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International Family Planning: How Political and Religious Conservatives Respond and How to Shape Messaging for Successful Advocacy

Advocacy for International Family Planning: What Terminology Works?

Calling a Spade a Spoon: Are Non-American Donors Likely to Need the Same "Reshaping" of Terms for International Family Planning?

Contraceptives Can Unite Us







Volume 17 • Number 1

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### From the Editors

his issue of World Health & Population includes discussion of several compelling and relevant topics, given the current highly politicized climate.

We begin with a thought-provoking piece from Dyer and colleagues (2016), at the US-based Hope through Healing Hands, who discuss the implications of a survey commissioned in 2016 that utilized the same sampling and questions to contrast results with a survey from 2013. The intent was to look at variations in how a politically engaged public, including political and religious conservatives (PRCs), understand and interpret issues around international development and family planning. One of the most striking results was the finding that PRCs now indicate a more positive belief in the relationship between contraceptives, women in developing countries, and saving lives. Dyer et al. (2016) further explored the beliefs of this group towards the language of family planning, and found PRCs are most comfortable with clear and understandable language, such as contraceptives. Based on this finding, the authors offer practical tips and insights on how to discuss and message international family planning when advocating with conservative groups.

Given the current relevance of this discussion, the editors invited several related organizations to respond to the findings presented by Dyer et al. (2016). The first commentary from Huber et al. (2016), at Christian Connections for International Health, agrees that communicating with politically and religiously conservative groups requires careful use of language, and clear

explanations of meaning. They suggest that emphasis on language such as "healthy timing and spacing of pregnancy" resonates with policy makers and reinforces the health impact for women and children.

The second response, by Norman and Mazza (2016), who are from Canada and Australia, respectively, suggests that concerns around the language used when advocating for international family planning may not be a concern outside of the US. They suggest that the bigger challenge globally is the need to establish common understanding around reproductive health issues. They encourage identification of effective, factual communications that support women and their families in achieving their reproductive goals – and ensure improved health, education and prosperity.

The third response comes from Ehlers et al. (2016) at PAI (formerly Population Action International) based in the US. The authors applaud the analysis of Dyer et al. (2016) regarding their work on understanding the perceptions of political and religious conservatives, but take exception to what they perceive as an over emphasis on "healthy timing and spacing of pregnancies." They express concern that this focus does not adequately support the needs and rights of the unmarried, adolescents and youth, survivors of sexual violence or those who do not wish to have children.

Following the discussion on international family planning, we direct your attention to a research paper from Sills et al. (2016), who describe their investigations into the economic impact of unplanned pregnancy following hysteroscopic sterilization, with a specific focus

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on the Essure® procedure. Since its introduction in 2002, there has been disagreement about the procedure's efficacy, and no studies had been conducted into the implications when it fails. Using conservative estimates of potential unplanned pregnancies and gross annual income within the cohort of 600,000 women who have received the procedure, the authors suggest the economic cost of the procedure's failure may be as high as \$130 million (US).

The final paper in this issue looks at another issue related to women's health. Khademvatan and colleagues (2016) in Iran report on their research into the relationship between the protozoan *Toxoplasma gondii* and mental health. The researchers found that infected women had significantly lower scores in somatic symptoms such as anxiety, insomnia and depression, compared

with non-infected women. Yet, there were no appreciable differences in these symptoms when comparing infected and non-infected men. The authors conclude that infection with *T. gondii* is a risk factor for women's mental health, and that infection control programs must be developed.

We trust you will find value in these various studies and reports, and look forward to your comments and emails (direct them to dkent@longwoods.com). In the next issue of World Health & Population, we will bring you a discussion paper and commentaries that will explore issues related to population consultation as a tool to ensure that local health strategies are oriented towards universal health coverage.

- The Editors

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## International Family Planning: How Political and Religious Conservatives Respond and How to Shape Messaging for Successful Advocacy



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#### **Abstract**

As a global health organization committed to advocacy and research, Hope Through Healing Hands directed two national polling projects. The 2016 National Survey of Registered Voters Tracking was a longitudinal study to compare and contrast the results from a 2013 national polling project with the same sampling and questionnaire. The primary finding here was that in 2016, conservatives show

a statistically significant shift indicating greater, more positive, beliefs in the correlation of contraceptives and women in developing nations and saving lives, although the rest of the populace (moderates and liberals) remained unchanged. In the Optimized Messaging Study of Political, Religious Conservatives (PRCs), we examined emotionally and cognitively held beliefs and attitudes toward the language of family planning. We found that PRCs resonate best with language that is clear and understandable, such as contraceptives. Moreover, this group bases their opinion on family planning on their own morals and beliefs.

#### **Background**

As international development efforts increasingly focus on enhancing individual capabilities and promoting sustainable outcomes, one of the key objectives of many global health organizations has become to promote reproductive, maternal, newborn and child health. One major component of policy that can improve outcomes for mothers and children concerns family planning, with an emphasis on healthy timing and spacing of pregnancies, as well as supported counseling for, education about and access to contraceptives.

In 2013, with support from the Bill and Melinda Gates Foundation, the Winston Group conducted research to understand how the politically engaged public, including conservative audiences, understood and interpreted issues related to international development and family planning. That research provided guidance on the core issues of international family planning and highlighted messages on the topic that would resonate most effectively with conservative audiences.

Three years later, Hope Through Healing Hands has commissioned a three-part opinion research project aimed at building on the 2013 findings that involves data gathering and analysis of conservative people of faith across the US. These included Catholics, mainline and conservative Protestants and other conservatives, to determine the attitudes and beliefs in regard to the language/rhetoric and concepts of, as well as the rationale for, international family planning.

Our goal in this research was twofold. First, we hoped to determine whether overall public opinion has shifted meaningfully since the 2013 research. Second, we sought to assess the efficacy of language/rhetoric and concepts for educating and activating faith communities and other conservative populations in the US towards advocacy efforts for international family planning. This report contains the primary findings of this project, directed by Hope Through Healing Hands, administered by Echelon Insights and analyzed by researchers at Peabody College, Vanderbilt University. The findings are aimed at providing actionable guidance to partners and advocates for programs that support healthy timing and spacing of pregnancies in the developing world.

#### Introduction

"Family planning" has been at the heart of the US culture wars for the past 45 years. Among conservatives, this phrase is often construed as a euphemism for "abortion," which tends to be a confounding issue where policy considerations are concerned. In 2015, 19% of the public believed that abortion should be illegal under all circumstances, and 51% believed it should be legal only under certain circumstances. Moreover, 44% self-identified as pro-life (GALLUP.org 2015). And while a majority of Americans may now be favorably disposed to a "pro-life" position, concerns about abortion are the "elephant in the room," as we seek to rethink the rhetoric, concept and dialogue with religious and political conservatives associated with family planning for women in the developing world.

In 2013, the Winston Group, as part of the research agenda of the Bill and Melinda Gates Foundation, conducted a national survey among registered voters, with a special focus on conservatives, with regard to the messaging and attitudes related to contraceptives for women in developing nations. Based on their descriptive analyses, the Winston Group concluded that, when contraceptives were specifically coupled with the outcomes of "education" or "saving lives," conservatives' attitudes showed striking support for access to contraception for these women.

This finding was particularly helpful to organizations in the arena of family planning policy and advocacy, particularly with regard to those who live in the American heartland, in terms of developing messaging related to contraceptives. Specifically, policy makers and advocates came to understand the need for careful messaging to educate and activate conservatives to reconsider the critical importance of family planning in the lives of women and children around the world.

Although this study was a helpful start, we also believe that there were limitations worth noting. First, the survey tool that was administered was quite lengthy and likely had a strong priming effect. When respondents were finally asked questions about women and access to contraceptives (Q26), he or she had already been informed/influenced about the issues through previous questions for about 12–15 min. Further, the answers to the questions (agree/disagree/neutral) were posed in a such way that may have allowed the respondent to remain a "distanced observer," as there were no direct questions about a respondent's opinion, as it involved our government or the respondent's own involvement in the issues surrounding international family planning.

Because the poll was conducted by landline telephone, there could also have been a *mode effect of social desirability*, that is, the respondents wished to appease the moderator with positive responses. Moreover, congruent with literature on survey research, it is highly likely

that the use of landline phones had a significant effect on the representativeness of the sample. Perhaps most importantly, the larger concept, or construct, of family planning or international family planning was not tested.<sup>1</sup>

Hope Through Healing Hands and other organizations have been working for the past few years in the conservative, faith-based arena to bring about awareness of the issues of international family planning in developing nations. Thus, for continued effective advocacy, it was essential to assess the attitudes towards and the emotional and cognitive responses to the rhetoric and adjacent issues related to international family planning in US foreign assistance.

To do so, we directed a separate national polling project focused on individuals who identify as politically and religiously conservative.2 For this research, we administered a two-part, "Optimized Messaging Survey" (OMS) that made use of a mixed-method (qualitative and quantitative) approach and tested the use of certain language associated with international family planning. It is important to note that these political, religious conservatives (PRCs) are different from self-identified conservatives, by degree, in the National Survey of Registered Voters Tracking Study (2013–2016). In order to be consistent with Winston's previous research, we used their same sampling methodology in replicating the Tracking Study, which involved a much simpler screening/determination of conservative orientation of respondents. As described later, the OMS study used a sophisticated process to create a stratified random sample of PRC respondents.

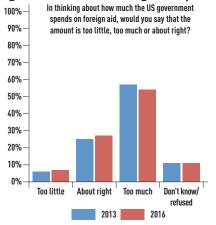
Thus, we conducted three separate, but related pieces of research:

- 1. National Survey of Registered Voters Tracking Study (2013–2016).
- 2. Part Optimized Messaging Study of Political, Religious Conservatives.
- 3. Focus Groups of Religious, Political Conservatives in Indianapolis, IN.

#### National Survey of Registered Voters Tracking Study (2013–2016)

To begin, the good news for everyone who works in the fields of international health and development is that the attitudes across sectors – conservatives, moderates and liberals – regarding foreign aid spending remain largely stable (Figure 1).

Figure 1. Tracking study – Opinion of all registered voters on foreign aid spending



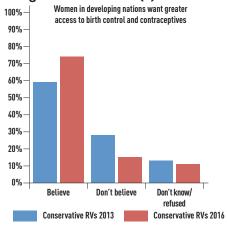
Interestingly, however, there have been significant changes in the opinions on access to contraceptives. Conservatives show a statistically significant shift between 2013 and 2016, indicating greater, more positive beliefs in the following statements:

- Women in developing nations want greater access to birth control and contraceptives (Figure 2).
- If there were greater access to contraceptives in developing countries, women's lives could be saved (Figure 3).

These findings represent very encouraging news for those on the front-lines of awareness and advocacy among conservatives for international family planning issues.

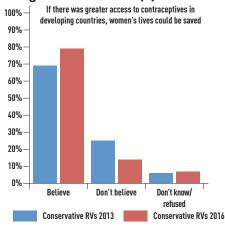
Although the rest of the populace (moderates and liberals) remains unchanged, there is movement among conservatives. This could signal that our collective effort in the field with this group is working (Figures 2 and 3).

