

**Reconsidering the Pornography Use and Abortion Support Relationship:**

**A Reply to Tokunaga, Wright, and McKinley (2015)**

by

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## Table of Contents

<b>I:</b> Abstract.....	iii
<b>II:</b> Introduction.....	1
<b>III:</b> Pornography Use, Abortion Support and Sexual Scripts.....	3
<b>IV:</b> Limitations of Previous Research.....	5
<b>V:</b> Method.....	8
<b>VI:</b> Measures.....	10
<b>VII:</b> Results.....	12
<b>VIII:</b> Discussion.....	15
<b>IX:</b> Conclusion.....	20
<b>X:</b> References.....	22
<b>XI:</b> Appendix.....	26

## Abstract

Tokunaga, Wright, and McKinley (2015) argue that pornography usage significantly influences one's later support of abortion. To support their position, they relied on panel data from the General Social Survey (GSS) from 2006 through 2010 and regressed abortion support onto self-reported pornography use from 2 years' prior to measurement. In a later analysis, Wright and Tokunaga (2018) claimed this relationship was better explained by a broader attitude structure called sexual liberalism which they argued is influenced by the acquisition, activation and application of sexual scripts embedded in pornographic content. The current study reexamines this claim by analyzing sexual liberalism factors, such as attitudes towards gay marriage, extramarital sex and political and religious beliefs from the most recent GSS panel data and their 2016 survey. Results indicate these factors are collectively stronger predictors of support of abortion than pornography usage alone. An examination of a three wave panel dataset (2010, 2012, and 2014) demonstrated a lack of time-order relationship between pornography usage and support for abortion. It is argued that sexual liberalism provides a better explanation for the previously found relationship between abortion support and pornography usage. Specifically, both abortion support and pornography use are two of many indicators of sexual liberalism, a higher-order attitude construct. Suggestions are presented to further test the relationship between sexual liberalism and pornography usage.

## Introduction

A recent area of communication research is concerned with the potential effects of what scholars label *problematic internet use* (Tokunaga & Rains, 2016). Many uses of the internet have been considered problematic (e.g., cyberbullying, gaming addiction), but pornography use and pornography addiction has been considered particular problematic due to their effects (Love et al. 2015). Pornography can be defined as the depiction of sexual content for the purpose of sexual gratification. The existence of pornography dates back to prehistoric times where sexually themed content was portrayed via Venus figurines, rock art and cave paintings (Rudgley, 2000). Pornography has been presented through various media platforms overtime and recent advancements in technology have made it easier for individuals to access pornography via the internet. Young adult men are the most frequent consumers of pornography and an estimated 87% of men and 31% of women have reportedly used pornography overall (Carroll, Padilla-Walker, Nelson, Olson, McNamara, & Madsen, 2008).

Research on the effects of pornographic media consumption has had mixed results and often non-significant findings. For example, some studies have found a correlation between pornography and a *decrease* of sex crimes (Diamond, 2009; Kendall, 2006) while others found the quantity of male pornography usage positively correlated with the degree to which they endorsed sexual assault (Malamuth, 1986). Several studies have concluded the availability of pornography to society may be associated with a *decrease* in sexual abuse and domestic violence, but these findings are relatively inconsistent (Kendall, 2006).

Literature has suggested that pornography can be addictive which can lead to negative mental and social consequences. One study demonstrated neurological changes in pornography users that were similar to the brains of individuals suffering from addiction. The effects of these

brain changes were described as a desensitized reward system, dysfunctional anxiety and impulsiveness (Kraus, Voon & Potenza, 2016). Although it is widely accepted among scholars that pornography can be psychologically addicting, pornography addiction is not a recognized medical condition (Duffy, Dawson & Das Nair, 2016). One review indicates perceived addiction to pornography use is significantly linked with measures of psychological distress such as anxiety ( $r = .16$ ) and anger ( $r = .18$ ) (Grubbs et al. 2015).

The current paper revisits the potential effects of pornography use proposed in a recent pair of analyses (Tokunaga, Wright & McKinley, 2015; Wright & Tokunaga, 2018) in relation to abortion rights attitudes. The authors argue that exposure to pornography's sexual scripts leads to liberal perceptions of sex and reproduction and liberal sexual attitudes are positively associated with an increased support for abortion. The relationship between pornography use and support for abortion has received no attention outside the work of these two papers.

It is the position of this thesis that the arguments from these earlier papers are based on invalid conclusions drawn from panel data that analyzed the relationship between support for abortion (measured at later data point) and self-reported pornography use (measured at an earlier data point). To this end, the internal validity concerns of past work casts doubt on the legitimacy of the claim that pornographic media use predicts abortion support. To be clear, it stands to reason the two factors are logically *related* to one another; however it is my position that the weight of evidence indicating pornographic media use *causes* one to be pro-choice is light.

