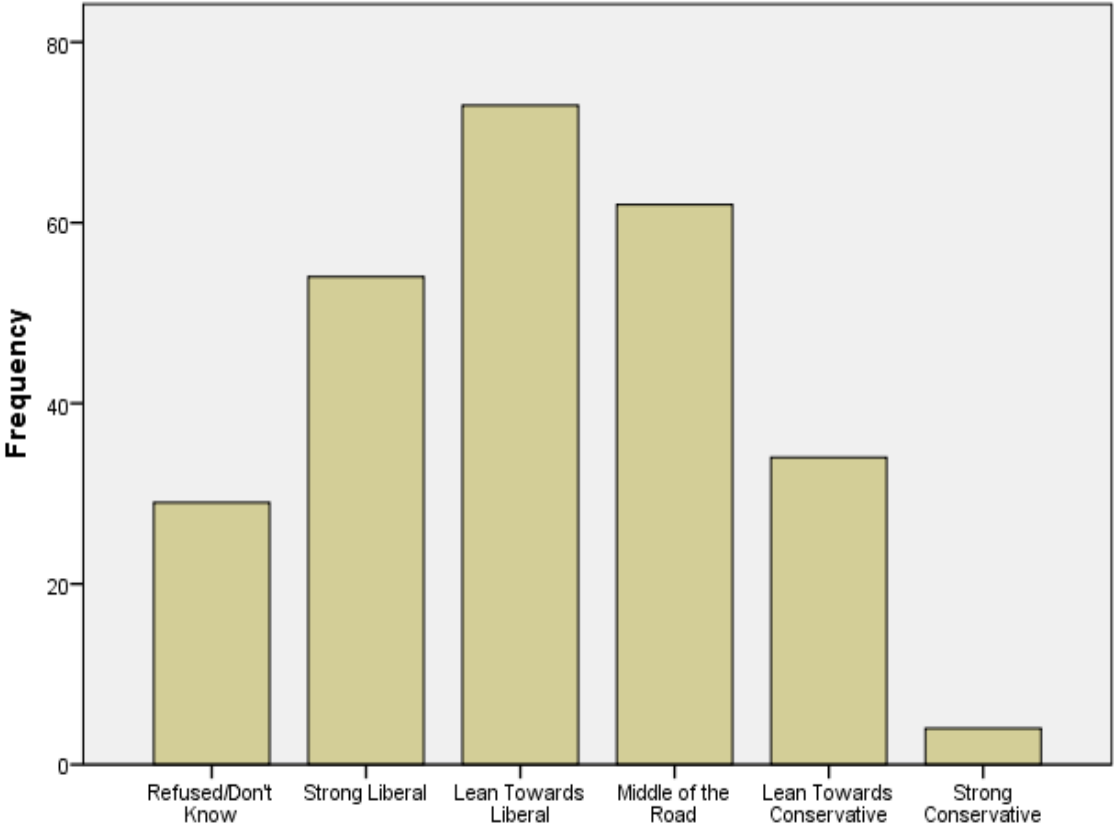




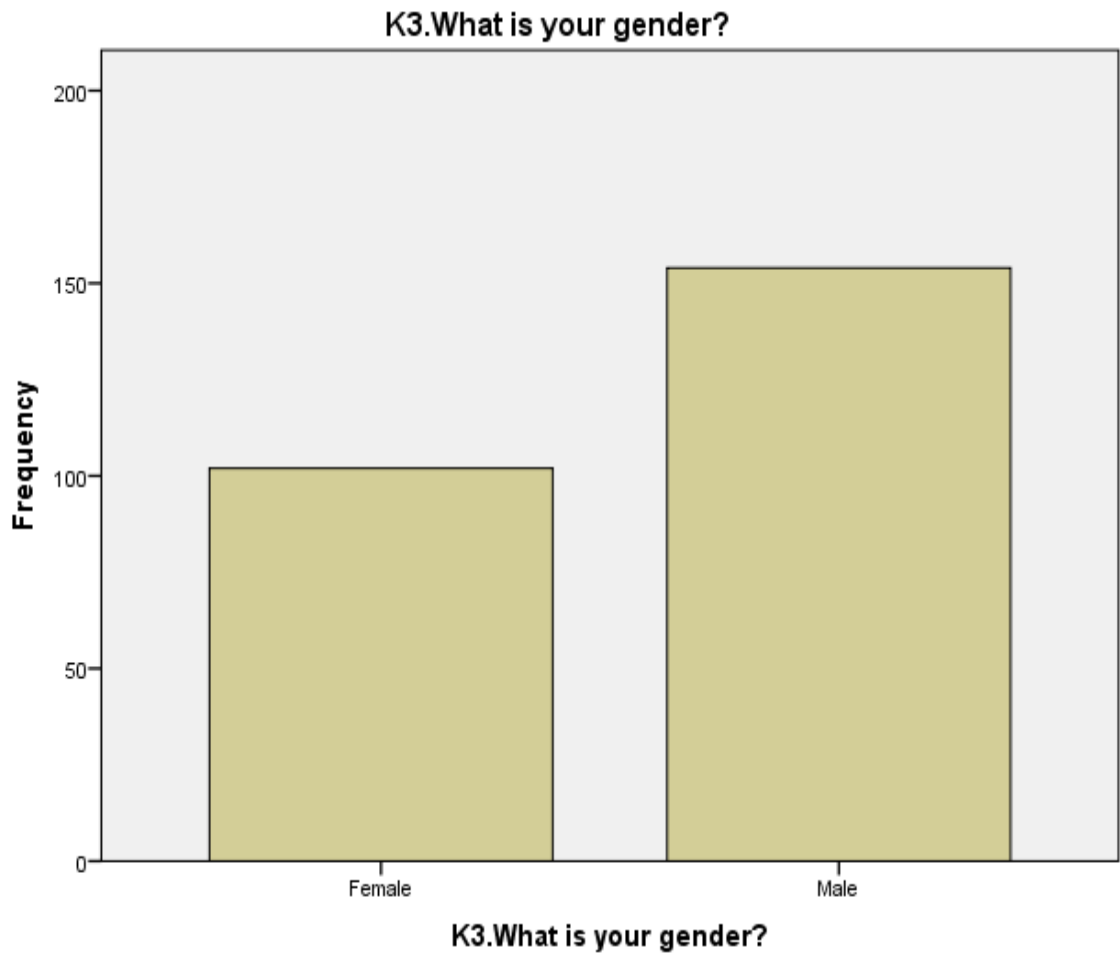