Figure 2. Tracking study – increase in positive beliefs about contraceptives among conservative RVs (A)



RVs = registered voters.

Figure 3. Tracking study – increase in positive beliefs about contraceptives among conservative RVs (B)



RVs = registered voters.

Unfortunately, we are unable to empirically compare the results for the PRCs of the OMS, presented below, with those of the tracking study above. As noted above, the respondents in the tracking study above self-identified as "very conservative," "somewhat conservative," "moderate," "somewhat liberal" or "very liberal." However, we do not know the basis on which they are making these identifications. For example, an individual might be fiscally conservative but socially progressive.

Moreover, we have no way of identifying among these conservatives who are specifically political or religious conservatives.

Nevertheless, to hone in on the population of interest, Yougov.com developed a highly sophisticated sampling protocol for the OMS. Specifically, a stratified random sample of PRCs was constructed by using responses to questions about beliefs, rituals and practices in their religious and political lives from existing social surveys.

## Optimized Messaging Study of Political, Religious Conservatives

This study took a psychologically conscientious approach to ascertain, among PRCs, raw responses – emotionally and cognitively – to family planning, international family planning, contraceptives and healthy timing and spacing of pregnancies. We sought to obtain a neutral, psychosocial, unbiased response (with efforts to reduce any priming or mode effect or related issues) to the language, constructs and arguments of the current messaging that is used to educate and activate religious, political conservatives to join in support for US Government funding for international family planning.

For that reason, after one warm-up question, we asked an open-ended question, "What is the first thing you think of when you read or hear the term 'family planning'?" and then, subsequently, the same question for international family planning, healthy timing and spacing of pregnancies and contraceptives. We also used a seven-point Likert scale, including an "I don't know" option. The responses among this sample of conservatives were quite candid, with a significant difference by race between blacks and whites.3 We, in addition, tested for differences between income levels, age groups, education levels and gender, but we found little to no significant differences; where notable differences were found, they are discussed in turn.

These open-ended questions allowed for the coding of responses. This coding was translated into word clouds aggregated by those that offered positive, neutral or negative responses. For the purposes of the summary, the negative cloud for international family planning and the positive cloud for contraceptives are shown below.

#### Family planning

Overall, when PRCs are asked about family planning, 28.6% responded positively, 22% were neutral, yet 40% were negative. The qualitative coding on family planning shows that those who view the term negatively, by and large, equate it with abortion; white PRCs correlated family planning with abortion 190 times and listed Planned Parenthood 67 times.

Black PRC respondents do not feel as negatively about family planning, on the whole, as do white respondents. Those who do feel very negative towards the phrase (only six respondents, or 10%), however, do so for the same reasons as their white counterparts: they associate it with abortion and, thus, view it as bad. Because we need absolute clarity among PRCs that international family planning, in fact, does not include abortion because of the Helms Amendment of 1973, we recommend other verbiage be used to garner support from this group.

#### **International Family Planning**

When presented with the same question about international family planning, the overall numbers of positive responses decreased by half among most demographics. Here, only 18% were positive, and 33% were negative.

The phrase international family planning garnered even more negative responses among white PRC's, for whom significantly more confusion was noted: >25% of the respondents did not know what the term meant. This is a salient point; specifically, lack of clarity due to either misinformation or a lack of

information makes this a problematic phrase to use with this group of people.

Of the very negatives, abortion was cited 84 times, which was less than the 190 times for family planning. Planned Parenthood was mentioned a few times, but "government control" and "overreach" were the more prevalent themes. Several people even mentioned China's one-child policy.

The black PRC respondents were also confused by the phrase international family planning. Specifically, 14 stated that they did not know what it meant, up from 4 on family planning. As with family planning, all those who responded very negatively cited abortion in their open-ended response. The responses of the somewhat negative ran the gamut from abortion to citing the United Nations to simply asking, "What is this?", suggesting in such cases that, although they did not know what it was, they did not like it.

Overall, this phrase is problematic for both blacks and whites because neither group understands what it actually means. It appears that the support that is there is often misinformed in terms of what international family planning actually entails.

The Figure 4 negative word cloud illustrates how PRC respondents immediately responded to the term "international family planning," whereby the larger fonts denote the greater quantity of times by which the word(s) were coded.

#### **Healthy Timing and Spacing of Pregnancies**

This phrase garnered a much more positive response from white PRC respondents. Of the 816 white respondents surveyed, 40% responded very positively or somewhat positively. Of those who responded positively, between 33% and 40% were accurately able to describe the goal: to protect the health of the mother and baby. This tells us that understanding is critical for positivity.

In addition, 203 (25%) were neutral. Only 113 (~14%) had a very negative reaction, and 59 (7%) had a somewhat negative reaction.

This indicates that 21% responded negatively as compared with 43% who responded negatively to family planning and 39% who responded negatively to international family planning. Notably, the majority of respondents still did not respond positively, although 35 respondents were unsure, and 86 did not know what healthy timing and spacing of pregnancies meant.

Black PRC respondents were much more positive in their reactions to healthy timing and spacing of pregnancies than to international family planning. Specifically, 41 (63%) were somewhat or very positive. Only 10 (6%) were very or somewhat negative, 10 (6%) were neutral and 10 (16%) were either unsure or didn't know what it meant.

Here, the largest difference between white and black respondents is that none of the black respondents equated this phrasing with abortion. Abortion was not mentioned by any of the black respondents. Those who are negative about it seem to be so because of perceived government overreach or control.

The Figure 5 word cloud illustrates the positive reaction to "healthy timing and spacing of children" among PRC respondents.

#### **Contraceptives**

Somewhat surprisingly, as compared to healthy timing and spacing of pregnancies, contraceptives received the most positive reaction from white PRC respondents. Specifically, 51% had a very positive reaction or a somewhat positive reaction, while 31% were neutral. Only 15% were negative, with only 8% who were very negative.

Those 226 (28%) who were very positive talked largely about birth control, condoms, preventing pregnancy and related concerns; see the Figure 6 word cloud. Specifically, 172 (76%) who were very positive mentioned some form of birth control. In addition, 22 (10%) simply stated that it was smart or a good idea. Finally, 146 (77%) of the somewhat positive respondents talked about birth control, condoms, preventing pregnancy and related concerns.

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Figure 4. OMS Study - open-ended negative responses of PRCs to "family planning"

OMS = Optimized Messaging Study; PRCs = Political, Religious Conservatives.

Figure 5. OMS study - open-ended positive responses of PRCs to "HTSP"



HTSP = healthy timing and spacing of children; OMS = Optimized Messaging Study; PRCs = Political, Religious Conservatives.

Figure 6. OMS study – open-ended positive responses of PRCs to "contraceptives"



OMS = Optimized Messaging Study; PRCs = Political, Religious Conservatives.

Interestingly, age cohorts had a statistically significant difference: Those in their mid-40s to mid-60s had a somewhat positive response to the phrase contraceptives, whereas those who were younger, mid-20s to 30s, were more neutral.

Of those who were very negative, 10% mentioned abortion, and 22% cited the pill,

birth control or condoms. The somewhatnegatives were more likely to mention the pill or birth control, 33 (58%), and less likely to mention abortion, 4 (7%). It should be noted that there is a statistically significant difference between the responses of politically and religiously conservative Hispanics compared with blacks and whites, whereby the latter two groups are more positive. It is possible that this is because Hispanics tend to be Catholic and are influenced by teachings against hormonal contraception.

Black respondents were again overwhelmingly positive in their response to contraceptives. Specifically, 40 (65%) were very or somewhat positive, the same as were very or somewhat positive about healthy timing and spacing of pregnancies. However, fewer were very or somewhat negative about contraceptives, i.e., 10 (6%) for contraceptives and 6 (10%) for healthy timing and spacing of pregnancies. This mirrors what was seen with white respondents, as only 122 (15%) responded negatively to contraceptives, whereas 171 (21%) responded negatively to healthy timing and spacing of pregnancies.

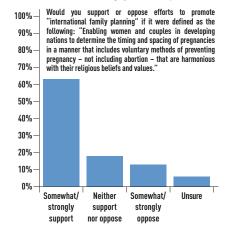
Based upon all of our data collection and analysis, we argue that the terms family planning and international family planning should not be used among religious conservatives. The phrase healthy timing and spacing of pregnancies garners more neutral support, but contraceptives receives the most positive reactions and the least negative reactions, we believe because of the assumed understanding of the definition.

Using the definition of international family planning contained in the following question as a cornerstone for the study, we find that, when international family planning is fully defined and explained as below – emphasizing that it differs from abortion – there is much greater support (Figure 7):

Enabling women and couples in developing nations to determine the timing and spacing of pregnancies in a manner that includes voluntary methods of preventing pregnancy – not including

abortion – that are harmonious with their religious beliefs and values.

#### Figure 7. OMS Study – positive response by PRCs when provided a definition of international family planning



OMS = Optimized Messaging Study; PRCs = Political, Religious Conservatives.

Figure 7 shows a critical increase in support by PRC respondents, compared with the results on international family planning, suggesting that a new definition of international family planning, with clarity, addressing personal autonomy and the absence of abortion, resonates well among the majority of religious conservatives.

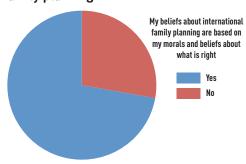
Although the previous terms that were analyzed showed a statistically significant difference in terms of race between blacks and whites, here, we see no significant difference between races, with almost all, on average, stating that they would somewhat support efforts to promote international family planning.

#### Beliefs about international family planning

We sought to ascertain the foundation or source of beliefs about international family planning. We were concerned with whether PRC respondents base their responses on how the issue affects society and culture; the financial or economic impact of the issue; the politics or policy surrounding the issue; and personal, individual morals and beliefs about what is right. Respondents, 718 of the

1,000 (72%), overwhelmingly stated that personal morals and beliefs determined their emotive and rational responses to international family planning (Figure 8).

Figure 8. OMS Study – source of beliefs among PRCs about international family planning



OMS = Optimized Messaging Study; PRCs = Political, Religious Conservatives.

We believe this finding is highly beneficial, as we seek to promote awareness among PRCs, change minds, stimulate positivity and move this group to advocacy. To shift an individual from negative to neutral to positive to action, we must appeal with arguments that will shape personal morals and beliefs in regard to international family planning.

The messenger is also of import. In our survey, we found that PRC respondents trust the beliefs of their pastors or ministers on what can best help those who live in developing countries, albeit blacks more so than whites. However, it should also be taken into consideration that decision-making is rarely this linear or unidirectional, and respondents are often unaware of the myriad of influences on their perceptions.

#### Next Steps: How to Discuss and Message International Family Planning to Political, Religious Conservatives

In OMS, we experimented with a new mixed-method approach to collect data about full statements, as well as phrases within the statements. The goal was to ascertain whether certain phrases resonated more positively on international family planning messaging in terms of associated issues, e.g., education,

prevention of mother-to-child transmission, HIV/AIDS, gender equality, sex trafficking or governmental programs.