It is argued the relationship between pornography exposure and abortion support is better explained by a liberalism model, where pornography use, abortion attitudes, political identity, and other factors indicate an individual's overall sexual liberalism.

To examine this alternative explanation, this study uses data from the 2016 General Social Survey to re-evaluate the relationship among sexual liberalism factors (e.g., pornography use, abortion attitudes). To date, the 2016 data have not been introduced in this area of investigation. The second part of this study seeks to address if pornography usage over time leads to later support for abortion and high sexual liberalism and these comparisons rely on data from a national three-wave panel study that took place in 2010, 2012 and 2014.

To investigate the relationship between use of pornography and support for abortion, I reframe an argument made in a pair of studies by Tokunaga and colleagues (Wright, Tokunaga, & Bae, 2014; Tokunaga, Wright, & McKinley, 2015) who argue earlier pornography use predicts later support for abortion.

### **Pornography Use, Abortion Support and Sexual Scripts**

Abortion is one of the most controversial political and cultural issues in the United States. Political identity, education and religious attendance have shown to be related to individuals' support for abortion while gender, age and race have not been consistently linked to one's support for abortion. In a 2012 Pew Research survey, 80% of liberal Democrats and 31% of conservative Republicans surveyed believed abortion should be legal. Survey participants from this same analysis who reported they seldom or never attend religious events were twice as likely to support abortion compared to those who attend religious services once a week or more. Participants that graduated college were 30% more likely to support abortion than participants that had a high school diploma or less (Pew Research Center, 2012).

According to Wright and Tokunaga (2018), sexual liberalism emphasizes the importance of sexual individuality and nonjudgement toward changes in sexual and reproductive practices (Wright & Tokunaga, 2018). Early research on the sociological effects of pornography suggested

pornography usage may cause decreased respect for long-term, monogamous relationships and threatens traditional family values. Zillmann & Bryant (1988) argued pornography usage causes an attenuated desire for procreation and removes the responsibility of having a strong emotional connection between sexual partners. The study also found that pornography consumption is associated with a more liberal view of sex.

Wright and Tokunaga argue that exposure to sexual media can affect behavioral judgments beyond the specific behaviors depicted, which leads to a shift in viewers' sexual scripts and social judgements (Wright & Tokunaga, 2018). In other words, repeated exposure to pornography's nontraditional sexual scripts increases support for abortion and both are related to an overall liberal approach to sex and reproduction. The authors use their 3am model as their theoretical explanation as to how pornography affects one's sexual attitudes.

The sexual script acquisition, activation, and application model (3am) has been used by Wright and Tokunaga to explain how individuals obtain and act out information from sexual media. According to the 3am, pornography causes viewers to acquire information on sexual scripts, which activates previously acquired sexual scripts. Pornography users may apply these sexual scripts to their own attitudes, behaviors and judgements towards sex. Thus, the behaviors and roles depicted in pornography can cause consumers to alter their perceptions of sex and relationships based on the content viewed.

In a follow-up analysis, Wright and Tokunaga, (2018) argued that the mutual influence of pornography usage and sexually liberal attitudes on support for abortion is explained by the reinforcing spiral model (RSM) that states media use is both a predictor and outcome variable (Slater, 2007). Wright and Tokunaga suggest that consistent with the RSM, earlier pornography usage would affect later sexual liberalism attitudes, which would influence one's support for

abortion. This could also be understood as earlier support for abortion predicts later sexual liberalism, in turn predicting greater pornography usage over time.

The 3am model attempts to explain how exposure to pornography would lead to a more sexually liberal perspective and how attitudes on abortion would be subsequently effected. It is argued here that a larger theoretical construct, sexual liberalism, better explains these findings. Although Wright and Tokunaga mentioned sexual liberalism as a potential explanation for the relationship between pornography use and abortion support, their commitment to the reinforcing spiral and 3am models as their theoretical arguments credits pornography consumption as a contributor to these sexually-related attitudes rather than a mere symptom of being sexually liberal.

### **Limitations of Previous Research**

Tokunaga, Wright & McKinley (2015) used panel data from the General Social Survey (GSS) to argue that pornographic content affects sexual scripts related to judgements involving abortion. The three-wave survey was administered in 2006, 2008 and 2010 with over 2,000 respondents at time 1 (T1). The analysis found that pornography consumption at T1 (2006) was associated with greater support for abortion at T2 (2008) with a correlation of  $r = .15$ . A positive and significant relationship was also found for pornography viewing and abortion support at time 2 (T2) and time 3 (T3) with a Pearson Correlation of  $r = .18$ .

