'The Influence of Direct to Consumer Advertising of Oral Contraceptives and the Consumer’s Attitudes and Perceptions that Ensue'

By

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Abstract

This paper seeks to gain a better understanding of the influence that Direct-to-Consumer Advertising has on the willingness of a consumer to request a prescription of a particular brand of birth control. More specifically, it assesses how willing a consumer is to undertake the risk of potentially serious side effects to gain some advantageous secondary effect. In this case, the promise of clearer skin for mild to moderate acne was the secondary benefit promoted. Participants were given an advertisement for the fictitious brand of oral contraceptive, Ortho TriRegularis. One group received a version with minor side effects, while another group received a version with more serious effects. Respondents were tested on their ability to correctly recall a side effect and then analyzed on how this affected their inclination to request a prescription.
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Literature Review: Direct to Consumer Advertising

Direct-to-Consumer Advertising, or DTCA, involves advertising prescription drugs in hopes that it will “boost patient demand for name brand prescription medications” (H.N Young et al 2005). Originally, however, it was only physicians, hospitals and pharmacists who were allowed to receive promotion of pharmaceutical drugs in medical journals and through personal selling (Sheffet & Kopp 1990). In the early 1980s, DTCA became legal and therefore allowed pharmaceutical companies to directly advertise to their consumers, therefore increasing demand and brand loyalty for their drugs. By creating brand loyalty, pharmaceutical companies would stand to make a larger profit. Because DTCA has the ability to influence a patient’s treatment, it is controversial in nature and has been deemed illegal in all countries, except for New Zealand and the United States (Viale 2003). It is required in all prescription drug advertising to include a brief summary that lists warnings, precautions and any potential side effects associated with the medication. Additionally, the advertisement must include a “fair balance” of information. Fair-balance indicates “the need for drug advertisements to weigh the risks and the benefits equally” (Alperstein 2014).

While it is required to denote risks and side effects associated with taking a drug, this does not necessarily indicate that a consumer will correctly retain this information or understand it. Viale explains that frequently “FDA-required information [does] not really register with the patient” (2003). It has also been previously noted that people tend to recall “potential benefits of advertised products more often than risk information” (Sheffet & Kopp 1990). Further, it has been argued that, “DTC advertising overemphasizes benefits and downplays risks, which might cause patients to believe that a particular medicine works better or more safely than it actually does” (Schwartz et al 2009). Burak et al also notes, “there are some indications that the ads may
be misleading or may not provide adequate information” (2010). Without correct retention of consequences, or false assumptions of the medicine, the consumer is likely to have a skewed perception of the drug. Having a more positive perception of the drug may set up consumers to have unrealistic expectations while taking the medicine.

While there are many who oppose DTCA, marketers and pharmaceutical companies alike have argued that allowing for DTCA is beneficial because it “promotes specific patient communication that affects the patient-physician relationship” (H.N Young et al 2005). Promoting patient-physician communication would then theoretically allow for a better understanding of the drug, provided that the physician gave a thorough explanation. However, DTC advertising could also be potentially disruptive to the patient-physician relationship. While some physicians have reported that they sometimes “respond to pressure they perceive from their patient” two thirds of these physicians “stated they would not be more likely to prescribe a drug simply because a patient asked for it” (Viale 2003). Denying a specific medication is usually done to ensure the patients’ well being due to many influenced consumers requesting “medications that are inappropriate for their condition” (Viale 2003). However, by not giving in to the pressure to prescribe a requested medication, the patient may experience a loss of faith in their physician.

**Literature Review: Oral Contraceptives**

I chose oral contraceptives as the drug to be studied because they are one of the most widely used methods of birth control. In fact, in a study conducted in Canada, “oral contraceptives were the most popular form of contraception for sexually active women” (Gaudet et al 2003). Oral contraceptives are highly sought after not only for their pregnancy prevention abilities, but also for beneficial secondary side effects, such as acne. Oral contraceptives are
currently marketed as lifestyle drugs. Lifestyle drugs are defined as “medications that are designed to improve a person’s quality of life by treating less serious conditions” (Watkins 2012). Additionally, these advertisements really emphasize “secondary effects of oral contraceptives – to treat less serious conditions such as acne and premenstrual dysphoric disorder” (Watkins 2012). It can be argued that these “secondary effects” are used as a marketing ploy to increase sales of particular brands of oral contraceptives due to the birth control market becoming more crowded. In fact Watkins states that “the emphasis on secondary effects instead of the primary indication in advertisements represents an attempt to differentiate products, in a crowded field because no one brand can claim superior efficacy in the prevention of pregnancy” (2012). These perceived advantageous secondary effects may then lead consumers to request the name brand contraceptive that has been marketed to help treat their particular affliction. However, by placing a disproportionate amount of advertising on these benefits, a misperception of the dangers that correspond with birth control could possibly ensue. In fact there has been a growing concern that “prominent claims about acne, which drive patients to request “the pill” often overshadow more important health concerns and beliefs” (Koulianos 2000). Although a lot of the serious health risks associated with taking oral contraceptives are rare, it is still something that those taking the drug need to be aware about. According to Gaudet et al, while complications such as “thrombosis is a rare event, all pill users should be able to identify obvious warning signs and be given instructions to call their physician and/or proceed to the hospital, should they experience them” (2003). What happens if those who are prescribed oral contraceptives specifically for secondary benefits after having exposure to direct-to-consumer advertisement are not made aware of all the potential risks associated with the pill?
Literature Review: Learned Intermediary Doctrine

To help ensure that physicians cover all the potential risks of a drug before prescribing to a patient, the learned intermediary doctrine has been established. Because patients can only obtain prescription drugs from their prescribing physician, it makes sense for the physician to be the one to clearly explain the medicine in question. Under the learned intermediary doctrine it becomes the “physician’s duty to evaluate the benefits and risks of the medication as they apply to the individual patient” (Schwartz et al 2009). This doctrine not only protects patients, but also protects manufacturers from assuming risk. It “allows them to discharge their duty to warn consumers about their products by informing the learned intermediary, commonly the prescribing physician, of all material risks associated with their use” (Johnson et al 2013).