Unfortunately, we found that this particular method did not elicit the specific results we were seeking with any statistical significance. In all cases, most people agreed with each of the statements. Further, if they agreed with the statement as a whole, they generally agreed with the separate phrases inside the statement as well. The encouraging news is that most people are neutral or positive about each statement on international family planning, which means there is room for positive movement.

The data analysis and our own anecdotal experience tell us that using messaging that has tested positively among PRCs can motivate this constituency to action, including sustained advocacy efforts.

New rhetoric, transparent language and clear messaging about using contraceptives for women and families worldwide to time and space their pregnancies are key. Avoiding the social constructs and symbolism of abortion, Planned Parenthood (or planning language generally) and governmental control with international family planning are also critical.

Coupling such nuanced use of language should be the rationale, or argument, to shape belief. In ranking order, we recommend the following in terms of articulating the critical importance of international family planning to PRCs:

• First, debunk, head on, the myth that foreign assistance through the US Government (or multi-lateral institutions) has not worked, reminding PRCs that it remains <1% of the budget. Share the data from the historic initiative, the US President's Emergency Plan for AIDS Relief (PEPFAR) (e.g., from 50,000 people in Africa on antiretrovirals [ARVs] in 2002 to over 15 million in 2015).

- Doing so discloses the goal early, offers transparency and legitimizes the "disliked" governmental programs with facts from the beginning.
- Second, contextualize international family planning by framing the challenges in developing nations. Remind religious conservatives that we are talking about issues among populations who live on <\$1/day. Multiple issues are at stake, and contraceptives are one, albeit central, solution that can address many other issues, including extreme poverty, lack of education and high mortality.
- Third, explain that healthy timing and spacing of pregnancies save lives of mothers and newborns and children worldwide. Contraceptive access then becomes a life-and-death issue, combating both maternal and infant mortality. Although not statistically significant, we found that this language, coupled with that of allowing girls to stay in school, enabling mothers to provide for their families and empowering women and families to thrive, generally resonates well among religious conservatives.
- Finally, framing the issue in terms of "Our Christian faith calls us to serve others" reminds conservatives of duty, morality, ethics and the gospel message to serve the poor and oppressed. Quoting scriptures to uplift vulnerable populations and to speak up on behalf of the poor allows advocacy to truly become a Christian practice that is worthy of attention and action both at home and in the church.

#### **Conclusions**

These studies, which included focus groups, offer a window into the psychology of conservatives, as they think and feel with regard to the issues of international family

planning. We sought an unbiased emotional and cognitive response to assess the raw attitudes of PRCs. Moreover, we tested various forms of rhetoric, language and rationale to discover which messaging would resonate best, statistically, among PRC respondents.

We conclude that leading with easily understood language, such as contraceptives, elicits the strongest, most positive results among whites and blacks.

What not to use, in terms of language, may even be more important than what language to use. We find that PRCs are fundamentally opposed to "planning" language, and we recommend relinquishing its use among this group and rethinking policy and legislation writing for stronger, bipartisan support.

There is much more research to be done, but, for now, these studies show positive movement among conservatives and PRCs. We recommend more research on minority racial groups of PRCs, with a special focus on blacks and Hispanics. We note that the construction of the region variable in this survey did not allow us to analyze meaningful regional differences; thus, we recommend further research on differences between geographical areas and cultural dispositions. Honing the data and analysis that we currently have at hand, we hope to continue on the path to educate and activate PRCs to advocate for increased US Governmental funding and access to contraceptives for women and families in the developing world.

#### Notes

- 1. In the national survey of *N* = 1,000 "religious conservatives," they were defined as those who:
- Describe themselves as politically conservative ("conservative" or "very conservative") on a five-point ideology scale in response to the question, "In general, how would you describe your own political viewpoint?"

- Describe themselves as considering religion to be "very important" or "somewhat important" in their lives in response to the question, "How important is religion in your life?"
- 2. The survey was conducted 16–22 January 2016, of panelists selected by YouGov from their pool of online panelists who met the above criteria in their respondent profile. YouGov estimates the margin of sampling error for the overall sample to be ±4.1%.
- 3. For the OMS, the demographic breakdown for race was the following: White = 816; Black = 63; Hispanic = 58; Asian = 15; Native = 10; Mixed = 21; and Other = 17.

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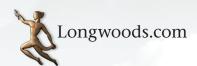
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16 COMMENTARY

# Advocacy for International Family Planning: What Terminology Works?



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#### **Abstract**

Advocating for international family planning while avoiding miscommunications with politically and religiously conservative policy makers and the public requires care and clarity with language. We find that terms such as "international family planning" are well received when the meaning is clearly explained, such as "enabling couples to determine the number and timing of pregnancies, including the voluntary use of methods for preventing pregnancy – not including abortion – harmonious with their beliefs and values". Family planning also helps reduce abortions – a powerful message for conservative policy makers and the public.

We concur with Dyer et al. (2016) that the messenger is important; we find that many of the most effective advocates are religious leaders and faith-based health providers from the Global South. They know and validate the importance of family planning for improving family health and reducing abortions in their communities.

"Healthy timing and spacing of pregnancy" is positive language for policy makers, especially when describing the health impact for women and children. Universal access to contraceptive services is emerging as vital for family health and also to help achieve the Sustainable Development Goals (UN 2015). Language on international family planning will evolve, and clarity of meaning will be foundational for effective advocacy.

#### **Commentary**

The report by Dyer et al. (2016) gives good insights on the importance of language when advocating for international family planning with politically and religiously conservative policy makers and the public. They confirm that terminology and rhetoric can deliver very different messages depending on the audience, and that furthermore, the messenger can also make a significant difference. Given the polarization in the US on family planning and reproductive health, it is encouraging that in a short few years, from 2013 to 2016, there is growing support for the concept of family planning in the Global South. They found strong agreement, 74% of those surveyed, that women in developing countries want greater access to birth control and contraceptives, and 79% believe greater access to contraceptives could save more women's lives.

Since 2008, Christian Connections for International Health (CCIH) has advocated for support of international family planning with our members, religious leaders in developing countries, the public and with policy makers. CCIH (www.ccih.org) is a global membership network of 140+ diverse Christian organizations. To guide our educational and advocacy efforts, CCIH conducted a survey of our members in 2008 that included a close look at acceptability of various terminology. We quickly learned that clear explanations were required when using family planning terms (Huber et al. 2008). We crafted the following language that has been used in many CCIH publications: "The term 'Family Planning' as used by CCIH means, enabling couples to determine the

number and timing of pregnancies, including the voluntary use of methods for preventing pregnancy – not including abortion – harmonious with their values and religious beliefs" (CCIH 2016).

The 2008 CCIH study found discomfort among our members with terms such as "control" and "limitation". The question on language, which tested 11 different terms, showed that no one term was universally preferred. There was some skepticism about the term "contraceptive," primarily out of concern that some contraceptives may be abortifacients. Subsequent CCIH advocacy experience showed that although the choice of terminology can be important for different audiences, even more important is to provide very clear definitions of terms.

We note that Dyer et al. (2016) tested language defining international family planning as "enabling women and couples in developing nations to determine the timing and spacing of pregnancies in a manner that includes voluntary methods of preventing pregnancy - not including abortion – that are harmonious with their religious beliefs and values," basically CCIH's definition of family planning. Using this definition, they document that "international family planning" received the highest positive rating. Therefore, we would differ with the recommendation of Dyer et al. (2016) that the terms "international family planning" and "family planning" should not be used among religious conservatives. We find good acceptance when clearly defining what we mean by these terms. The terms "healthy timing and spacing of pregnancy", "family planning",

and "international family planning" all have a place in communications with religious conservatives.

CCIH's advocacy for international family planning, when clearly defined, has been accepted by political and religious conservative staff in the US Congress; the same applies to our education and advocacy with the US public and with religious leaders in Africa. We also find that the terminology of healthy timing and spacing of pregnancy is positive, especially when linked with the evidence of the impact on women's and children's health and the desire by women in the Global South to have adequate spacing of pregnancies (CCIH 2015a).

CCIH's common ground definitions have not hindered our membership, as we have grown from 92 Christian organizations in 2008 to 140+ today using all these terms.

We found an additional element of success in advocating for international family planning not mentioned in the Dyer et al. (2016) report – namely, that family planning and increased contraceptive use reduces unintended pregnancies and abortions. The powerful association with reducing abortions leads to common ground across faiths and secular organizations on the basis of health and ethical values. Evidence-based communications that family planning reduces abortions and that faith-based organizations want to help (CCIH 2015a, 2015b) is valued by political and religious conservatives. Furthermore, there is growing evidence in the US and elsewhere that increased access to modern, highly effective contraceptives has a major impact on reducing unintended pregnancies and abortions (Goldthwaite 2015, Secura 2014). The high level of "pro-life" sentiments found by Dyer et al. (2016) underscores the huge potential in educating political and religious conservatives, as well as the public, on the impact of contraceptive access and services for reducing abortions.

CCIH's experience also finds that a strong element supporting international family planning advocacy is having a trusted messenger. Many of the most effective are faith leaders from the Global South who are living the health realities faced by their communities. These are validating voices from religious leaders and faith-based health providers of why international family planning is an important part of women's and children's health in low-resource countries. Their stories and perspectives from the field are valued by US policy makers and Congressional leaders as evidenced by the time and attention given to them during visits.

Additional supportive evidence for advocacy with Christians in the US is the documentation that women and men within the major US Christian traditions also use modern effective contraceptives at a high rate. For those desiring to delay or space pregnancies, the levels of contraceptive use are similar among Catholics, Evangelicals and mainline Protestants, irrespective of their level of religiosity, based on frequency of church attendance (Jones 2011).

Another relevant observation from CCIH experience is that often it may be more acceptable and effective to position family planning or healthy timing and spacing of pregnancies in the context of larger maternal and child health goals and programs, rather than as a separate, stand-alone activity.

For example, the aforementioned education piece (CCIH 2015a) includes the following content:

- The lives of 1.6 million children could be saved each year if births were spaced three years apart.
- Family planning prevents unintended and dangerous pregnancies, thus reducing abortions and protecting mothers' health.
- Family planning enables families to better care for their children,

especially when food and other resources are scarce.

After CCIH shared this communications piece and other information with congressional representatives and staff, they have expressed appreciation for helping them make the connection between spacing pregnancies through the use of family planning and healthier mothers and children.

Similar results have been found in the field. Contraceptive use increased by 200 and 300% in two comprehensive health centers within two years when the Christian Health Association of Kenya piloted enhanced family planning services and trained religious leaders to teach their communities about the health benefits of family planning.

When the target audience, whether conservative or not, sees the issue as a wide range of interventions affecting the overall health and well-being of women, children and families, with contraceptives and child spacing as one of many components, skepticism and fear tend to dissipate.

The Dyer et al. (2016) report also hints at this conclusion.