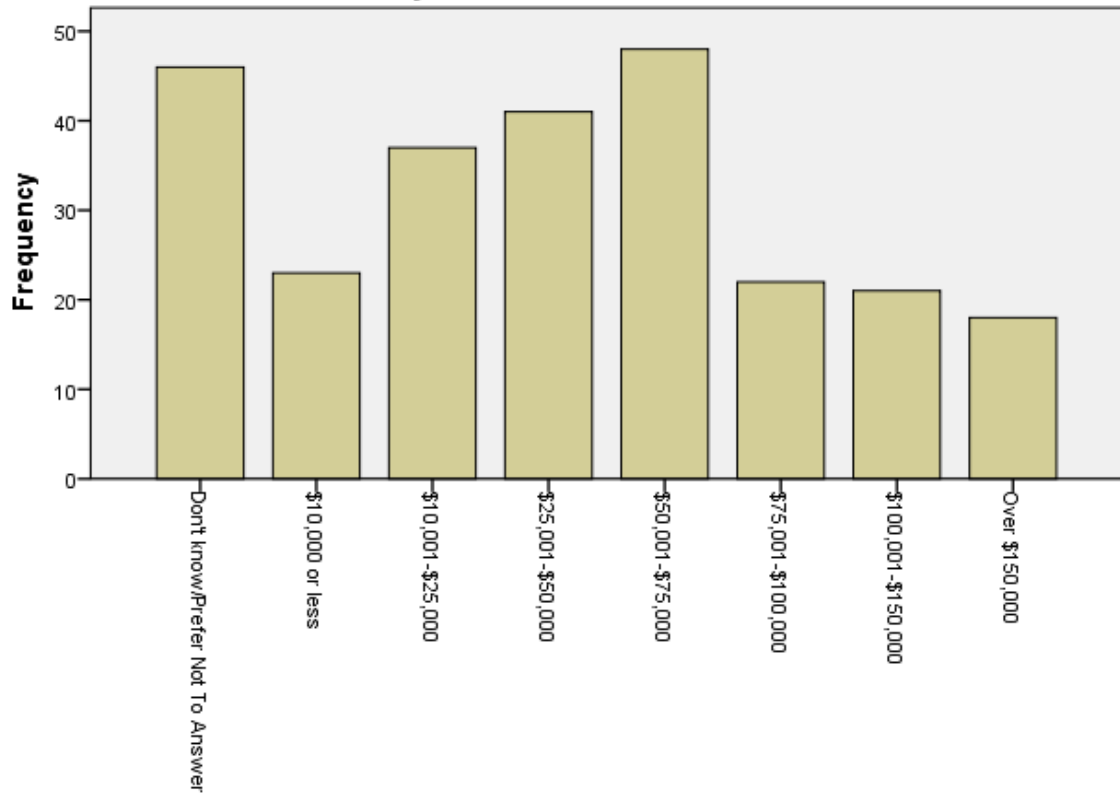
K1.Which of the following categories best describes your political philosophy?