However, even though the manufacturers are not responsible for directly making sure that patients are well informed of risks and side effects, they are responsible for communicating this information effectively and thoroughly to the physician community (Schwartz et al 2009). There are, however, limitations to the coverage of the learned intermediary doctrine. It does not extend coverage to certain items including mass immunization vaccines and contraceptives. The rationale behind these exceptions is that the “patients’ active participation in their own health care negates their reliance on a learned intermediary” (Johnson et al 2013). Furthermore, those taking oral contraceptives are “usually actively involved in the decision to use “the pill” as opposed to other available birth control products, and the prescribing physician is relegated to a relatively passive role” (Schwartz et al 2009). Additionally, “Oral contraceptives were used for convenience rather than medication and, therefore, it was the patient’s responsibility to bear any risks” (Sheffet & Kopp 1990). But does it truly make sense to limit the learned intermediary doctrine if the patient in fact does not fully understand the risks associated with oral
contraceptives? More specifically, does it make sense if they were misled or confused by the direct to consumer advertising that they were exposed to? The purpose of the research contained in this paper is to help determine how direct to consumer advertising influences perceptions surrounding oral contraceptives and how likely potential consumers would be to ask for a prescription, regardless of complete understanding surrounding benefits and risks.

**Methodology:**

Primary research for this paper was conducted by creating a survey. The survey was administered through the online software Qualtrics to a convenience sample of primarily college-aged females attending the University of Arkansas. Participants gained access to the survey through various emails, social media posts, and listserv emails. The survey was divided into three main sections: one over behaviors of current birth control usage, one on attitudes surrounding birth control and finally an attitudinal section gauging how two different groups of consumers were affected by a fictitious birth control advertisement. In the last section, two versions of an advertisement for a fictional brand of oral contraceptive, Ortho TriRegularis, were randomly and equally distributed to two different groups. One version included only minor side effects, while the other only included more serious “major” side effects. Attitudes about the ad were determined by using a 5-point Likert scale ranging from extremely disagrees to extremely agree on a series of statements. After completing the attitudinal questions about the advertisement, each group was asked to determine if they believed the drug to be harmful, as well as their likelihood of requesting a prescription. Finally, each group was asked recall a side effect listed on their version of the advertisement. This tested how closely they paid attention to the advertisements. Data from the survey were then analyzed using the statistical software SPSS and conclusions were made.
Part One: Participants’ Self-Reported Behaviors on Birth Control Usage

A total of 221 females participated in the survey with 90% between the ages of 18-27. Eighty-five percent of the respondents classified themselves as single while 15% are categorized as married or engaging in a domestic partnership. Eighty-three percent of the participants identified as Christian, as either a Protestant or Catholic. As previously mentioned, the first step in the survey was to provide an examination into the behavior behind birth control use. Due to the “lifestyle” nature of birth control usage—meaning “medications that are designed to improve a person’s quality of life by treating less serious conditions”, the first step was to test the self-proclaimed health level of the individuals (Watkins 2012). A sliding scale with measures between 0 and 10 was used and the individual placed the marker wherever she felt was most appropriate. It was determined that the individuals generally believed they were quite healthy with an average value of 7.03. 36.2% of respondents placed their health at greater than a 7.0. There were no responses indicating a health level of 0 or 1 and only nine responses within the 2-5 range.

The next group of questions revealed if the respondent was using or had previously used birth control, the method currently on, if they had used anything prior and if so what, and the main reasons for obtaining a prescription. 80% of individuals were currently using, or had previously taken birth control. Only 20% had never taken birth control before. The next logical question was to determine the type of birth control was most commonly used. The question asked, “Which method of birth control do you currently use”. The answer choices available to select from included oral contraceptives, intrauterine device, an implant, a vaginal ring, or “other” where the respondent was able to fill in any other method that they might have been using at the time.
Seventy-six percent reported oral contraceptives as their current method of birth control. The next most popular form of birth control was listed as “other”. A deeper analysis reveals that out of the 23 “other” responses 5 of these are attributed to the Depo Provera shot, accounting for 2.96% of the responses, and placing it right behind an IUD (5.33%) and the Vaginal Ring (3.55%). Other methods that were entered include “none”, “condoms”, and “natural family planning”.

To capture any other types of birth control that the respondent may have taken at some point, they were asked if they had previously used any other forms of birth control. Only 39% attested to having previously tried a different method. The persons that responded “yes” were then asked to indicate all methods they had used. Once again, oral contraceptives were indicated as the most previously used at 57%. This puts 73.8% of respondents who are currently taking or have previously taken oral contraceptives as a form of birth control.
Figure 2:

“Other” is consistent with the previous question of which birth control method used, in second at 45.9%. From these 28 respondents, 8 listed the Depo Provera shot as a previously used method. Combined with the previous question, 13 individuals are using or have previously tried the shot. Unlike the earlier question, the IUD is not the third most tried technique. Instead, the vaginal ring had a more common usage at 11.48%, placing it 7.93% higher than before. Since the Vaginal ring had a higher previously used response rate, compared to current methods, this could possibly indicate that users had a higher dissatisfaction with the ring.

The next section of questions was used to help uncover the motivations behind obtaining a birth control prescription. The first question asked, “Is pregnancy prevention your primary reason for taking birth control”? Slightly over half at 56% responded that indeed, pregnancy prevention was the main reason for using contraceptives. For the purpose of this research, to more clearly understand the effect of direct to consumer marketing, I was more interested in other reasons why the consumer may be interested in taking birth control, especially since secondary advantages allow brands to differentiate themselves. If participants responded that pregnancy prevention was the main driver behind their birth control consumption, they were then...
prompted to select what was their main reason. “Acne control” and “other” were tied for the number one spot as the primary reason at 23%. Participants identified “other” primary reasons for taking oral contraceptives including: cramps, ovarian cysts, hormone regulation, period regulation, and heavy menstruation. Ovarian cysts was cited the most, accounting for 35.3% of “other” and 8.2% of total responses. Reducing the frequency/length of menstruation was third at 21% and reducing early cycle effects (nausea, bloat, breast tenderness) and Premenstrual Dysphoric Disorder was third and fourth at 18% and 15%, respectively. The responses on this metric were pretty close and the standard deviation was at 1.49.

Figure 3:
If respondents answered that pregnancy was their primary motivation behind using birth control, they were prompted to select which secondary reason they were most likely to use birth control for. They were given the same list to choose from as those earlier.

**Figure 4:**

![Secondary Reason for Birth Control](image)

Acne control barely fell to second place at 29% behind reducing early cycle effects at 30%. The next reason selected was to reduce frequency of menstruation at 21%, followed by “other” at 13%. This is not really shocking considering that the majority of the respondents who placed “other” as their primary reasoning had more serious motivation for being placed on birth control. In this case, only one participant cited ovarian cysts as their secondary reasoning behind their contraceptive use. Lastly, premenstrual dysphoric disorder fell to 7%. Again, this was not surprising due to the severity of the condition.