Our experience, along with the overall findings of the Dyer et al. (2016) report, can provide a framework for messages when advocating for international family planning with political and religious conservatives. We find key elements for guiding successful advocacy include:

• Define clearly what you mean by terms, especially "family planning" and "international family planning." Assure your audience that family planning is voluntary, does not include abortion, is designed to meet the desires of men and women for their own family formation and includes a range of methods consistent with the beliefs and values of the recipient.

- Give evidence that family planning reduces abortions and promotes the health and well-being of women, children and the family (CCIH 2015a, 2015b).
- Choose effective and trusted messengers, such as religious leaders and faith-based health providers from the Global South who can speak with authority from experience about the importance of family planning for promoting health and reducing abortions in their communities (CCIH 2016).

Advocacy language is evolving as family planning becomes increasingly accepted as an essential part of maternal and child health. Universal access to contraceptive services for couples is emerging as a priority component of international development. For progress towards achieving the ambitious Sustainable Development Goals (UN 2015), men and women should have clear and correct information about family planning methods; to be free from coercion or pressure to use family planning or particular methods; and to have access to a range of safe, affordable, acceptable contraceptives and services, according to their own needs and values. In the future, we can expect these concepts to be integral components of advocacy messaging for international family planning and clear definitions and explanations of terms will be needed.

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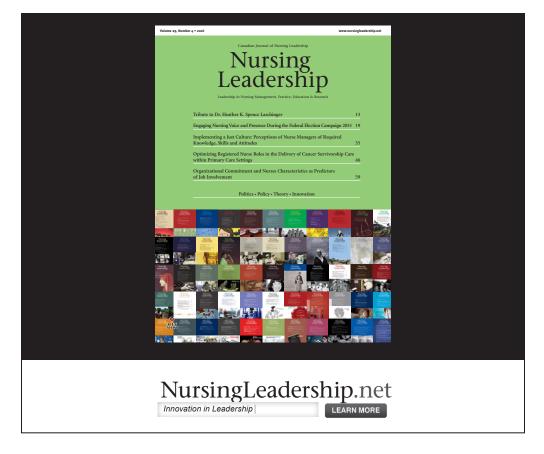
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## Calling a Spade a Spoon: Are Non-American Donors Likely to Need the Same "Reshaping" of Terms for International Family Planning?



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#### **Abstract**

Dyer et al., in their article "International Family Planning: How Political and Religious Conservatives Respond and How to Shape Messaging for Successful Advocacy" (2016), have found that American religious and political conservatives respond favorably to the concepts underlying Family Planning, yet unfavorably to the term itself. We cite Canadian and Australian perspectives to argue that the Dyer finding that the term "Family Planning" is synonymous with abortion (or so nearly so to make it "unfundable" without a term change) is not a consideration in at least two countries, and may not be relevant outside the American context. Irrespective of

the language that may be necessary for fundraising among American donors to elicit support for international Family Planning initiatives, there exists a clear need to establish common understanding on reproductive health issues. Now more than ever, we must identify effective terminology and disseminate facts that support women and their families to achieve their reproductive goals, and thus contribute to improved health, education and economic prosperity throughout our global village.

#### Introduction

Dyer, Heuser and Franklin present a remarkable paper in this issue, exploring how to elicit support for Family Planning initiatives among political and religious conservatives in the USA (Dyer et al. 2016). It turns out that Americans self-identifying in these groups equate the broad term Family Planning with abortion, whereas they do not do so for the concepts underpinning Family Planning, i.e., the value to society, families and to women's and children's health when able to time and space pregnancies (Dyer et al. 2016). Their findings have implications for funding these important initiatives globally. Thus, it is crucial to understand:

Is the phenomenon equating "International Family Planning" services with provision of abortion specific to American social and political conservatives, or do similar conservative populations within other countries have the same sensitivities?

We present our perspective from within the Canadian and Australian contexts, and draw some parallels from international studies, to explore this question.

## Reflections on use and implied meaning of family planning in Canada

Dyer et al. (2016) do not speculate on the etiology of the phenomenon they describe, i.e., why do American conservatives equate "International Family Planning" with abortion. However, one cannot but wonder

if the context is influenced by the name of one of the top and most widespread providers of abortion services in the US: "Planned Parenthood Federation of America" (PPFA 2017). Could the name of this well-known organization be similar enough to "Family Planning", that the equation of the general term with the abortion service provider is complete among American conservatives?

In Canada, Planned Parenthood services have existed across the country for more than 50 years. Planned Parenthood's Family Planning services have been provided under a variety of names, including over most of this period "Planned Parenthood Federation of Canada," and, more recently, "The Canadian Federation for Sexual Health" (PPO 2009; Mind Your Mind 2016). However, with distinction from the services provided in the USA, Canadian service branches offer variably "information-only" or "information, contraception and sexual health clinical services." No Canadian Planned Parenthood groups have directly provided abortion services. There are many reasons for this difference from the sister organization south of the border. The most important may be that provision of abortion service in Canada is part of normal reproductive healthcare. Abortion service is provided largely by, and, in many regions, exclusively by, governmentfunded health services (Lesson 2004). In fact, the national law governing the provision of healthcare in Canada, the Canada Health Act, specifies that all provincial government health services must provide accessible abortion service (Justice Canada 1985).

So, with this distinction, do Canadian political and religious conservatives equate the term "International Family Planning" with abortion services? There are no Canadian studies mirroring the Dyer et al.'s techniques. However, the most recent prior Canadian Government, in office from 2006 to 2015, was politically conservative. In Canada, no political party has eroded or withdrawn domestic abortion service. Nonetheless, conservative governments tend not to promote or extend existing abortion services, and in one instance, refused to include abortion as part of a new international initiative. In 2010, Canada hosted a G8 summit on International Maternal and Child Health (Mackrael 2014). Although the government articulated the importance of international Family Planning to maternal and child health, and ardently defended including "Family Planning" as a core part of their priority international initiative of 2010, they did not include support for abortion services in this program.

"Prime Minister Stephen Harper says family planning is an essential part of Canada's efforts to improve maternal and child health, but abortion remains too divisive to be included in that package ... Mr. Harper said there is a 'myth' that Canada doesn't fund any family planning or reproductive health services in developing countries. 'That's not true. We do. We, specifically as a consequence of a vote in Parliament, do not fund [International] abortion services but we fund other forms,' he said" (Mackrael 2014).

Thus, Canada has political conservatives who, like their American counterparts, are not abortion advocates. Yet, Canada's political conservatives consider "International Family Planning" supportable and do not appear to assume this necessarily includes abortion services.

The majority of Canadians have consistently supported the provision of abortion services. Most polls are similar to a 2016 national survey reporting 86% of Canadians as supportive of a woman's right to access abortion services (57% for any reason, and the others for specific reasons such as in cases of rape or danger to a woman's health), with only 3% supporting a position that abortion should never be allowed under any circumstance (Russell 2016). In contrast, nearly one in five Americans typically supports the position that abortion should never be allowed, with a majority reporting that abortion is morally wrong compared with those who deem it morally acceptable (Gallup Inc 2016).

Thus, in partial answer to our question, it appears that similar conservative populations within Canada may not have the same assumptions found by Dyer et al. (2016) to be prevalent in parts of the USA.

## Reflections on use and implied meaning of family planning in Australia

Similarly to Canada, up until very recently, government-funded Family Planning services in Australia have not offered abortion services but have focused solely on contraceptive service provision and other sexual health services. Abortions in Australia are largely provided privately with only a small availability of publicly funded abortion services. Despite this and a confusing array of legal arrangements for the provision of abortion across Australia's states and territories (de Costa et al. 2015), Australians generally hold positive views towards abortion, with 87% supporting lawful termination in the first trimester, 69% in the second trimester and 48% for the third (de Crespigny et al. 2013). These views are reflected in official government policy, which, in 2009, saw the overturning of a 13-year ban on international aid for Family Planning services, which had been put in place by political religious conservatives (Karvelas 2009).

The Guiding Principles issued by the Australian Department of Foreign Affairs and Trade regarding Family Planning and The Australian Aid Program do not reflect any of the dilemmas highlighted by Dyer et al. Indeed, the guidelines explicitly state that the Australian Government aid should be:

"providing the same range of family planning services for women in developing countries as are supported for women in Australia, subject to the national laws of the relevant nation concerned" and that "family planning and reproductive health services in Australia include safe and professional abortion services (both medical and surgical)" (Department of Foreign Affairs and Trade 2009).

The language used in the official government documents reflects a "reproductive rights based approach" differing substantially from the approach that Dyer et al. (2016) recommend, which is faith-based, referring to religious beliefs and separating out contraception and abortion. Dyer et al.'s definition of international Family Planning as "enabling women and couples in developing nations to determine the timing and spacing of pregnancies in a manner that includes voluntary methods of preventing pregnancy - not including abortion - that are harmonious with their religious beliefs and values" clearly does not appear relevant to the current Australian context where the government aid goals are to "actively work towards improving the quality of care in Family Planning and reproductive health programs by (but not limited to): ... involving communities in planning programs appropriate to their needs; increasing the choice of Family Planning methods available; improving the skills and competence of Family Planning service providers; providing accurate information and confidential counselling for clients;

providing follow-up advice and services to clients; ensuring affordable, acceptable and accessible services; and making the prevention of unwanted pregnancies the highest priority, with every attempt being made to minimize the need for abortion" (Department of Foreign Affairs and Trade 2009).

## Reflections on use and implied meaning of family planning in the international context

It is worth reflecting on the findings of one study that sought to undertake a comparative analysis of the knowledge and attitudes of women towards contraception and abortion in the US, Canada, France and Australia (Wiebe 2015). The researchers found that women who favored restrictions to abortion access, in all five countries, were more likely to incorrectly overestimate the risks of both abortion and contraception and to provide incorrect answers to all the knowledge questions about abortion and contraception (p < 0.001). Better education about the relative risks of abortion and contraception vis-à-vis a continuing pregnancy may therefore be a necessary step to changing women's views and increasing positivity towards "International Family Planning."

Thus, we have shown for Canada and Australia, and perhaps for many other countries, that the term "Family Planning" is considered appropriate to indicate services with and without abortion provision. Family Planning has garnered support among both conservative and liberal factions as the ruling political parties change over time in Canada and in Australia.

Whether terms such as "International Family Planning" will evoke negative reactions among non-American political and religious conservatives who in fact can align with the principles and aims, or not, Dyer et al. have underscored the need to take time to assess the terms we use, and to establish a common understanding for their meaning.

The need to understand the benefits internationally for women and society through access to the full spectrum of reproductive healthcare services may never be more important than now. Our global society faces increasing threats to basic women's health rights, highlighted recently by the Zika virus epidemic and anti-abortion political ascendancy in key settings. Now more than ever we will need appropriate common language, which could perhaps be augmented by dissemination of reproductive health facts. Armed with the common ground established through education and common language, alliances will be better able to assure funding for initiatives supporting women internationally to achieve their reproductive goals, and thus, contribute to improved health, education and prosperity throughout our global village.