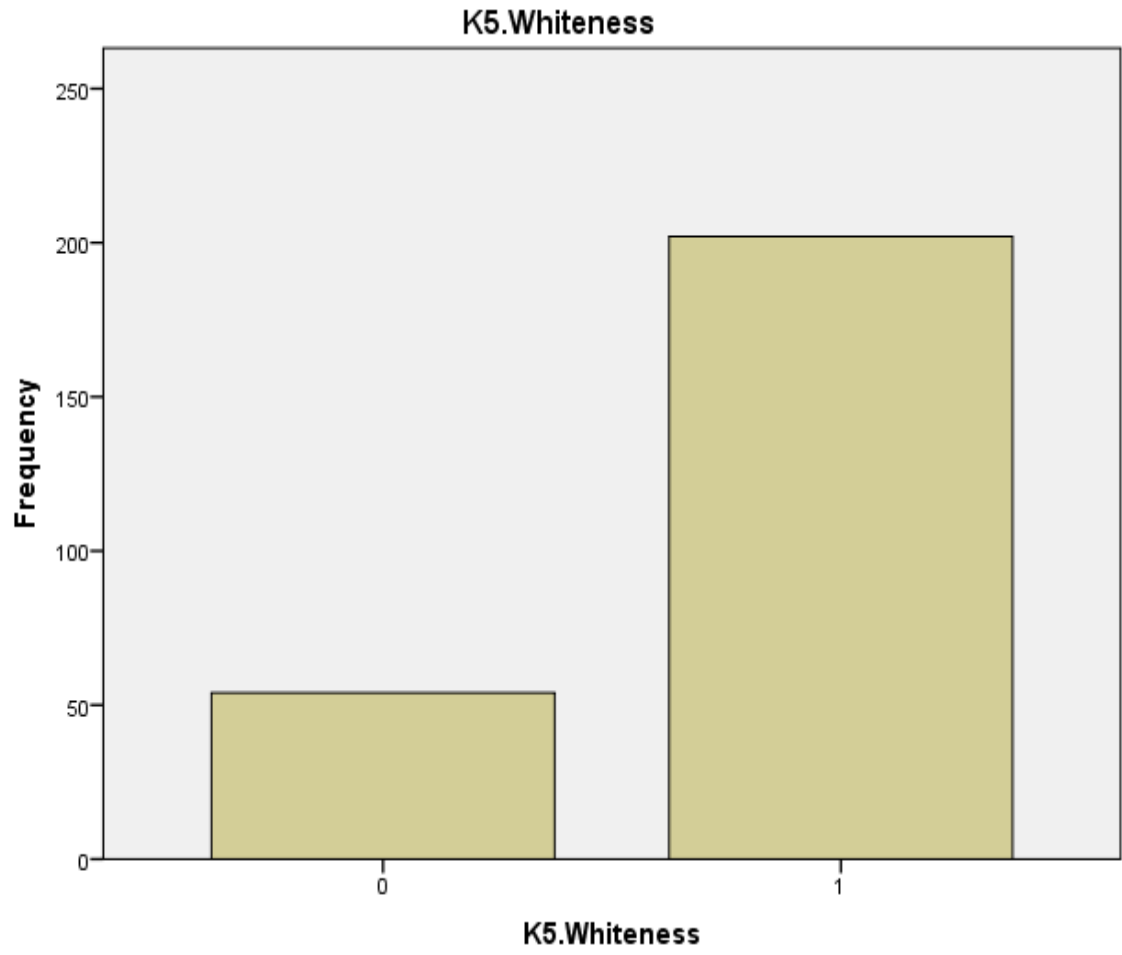
K1.Which of the following categories best describes your political philosophy?