The next set of questions addressed whether the respondent had talked to their physician regarding a specific type of birth control, how many times they had reached out to their
physician, and finally if their conversation was based around a particular birth control seen in an advertisement. Only 32% of the participants reported that they had asked their doctor for a specific type of contraceptive. This lower percentage is surprising since you would imagine that someone seeing their doctor for birth control would have some idea of what they would like. For the 32% that answered they had asked for a specific type of birth control, 72% had asked for a more info on a specific birth control between 1-2 times, and 19% had asked between 3-4 times. The last question in this set addressed if they had reached out to their physician, was it because of a particular drug they saw in an advertisement. 25% self-reported that reaching out was due to a particular advertisement they had seen. However, this number may or may not be a true indicator due to any subconscious effects that the advertising may have had.

Participants were asked to determine how closely they might pay attention drug advertisements in different forms of media. The question was scaled between 0-10, with zero being not at all and 10 representing a lot of attention given. They were then allowed to self-select where they thought their attention fell on the spectrum. The mediums incorporated included television, radio, print, Internet ads, and social media. None of the mediums had an average response above 5.0, indicating that the perceived amount of attention given advertisements was relatively low. Television reported having the most attention given with an average across participants of 4.09. The response of most interest, however, was for print due to this survey including a print advertisement for oral contraceptives. The average across all was 3.23 with a large standard deviation of 2.66. Although the average was 3.23, when looking at how participants responded, the most frequent value reported was 2.0 with 30 responses or 19%. 
Part Two: Consumers’ Attitudes Regarding Contraceptives Before the False Advertisement

The second portion of the survey measured attitudes and perceptions that the respondents held towards contraceptives, more specifically surrounding safety and secondary advantages with usage. The questions were set up using a 5-point Likert scales with responses ranging from strongly disagree to strongly agree. This allowed for a comparison across means for each question.

The figure below shows how many respondents answered in which way to each question, as well as the corresponding means and their standard deviations.
Figure 6:

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Standard Deviation</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe that oral contraceptives are safe to use.</td>
<td>10</td>
<td>13</td>
<td>22</td>
<td>97</td>
<td>58</td>
<td>1.05</td>
<td>3.90</td>
</tr>
<tr>
<td>Birth control advertisements are trustworthy forms of information.</td>
<td>18</td>
<td>50</td>
<td>79</td>
<td>50</td>
<td>2</td>
<td>.94</td>
<td>2.84</td>
</tr>
<tr>
<td>I am likely to switch to a new oral contraceptive if I hear it has more benefits than my current birth control</td>
<td>21</td>
<td>57</td>
<td>56</td>
<td>56</td>
<td>8</td>
<td>1.07</td>
<td>2.86</td>
</tr>
<tr>
<td>I pay close attention when</td>
<td>24</td>
<td>33</td>
<td>36</td>
<td>69</td>
<td>36</td>
<td>1.28</td>
<td>3.30</td>
</tr>
</tbody>
</table>

[16]
<table>
<thead>
<tr>
<th>Drug advertisements list side affects and warnings.</th>
<th>13</th>
<th>39</th>
<th>48</th>
<th>67</th>
<th>31</th>
<th>1.15</th>
<th>3.32</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don't believe oral contraceptives are harmful.</td>
<td>7</td>
<td>11</td>
<td>60</td>
<td>95</td>
<td>24</td>
<td>.90</td>
<td>3.60</td>
</tr>
<tr>
<td>I believe that there is a difference in secondary effects among different oral contraceptives.</td>
<td>39</td>
<td>79</td>
<td>35</td>
<td>34</td>
<td>10</td>
<td>1.14</td>
<td>2.48</td>
</tr>
<tr>
<td>I actively seek out information regarding different birth control options</td>
<td>13</td>
<td>46</td>
<td>47</td>
<td>70</td>
<td>22</td>
<td>1.12</td>
<td>3.21</td>
</tr>
<tr>
<td>I don't believe that advertisements have any affect</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Examining the means and standard deviations provides a better understanding of where the answers were centered and how dispersed the responses were. The first question, “I believe that oral contraceptives are safe to use”, had the highest mean of 3.90, indicating that the average response agreed that it was safe to use. The next question tested to see the respondents’ perceptions on the trustworthiness of birth control ads. The average response reported that they neither agreed nor disagreed. “I am likely to switch to a new birth control if I hear that it has more benefits than my current birth control” had a mean of 2.86, suggesting that the average respondent either disagreed or did not have an opinion. The following question asked the participant to scale if they believed they paid close attention when side effects and warnings were listed in drug advertisements. The mean was 3.30, with more responses entered as “agree” or “strongly agree”. This question is of particular interest due to the nature of the research setup.
later on in the survey where the participants are tested on how well they paid attention to side
effects that are presented to them.

The next question, “I don't believe oral contraceptives are harmful”, served as a check on
the first question that asked the participants if they believed that contraceptives were safe. The
mean here was 3.32 compared to the earlier question’s mean of 3.9. While the attitudes
surrounding birth control were still positive in relation to this question, there was an increase of
39 respondents who entered that they either disagreed or strongly disagreed that oral
contraceptives were not harmful. Following this question, the survey partakers were asked if
they thought there was a difference in secondary effects among different birth controls.
Secondary effects mean other presumably advantageous reasons for taking the contraceptive.
The mean associated was 3.6 with the majority agreeing that there were secondary effects.
This construct also had the tightest standard deviation from this set of questions at .90. The next
question aimed to see if the participants actively sought out information on varying birth
controls. Most did not identify with actively seeking out information on the subject, with a mean
of 2.48.

The next question asked whether or not the participant believed that advertisements had
any effect on her birth control preferences. The mean of 3.21 indicates that the average
participant agreed that advertisements had no effect on their partiality to certain contraceptives.
It is interesting to note that 53% identified with paying close attention to side effects listed within
the advertisement, yet only 29.7% believe that these advertisements had any effect on their
personal preference. The last question of the set was implemented as a check on the previous
question that asked about differences in secondary effects between contraceptives. This question
asked participants if they believed that “different oral contraceptives have different advantageous
secondary effects”. The mean here of 3.56 was very close to the earlier question’s mean of 3.6. However, the standard deviation on this question was not quite as small at .96 vs the earlier standard deviation of .90. The combination of the mean leaning more towards “agree” with a smaller standard deviation on the previous question reveals that there is more of a convergence of answers on the earlier question.