A deeper dive into the 2006-2010 GSS panel data reveals some interesting findings. A total of 816 participants were surveyed on their attitudes towards abortion in all three periods of this panel study. Two hundred twenty three (27%) participants changed their answer in regards to their support for abortion throughout the course of the study. Amongst these changes, 82 participants (37% of change) changed their answer at T2 but returned to their original position at

T3. Fewer than 18% of participants had different attitudes on abortion from T1 to T3. Together, these data indicate little change in reported beliefs toward abortion over time, and the use of panel data to predict abortion support is misleading. It is misleading in that it would artificially indicate that abortion support at T2 is indicated by pornography support at T1, a necessary condition for causality, when in reality one's position on abortion seldom changes over time. Thus, use of cross-sectional data at T1 would lead to the same conclusion and beta coefficients in regression equations than would use of panel data over two points in time.

Among the 816 participants who reported their position on abortion at all three waves, 415 of those individuals were also surveyed on pornography consumption in the same three surveys. Amongst those whose abortion position differed at T1 and T3, only 24 participants (5.8%) reported pornography usage at T1, 19 at T2 (6.0%) and 26 at T3 (6.3%). It seems very difficult to draw pornography usage as a cause for change in attitudes towards abortion due to the paucity of participants who reported pornography usage and who also changed their stance to be in favor of abortion. It is more likely the two covary together at each point in time than it is the case one factor causes the other. Among the panelists who answered both sets of questions, only 4.7% changed their stance on abortion and watched pornography. Drawing any sort of conclusion about how pornography affects changes in one's position on abortion from small changes seems preliminary.

It should be noted that the GSS measure used by Tokunaga & Wright simply asked if participants had seen an X-rated movie in the last year. This measure puts the frequent porn viewer and the occasional porn consumer in the same response category. What is more, the nature of the question is confusing as it specifically asks about X-rated movies and does not address other forms of pornography such as brief clips or other forms of sexual media one

typically streams. The use of interval or continuous measures of pornography would better measure any possible effect of watching pornography. For example, Grubbs et al. (2015) simply asked participants to indicate how often they had viewed pornography within the past year while Braithwaite et al. (2015) asked, “how many times in the past 30 days have you viewed pornography?” (pg. 114).

In Grubbs et al. (2015), 68% of those surveyed reported watching pornography within the last year and amongst these viewers, 40.6% of them reported watching pornography 10 or more times within the last year while 31.9% reported they only viewed pornography 1-3 times. Grubbs et al.’s results show the potential concern of using a single item, dichotomous measure of pornography consumption. The usage of dichotomous measure over continuous interval measures can result in a 20% to 66% loss in of the variance that may be accounted for on the original variables (Cohen, 1983). If repeated exposure to pornography leads to greater support for abortion, it should follow the heavier consumers of pornography also report stronger attitudes toward abortion than casual pornography viewers. It is argued a more granular measure of pornography consumption that is sensitive to quantity of consumption will better account for the variability of abortion support.

In another investigation, Wright, Tokunaga, & Bae (2014) also used similar methods in a study examining if pornography consumption predicts extramarital sex attitudes. Their results indicate pornography consumption was positively associated with extramarital sex attitudes. However, positive attitudes towards extramarital sex at T1 were not significantly correlated with pornography consumption at T2 (Wright, Tokunaga & Bae, 2014).

Once again, these findings may be better explained by pornography consumers’ preexisting attitudes towards sex and are not the result of repeated exposure to pornographic

content over time and instead it is likely abortion support and pornography usage indicators are likely a function of an overall ideology related to sexual liberalism.

The current study will investigate the claims of Tokunaga and Wright that earlier usage of pornography leads to later support for abortion. We argue that sexual liberalism is a *better* predictor for one's overall attitudes towards sex, and that the 3am and reinforcing spirals models overestimate the effects of media usage on beliefs toward abortion. Using GSS data, this study seeks to provide an updated analysis comparing pornography use and support for abortion.

### **Method**

Four data sets were used in this study and obtained from the 2016 GSS and the most recent three-wave Panel Survey from the GSS (years 2010, 2012, 2014) that contain several items from the GSS that pertain to the concept of sexual liberalism, including abortion rights attitudes and pornography use measures. Political and religious attitudes were used as well due to their potential role in one's overall ideology and sexual attitudes. The other variables used are opinions regarding premarital sex, extramarital sex, teenager sex, birth control for teenagers and homosexuals' right to marry (see below for detailed descriptions of the measures).