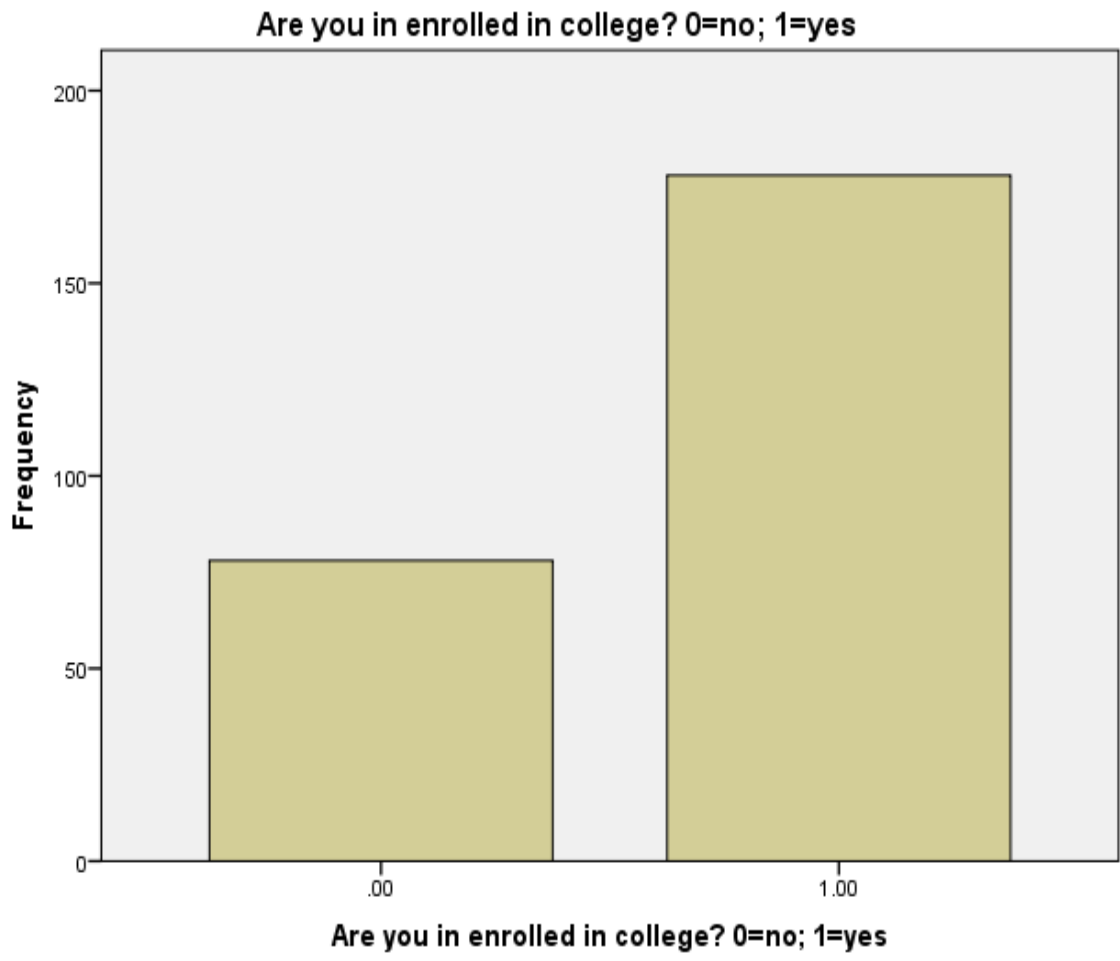


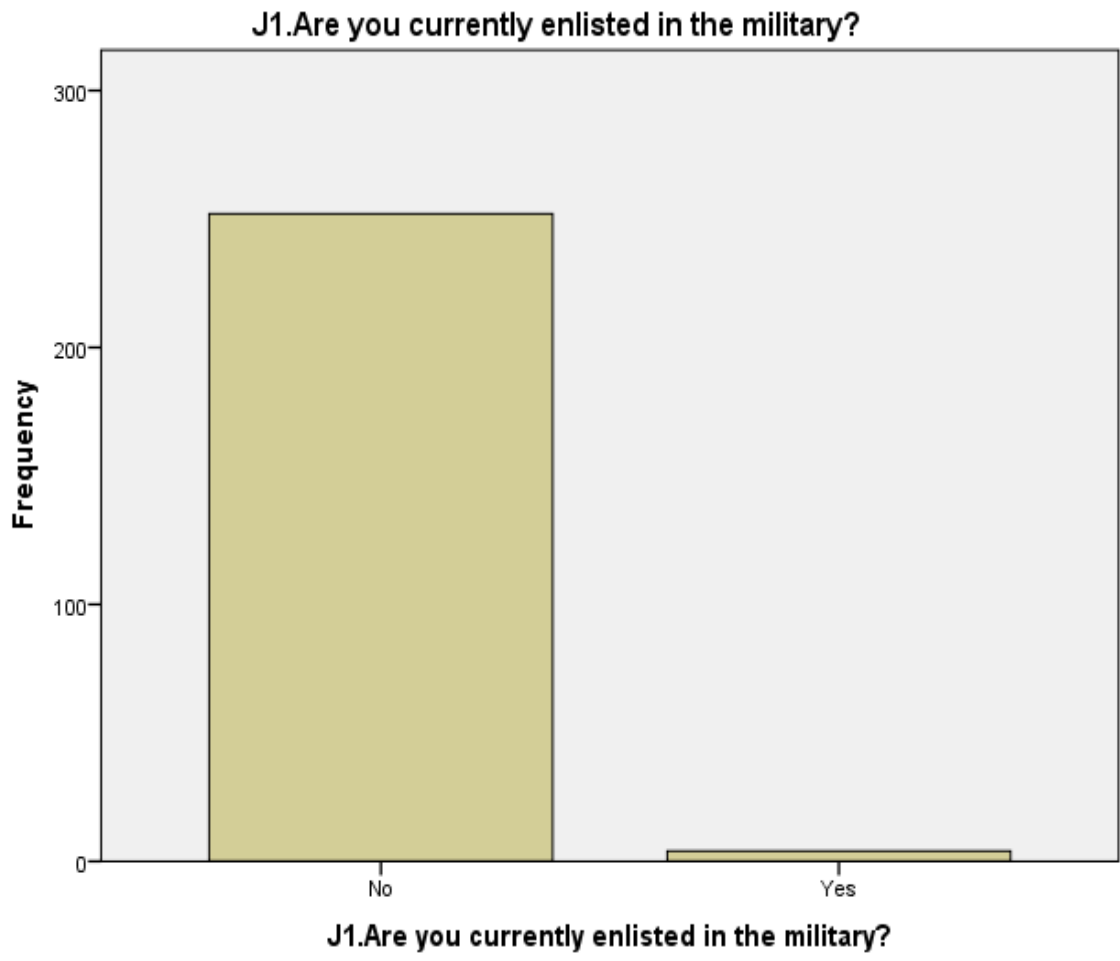
K4.What was your household's income in 2011?