Part Three: Consumers’ Attitudes Regarding Contraceptives after the Fictional Advertisement

In the last section of the survey, the respondents were randomly and evenly split into two groups. Each group was given a birth control print advertisement for the fictional brand of oral contraceptive, Ortho TriRegularis. The ad shown highlights the skin clearing benefit of taking the oral contraceptive. Each advertisement given was exactly the same, except for the side effects listed at the bottom of the ad. One group received serious and harmful side effects, while the other group’s ad contained only minor, non-life threatening side effects. Copies of the advertisements are included below.
Figure 6: Advertisement with Major Side Effects Listed

Figure 7: Advertisement with Minor Side Effects Listed
The major side effects listed are as follows: Arterial thromboembolism, myocardial infarction, hypertension, cerebral hemorrhage and liver tumors. The minor side effects listed are as follows: nausea, bloating, edema, changes in weight, spotting, and breast changes. While all the side effects included are real side effects associated with oral contraceptives, they were not meant to be all-inclusive. The purpose of both of these advertisements was to see if the participants would pay attention more or less attention to the ad based on the severity of the side effects, how their perceptions and attitudes changed after viewing the ad as well as to identify correlations and patterns in behaviors to responses.

To measure attitudes towards the advertisement, the same set of questions using a 5-point Likert scales ranging from strongly disagree to strongly agree was used. The responses along with the means and standard deviations are attached below.

**Figure 8: Answers in Response to Major Side Effects Advertisement**

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total Responses</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am interested in receiving more information</td>
<td>17</td>
<td>41</td>
<td>17</td>
<td>15</td>
<td>4</td>
<td>94</td>
<td>2.45</td>
<td>1.09</td>
</tr>
</tbody>
</table>

**Figure 9: Answers in Response to Major Side Effects Advertisement**
<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total Responses</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am interested in receiving more information about this oral contraceptive</td>
<td>14</td>
<td>32</td>
<td>29</td>
<td>18</td>
<td>0</td>
<td>93</td>
<td>2.55</td>
<td>.97</td>
</tr>
<tr>
<td>I believe this oral contraceptive is more effective at clearing acne than traditional oral contraceptives</td>
<td>8</td>
<td>13</td>
<td>26</td>
<td>39</td>
<td>8</td>
<td>94</td>
<td>3.28</td>
<td>1.08</td>
</tr>
<tr>
<td>I desire a birth control that offers similar advantages as the previously advertised brand</td>
<td>3</td>
<td>20</td>
<td>42</td>
<td>27</td>
<td>1</td>
<td>93</td>
<td>3.03</td>
<td>.83</td>
</tr>
<tr>
<td>I would be willing to talk to my physician</td>
<td>12</td>
<td>24</td>
<td>20</td>
<td>31</td>
<td>7</td>
<td>94</td>
<td>2.97</td>
<td>1.19</td>
</tr>
<tr>
<td>I desire a birth control that offers similar advantages as the previously advertised brand</td>
<td>1</td>
<td>20</td>
<td>34</td>
<td>33</td>
<td>5</td>
<td>93</td>
<td>3.23</td>
<td>.89</td>
</tr>
</tbody>
</table>
I do not believe that this oral contraceptive offers any superior advantages as the previously advertised brand. I would be willing to talk to my physician about this contraceptive. I do not believe there are any harmful side effects associated with this pill. I believe that this birth control would be a likely option to consider. I do not believe that this birth control option offers any advantages as the previously advertised brand. I am likely to discuss this birth control option with close friends.
<table>
<thead>
<tr>
<th>Question</th>
<th>Major Group Mean</th>
<th>Minor Group Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are any harmful side effects associated with this pill.</td>
<td>2.45</td>
<td>2.55</td>
</tr>
<tr>
<td>I believe that this birth control would fit in well with my lifestyle</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>2.98</td>
<td>0.94</td>
</tr>
</tbody>
</table>

There were a total of 94 respondents who were given the major side effects advertisement to observe and 93 received the minor version. The Likert scaled questions that were asked after the observations were attitudinal in nature. The first question asked if they would be interested in receiving more information about the oral contraceptive, Ortho TriRegularis. The major group had a mean of 2.45 and a standard deviation of 1.09 versus the minor average of 2.55 with a corresponding standard deviation of .97. This indicates that both groups did not really seem to care about receiving more information. The next question asked how much they agreed with the statement “I believe this oral contraceptive is more effective at clearing acne than traditional oral contraceptives”. This question was of particular interest since there was a callout specifically mentioning the skin-clearing benefit Ortho TriRegularis claimed to provide. The participants’
mean from the major group was 2.69 with a standard deviation of .98. In contrast, the mean from the minor group equated 3.03 with a standard deviation of .83. This indicates that the major group, as an average, disagreed with the statement slightly more so than the minor group. The minor group fell in the middle of the Likert spectrum into the “neither agree nor disagree” category.

The next question asked if they desired a birth control that offered similar advantages as the one in the ad, clearer skin. It is important to note here that acne control accounted as the largest primary reason for taking birth control for those that said pregnancy prevention was not. It also accounted for 29% of the respondents’ top choice in secondary benefits aside from their primary choice of pregnancy prevention. Both means for the major and minor group were extremely close at 3.28 and 3.23, respectively. Most respondents centered on the neither agree nor disagree, with few more of the major group leaning towards the “agree” side.

“I would be willing to talk to my physician about this contraceptive”, was asked next. Both the major and the minor group had the same mean of 2.97. The minor group had a smaller standard deviation at .95 compared to the major standard deviation of 1.19. There were more people in the major group who strongly agreed with the idea of reaching out to their physician about this contraceptive. In the minor group, only one respondent responded that they strongly agreed with contacting their physician.

The fifth question asked respondents if they agreed that the contraceptive, Ortho TriRegularis did not offer any superior advantages, to other contraceptives on the market. With a standard deviation of .79 and a mean of 3.31, the minor group had more of a convergence around the idea that the contraceptive did not offer any superior advantages.
“I am likely to discuss this birth control option with close friends” was the next question in the block. Again, the responses averaged in the middle with a mean of 2.96 and a standard deviation of 1.23 for the major group, the minor group had a very close mean at 2.92 and a standard deviation of .99.

The following question checked to see if the participants believed that there were harmful side effects that were associated with the contraceptive, Ortho TriRegularis. Not a single respondent for either the major or the minor group strongly agreed that there were no harmful side effects. This could possibly indicate that at some level, the participants paid attention to the side effects that were listed. It is not definitive though since the respondents might have had prior knowledge of contraceptive side effects in mind at the time of the survey. Both the means for this question were similar again at 2.23 for the major group and 2.28 for the minor group.

The last question asked if the participants agreed that Ortho TriRegularis would fit in with their lifestyle. The minor group had a slightly less negative view of the drug fitting in with their lifestyle with an average response of 2.98 and a standard deviation of .94. This indicates that they neither agreed nor disagreed. The group that received the major side effects had an average of 2.81 and a standard deviation of 1.15.