Sexual liberalism has been measured in the past by participants' attitudes toward sex outside of marriage (Bahr & Marcos, 2003). Sex before marriage and the availability of the birth control pill for teenagers is also related to sexual liberalism as they emphasize the importance of sexual freedom and nonjudgmental attitudes towards others. Attitudes towards premarital sex and sex between teenagers were both suggested for future analysis on sexual liberalism in Wright and Tokunaga (2018). The variables measuring attitudes on homosexual relations and extramarital sex were two measures of sexual liberalism in Wright and Tokunaga (2018). The variable measuring gay marriage attitudes was used in this study instead due to its higher

variability as over 90% of participants selected the same two answers in the homosexual relations question. Attitudes towards homosexual relations and marriage have a correlation of .75. Thus, logic and precedent indicate support for using several factors, including abortion support and pornography usage and five indicators of sexual liberalism.

### **Data Sources & Procedures**

The General Social Survey is conducted bi-annually and contains general demographic questions, attitudinal and behavioral questions, as well as items querying topics of special interest including social media usage and psychological well-being. The 2016 edition of the GSS is the most recent version of this survey and the 2010-2014 files are the latest available panel datasets from GSS. Access to the GSS database is free of charge at <http://gss.norc.org/>

A total of 2,867 people participated in the 2016 GSS survey with a mean age of 49 years ( $SD = 17.69$ ) and 55% female participants. The survey was conducted via face-to-face interviews at the University of Chicago, by telephone, or via an online survey. Subjects were assigned to answer questions from multiple topics that make up the entire survey. Not all of the 2,867 people responded to every item, but a vast majority of the total participants answered the items used in this study.

A linear regression was conducted to determine the best predictors of support for abortion. A regression was used in Tokunaga, Wright, and McKinley (2015) to see how pornography usage compared against other demographic variables. However, this regression did not compare porn usage to other measures of sexual liberalism and measured values at three separate times (2006, 2008 and 2010) instead of a single year.

Not all of the defined sexual liberalism items were able to be used in this analysis because they were not asked concurrently in the surveys. The two sexual liberalism items used

were attitudes towards gay marriage and extramarital sex. The extramarital sex items was used in the sexual liberalism scale by Wright and Tokunaga (2018). A similar item assessing attitudes towards homosexual relations was also used in part of the sexual liberalism measure in Wright and Tokunaga (2018).

A crosstab analysis of the GSS three wave panel dataset from 2010, 2012 and 2014 was used to categorize participants by their answer to the abortion and pornography questions for each of the three waves. Examining panel data allows us to address the time-order relationship suggested in Tokunaga, Wright, and McKinley (2015) indicates earlier pornography usage leads to later support for abortion, this analysis and allows us to address the following question: how often are participants changing their reported position on abortion, and does their usage of pornography have anything to do with this change?

Consistent with Tokunaga, Wright, and McKinley (2015), a replication of their logistic regression was used to compare their data with GSS three wave panel with the addition of two new variables, support for gay marriage and attitudes towards extramarital sex. These variables were once again chosen since they were identical or similar to the items used as part of the sexual liberalism scale in Wright and Tokunaga (2018). This logistic regression will assess the role sexual liberalism variables, along with other demographic variables, items surveying various attitudes and pornography usage at T1 predicts the dependent variable which is support for abortion at T2.

## **Measures**

The following measures taken from the survey were used for the purposes of this analysis:

*Support for Abortion:* One item asked if a woman should be able to get an abortion for any reason. Answers were either yes (1) or no (0).

*Pornography Usage:* (Wright & Tokunaga, 2018; Tokunaga, Wright & McKinley, 2015). The pornography usage measure asked if participants “had seen an X-rated movie within the last year” With “yes” scored as “1” and “no” scored as “0.”

*Political Views:* Political views were measured using a seven point scale with answers ranging from extremely liberal (1) to extremely conservative (7). Consistent with most research including the 2012 Pew Research Survey, political and religious views are a major predictor for one’s attitudes towards abortion. Politics and religion can play a major role in one’s self-identity and these viewpoints extend to attitudes related to sex.

*Religious Views:* A scale from 1 (very religious) to 4 (not religious) surveyed participants on how much they considered themselves to be a religious person.

*Premarital Sex:* This question asks in general if sexual relations before marriage is (1) always wrong, (2) almost always wrong, (3) sometimes wrong, or (4) not wrong at all.

*Extramarital Sex:* Participants answered if they believed sex before marriage was always wrong (1), almost always wrong (2), sometimes wrong (3) or not wrong at all (4).