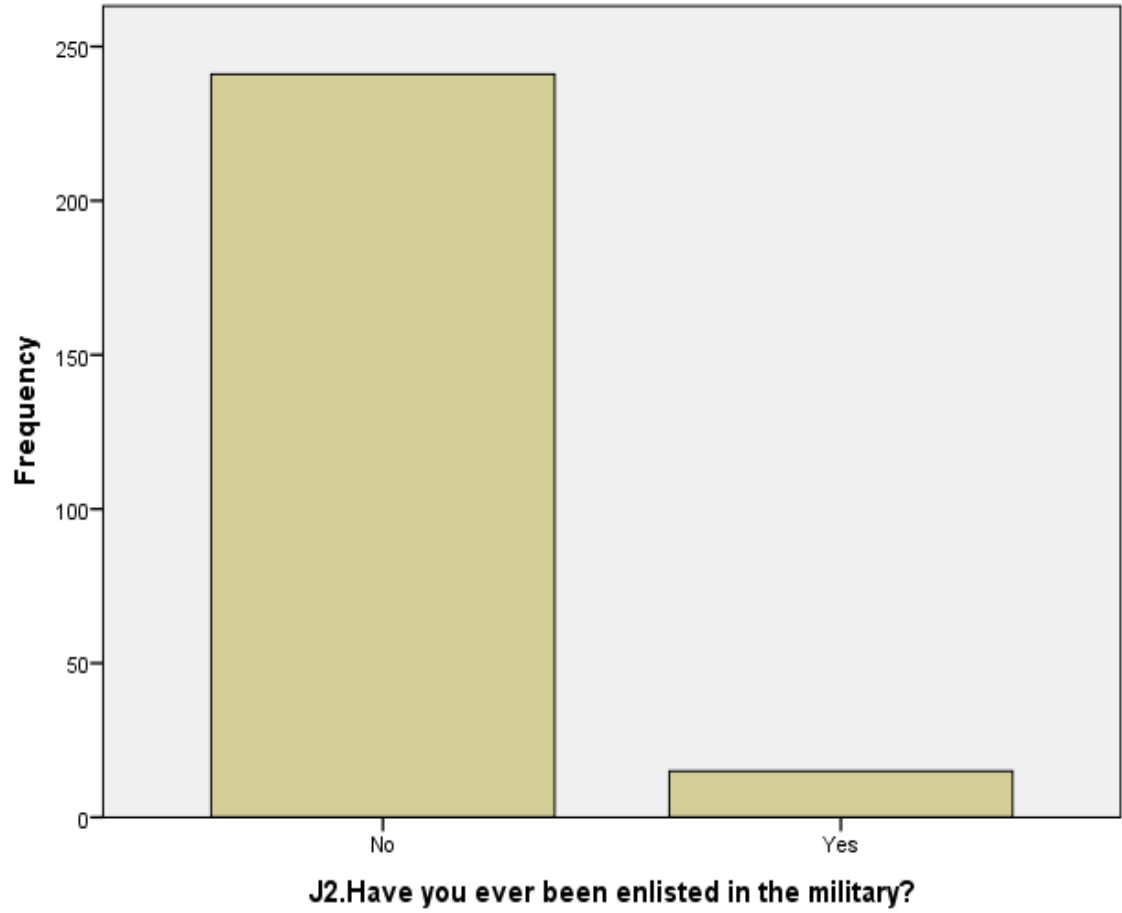
K4.What was your household's income in 2011?