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26 COMMENTARY

## Contraceptives Can Unite Us



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#### **Abstract**

Dyer et al.'s (2016) analysis offers key insights into religious conservatives' perceptions of family planning. It also provides the basis for a messaging platform which could help grow support for sexual and reproductive health programming in a highly politicized environment. However, Dyer et al. have put forth a potentially harmful premise in their exclusive focus on "healthy timing and spacing of pregnancies" (HTSP), while ignoring the benefits of making "contraceptives" central to messaging efforts to increase the support of religious conservatives. Not only does the term "contraceptives" elicit the most positive results among those tested, it appeals to reproductive health advocates by avoiding the pitfalls of a singular focus on HTSP, including ignoring the sexual and reproductive needs and rights of those who are unmarried, adolescents and youth, survivors of gender-based violence – and those who simply wish to limit births entirely.

There are many things to applaud in the paper by Dyer et al. First and foremost, we strongly agree with the need to build greater public

support for international family planning assistance – one of the most effective interventions in the history of public health.

Because the US population assistance program was established in 1965, the world has made remarkable progress. From its earliest days, USAID's family planning program has been guided by a commitment to voluntarism and informed choice. To that end, the proportion of women in the developing world using modern contraception has increased from <10% to more than half. Maternal mortality rates have dropped from 380 deaths per 100,000 live births in 1993 to 210 deaths in 2013. Child mortality rates around the world have declined by 70%, and many researchers have linked increased survival rates of children to their mother's ability to access and use contraception (Cleland et al. 2012). US investments in family planning have had – and continue to create – lasting impact.

It is important to note at the outset that the 1973 Helms amendment restricts the use of US foreign assistance for abortions overseas. Fortunately, there are signs of a growing consensus that at minimum, exceptions for women who are rape survivors or whose pregnancies threaten their lives should be made to this restriction. That said, this commentary intentionally limits our discussion to contraception, regardless of our organization's fervent support of safe abortion as a necessary public health good and precursor to the realization of women's human rights. We welcome the invitation to submit a future commentary on this critical issue.

Today, the US Government is the largest funder and implementer of global health programs worldwide, including family planning and reproductive health programs that serve millions of women in over 45 countries (USAID 2016) and which work to improve the health, safety and dignity of all people. Although US funding for international family planning is above \$600 million today, from a needs-based perspective, it is woefully inadequate. If the US were to provide its appropriate share of the total financial resources needed to address the

unmet need for contraception of 225 million women in the developing world, this sum would total \$1.2 billion annually – double the current investment.

So, yes, we need more funding for international family planning – and we need more Americans telling the President and their representatives in Congress that this cost-effective intervention deserves our support.

We argue, however, that Dyer et al. have put forth a potentially harmful premise in their exclusive focus on "healthy timing and spacing of pregnancies" (HTSP), while ignoring the benefits of making "contraceptives" central to messaging efforts to increase the support of religious conservatives on this issue. Not only does the term "contraceptives" elicit the most positive results among those tested, it appeals to reproductive health advocates by avoiding the pitfalls of a singular focus on HTSP, including ignoring the sexual and reproductive needs and rights of those who are unmarried, adolescents and youth, survivors of gender-based violence - and those who simply wish to limit births entirely.

Whither healthy timing and spacing then? If we wish to grow the movement, our focus should be on contraceptives.

#### **A Faulty Premise**

The American public chronically misperceives US foreign aid. A 2015 Kaiser Family Foundation poll (DiJulio 2015) showed that Americans think the US spends too much on foreign assistance, largely because they vastly overestimate the US's investments overseas. Most believe 25% of the federal budget is spent on aid, when, in reality, it represents 0.17% to be exact (OECD 2015). For some context, the OECD's Development Assistance Committee has set a target of 0.7% of gross national income (GNI) to be spent on foreign aid. Of the 28 OECD members for which data are collected, Sweden ranks first with 1.4% of GNI spent on foreign aid. The US ranks 20th (OECD 2015). The good news is that most think the US should invest more in

foreign assistance once they are educated about the actual numbers. This is an incredible opportunity for sexual and reproductive health advocates. Dyer et al.'s analysis is an important attempt to respond to that opportunity.

There are, however, a number of issues within the paper that deserve at least some clarification and, at most, significant overhaul. Dyer et al. assert that "family planning has been at the heart of the US culture wars for the past 45 years." This is, in fact, not correct. The international family planning assistance program was established over 50 years ago, and for most of its history, family planning has enjoyed bipartisan support (PAI 2016) as a common sense issue and something practiced by the overwhelming majority of American women (>99% of sexually active women between 15 and 44 years old) and couples during their reproductive lives (Guttmacher Institute 2016). Family planning as a practice, and any distaste for the term among political and religious conservatives, is a relatively recent phenomenon.

A partisan divide has indeed grown and it tracks almost perfectly with the increasing influence of religious conservatives on the Republican Party. Family planning became conflated with abortion in the 1980s during the Reagan administration when harmful abortion-related policy provisions were first attached to international family planning programs and became the subject of congressional debate. Even as late as 1999, Republican votes in the House exceeded 45 on amendments rejecting the Global Gag Rule and supporting a US contribution to the UN Population Fund (UNFPA). On an amendment to zero out all funding for overseas programs in 1999, nearly 80 Republicans voted in opposition. Today, based on recent votes targeting family planning funding for Planned Parenthood, it is hard to see more than a handful of current House Republicans, at best, voting to preserve funding for the international program, and even fewer - no

more than three – opposing these harmful policy provisions.

The fundamental premise of Dyer et al. is therefore a faulty one and requires circular logic when viewed in historical context: support for family planning has not waned merely because the term "family planning" has never appealed to religious conservatives. It's an important point because it shows that messaging is a critical part of our challenge but not the only one. It also requires us to question another premise at the heart of the analysis – that a significant proportion of this constituency is movable primarily through shifts in messaging.

This is untested. First, there is no evidence of causality presented to indicate that the outreach of the organizations mentioned is responsible for the changes in perceptions about access to contraceptives that Dyer et al. report on page four of their analysis. Second, and most importantly, we have no evidence that these changes in perception translate to changes in voting behavior or in the legislators these individuals help elect - a reality reflected in our current polarized Congress. To some extent, Dyer et al.'s analysis itself validates this. We note that despite changes in the perceptions of religious conservatives about greater access to contraceptives, there is virtually no change in views of contraceptives as positive, negative or neutral (page 9).

Additionally, almost all respondents reported that their views on international family planning are not in fact linked to the perceived effectiveness of US foreign assistance, or links to women's empowerment and education, but are almost wholly based on personal morals and beliefs about what is right. Yet puzzlingly, three of the four Dyer-recommended talking points fall outside a moral frame and attempt to link family planning to cost-effectiveness and other arguments. This is confusing. Dyer et al. have done an excellent job of establishing that – for better or worse – family planning as a term is an emotionally charged barrier to

religious conservatives' support of the issue. However, it is simply ineffective from a communications perspective to ask people what motivates them – then to tell them what they should care about instead. If religious conservatives have told us that they are motivated by personal beliefs of what is right, we cannot provide them with impact-based numbers around foreign assistance and think our work is done. If we seek to build common ground, our job as advocates is to provide a values-based frame around contraception that speaks to that sense of what is right.

Building greater partnerships and crossing political divides requires patience, tenacity and an incredible investment of time and financial resources in an already resource-constrained environment. As we seek to build a bigger tent, we need to be clear that we are keeping the age-old maxim "know your audience" in mind. Awareness and education is the first step to influencing voting behavior, but we must also ensure we are investing our efforts in those audiences who are truly potential converts.

## The Potential Dangers of Using HTSP Terminology

Does this mean that we should not examine our terminology or appeal to new constituencies? No. We share Dyer et al.'s conviction that this is a worthy effort. However, we must find a balance between messaging that appeals to non-traditional allies, while supporting proven interventions that speak to the lived realities and rights of women and communities. For this reason, we reject the exclusive use of "HTSP" as a replacement for "family planning." Every legitimate, rights-based rationale for these programs should be used.

It is important to recall that the Office of Population and Reproductive Health (PRH) at USAID has been actively engaged in HTSP work for some time – one could argue since the inception of the program, although not using the specific terminology of HTSP to describe its longstanding maternal and child health-focused activities. In fact, it is a core component of PRH's program. However, HTSP is but one of a number of rationales for the existence of the program.

As mentioned previously, there is a real concern that focusing solely on HTSP messaging could lead to limits on important programming around other critical family planning and reproductive health activities, including programs to prevent child, early and forced marriage; gender-based violence; family planning and HIV integration; female genital mutilation (FGM); and obstetric fistula, to name but a few.

HTSP programming also should not interfere with or complicate USAID's ability to provide permanent methods, such as tubal ligation and vasectomy, and long-acting reversible contraceptives. Both types of contraceptives have limiting family size among their principal purposes, not just timing and spacing of pregnancies.

These concerns are not merely the specters of paranoia. One of Dyer et al.'s recommended talking points mentions the President's Emergency Plan for AIDS Relief (PEPFAR), which is notable for its bipartisan support. Ironically, PEPFAR's prevention activities became more effective - from an evidence-based, scientifically rigorous and documented perspective - once they evolved away from a narrow, ideologically driven and irrational set of interventions intended to appeal to religious conservatives. PAI spent many years, for example, documenting the tragic consequences of the abstinence-only policies of PEPFAR under the Bush Administration (PAI 2007). Policies which, by focusing only on sex in the context of marriage (Gorman, 2016), increased the HIV infection rate among young people, men who have sex with men and commercial sex workers – and even among married women who could not abstain from sex (Center for Health and Gender Equity 2010) - and yet also often could not negotiate condom use,

thereby increasing their risk of acquisition and the risk of mother-to-child transmission of HIV.

As an umbrella term, HTSP is a non-starter. What to do about family planning then? We agree: the term is opaque and, whatever the original cause, it is now sadly mired in political baggage. Let us use it less, especially when talking to those who are not our natural allies, but let us make the case for contraceptives. Not only is the term simple, clear, descriptively accurate and tested most favorably among those in the Dyer et al. study, but it also resonates with progressives. That seems far more pragmatic than cherry picking ideologically loaded and possibly harmful alternatives because they are comfortable for religious conservatives.

#### **Conclusion**

Dyer et al.'s analysis provides a clear and compelling rationale for building greater support for international family planning and US global health investments more broadly. The testing conducted offers key insights into religious conservatives' perceptions of family planning and provides the basis for a messaging platform which could help grow support for sexual and reproductive health programming in a highly politicized environment. Although it is clear that the term "family planning" should be abandoned in outreach to religious conservatives, the surprisingly positive reactions of conservatives to "contraceptives" is good news for reproductive health advocates. The term is simple, descriptive and accurate – and is also supported by core reproductive health supporters.

There is space for organizations such as both PAI and Hope for Healing Hands in the movement to improve the lives and health of women and girls, but we cannot work at cross purposes. An exclusive focus on healthy timing and spacing will guarantee continued

confusion and conflict. We must come together to make the collaborative case for contraceptives, and happily, the stars are aligned in the form of polling and messaging data.