After the survey participants finished answering the attitudinal matrix of questions, they were then each asked if they believed that there were harmful side effects associated with Ortho TriRegularis. Due to the repeat of the question, there might have been some question bias that could have swayed respondents to answer more in favor of the drug having harmful effects. The group that obtained the major side effects version of the advertisement had 71% of participants believe that the drug had harmful effects. The group that received the minor effects had a slightly lower percentage believing the drug had harmful side effects at 67%. 

[27]
Next, the respondents were asked to identify a side effect that was listed on their version of the advertisement. Instead of using a multiple choice style question, I elected to use an open response question to better capture how well the different groups paid attention to the side effects, otherwise known as a manipulation check. The data that came back was cleaned and organized into correct and incorrect responses. 46.8% of those who received the major side effects had an accurate response. For the minor side effects advertisement, there were a higher percentage of correct answers at 73.1%. It is surprising that more people would take note of less harmful side effects instead of the life threatening ones associated with the major effects version. The minor advertisement may have had a higher correct recall percentage due to the side effects being more familiar and perhaps easier to remember.

**Figure 10:**

![Recall Percentage Chart]

The last question in the survey was a scaled question from 0-10 that asked the participants to indicate the likelihood of requesting a prescription of Ortho TriRegularis. Zero equaled extremely unlikely and 10 equaled extremely likely. The major side effect
advertisement had an average likelihood of 2.99 with a standard deviation of 2.51. “Zero” and “2” had the most responses at 14 each. There were only 15 responses ranging from 6-10. For the minor side effects advertisement, the average was a 2.48 with a standard deviation of 2.08. The range fell between 0-7, with 0 being chosen the most frequently.

Analytics

The next portion of this paper serves to dive deeper into the analytics of the responses and to provide some insight into the participants’ minds. Specifically in regards to their attitudes on the birth control advertisement, how side effects listed on the ad altered their perceptions, and how this possibly influenced their behavior.

To begin the analysis, a comparison of means against the minor and major side effects groups was run for each question. For the first question, “I am interested in receiving more information about this oral contraceptive”, the major side effects group had a mean of 2.43 compared to the 2.57 mean of the minor group. The minor group had a slightly higher average in regards to receiving more information. The difference between the two groups is very small and only had a 2-tail significance of .353 (not significant). The second question addressed if the groups believed the oral contraceptive was more effective at clearing acne than traditional oral contraceptives. The fictional advertisement for the oral contraceptive, Ortho TriRegularis was designed to highlight the secondary benefit of obtaining clearer skin through its usage, so I was particularly curious to see if juxtaposing the clear skin benefit with the harmful side effects would have any effect on the responses. Comparing the means, the major group was at 2.68 versus 3.05 of the minor group. The group that obtained the advertisement with the minor side effects were more apt to believe it was more effective at clearing acne than traditional oral contraceptives. Since there was quite a difference in the means, an ANOVA report was run to
see if there was a statistically significant difference between the two groups. The two groups were significant at a .005 level. This could mean that the women who observed the severe side effects thought that the negative outweighed the positive and because of this, the pill would consequently be less effective than other oral contraceptive methods.

**Figure 11:**

<table>
<thead>
<tr>
<th>Major/Minor (1=Major, 2=Minor)</th>
<th>In response to the previous ad, please indicate the degree to which you agree or disagree with the... that this oral contraceptive is more effective at clearing acne than traditional oral contraceptives.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td>2</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
</tr>
</tbody>
</table>

The next question asked the groups if they desired a birth control that offered similar advantages as the previously advertised brand (Ortho TriRegularis). The major group had a reported mean of 3.27 against the minor’s mean of 3.23. This equates to a difference between the means of .04. Both these means are extremely similar and there is not much of a difference. Both are equally as likely to desire a birth control that offers similar advantages, regardless of the side effects associated.

The fourth question in the matrix asked if the participants would be willing to talk to their physician about the contraceptive. The major group had a mean of 2.96 and the minor had a mean of 2.99. Both were extremely close and did not have a significant difference. Since this
question dealt with reaching out to their physician, it made me curious about a question that the respondents saw later in the survey. The question was, “Please indicate the likelihood of requesting a prescription of Ortho TriRegularis from your healthcare provider”. A t-test comparing the Minor and Major groups against this variable was run. The difference between the means here was greater. The major group had a mean of 2.96, while the mean of the minor group was 2.52. Here, there is a greater difference than the previous question. Although it is not statistically significant, it is interesting that more people would indicate being likely to request a prescription over reaching out to their physician.

**Figure 12: Major vs. Minor against Likelihood to Request a Prescription**

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please indicate the likelihood of requesting a prescription of Ortho TriRegularis...</td>
<td>1</td>
<td>72</td>
<td>2.96</td>
<td>2.620</td>
</tr>
<tr>
<td>likelihood of requesting a prescription of Ortho TriRegularis...</td>
<td>2</td>
<td>62</td>
<td>2.52</td>
<td>2.070</td>
</tr>
</tbody>
</table>

For the next question, participants were asked how likely they were to discuss Ortho TriRegularis with close friends. The means between the major and minor groups were extremely close at 2.94 and 2.95, respectively. This shows there is really no difference in how likely either group would be to converse with their friends about the drug.

Moving forward, the next question asked the degree that the participant disagreed or agreed with the statement, “I do not believe there are any harmful side effects associated with this pill”. Yet again, the difference between the two means was small at .02. The mean of the major group was 2.25 and the minor group was 2.27. Both essentially slightly disagreed with the statement. Since each group was asked if they believed that there were harmful side effects associated with the Ortho TriRegularis again after the matrix, this question was tested against
both groups to see if there was a more significant difference. Yet again, the means were very close with the major group at 1.29 and the minor group at 1.33.

The last question asked if the respondents believed that this drug would fit in well with their lifestyle. The mean for the major group was 2.81 compared to the mean 2.99 of the minor group. There was not a statistical difference between the answers of the two groups. Both groups were on average, ambivalent.