*Teenager Sex:* The opinion of sexual relation between consenting teenagers between the ages of 14-16 is measured on a scale from being (1) always wrong to (4) not wrong at all.

*Birth Control for Teenagers:* This item surveys attitudes on the availability of the birth control to teenagers. Specifically, this question asks on a four point scale from (1) strongly agree to (4) strongly disagree that methods of birth control should be available to teenagers between the ages of 14 and 16 if their parents do not approve?

*Homosexuals' right to marry:* The variable measuring gay marriage attitudes states “homosexuals should have the right to marry on another” with the five options as (1) strongly disagree, (2) disagree, (3) neither agree or disagree, (4) agree and (5) strongly agree. .

*Sex:* Male was coded as “1” and female as “2.”

*Education:* Participant’s level of education was assessed by inputting the number of years of education they completed.

## Results

### GSS 2016 Dataset

The average age for abortion supporters ( $M = 48.56$ ;  $SD = 16.63$ ) and non-abortion supporters ( $M = 51.01$ ;  $SD = 17.97$ ) did not significantly differ compared to the ages of porn users ( $M = 39.15$ ) and non-porn users ( $M = 51.91$ ;  $SD = 17.21$ ). Only 14.5% of participants ages 50+ viewed porn while 40.1% of those under 50 reported using porn. Although there were minimal gender differences in support for abortion, men were twice as likely to report pornography use (39.3%) than women (18.1%). Abortion supporters on average finished 1.35 more years of education than non-supporters but no significant difference in education was seen by porn usage. Only 23.5% of those that define themselves as conservative or extremely conservative were in favor of abortion compared to 74.2% of liberal or extremely liberal participants. Religion also was a major predictor of attitudes towards abortion, as 24.3% of ‘very religious’ participants and 70.4% of ‘nonreligious’ participants reported support for abortion. Thus, it appears religiosity and political ideology are strongly related to the two main variables of interest.

Age differences on sexual liberalism items were mixed. 68.6% of participants over 50 viewed sex between teenagers as ‘always wrong’ compared to only 54.0% of those under 50. All

of the sexual liberalism variables were more likely to be approved by younger participants except for extramarital sex, which most everyone disapproved of regardless of age. Gender differences were minimal other than when females were more likely to approve of the birth control for teenagers and men were more likely to approve of extramarital sex and disapprove of gay marriage.

Abortion had the weakest correlation to pornography ( $r = .19$ ) compared to all other variables used (see table 1). In a direct comparison of abortion and pornography, 63.8% of those who had viewed an X-rated film within the past year were in favor of abortion as opposed to 43% support among those who reported they had not viewed a film. Attitudes towards gay marriage was the strongest predictor of support abortion and a chi-square revealed nearly 80% of those whom supported abortion also either agreed or strongly agreed that homosexuals have the right to marry.

Attitudes on premarital sex were positively correlated with support for abortion ( $r = .36$ ), positively related to religious views ( $r = .43$ ) and positively related to support for gay marriage ( $r = .50$ ). A comparatively weaker and positive relationship was observed between premarital sex attitudes and pornography usage ( $r = .20$ ). Non-abortion supporters were relatively mixed on premarital sex beliefs, with 44.9% stating it is not wrong at all and 31.9% stating premarital sex is 'always wrong'. This is much more polarized than abortion supporters, whom 79.4% said premarital sex is not wrong at all while 7.8% believe it is always wrong.

### **2010-2014 Panel Data**

According to the results of stepwise regression, support for gay marriage was the greatest predictor of support for abortion amongst the sexual liberalism variables. Specifically, higher support for gay marriage was associated with higher support for abortion. Pornography usage

also predicted support for abortion, and had a similar beta coefficient ( $B = .93, p = .012$ ) to attitudes towards gay marriage ( $B = .93, p < .01$ ).

Demographics only explained around 5% of overall variance ( $R^2 = .047$ ). The sexual liberalism variables explained an additional 22.8% of the variance in support for abortion ( $R^2 = .228$ ). Finally, religious and political views ( $R^2 = .263$ ) predicted an additional 26.3% of the variance in support for abortion.

Consistent with the correlational analysis, religious views ( $B = -.063, p < .01$ ) and political views ( $B = -.052, p < .01$ ) each have a significant role in predicting support for abortion. The more a participant identified as liberal or nonreligious, the less likely they were to oppose abortion.

Education was the greatest predictor for abortion amongst the demographic variables ( $B = .015, p < .05$ ) as more completed years of education meant greater support for abortion. The only nonsignificant item in the regression was sex. A post-hoc analysis revealed no significant correlation between participants' sex and support for abortion.