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## What Is the Economic Cost of Unplanned Pregnancy Following Hysteroscopic Sterilization in the US? A New National Estimate Based on Essure® Procedure Prevalence, Failure Rates and Workforce Productivity



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#### **Abstract**

Objective: Although hysteroscopic sterilization (HS) (Essure®) has been available in the US since 2002, there is disagreement regarding its efficacy, and there has been no study of the economic impact of HS failure. Our investigation examined the economic consequences of contraceptive failure with Essure in the US. Methods: Contraceptive failure rates (CFR) of 5.7%, 7.7% and 9.6% were applied to the US cohort of HS patients (n = 600,000). Direct economic impact of productivity losses resulting from unplanned conceptions after HS was calculated by factoring Essure failure rate, the exposed population, US female labour force participation, unemployment rate, time away from work owing to vaginal delivery or pregnancy termination and weekly wages. Results: For the 9.6% CFR scenario, US workforce productivity loss from unplanned pregnancy and delivery was estimated at 771,065 days (2,112 years). Productivity loss secondary to conception and subsequent termination of pregnancy after Essure was approximately 23,725 days (65 years). Assuming CFR at 5.7%, livebirth delivery with total time missed from work at 65 days, this was associated with an aggregate economic impact of \$49.2M in lost annual wages. Direct economic impact of unplanned pregnancy after Essure irrespective of outcome (terminations and deliveries) was estimated to result in US productivity losses valued at ~\$130M. Conclusion: Although not all unplanned pregnancy costs are attributable to failed HS, estimates derived from earlier surveys have not considered this contraceptive method, and the economic consequences of unplanned pregnancy after Essure are not trivial. Quantifying the economic consequences of HS failure would be improved with specific ICD-10 coding for Essure-associated symptoms.

#### Introduction

Unintended pregnancies drive a major component of the US healthcare economy. As direct medical costs for this were already \$5 B by 2002 (Trussell 2007), current costs associated with unplanned pregnancy are certainly far larger now. The provision of female contraception is an important modulator of this equation, and the birth control method ultimately selected is influenced by how effectiveness and safety are understood by both the patient and the practitioner (Lopez et al. 2013). In the US alone, more than 300,000 women request permanent surgical sterilization each year (Jones et al. 2012). Although not all unplanned pregnancies result from failed

female sterilization, earlier estimates of unplanned pregnancy costs were based on historic survey data and cannot register the impact of the latest contraceptive techniques (Green et al. 2002).

Against this background is the newest arrival on the birth control landscape, hysteroscopic sterilization (HS) with the Essure® device (Bayer HealthCare AG; Whippany, NJ). Approved by the US FDA in 2002, this novel non-incisional technique provides bilateral tubal occlusion via hysteroscopic placement of metal inserts at the utero-tubal junction. HS is thought to confer substantial advantages over conventional laparoscopic tubal ligation, including eliminating the need for abdominal access (Podolsky

et al. 2008; Yang et al. 2011), reducing overall cost (Kraemer et al. 2009) and minimizing anaesthesia requirements (Chapa and Venegas 2012). Although HS implants are latex-free, they contain acrylonitrile butadiene styrene, polytetrafluoroethylene, polyvinyl pyrrolidone, polyethylene terephthalate and nickel, among other components (Yu 2007). Market data supplied by the manufacturer indicate that approximately 750,000 of these contraceptive coil kits have been sold globally and some 600,000 are believed to have entered the US market (Rabin 2015; US FDA 2015a).

The current investigation addresses the recognized need for additional HS data. Using the 600,000 figure as a starting point, an estimate of economic consequences of unplanned pregnancy with HS in the US was developed. Population risk modelling based on US federal labour data and published Essure failure rates was used to project economic impact of pregnancy-associated workforce productivity losses when women using this contraceptive method faced either pregnancy termination or healthy term livebirth. To date, all published studies on Essure have addressed purely clinical aspects of this procedure; our study is believed to be the first to estimate an economic dimension of Essure birth control with an emphasis on unintended pregnancy.

#### Methods

#### Study cohort and computational approach

The study cohort included all women with at least one Essure device placed in the US. Although the exact number of US patients who have undergone HS is not known, the total number of contraceptive kits sold worldwide is 750,000 and, according to the manufacturer, 80% of this reached the US market (Chudnoff et al. 2015; US FDA 2015a). Thus, using 600,000 as our denominator, a range of pregnancy risk exposures for American women was developed as a function of two pregnancy rates calculated previously (Gariepy et al. 2015).

Contraceptive failure following HS was defined as any medically documented conception established at any time after having Essure, irrespective of whether HS was performed in a physician's office, hospital or outpatient ambulatory surgery setting.

Because disagreement exists concerning the failure rate associated with HS over its lifetime of Essure use, we estimated frequency of unplanned pregnancy as follows:

- 1. 5.7% (Deardorff 2014; Gariepy et al. 2015);
- 2. 9.6% (Gariepy et al. 2015); and
- 3. the median of these values, or 7.7%.

These estimates were used to capture contraceptive failure after one year and after 10 years of HS, as patients have been exposed to the Essure device since 2002 and the treatment group continues to expand.

#### Calculation of productivity and lost wages

For our analysis, a mean annual gross income of \$51,000 was imputed for women aged 25-34 years in the Essure exposure group, where average unemployment is 6.6% (<www.bls.gov/cps/cpsaat03.htm>). Although comprehensive demographic data have not been systematically collected for patients who undergo HS, information describing unplanned pregnancy after the Essure procedure has been published (Sills et al. 2015), where mean ( $\pm$ SD) age for HS failure was found to be 29.5  $\pm$  4.6 years. Average weekly patient income for this group was thus calculated at \$752 (<www. bls.gov/cps/cpsaat37.htm>), and US labour force participation rate was estimated at 88.2% (<a href="http://www.bls.gov/web/empsit/">http://www.bls.gov/web/empsit/</a> cpseea08b.htm>). Using 2013 US Department of Labor statistics (the most recent available), we defined total national workforce study population (comprising 72.1 million women) as all civilian, noninstitutionalized females of reproductive age in the US (US Department of Labor 2015).

When contraceptive failure with Essure occurred, for purposes of this analysis, all resulting conceptions were presumed to result either in an uncomplicated pregnancy and proceed to term vaginal delivery of a singleton livebirth, or a pregnancy that was electively terminated in first trimester without complication. This computational model assumed a 50:50 distribution of these two mutually exclusive reproductive outcomes. Time away from work owing to pregnancy-associated illness and maternity leave were computed separately, but because maternity leave and other pregnancy-associated benefits are provided unevenly across all employees in the US, days off and lost productivity costs were both estimated based on unpaid leave scenarios.

The downstream economic impact of pregnancy was estimated next, using projections for days of work lost. Variation among women working in the US makes estimates difficult because some employees stay on the job until near their due date, whereas others report missing as much as a month of work before delivery and then remain away from employment for another 35–70 days thereafter on maternity leave (Gao and Livingston 2015). Sensitivity analyses were developed to capture each possibility. Thus, our formula was based on a total exposed population of 600,000 US women multiplied by a range of contraceptive failure rates, adjusted by an 88.2% workforce participation, 93.4% employment and number of days lost divided by seven-day weeks, times \$752 lost per week, as follows:

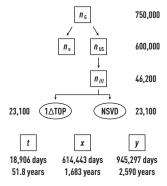
$$P = \frac{f(n)Q(1-r)}{2} \times h(w)$$

Where P= cumulative economic impact of unplanned pregnancy; f= contraceptive failure rate; n= exposed population; Q= labour force participation; r= unemployment rate; h= health absenteeism (time away from work owing to conditional pregnancy event; vaginal delivery versus elective first trimester termination); w= gross wages per week; and 50% of the population has no paid medical leave.

This analysis assumed a bimodal distribution of work days missed for the prenatal care

and delivery sub-group, which consisted of two components, antenatal absences and maternity leave. For the former term, 30 days was used to account for all OB clinic visits and any pregnancy-related sickness. Time away from work after uncomplicated term vaginal delivery was set at either 35 or 70 days (yielding a total productivity loss secondary to pregnancy at 65 or 100 days, respectively). For the sub-group electing not to continue pregnancy, a total of two days away from work was allocated (Gao and Livingston 2015) (Figure 1).

Figure 1. Allocation of HS patients, unplanned pregnancy outcomes and estimated cumulative productivity impact in the US



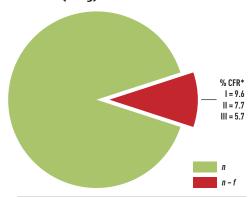
 $1\Delta TOP =$  first trimester termination of pregnancy; HS = hysteroscopic sterilization; NSVD = normal spontaneous vaginal delivery. Distribution of women with Essure® worldwide ( $n_{\rm S}$ ) in the US ( $n_{\rm US}$ ) and elsewhere ( $n_{\rm s}$ ). Productivity loss estimates shown are based on HS contraceptive failure rate ( $n_{\rm t}$ ) of 7.7% (average of 1 year and 10 year failure rates). Calculations for missed work time for 1 $\Delta$ TOP patients (t) are based on missed work time 2 days only (no maternity leave). For NSVD patients, estimates are based on either (t) 65-day work absence or (t) 100-day work absence for pregnancy, delivery and maternity leave.

#### Results

In the exposed cohort of all Essure users in the US (n = 600,000), where contraceptive failure occurs with frequency of 5.7%, 7.7% or 9.6%, this represented an unplanned pregnancy event for sub-groups of sizes (a) 34,200, (b) 46,200 or (c) 57,600 women in the US, respectively. The two possible outcomes and associated costs were calculated for each of these three cohorts. If 65 days paid employment is lost by women should the device fail followed by pregnancy and delivery, this would result in a cumulative loss

of US workforce productivity of 457,820 days (1,254 years) for the entire cohort, assuming the lower Essure failure rate of 5.7% (Deardorff 2014; Gariepy et al. 2015). In the 9.6% contraceptive failure rate scenario, total workforce productivity loss secondary to unplanned pregnancy would be 771,066 days (2,112 years) for the national cohort (Figure 2).

Figure 2. Estimated economic impact of unplanned pregnancy after HS with the Essure® device, derived from three contraceptive failure rate scenarios in the US (2015)



		Term singl	First △ TOP¶			
	d		\$		d	\$
	х	у	x y		d	t
I	771,066	1,186,255	82,834,472	127,437,650	23,725	2,548,753
II	614,443	945,297	66,008,720	101,551,877	18,906	2,031,038
Ш	457,820	704,339	49,182,968	75,666,105	14,087	1,513,322

 $1\Delta$ TOP = first trimester termination of pregnancy; d = days; HS = hysteroscopic sterilization; n-f = unplanned pregnancies among Essure® users in the US, where n = 600,000; NSVD = normal spontaneous vaginal delivery.