After viewing the advertisement and answering the attitudinal questions, the participants were then asked to recall a side effect. Correctly recalling a side effect should indicate that the respondent paid more attention to the advertisement. If they paid more attention then they should have been more affected by the direct to consumer advertisement. To help test this theory, the correct and incorrect groups were broken down and the groups were compared. After comparing the means, they were then tested for statistical significance.
### Figure 13: Significance of Correct vs. Incorrect Recall against Attitudinal Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Levene's Test for Equality of Variances</th>
<th>Independent Samples Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I am interested in learning more information about this oral contraceptive</td>
<td>Equal variances assumed</td>
<td>F = 1.39, df = 182, t = .000, df (2-tailed) = 1.000, Mean Difference = .000, Std. Error Difference = .164, 95% CI: (.304, 3.04)</td>
</tr>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I believe this oral contraceptive is more effective at clearing acne than traditional oral contraceptives</td>
<td>Equal variances assumed</td>
<td>F = 0.52, df = 182, t = .097, df (2-tailed) = 1.000, Mean Difference = .013, Std. Error Difference = .137, 95% CI: (.357, 2.04)</td>
</tr>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I believe this oral contraceptive offers similar advantages as the previously advertised brand</td>
<td>Equal variances assumed</td>
<td>F = 1.45, df = 182, t = .094, df (2-tailed) = 1.000, Mean Difference = .122, Std. Error Difference = .147, 95% CI: (.168, 4.13)</td>
</tr>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I would be willing to talk to my physician about this contraceptive.</td>
<td>Equal variances assumed</td>
<td>F = 1.06, df = 182, t = .094, df (2-tailed) = 1.000, Mean Difference = .158, Std. Error Difference = .169, 95% CI: (.166, 4.73)</td>
</tr>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I do not believe that this oral contraceptive offers any superior advantages</td>
<td>Equal variances assumed</td>
<td>F = 0.003, df = 182, t = .094, df (2-tailed) = 1.000, Mean Difference = .118, Std. Error Difference = .140, 95% CI: (.168, 3.96)</td>
</tr>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I am likely to discuss this birth control option with close friends</td>
<td>Equal variances assumed</td>
<td>F = 1.05, df = 182, t = .094, df (2-tailed) = 1.000, Mean Difference = .158, Std. Error Difference = .169, 95% CI: (.166, 4.73)</td>
</tr>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I do not believe there are any harmful side effects associated with this pill.</td>
<td>Equal variances assumed</td>
<td>F = 3.235, df = 182, t = .094, df (2-tailed) = 1.000, Mean Difference = .169, Std. Error Difference = .213, 95% CI: (.168, 4.01)</td>
</tr>
<tr>
<td>In response to the previous ad, please indicate the degree to which you agree or disagree with... - I believe that this birth control would fit in well with my lifestyle.</td>
<td>Equal variances assumed</td>
<td>F = 14.4, df = 182, t = .116, df (2-tailed) = 1.000, Mean Difference = .177, Std. Error Difference = .159, 95% CI: (.177, 4.73)</td>
</tr>
</tbody>
</table>
The first question, “I am interested in receiving more information about this oral contraceptive” had the same mean of 2.50 for both the correct and incorrect recall groups. This shows that there was no difference between the two groups in their interest of obtaining information. This could then indicate that being aware of the real side effects would not necessarily hinder someone’s interest in their oral contraceptive choice.

The second question, “I believe this oral contraceptive is more effective at clearing acne than traditional oral contraceptives”, had very similar means, only differing by .01. The mean for the correct group was 2.87 and the mean for the incorrect group was 2.86. There is no statistical difference for the two groups indicating that knowing about the side effects does not necessarily influence the perception of it being more effective at clearing acne.

The third question asked, “I desire a birth control that offers similar advantages as the previously advertised brand”. The mean for the correct recall group is 3.32 and the mean for the incorrect group is 3.20. The group that correctly recalled a side effect is slightly more inclined to agree with wanting similar advantages as Ortho TriRegularis, however, it is not statistically significant.

The respondents were next asked if they would be willing to talk to their physician about this contraceptive. There was a difference between the correct and incorrect groups of .15. The correct group’s mean was 3.06 and the incorrect group was 3.20. There was no significance in being able to recall a correct side effect and being willing to talk to their physician.

The fifth question asked the participants to indicate if they agreed that the birth control did not offer any superior advantages. The group with the correct recall had a mean of 3.27 compared to the mean of the incorrect group at 3.15. This indicates that there is no statistical
difference between paying attention and obtaining a correct side effect and believing that that the contraceptive has superior advantages.

Next, the respondents were asked to indicate if they would be likely to discuss Ortho TriRegularis with close friends. The mean for the correct recall was 2.88 and the mean for the incorrect recall was 2.98. The group that answered might be slightly more inclined to talk to their friends, but it is not significant. The purpose of this question was to see if direct to consumer marketing would influence the women to discuss this contraceptive method with their friends. Additionally, to see if being aware of the potential side effects that come with the drug would inspire a discussion.

The participants were then asked to indicate if they believed there were any harmful side effects that were associated with Ortho TriRegularis. If the respondent answered the recall correctly, then they should be more inclined to think that there are harmful side effects associated with the drug. The response turned out as expected. The group with correct recall had a mean of 1.83 versus the incorrect group’s mean of 2.58. After running an ANOVA test, the means were confirmed to be statistically significant. There is in fact a true difference between those having correct recall of a side effect and thinking there are more harmful side effects.
Figure 14: Comparison of Incorrect and Correct Recall with “I do not believe there are any harmful side effects with this pill”

**Report**

In response to the previous ad, please indicate the degree to which you agree or disagree with th...I do not believe there are any harmful side effects associated with this pill.

<table>
<thead>
<tr>
<th>Correct Answer =1, Incorrect =2</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.83</td>
<td>78</td>
<td>.813</td>
</tr>
<tr>
<td>2</td>
<td>2.58</td>
<td>106</td>
<td>.861</td>
</tr>
<tr>
<td>Total</td>
<td>2.26</td>
<td>184</td>
<td>.916</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>24.749</td>
<td>1</td>
<td>34.990</td>
</tr>
<tr>
<td>Within Groups</td>
<td>128.730</td>
<td>182</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>153.478</td>
<td>183</td>
<td></td>
</tr>
</tbody>
</table>

The last question in the matrix, “I believe this birth control would fit in well with my lifestyle” had similar means across both groups. The correct group had a mean of 2.79 and the mean of the incorrect group was 2.97. The group that answered the side effect recall question wrong may be slightly more inclined to agree that Ortho TriRegularis fits in with their lifestyle,
possibly because they aren’t aware of the potential harm that may ensue. However, this finding is not statistically significant.

The very last question in the survey, aside from demographics, asked the participants to identify the likelihood of obtaining a prescription for Ortho TriRegularis. Considering that there was a statistical correlation between obtaining a correct recall and believing there were harmful side effects, it was expected that the participants who had correct recall would be less inclined to ask for a prescription. The mean for recalling a correct side effect and asking for a prescription is 2.91 compared to the mean of 2.63 for those who incorrectly recalled a side effect. This shows that those who had a correct recall were possibly more inclined to ask for a prescription. After running and independent samples T-test it was found to not be statistically significant. This is surprising because it seems to be that even when the respondent realizes the harmful side effects, they are not dissuaded from asking for a prescription.