The logistic regression revealed only abortion support at T1, education and religious beliefs were significant predictors. Other variables that came close to significance were support for gay marriage ( $p = .07$ ) and the age and ethnicity interaction variable ( $p = .09$ ). Pornography usage at T1 ( $p = .46$ ) was also not a significant predictor of abortion support at T2.

Notable differences in odds ratio values from this analysis from Tokunaga, Wright and McKinely (2015) were that pornography usage was much lower ( $exp(b) = 0.41$ ) in our study than it was in theirs ( $exp(b) = 2.18$ ) with similar upper range and dissimilar lower range confidence intervals. The ethnicity and pornography usage interaction variable showed a high odds ratio ( $exp(b) = 38.28$ ) but was not statistically significant and holds a confidence interval ranging from

0.85 to 2,530.91.

The two sexual liberalism items, support for gay marriage ( $exp(b) = 1.24$ ) and attitudes towards extramarital sex ( $exp(b) = 1.39$ ) had greater odds ratios than any other non-interaction items. Education ( $exp(b) = 1.12$ ) and marital status ( $exp(b) = 1.10$ ) were the greatest predictors amongst the demographic variables.

## Discussion

### 2016 Dataset

Pornography was most strongly correlated with religious views in the correlational analysis. Of those surveyed on pornography and religious beliefs, only 27.8% viewed pornography within the past year. Forty-three percent of all nonreligious participants reported pornography use, compared to only 13.7% of those that identified as very religious. It is possible that religious individuals are less likely to be truthful about their pornography usage. For example, Whitehead and Perry (2018) found higher frequencies of internet searches for porn in states with higher percentages of religious persons, while states with higher percentages of religiously unaffiliated persons have lower frequencies of searches for porn.

Approval on the availability of birth control for teenagers had a relatively weak relationship with pornography usage compared to other variables, such as abortion attitudes. This is interesting because pornographic media frequently features unprotected sex. Viewers may be removed from the real-world consequences of unprotected sex while watching pornography, or unaware that many pornographic actors and actresses use birth control.

While pornography usage appeared to have a moderate relation to support for abortion in the correlational and regression analysis, this relationship was not as strong to other items related to sexual liberalism such as support for gay marriage and extramarital sex. This is consistent

with the prediction that support for abortion and pornography use are connected by one's own level of sexual liberalism, and are not directly related.

Other demographic variables such as education, religion and political views were more significant predictors of support for abortion than usage of pornography. It is possible that the demographics of the average porn user may be similar to the demographics of an individual with a higher level of sexual liberalism.

Although these two analyses used a single time measure, it is unlikely that pornography usage over time would lead to greater support for abortion as it could be argued that increased support for gay marriage over time also lead to later support for abortion.

### **2010-2014 Panel Datasets**

Of the 361 participants surveyed on the abortion and pornography questions at all three collection points, 12 (3.3%) initially supported abortion, but reported later pornography usage while 3 (0.8%) reported initial pornography usage and later support for abortion. Two hundred ( $N = 200$ , 55.4%) did not change their answer to either question throughout the three waves and 119 (33.0%) remained consistent in reporting entirely yes or entirely no for both the pornography use and abortion support questions. Only 3 (0.8%) participants had corresponding attitude changes in support for abortion and pornography usage. More people (7) actually had the opposite effect, where their responses to the abortion support and pornography questions inverted.

Assuming that either pornography usage or support for abortion influenced later answers on either variable seems difficult due to the small number of participants that changed their answers. 255 (70.6%) changed one answer or less to either question across the three waves and

48 (13.3%) changed an answer on either question but eventually returned to their original position.

The most recent GSS panel survey was used to categorize individuals by their support for abortion and pornography usage at three different waves. Most participants were consistent in their answers to both the porn and abortion questions. Only 3 participants had attitude changes that corresponded with the hypothesis of Wright and Tokunaga (2018) that earlier pornography usage leads to *later* support for abortion. It would be neither significant nor practical to credit this effect for the reason why only three participants changed their position on abortion.

This analysis does not dismiss the relationship between pornography usage and support for abortion. It does however demonstrate how seldom these attitudes change, and the difficulty of showing any direct causality between the two factors. It would be expected that a panel study that examines attitude change would contain both a significant number of participants that changed their attitudes and the ability to identify the reason for this change.

The most interesting finding is that more people had contradictory attitude changes (support for abortion and no porn usage or no support for abortion and porn usage) than those that had corresponding shifts. However, it should be emphasized that drawing any sort of explanation for the small number of participants that changed their answers would be preliminary.