Calculations for missed work time (a) are based on either (x) 65-day work absence or (y) 100-day work absence for pregnancy, delivery and maternity leave. Calculations for TOP patients are based on missed work time = 2 days only (no maternity leave). Total estimated direct economic impact of unplanned conception after Essure® for each contraceptive failure rate scenario (I, II, or III) is the sum of either ([x] or [y]) + (t).

For patients who elected voluntary termination of unplanned pregnancy after Essure, we estimated aggregate time away from work to be 14,087 days (38.6 years), assuming the lower Essure failure rate of 5.7% (Deardorff 2014; Gariepy et al. 2015). As summarized in Figure 2, given the 9.6%

contraceptive failure rate scenario, cumulative productivity loss secondary to conception and subsequent termination of pregnancy would be approximately 23,725 days (65 years).

Economic valuation of these productivity modifiers by factoring median income for Essure patients in the US revealed that unplanned conception and pregnancy termination after Essure, assuming a device failure rate of 5.7%, was associated with an economic impact of >\$1.5M in lost wages. If the 10-year Essure failure rate of 9.6% were used, the economic impact of unplanned pregnancy would be >\$2.5M in lost wages. Likewise, for women choosing to continue pregnancy after Essure failure with frequency at 5.7% (and total time missed from work = 65 days), this was associated with an economic impact of \$49.2M in lost wages during the exposure interval. In the scenario where Essure fails at this same rate (5.7%) but the employee avails of more time off work after delivery (100 days), cumulative lost wages would exceed \$75.7M. When all unintended pregnancies after HS failure in the US are considered irrespective of outcome (i.e., the sum of pregnancy terminations plus deliveries after Essure), this would result in ~\$130M in lost productivity in aggregate, assuming the 10-year failure rate (9.6%) were applied with a 100-day absence for each pregnancy conceived and delivered in the US (Figure 2).

#### **Discussion**

Unintended pregnancy constitutes an important problem associated with substantial costs to health and social services, as well as severe emotional distress to women, their families and society at large. Provision of safe and effective contraception is a particularly cost-effective healthcare intervention because, in addition to preventing a significant number of unplanned pregnancies, it also results in substantial cost savings to society.

<sup>\*</sup>Contraceptive failure rate. <sup>5</sup>Normal spontaneous vaginal delivery. <sup>1</sup>Termination of pregnancy (first trimester).

Vasectomy, female sterilization and longacting reversible contraceptive methods constitute the most cost-effective contraceptive options (Mavranezouli 2009). Research on government health expenditure patterns suggests that implementing or expanding public policies to minimize unintended pregnancy has the potential to yield major savings in national health spending (Monea and Thomas 2011; Sonfield et al. 2011). In this context, the urgency of elective, permanent female sterilization was viewed as an appropriate application for FDA premarket approval, a process of scientific and regulatory review to evaluate the safety and effectiveness of medical devices that "support or sustain human life, are of substantial importance in preventing impairment of human health ..." (US FDA 2015b).

The current analysis is the first to examine the economic impact of contraceptive failure after Essure, the newest method of permanent birth control available in the US. Here, we used population risk modelling and federal labour data to show that, depending on which outcome is tabulated and how much time the patient decides to take off from paid employment, the wage-related productivity lost owing to Essure failure can easily exceed \$100 million. Although this economic burden is certainly not sequelae exclusive to HS, the Essure procedure is unique in how little is known about it, how many women actually use it or what can happen when it does not work as designed (US FDA 2015a). Recognizing these unknowns, the current study advances the understanding of HS by adding a new dimension to the Essure literature.

Despite more than a decade of clinical experience with Essure in the US, there is controversy regarding its effectiveness and safety. The device manufacturer claims that Essure is 99.83% effective at preventing pregnancy over five years, assuming the implant is used only for approved

indications and according to "perfect use" guidelines (Deardorff 2014). However, the accuracy of this figure has been challenged (Gariepy et al. 2015), and an alternate assessment of this contraceptive method now exists. Using an evidence-based Markov model to estimate pregnancy rates after Essure placement over a 10-year interval, pregnancy probability at Year 1 and over 10 years was found to be substantially higher with Essure compared with standard laparoscopic sterilization (Gariepy et al. 2015). Because the device entered the US market in 2002, both 1-year and 10-year failure rates are relevant to current consumers and served as the basis for the current study.

Performing HS in a physician's office does make economic sense intuitively, and it can provide women with an important option in family planning. Also, HS can free space in hospital operating rooms, which may then be used for other procedures, thus improving access to care for more patients. In Canada, offering the Essure procedure in a non-hospital setting has been shown to result in statistically significant cost savings (Thiel and Carson 2008). Unfortunately, this advantage is lost if patients undergo HS in a hospital under general anaesthesia, as is sometimes done in the US. Because no US data are available to clarify how frequently Essure is performed in the doctor's office versus a formal hospital operating room, this represents an important missing piece in the Essure puzzle.

This research has important limitations that should be acknowledged. With increased clinical uptake of HS, there has emerged a better understanding of adverse events associated with Essure (Ricci et al. 2014). Unplanned pregnancy is only one such event, and our model was not designed to estimate the economic consequences of other more subjective problems like dysmenorrhoea, bleeding or dyspareunia secondary to uterine perforation or device malposition

(Al-Safi et al. 2013). According to data provided by the manufacturer, chronic pelvic pain occurs in approximately 4% of Essure patients (Otto 2015). But not all Essure complications are reported, and the true frequency of improper or abnormal device insertions is not known with precision. Even if subsequent surgery is not required to correct an injury due to the Essure procedure itself (Hodges and Swaim 2013), including a spontaneous pregnancy loss not requiring surgical intervention, impairment in function or reduced quality of life may still diminish productivity; these variables also escaped our estimate. Moreover, because no data exist on how many Essure patients undergo pregnancy termination versus continue to term and deliver when the device fails, our statistical assumption of a 50:50 mix perhaps oversimplified the downstream effects of unplanned pregnancy for this cohort. For Essure patients who continued their pregnancies to term, our methodology only attempted to estimate costs of vaginal births, not caesarean deliveries; child care expenses and support would form part of a broader fiscal impact estimate and were therefore not within the scope of our projection. Based on these factors, it is likely that our calculations underestimated the total economic effects of unplanned pregnancy with Essure in the US. Likewise, as more complete information becomes available concerning HS failures (particularly with regard to lost wages and/ or impaired productivity), a more precise calculation of national economic impact will be possible. Systematic data collected from longitudinal studies on all Essure patients here should address many of these uncertainties.

In summary, Essure remains a somewhat enigmatic player on the contraceptive stage, and the state of published experience with the device remains surprisingly underdeveloped. The most recent post-marketing clinical trial was never registered, the study

was discontinued early, no follow-up data were collected and its findings remain heavily redacted on the FDA website (Dhruva et al. 2015). Indeed, the worldwide scholarly output on Essure scarcely exceeds 200 papers despite 13 years of active clinical use. Counselling patients seeking advice on contraceptive options is thus frustrated by the paucity of literature addressing the overall epidemiology of Essure. These factors highlight the urgent need to increase awareness of the successes and failures of HS. Consideration should be given to the assignment of unique ICD-10 modifiers for pain associated with this device. This would offer an accurate, inexpensive data capture tool to enable proper monitoring of the Essure phenomenon. Further socioeconomic studies regarding HS are also needed as this contraceptive option becomes more widely accessed.

# **Authors' contributions**

E.S.S. was principal investigator, conceived of the research and developed the manuscript; L.P.F. and C.A.J. contributed to the research design, assisted in the statistical analysis and assisted with editorial revisions. All authors read and approved the final version of this manuscript.

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# Mental Health and Latent Toxoplasmosis: Comparison of Individuals with and without Anti-*Toxoplasma* Antibodies



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#### **Abstract**

**Aim:** There is evidence to suggest that the protozoan *Toxoplasma gondii* affects the mental health of people who are infected with it. The aim of the present study was to examine the relationship between *T. gondii* and mental health.

**Methods:** A total of 200 students (87 men and 113 women) of Jundishapur University of Medical Sciences (Ahvaz, Iran) were tested for the presence of anti-*Toxoplasma* antibodies and completed the General Health Questionnaire (see Appendix 1, available at: http://www.longwoods.com/content/24938) and a demographic form. Data were analyzed using independent samples *t*-test, chi-square test and Fisher's exact test.

**Results:** Infected women had significantly lower scores in somatic symptoms (p = 0.04), anxiety/insomnia (p = 0.006) and depression (p = 0.04) compared with non-infected women. Difference in social dysfunction was not significant (p > 0.05). There were no significant differences in somatic symptoms, anxiety/insomnia, depression and social dysfunction between infected and non-infected men (all p > 0.05).

**Conclusion:** Our findings indicate that latent toxoplasmosis can affect some components of mental health just in women.

# Introduction

Toxoplasmosis is one of the most common parasitic infections caused by the obligate intracellular protozoan parasite Toxoplasma gondii (Dubey 2010; Prandovszky et al. 2011; Suzuki 2002). Humans and other warmblooded vertebrates, including birds, livestock and marine mammals, can be infected by T. gondii (Dubey 2010; Prandovszky et al. 2011; Suzuki 2002). Humans are usually infected by consumption of undercooked or raw meat containing tissue cysts, vegetables contaminated with cat feces or contaminated drinking water (Herrmann, 2010; Kijlstra and Jongert, 2008). After a short phase of acute toxoplasmosis, the parasite encysts in the host muscle and central nervous system (particularly neurons and glial cells) and becomes latent probably throughout the host's lifetime (Dubey and Jones 2008; Miller et al. 2009; Prandovszky et al. 2011).

The parasite manipulates the behaviour of its intermediate host, increasing their transmission efficiency (Da Silva and Langoni

2009; Kristina and Fittipaldi 2008; Webster 2007). Animal studies have found distinct behavioural changes and cognitive dysfunction in infected rodents (Lamberton et al. 2008; Webster 2007; Webster et al. 2006). Some researchers also have reported psychotic symptoms (Hamidinejat 2010), changes in personality (Flegr and Havlicek 1999; Flegr and Tolarova 2000; Flegr et al. 1996; Novotná et al. 2005; Khademvatan et al. 2013) and neurological and psychiatric disorders (Arling et al. 2009; Brown et al. 2005; Cetinkava et al. 2007; Gale et al. 2014; Hinze-Selch et al. 2007; Horacek et al. 2012; Kar and Misra 2004; Khademvatan 2014; Khademvatan et al. 2013, 2014; Mahmoud and Hasan 2009; Niebuhr 2008; Mortensen et al. 2007; Pearce et al. 2012; Xiao et al. 2010; Yuksel et al. 2008) in T. gondii-infected individuals.

Haloperidol (an antipsychotic drug) and valproic acid (a mood stabilizer), which are used in the treatment of some mental illnesses, have been revealed to prevent the development of behaviour changes related to *T. gondii* (Jones-Brando et al. 2003; Yuksel et al. 2008).