**Figure 15: Likelihood of requesting prescription of Ortho TriRegularis compared with Correct and Incorrect Recall of Side Effects**

<table>
<thead>
<tr>
<th>Correct Answer =1, Incorrect =2</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.91</td>
<td>58</td>
</tr>
<tr>
<td>2</td>
<td>2.63</td>
<td>76</td>
</tr>
<tr>
<td>Total</td>
<td>2.75</td>
<td>134</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Equal variances assumed</td>
</tr>
</tbody>
</table>

[37]
<p>| Please indicate the likelihood of requesting a prescription of Ortho TriRegularis from your health...Likelihood | Equal variances not assumed | .494 |</p>
<table>
<thead>
<tr>
<th>Correlation</th>
<th>In response to the previous ad, please indicate the degree to which you agree or disagree with th. I believe this oral contraceptive is more effective at clearing acne than traditional oral contraceptives.</th>
<th>In response to the previous ad, please indicate the degree to which you agree or disagree with th. I believe this oral contraceptive offers any superior advantages than the previously advertised brand.</th>
<th>In response to the previous ad, please indicate the degree to which you agree or disagree with th. I believe th. I do not believe that the oral contraceptive offers any superior advantages than the previously advertised brand.</th>
<th>In response to the previous ad, please indicate the degree to which you agree or disagree with th. I do not believe th. I do not believe that the oral contraceptive offers any superior advantages than the previously advertised brand.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>0.600</td>
<td>0.600</td>
<td>0.600</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>N</td>
<td>104</td>
<td>104</td>
<td>104</td>
<td>104</td>
</tr>
</tbody>
</table>

**Figure 16: Comparison against Attitudinal Measures after receiving Birth Control Ad**

**Notes:**
- **Correlation is significant at the 0.01 level (2-tailed).**
- **Correlation is significant at the 0.05 level (2-tailed).**
The last analysis done on the survey results was to run a correlation report to see if any of the questions seen after the survey had correlated answers, regardless of minor v. major of correct v. incorrect.

Comparing the question “I believe this oral contraceptive is more effective at clearing acne than traditional oral contraceptives” against “I am interested in receiving more information about this contraceptive” showed that there was a positive correlation of .449 between the two. Those who believed that Ortho TriRegularis was more effective at clearing acne were also more interested in receiving information. This was to be expected. If one believes that something works better that the method currently available, then one would expect them to seek out more information.

Next the question “I desire a birth control that offers similar advantages as the previously advertised brand” was compared to “I am interested in receiving more information about this contraceptive”. These questions had a positive correlation of .441, indicating that those who sought similar advantages would be more interested in receiving more information.

“I would be willing to talk to my physician about this contraceptive” was compared with “I am interested in receiving more information about this contraceptive”. Again, there was a positive correlation of .564. This shows those who indicated they would talk to their doctor would be interested in receiving more information.

Next “I do not believe that this oral contraceptive offers any superior advantages” was correlated with “I am interested in receiving more information about this contraceptive”. Here a negative correlation of .364 emerged. Those who were not interested in further information believed that Ortho TriRegularis did not offer any advantages. It makes sense that these are
correlated since you would not expect one to want more information on a drug they believe does not offer anything advantageous.

Moving along, “I am likely to discuss this birth control option with close friends” was correlated against, “I am interested in receiving more information about this contraceptive”. There was a positive correlation of .491. This shows that those who would talk to their friends would also be interested in receiving more information.

Next, “I do not believe there are harmful side effects” was measured against “I am interested in receiving more information about this oral contraceptive”. A positive correlation of .284 emerged, showing that those who believed the drug to be harmless would be interested in receiving more information.

Following the last correlation, “I believe that this birth control would fit in well with my lifestyle” was correlated with, “I am interested in receiving more information about this contraceptive”. A strong correlation of .515 surfaced. Those that believe that this pill would fit in with their lifestyle (pregnancy prevention while controlling for acne) would be more inclined to receiving more information.

Next, “I desire a birth control that offers similar advantages as the previously advertised brand” was compared to, “I believe this oral contraceptive is more effective at clearing acne than the traditional oral contraceptive”. There was a correlation of .279 indicating that the respondents who thought it would be more effective also desired a birth control with similar advantages.

“I would be willing to talk to my physician about this contraceptive” was compared to, “I believe this oral contraceptive is more effective at clearing acne than the traditional oral
contraceptive”. There was a positive correlation of .376. This shows that those who believed the drug to be more effective would be more inclined to reach out to their physician.

Next, “I do not believe this oral contraceptive offers any superior advantages” was compared to, “I believe this oral contraceptive is more effective at clearing acne than the traditional oral contraceptive”. There was a negative correlation of -.330. Those who thought the contraceptive was more effective did not think that the drug was lacking in superior advantages.

The questions, “I am likely to discuss this birth control option with close friends” and, “I believe this oral contraceptive is more effective at clearing acne than the traditional oral contraceptive” were compared next. A positive correlation of .418 emerged. This indicates that those who would discuss with friends are also likely to believe that it is more effective at clearing acne. This also shows that the advertising has done its job effectively. It has communicated its advantages, and those who perceive it to be effective at clearing acne are then more likely to relay this message along to their friends. This could then theoretically impact their friends’ perceptions of the drug.

Next, “I do not believe there are harmful side effects associated with this pill” was compared to, “I believe this oral contraceptive is more effective at clearing acne than the traditional oral contraceptive”. This had a positive correlation of .257. Those who do not think there are harmful side effects also believe that the oral contraceptive is more effective at clearing acne.

When the questions, “I believe this birth control would fit in well with my lifestyle” and, “I believe this oral contraceptive is more effective at clearing acne than the traditional oral
contraceptive” are compared, a positive correlation of .368 emerges. Those who think Ortho TriRegularis would fit in with their lifestyle also believe it is more effective at clearing acne.

Next the question, “I would be willing to talk to my physician about this contraceptive” was compared to, “I desire a birth control that offers similar advantages as the previously advertised brand”. There turned out to be a correlation of .493. Those who would talk to their physician were more likely to desire a similar birth control.

“I am likely to discuss this birth control option with close friends”, was compared to, “I desire a birth control that offers similar advantages as the previously advertised brand”. There was a positive correlation of .349. Those who would talk to their friends, desired a birth control with similar advantages.