At first glance, the results of the logistic regression are somewhat similar to the one conducted by Tokunaga, Wright and McKinley. Many of the demographic variables such as age, number of children and political identification had similar odds ratios in both analyses. However, it appears the addition of the two sexual liberalism items weakened the significance of pornography usage at T1 as a predictor of abortion support at T2. Perhaps assessing sexually

liberal attitudes and not just behaviors would better describe the relationship between support for abortion and sexual liberalism. That is, those with sexually liberal attitudes that do not watch pornography would not be represented in the original model. It can be expected that inclusion or substitution of additional items related to sexual liberalism would produce similar results or bolster the relationship between sexual liberalism and support for abortion.

### **General Discussion**

Based on these findings from both the 2016 GSS survey and GSS panel, pornography usage and abortion both appear to be related to individuals' political and religious beliefs as well as other attitudes related to sex. However, the relationship between these two variables was weaker than the relationships each shares with other items related to sexual liberalism. The addition of items assessing sexually liberal attitudes in our logistic regression accounted for variance explained by relationship between pornography usage and support for abortion compared to the relationship previously seen in Tokunaga, Wright and McKinley (2015). Grouping participants in the panel study by their abortion and pornography answers at each of the three waves and running crosstabs revealed a small number of participants that reported pornography usage had later support for abortion.

While the panel data can show how one's support for abortion and pornography usage changes over time, perhaps it would be more useful to survey how participants' ratings of sexual liberalism change over time. This would support that sexual liberalism is a larger ideological construct influenced by attitudes and behaviors related to sex. Unfortunately, there was not a previously validated sexual liberalism scale and panel data that covers a variety of topics related to sexual liberalism prevents this analysis from being completed in the near future.

In order to validate the 3am model's explanation for how individuals acquire information from sexual scripts and apply it to their own sexually-related attitudes and behaviors, a deeper examination of one's media and pornography usage is needed to demonstrate this effect. It must be demonstrated that pornography usage occurred prior to an increase in sexual liberalism and not simultaneously.

### **Limitations**

There are several limitations facing the generalizability of this study. First, the GSS contains broad measures that may decrease the construct validity of the study such as the dichotomous measure of pornography usage which may not capture variability in the frequency of usage. The sexual liberalism score uses a combination of items that have been used empirically and is consistent theoretical characteristics of sexual liberalism. However, a universal scale that captures many, not just a few, components of sexual liberalism does not currently exist.

Secondly, participants of the GSS are each assigned to a variety of subtopics and do not answer all of the 1,000+ questions in the survey. Therefore, many items related to sexual liberalism could not be used in the regression model because they were not asked simultaneously to other items used. For example, no participants in the study were asked about both their pornography usage and their opinions on birth control availability for teenagers. A questionnaire that surveys all of the items related to sexual liberalism that are available in the GSS dataset would have increased the flexibility of the scale used in this study.

Due to limitations of the GSS dataset, not all items related to sexual liberalism were administered simultaneously. Two items related to sexual liberalism were used simply because they were the only pair of questions related to sexual liberalism that were asked concurrently

with pornography usage. This makes it impossible for a master score to be calculated or for all sexually-related questions to be compared in a linear regression. However, this is not entirely necessary as the goal of this study is to find alternative explanations for predicting support for abortion that are related to sexual liberalism. Future studies may adapt these findings into creating a primary survey so that a mainstream scale of sexual liberalism may be implemented in empirical research.

### **Conclusion**

Wright and Tokunaga have gained recognition on the 3am model and sexual liberalism with numerous publications within the last decade. In order for their work to reach the next level of notoriety, perhaps they should administer their own surveys with scales that strongly measure their constructs instead of relying on secondary datasets that contain single-item general variables.

It is preliminary to claim any sort of relationship between pornography usage and support for abortion based on analyses from the GSS dataset. How can it be certain that the later support of abortion is directly a result of earlier pornography usage? A continuous measure of pornography would better assess the effect exposure to sexual media has on attitudes related to sex. It would be insightful to survey those whom changed their attitudes on abortion over time to identify similarities (reached certain age, experienced life event, changed political attitudes) that may have influenced their shift in attitudes.

Future research should further describe the definition of sexual liberalism and investigate the time-order relationship between these attitudes and use of pornography. In its current state, the relationship between pornography usage and support for abortion faces a 'chicken or the egg' problem as it has not been empirically demonstrated that pornography usage leads to greater

support for abortion. The argument presented here is that these attitudes and behaviors are symptoms of a larger ideological construct known as sexual liberalism and are not directly related.