For years, scientists have been intrigued by the association between toxoplasmosis and mental disorders, including schizophrenia disorder (Brown et al. 2005; Cetinkaya et al. 2007; Hinze-Selch et al, 2007; Khademvatan et al. 2014; Khademvatan 2014; Mahmoud and Hasan 2009; Mortensen et al. 2007; Niebuhr 2008; Yuksel et al. 2008), mood disorders (Arling et al., 2009; Gale et al, 2014; Kar and Misra, 2004; Khademvatan et al. 2013; Pearce et al., 2012; Xiao et al. 2010), obsessive-compulsive disorder (Miman et al. 2010; Brynska 2001), etc., and controversial findings have been reported.

Because of poor hygiene, the prevalence of *T. gondii* is high in Iran (approximately 50% of the population) (Arbabi and Hooshyar, 2009; Khademvatan et al. 2013; Sadjjadi et al. 2001), and toxoplasmosis continues to be a public health problem. Therefore, it is important to consider the possible consequences of this infection. The present study aimed to compare the mental health of students with and without latent toxoplasmosis.

# Methods

Research was conducted over a period of 12 months from 2015 to 2016. A total of 222 students (101 men and 121 women) of Ahvaz Jundishapur University of Medical Sciences (in Ahvaz, Southwest Iran) voluntarily participated in the study and gave informed consent.

Before serological analysis, 22 individuals (14 men and 8 women) were excluded from the study, because either they failed to complete questionnaires or decided to withdraw from the study. Finally, 200 individuals (87 men and 113 women) remained in the study.

The study was approved by the ethical committee of the university (No: ETH-160). A 5-mL blood sample was taken from each subject for serological analysis. Also, each subject was asked to complete the Persian version of the General Health Questionnaire (GHQ) and a questionnaire to obtain

demographic data about ethnicity, gender, age, education, marital status and employment. Mean age of the subjects was 24.6 years (standard deviation = 4.3 years). The participants did not have any major psychiatric disorder, neurological disease or major physical disorder.

# Serological test for toxoplasmosis

Blood samples were centrifuged at 3,000 rpm for 20 minutes to procure clear supernatants. The sera were kept at -20°C until the analysis. The immunoglobulin G (IgG) antibody levels in the two case and control groups were measured by the enzyme-linked immunosorbent assay technique (Torch-IgG, Trinity Biotech Company, USA) according to the manufacturer's instructions.

#### **Ouestionnaires**

GHQ was developed by Goldberg et al. (1978) to screen non-psychotic psychological disorders (Riahi and Izadi-Mazidi 2012). We used the 28-item version of the scale in the present study. Each item was rated on a four-point Likert scale (from 1 to 4).

The questionnaire consists of four sub-scales, each containing seven items, including somatic symptoms, anxiety/insomnia, social dysfunction and depression. All questions have the same weight.

The range of the reliability coefficients has been reported to be from 0.78 to 0.95 in various studies (Jackson et al. 2007).

There are significant correlations between the GHQ-28 and the Hospital Depression and Anxiety Scale and other measures of depression (Sterling 2011).

## Statistical tests

Data were analyzed using multiple independent samples *t*-test, chi-square test and Fisher's exact test. The probability level of 0.05 was accepted as statistically significant. Statistical analyses were carried out using SPSS version 16.

#### **Results**

Serological analyses confirmed that 46 men (52.8%) and 50 women (44.2%) were seropositive and 41 men (47.1%) and 63 women (55.7%) were seronegative for *T. gondii* antibodies.

Frequencies of the participants' demographic characteristics and the distribution of latent toxoplasmosis according to the demographic variable are listed in Table 1.

Table 1. Distribution of latent toxoplasmosis according to demographic features

Demographic		Frequency <b>N</b> (%)					
variable	1116	Total	lgG⁺	lgG⁻			
Gender	Male	87 (43.5)	46 (52.87)	41 (47.12)			
	Female	113 (56.5)	50 (44.24)	63 (55.75)			
Marital	Single	160 (80)	77 (48.12)	83 (51.87)			
status	Married	40 (20)	19 (47.5)	21 (52.5)			
	Divorced/ widowed	0	0	0			
Occupation	Yes	53 (26.5)	26 (49.05)	27 (50.94)			
status	No	137 (73.5)	67 (48.9)	70 (51.09)			

 $lgG = immunoglobulin G; lgG^+ = lgG-positive; lgG^- = lgG-negative.$ 

There were no significant differences between two groups of IgG-positive and IgG-negative individuals with respect to ethnicity (p = 0.3), marital status (p = 0.5), level of education (p = 0.1) and occupational status (p = 0.3).

The mental health of infected and non-infected subjects was compared using the independent samples t-test. There were significant differences between infected and non-infected women in somatic symptoms (t = 2.01, p = 0.04), anxiety/insomnia (t = 2.7, p = 0.006) and depression (t = 1.9, p = 0.04). Difference in social dysfunction was not significant (t = 0.89, p = 0.3) (Table 2).

Differences in somatic symptoms (t = 1.9, p = 0.06), anxiety/insomnia (t = -0.3, p = 0.7), social functioning (t = 1.1, p = 0.2) and depression (t = -0.5, p = 0.5) were not significant at p < 0.05 (Table 3).

Table 2. Comparison using independent samples *t*-test of mental health subscales in women according to seroprevalence

Mental	IgG⁺ women ( <i>N</i> = 50)		lgG⁻ women ( <i>N</i> = 63)			
health*	М	SD	M	SD	t	p
Somatic symptoms	13.22	3.71	11.84	3.52	2.01	0.04
Anxiety/ insomnia	13.42	4.47	11.46	2.95	2.79	0.006
Social dysfunction	14.97	2.63	14.52	2.72	0.89	0.37
Depression	10.61	3.80	9.28	3.23	1.99	0.04

IgG = immunoglobulin G;  $IgG^+ = IgG$ -positive;  $IgG^- = IgG$ -negative;  $IgG^- = IgG$ -negative; Ig

Table 3. Comparison using independent samples *t*-test of mental health subscales in men according to seroprevalence

Mental	IgG+ men ( <i>N</i> = 46)		IgG⁻ men ( <i>N</i> = 41)			
health*	М	SD	M	SD	t	p
Somatic symptoms	11.97	3.39	10.68	2.55	1.99	0.06
Anxiety/ insomnia	12.29	3.82	12.56	4.08	-0.31	0.7
Social dysfunction	15.46	3.35	14.70	2.89	1.13	0.2
Depression	9.76	3.23	10.19	4.13	-0.54	0.5

 $lgG=immunoglobulin\ G;\ lgG^+=lgG-positive;\ lgG^-=lgG-negative;\ M=mean;\ SD=standard\ deviation.$ 

#### **Discussion**

The present study was conducted to investigate the associations between mental health and toxoplasmosis. Mental health issues caused by latent toxoplasmosis have been the subject of some previous studies. The majority of these studies are confined to referral centres, whereas the subjects of the present study were selected from the general population.

The results of this study indicate significant differences between infected and non-infected women in anxiety/insomnia, somatic

<sup>\*</sup>Social impairment: questions 1–7; Anxiety: questions 8 – 14; Social dysfunction: questions 15–21; Depression: questions 22–28.

<sup>\*</sup>Social impairment: questions 1–7; Anxiety: questions 8 – 14; Social dysfunction: questions 15–21; Depression: questions 22–28.

symptoms and depression. According to our results, *T. gondii*-infected women experience higher levels of anxiety/insomnia, physical symptoms and depression.

The association we found between latent toxoplasmosis and anxiety in women is consistent with the result of the study conducted by Shirbazou et al. (2010), which showed higher levels of stress and anxiety in *T. gondii*-infected women. Fleger and Harvlicek (1999) also, in a study on personality profile of young women with latent toxoplasmosis, found higher levels of ergic tension (frustration, tension, being overwrought) in infected women compared with the control group.

The finding is in contrast to previous research in animal models showing anxiolytic-like behaviour in *T. gondii*-infected rodents (Berdoy et al. 2000). Moreover, the finding is inconsistent with the finding that women with latent toxoplasmosis did not experience anxiety in situations in which the women would be anxious (Flegr 2010).

The association between latent toxoplasmosis and depression that we found in women is in contrast to previous findings. The study conducted by Shirbazou et al. (2010) reports that women with latent toxoplasmosis did not have elevated depression symptoms compared with controls. Furthermore, other previous studies (Gale et al. 2014; Pearce et al. 2012) found no association between latent toxoplasmosis and major depression disorders.

In the current study, women with toxoplasmosis reported significant levels of physical symptoms that were probably because of their anxiety/insomnia and depression. However, we found no significant differences in mental health subscales between infected and non-infected men. The finding is inconsistent with the study conducted by Shirbazou et al. (2010), which suggested that *T. gondii*-infected men had more levels of anxiety and depression compared with non-infected men, and the result of a case report done by Kar and Misra (2004) that described a probable

association between toxoplasmosis and depression in a man.

There are some potential reasons for these results from existing literature. According to manipulation hypothesis, a parasite may alter host behaviour to facilitate its own transmission from the intermediate to the definitive host in order to complete its life cycle (Da Silva and Langoni 2009; Kristina and Fittipaldi 2008; Webster 2007). In explanation of the mechanism for these changes, some investigations have pointed to the changes in neurotransmitter levels that have been caused as a result of host immune response to T. gondii. Dopamine and other neurotransmitters such as serotonin have been considered in T. gondii-induced behavioural changes (Prandovszky et al. 2011). Dopamine plays an important role in the control of pleasure, motivation and cognition, movements and reward to stimuli (Prandovszky et al. 2011). It has also been discussed that toxoplasmosis probably increases blood cortisol levels and causes anxiety and stress (Shirbazou et al. 2011).

Our findings indicate higher burdens in women than men. Animal studies may explain the higher burdens in women. In the early stages of toxoplasmosis, higher levels of interferon-gamma are produced by the spleens of male mice compared with those of female mice. It helps male mice to control the parasite multiplication more rapidly (Prandota 2011). In the current study, no significant difference was found in prevalence of IgG levels between men and women (p = 0.1). However, Lindová et al. (2006) reported higher seroprevalence in male compared with female students. Also, Xiao et al. (2010) found higher prevalence in women than men. We also found no significant differences in prevalence by ethnicity and level of education.

Different results obtained from the studies of *T. gondii* and psychological conditions may be related to *T. gondii* genotypes. Various genotypes of *T. gondii* have different geographical replication and different neuropathogenic potentials (Khademvatan et al. 2014).

#### Conclusion

To conclude, the present study reports that infection with *T. gondii* is a risk factor for mental health problems in only females. Consequently, there is a need to plan adequate programs to control such infections.

## **Limitations**

Our research has some limitations; participants were highly educated, which means that the findings should be generalized to people with different education levels with caution. Moreover, participation in the study was voluntary, which may limit the generalizability of the results to less motivated individuals. Researchers interested in studying this field should attempt to engage participants from diverse populations.

Defining toxoplasmosis infection by IgG might not be sufficient. For example, there may be some differences between subjects of acute and chronic toxoplasmosis infection. The infection status might be another important confounding factor.

# **Conflict of interest**

The authors declare no conflict of interests.

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