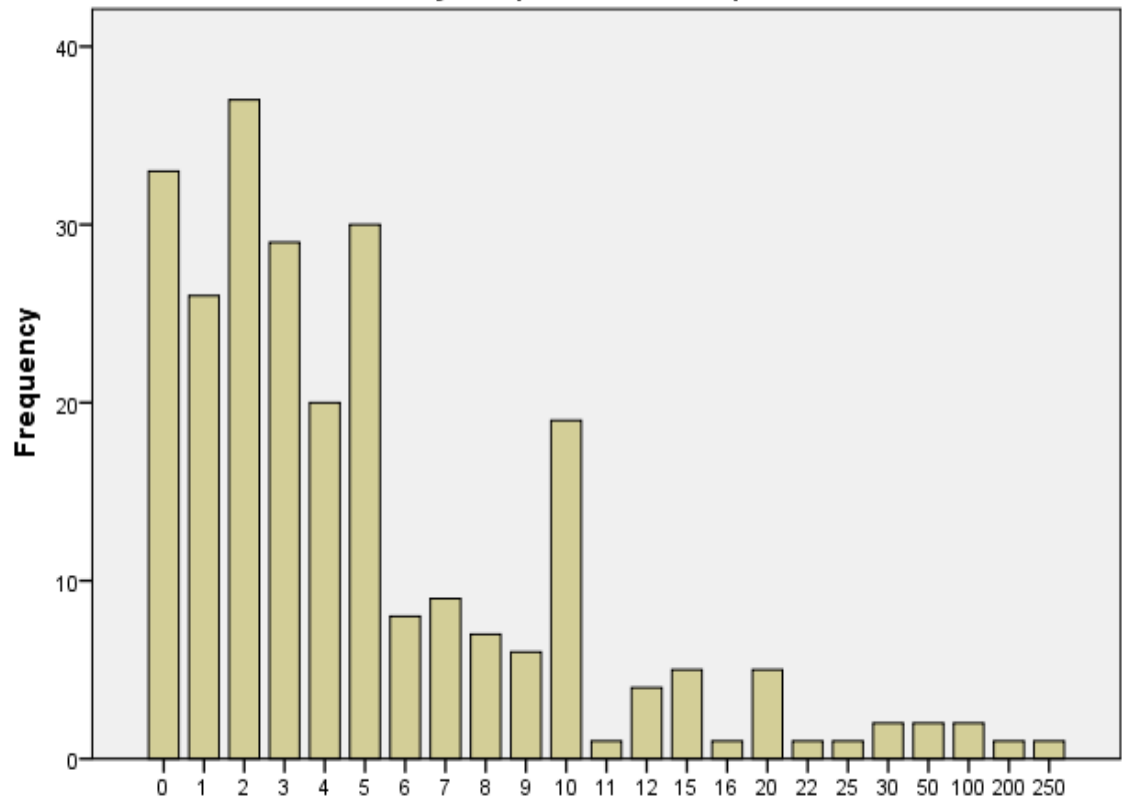




J2.Have you ever been enlisted in the military?



J3.How many people do you have contact with who are or have been enlisted in the military? - Open-Ended Response



J3.How many people do you have contact with who are or have been enlisted in the military? - Open-Ended Response

APPENDIX D

Informed Consent

Title: Military Attitudes and Media Use

Investigators: Dr. Paul Skalski, School of Communication, (216) 687- 5042

Michael Kurtz, School of Communication, (503) 871-6338

We are studying people's attitudes toward the military and their media use. In order to do this we are asking you to complete a survey asking a variety of questions about your views on the military and media habits.

Participation is completely voluntary and you may withdraw at any time, without penalty. The study will take about 20 minutes to complete, and students who are eligible will receive extra credit or research participation credit for taking part. There is no consequence for not participating in this study, and the risks involved are minimal and do not exceed those of daily living.

Your responses to the survey will be kept confidential. Names and other information recorded for extra credit or research participation credit will be collected, but will not be linked to your survey responses. No information will be collected for individuals who are not participating in this study for extra credit or research participation credit.

For further information regarding this research please contact Dr. Paul Skalski (216) 687-5042, email: p.skalski@csuohio.edu, or Michael Kurtz at (503) 871-6338, email: m.j.kurtz3@gmail.com.

If you have any questions about your rights as a research participant you may contact the Cleveland State University Institutional Review Board at (216) 687-3630.

Clicking "Next" will constitute your informed consent to participate in the survey as outlined above.

I am 18 years or older and have read and understood this consent statement and agree to participate.