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Table 2

*Linear regression analysis summary for predicting support of abortion in GSS 2016*

Predictor	<i>B</i>	<i>SE B</i>	<i>p</i>	$\Delta R^2$
Step 1				.047
Age	-.001	-.028	.393	
Sex	-.084	-.084	.012	
Education	.032	.197	.000	
Step 2				.228
Age	.002	.080	.015	
Sex	-.051	-.050	.110	
Education	.016	.099	.001	
Porn	.123	.112	.001	
Gay Marriage	.123	.360	.000	
Extramarital Sex	.079	.128	.000	
Step 3				.263
Age	.003	.089	.006	
Sex	-.046	-.046	.138	
Education	.015	.092	.003	
Porn	.092	.084	.012	
Gay Marriage	.093	.272	.000	
Extramarital Sex	.053	.085	.008	
Political Views	-.052	-.154	.000	
Religious Views	.063	.128	.000	

Table 3

*Abortion support at each of the three waves (2006, 2008, 2010)*

	<u>Frequency</u>	<u>%</u>
YYY	227	27.8%
NNN	366	44.9%
YNY	38	4.7%
NNY	35	4.3%
YYN	26	3.2%
NYN	44	5.4%
YNN	44	5.4%

Table 4

*Crosstab of Support for Abortion and Pornography Usage at each wave (2010, 2012, 2014)*

				Porn		Use				
		NNN	YNN	NYN	YYN	NNY	YNY	NYY	YYY	
Count	Abortion Support	NNN	94	6	5	3	5	2	3	8
		YNN	11	1	1	0	0	0	0	2
		NYN	9	0	0	0	2	2	0	3
		YYN	7	1	0	0	1	1	0	1
		NNY	12	2	0	2	1	1	0	1
		YNY	6	0	0	1	2	0	1	0
		NYY	16	2	0	2	1	3	1	2
		YYY	73	9	2	8	5	9	6	25
				Porn		Use				
		NNN	YNN	NYN	YYN	NNY	YNY	NYY	YYY	
%	Abortion Support	NNN	26.0%	1.7%	1.4%	0.8%	1.4%	0.6%	0.8%	2.2%
		YNN	3.0%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.6%
		NYN	2.5%	0.0%	0.0%	0.0%	0.6%	0.6%	0.0%	0.8%
		YYN	1.9%	0.3%	0.0%	0.0%	0.3%	0.3%	0.0%	0.3%
		NNY	3.3%	0.6%	0.0%	0.6%	0.3%	0.3%	0.0%	0.3%
		YNY	1.7%	0.0%	0.0%	0.3%	0.6%	0.0%	0.3%	0.0%
		NYY	4.4%	0.6%	0.0%	0.6%	0.3%	0.8%	0.3%	0.6%
		YYY	20.2%	2.5%	0.6%	2.2%	1.4%	2.5%	1.7%	6.9%
		N = 361								

Table 5

*Logistic Regression Comparison of Support for Abortion at T2*

DV: Abortion Support at T2

Odds Ratio	Tokunaga, Wright & McKinley (2015)		Hartman & Feeley (2019)	
	Odds Ratio	95% For Odds Ratio	Odds Ratio	95% For Odds Ratio
T1 Age	0.98	0.95-1.00	1.01	0.99-1.03
T1 Children	0.97	0.77-1.21	1.03	0.84-1.25
T1 Education	1.14	1.02-1.26	1.12	1.01-1.25
T1 Ethnicity	1.04	0.48-2.26	0.24	0.02-2.59
T1 Gender	1.66	0.93-2.95	0.89	0.51-1.57
T1 Marital Status	1.19	0.67-2.14	1.10	0.61-1.96
T1 Media Confidence	1.10	0.71-1.70	0.77	0.51-1.17
T1 Political Orientation	0.90	0.73-1.11	0.88	0.71-1.10
T1 Pornography	2.18	1.00-4.74	0.41	0.04-4.45
T1 Religiosity	0.82	0.73-0.92	0.83	0.73-0.95
T1 Support For Abortion	13.24	7.46-23.47	13.80	7.96-23.93
Extramarital Sex			1.39	0.89-2.16
Gay Marriage			1.24	0.99-1.56
T1 Age X T1 Pornography	1.10	1.05-1.17	1.03	0.98-1.09
T1 Ethnicity X T1 Pornography	0.53	0.13-2.05	38.28	0.58-2,530.91
T1 Age X T1 Ethnicity	1.07	1.03-1.13	1.04	0.99-1.09
T1 Age X T1 Ethnicity X T1 Pornography	0.85	0.78-0.92	0.92	0.83-1.02

Note: Tokunaga, Wright & McKinley (2015) T1 = 2006, T2 = 2008, Hartman & Feeley (2019) T1 = 2010, T2 = 2012