Next, “I do not believe there are any harmful side effects associated with this pill” was compared to, “I desire a birth control that offers similar advantages as the previously advertised brand”. While there was a positive correlation of .175, it was only significant at the 0.05 level. This correlation is not as strong as most of the others mentioned, but it does show that those who believe there are not any harmful side effects are more likely to desire similar advantages as Ortho TriRegularis.

The next questions compared were, “I believe this birth control would fit in well with my lifestyle” and, “I desire a birth control that offers similar advantages as the previously advertised brand”. There was a positive correlation of .516 associated with these questions. Those who thought Ortho TriRegularis would fit in with their lifestyle also desired similar advantages.

Moving along, “I do not believe that this oral contraceptive has any superior advantages” was compared to, “I would be willing to talk to my physician about this contraceptive”. There
was a negative correlation of -0.305. This shows that those who are willing to talk to their physician do not think that the oral contraceptive lacks superior advantages.

Next, “I am likely to discuss this birth control with close friends” was compared to, “I would be willing to talk to my physician about this contraceptive”. A positive correlation of .576 emerged. This is the highest correlation from the entire table. Those who are likely to discuss with friends are more likely to talk to their physician than any of the choices from this matrix. As mentioned previously, if they are willing to talk to their friends, and talk to their physician about a drug that they were first exposed to in an advertisement, than the direct to consumer marketing must have had some effect on them.

Next, “I believe that this birth control would fit in well with my lifestyle” was compared to “I would be willing to talk to my physician about this contraceptive”. Another strong correlation of 0.573 appeared. Those who thought it would fit with their lifestyle would also be willing to talk to their physician.

Moving across the matrix, “I am likely to discuss this birth control option with friends” was compared to, “I do not believe this oral contraceptive offers any superior advantages”. There was a negative correlation of -.277 associated with the questions. Those who are likely to discuss the birth control with their friends are also more likely to disagree with the oral contraceptive doesn’t offer any superior advantages.

Next, “I believe this birth control would fit in well with my lifestyle” was tested against, “I do not believe this oral contraceptive offers any superior advantages”. There was a slight negative correlation of -.178, indicating those who thought the pill would fit in with their
lifestyle, disagreed with thinking that the oral contraceptive didn’t have any superior advantages. However, this was only significant at a .005 level.

The questions, “I do not believe there are any harmful side effects associated with this pill” and, “I am likely to discuss this birth control option with close friends” were compared next. A correlation of 0.199 was shown. Those who didn’t believe there were harmful side effects are likely to talk about Ortho TriRegularis with their friends.

Next, “I believe this birth control would fit in well with my lifestyle” was compared to, “I am likely to discuss this birth control option with close friends”. A positive correlation coefficient of .437 occurred, showing that those who believed that Ortho TriRegularis fit in with their lifestyle.

Lastly, “I believe this birth control would fit in well with my lifestyle” was compared to, “I do not believe there are any side effects associated with this pill”. There was a positive correlation of 0.343. This shows that those who believe the birth control would fit in well with their lifestyle also more likely to believe that there aren’t any side effects associated with Ortho TriRegularis.

**Conclusions:**

Through analyzing the data corresponding to the survey, certain conclusions can be drawn about the influences the advertisement had on the respondents. The first is that the more serious the side effects mentioned within the advertisement, the less likely the viewers were to think that there could possibly be an effective secondary advantage. In this case, the secondary advantage was the ability to clear skin. In the eyes of a potential consumer, it is hard to fathom that a drug with such serious side effects as liver tumors and arterial thromboembolisms would
be worth the relatively minor benefit of clearing mild to moderate acne. There is a fine line in marketing pharmaceuticals with sharing the advantages that a certain drug offers along with the requirement of informing prospective users of the potentially adverse consequences. We can see here that being faced head on with serious consequences does change the perception in the consumers mind about the efficacy of the drug. Therefore it makes sense for print advertisements to often list side effects in an inconspicuous location on the ad. Typically, they are located in small print and on the backside of the advertisement.

Participants that viewed the advertisement with major side effects listed, were more inclined to ask for a prescription. Drawing from this we might assume that some of those who received the ad showing more adverse consequences may not have fully understood the medical terminology used to explain them, and therefore more receptive to the positive advertising surround the drug. Since the minor side effects that were listed are relatively common, we might say that a consumer that understands the risks is less likely to take them on with a prescription. Those who obtained the serious risks may be more inclined to place the misunderstood consequences out of mind and ask for a prescription. In this case we would see that the promotion of clearer skin overshadows serious health implications. This is why it is so important for a physician to provide full disclosure of risks to the patient and for pharmaceutical companies to discuss risks in terms that consumers can easily understand. Oral contraceptives are currently not covered under the learned intermediary doctrine. This means that if a physician does not thoroughly discuss consequences, and a serious complication were to arise, then the doctor would not be held at fault. From this research we can see how some potential users do not understand what they could be getting themselves into. It then makes sense that a revision to the learned intermediary doctrine would be in order to include contraceptives under its umbrella of
coverage. If the learned intermediary doctrine were to be in place for contraceptives, more
conversation between patient and physician could possibly be facilitated and any
misunderstandings that a patient may have had would be clarified.

Extending the previous conclusion, the last findings center on the correct recall of a side
effect with the perception that the drug is harmful and the probability of requesting a
prescription. Those who correctly identified a side effect perceived Ortho TriRegularis to be
more harmful than those who had an incorrect recollection. We can then assume that those who
had correct recall must have paid more attention to the advertisement, as a whole. One would
then assume if the respondent paid more attention to the ad, and took note of the harmful
consequences, then the probability of them asking for a prescription would be less than the
incorrect recall group. However, on average, participants with correct recall were more prone to
requesting a prescription, even though they realized it could be dangerous. In this case,
participants must have believed that the clear skin advantage along with pregnancy prevention
outweighed the other side effects. But we must ask, did those who noticed the side effects,
actually understand what they were reading? A possible explanation is that yet again, the
participants did not fully understood the side effects that they were looking at. If this is the case,
pharmaceutical companies should take note and realize that the common consumer of their
product probably does not fully understand the medical terminology used in the drug’s
advertising. Therefore, language and descriptions that can be easily understood need to be
implemented. Additionally, this conclusion strengthens the argument that oral contraceptives
need to be included under the learned intermediary doctrine. They need to be included in this
doctrine because there is a clear misinterpretation from advertisements on the severity of the side
effects that could occur. Patients need the extra information that their physicians can provide so
that they may make an informed decision in weighing the pros and cons when deciding to take an oral contraceptive, especially if it is to gain an advantageous secondary effect. Without the legal ramifications that may result under the learned intermediary doctrine, there is not as strong of a guarantee for them to receive this information.
References


