

## Knowledge and Attitudes about Contraception and Abortion in Canada, US, UK, France and Australia

Ellen R Wiebe<sup>1\*</sup>, Lisa Littman<sup>2</sup> and Janusz Kaczorowski<sup>3</sup>

<sup>1</sup>Department of Family Practice, University of British Columbia, Vancouver, Canada

<sup>2</sup>Department of Preventive Medicine, Icahn School of Medicine at Mount Sinai, New York, US

<sup>3</sup>Department of Family and Emergency Medicine Université de Montréal and CRCHUM, Montreal, Canada

### Abstract

**Objectives:** 1) To describe and compare knowledge and attitudes about contraception and abortion of women in Canada, US, UK, France and Australia. 2) To assess usefulness and validity of online panels to conduct this type of research.

**Method:** We used Survey Monkey Audience to obtain a sample of women aged 18-44 to administer a survey about knowledge and attitude to contraception and abortion. We assessed the representativeness of our samples by comparing the demographics and attitudes to relevant data in each country.

**Results:** 1117 surveys were completed in January 2013: 233 in Canada, 223 in the US, 230 in the UK, 221 in France and 210 in Australia. The majority of women incorrectly believed abortion and contraception were more risky than births. About half (47.1%) of the participants were classified as pro-choice because they indicated that women should be allowed to have an abortion for any reason in the first 3 months: 38.7% in Canada, 37.1% in USA, 42.0% in UK, 68.7% in France and 53.6% in Australia ( $p < .001$ ). Women who believed that abortion should be restricted were more likely to provide incorrect answers to all 10 knowledge questions about abortion and contraception ( $p = < .001$ ) and this pattern was similar in all five countries. Based on comparisons with census data from each country, the Survey Monkey Audience participants appear to be broadly representative of the reproductive age women in the five countries surveyed.

**Conclusion:** Women from these five countries were similar in terms of their knowledge about the risks of abortion and contraception. The majority of women gave incorrect answers to the knowledge questions. Women who favored restrictions to abortion access, in all five countries, were more likely to incorrectly overestimate the risks of both abortion and contraception. On-line panels can be a useful, rapid and inexpensive method of conducting surveys across multiple jurisdictions.

**Keywords:** Abortion; Contraception; Knowledge; Attitudes

### Background

The use of contraception and abortion are common, but numerous studies have shown that women have poor knowledge about the safety and risks of both contraception and abortion [1-10]. Two recent studies, one from Canada and one from the United States, have shown that attitudes about abortion, specifically the belief that abortion should be restricted, is associated with poorer knowledge about contraception and abortion [9,10]. Poor knowledge about contraceptive methods and abortion often involve the overestimation of risks with many respondents erroneously believing that both contraception and abortion are more dangerous than pregnancy and giving birth [5,6,8-10]. There have been no study reports comparing different countries with respect to the association of attitude to abortion and knowledge of contraception and abortion.

There is robust evidence that abortions are safe procedures with a mortality rate of less than 1:100,000 and that abortions do not increase the risk of mental illness, breast cancer or infertility [11-16]. However, several studies reveal that women overestimate the risks of mental illness, breast cancer and infertility associated with abortion [8-10]. In a US study of 67 women returning to the clinic after having had an abortion, three-quarters of participants overestimated the health risks of a first trimester abortion compared to the risks of continuing a pregnancy and giving birth; 43% of participants overestimated the risk of mental health problems like depression after first trimester abortion for an unplanned pregnancy compared to continuing a pregnancy and 22% incorrectly answered that having one first trimester abortion will

make it more difficult to get pregnant in the future [8]. A Canadian survey of 978 women having abortions found similar misconceptions with respondents overestimating the risks associated with abortion; with two-third indicating that the health risks of abortion were the same as or higher than birth; almost a third that the risks of depression were higher than after birth; 28% said there was an increased risk of infertility; and almost 1 in 10 that there was a higher risk of breast cancer. Additionally, one-third of the women in this study believed that abortion should be restricted [9]. Restrictive beliefs about abortion were associated with overestimation of the risks of abortion and greater anxiety after an abortion procedure [9,17]. An association between restrictive beliefs about abortion and poor knowledge about the safety and consequences of abortion and poor knowledge about contraception was also shown in an internet survey of reproductive aged men and women [10].

The purpose of this survey was to describe and compare knowledge

**\*Corresponding author:** Ellen Wiebe, Department of Family Practice, University of British Columbia, 1013-750 W Broadway, Vancouver, BC, Canada, Tel: 604-709-5611; E-mail: [ellenwiebe@gmail.com](mailto:ellenwiebe@gmail.com)

**Received** September 10, 2015; **Accepted** September 23, 2015; **Published** September 30, 2015

**Citation:** Wiebe ER, Littman L, Kaczorowski J (2015) Knowledge and Attitudes about Contraception and Abortion in Canada, US, UK, France and Australia. *Gynecol Obstet (Sunnyvale)* 5: 322. doi:10.4172/2161-0932.1000322

**Copyright:** © 2015 Wiebe ER, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

and attitudes about contraception and abortion of women in Canada, US, UK, France and Australia and to examine the following questions:

1. Does the association between the attitude that abortion should be restricted and poor knowledge about the risks of contraception and abortion is similar across different countries?
2. Which countries and which demographic characteristics are associated with lower knowledge about contraception and abortion risk?

The more we understand about these prevalent misconceptions overestimating the risks of contraception and abortion, the better we will be able to educate women about the true risks, reduce their anxiety and decrease unintended pregnancies.

Surveys are an important source of collecting standardized information. Despite numerous strategies to increase the response rates, [18,19] there has been a steady downward trend in response rates to surveys [20]. The increase in use of mobile phones and Internet has introduced new opportunities and challenges to traditional methods of survey data collection. There are several online consultation platforms (registries of potential participants combined with ability to create and administer surveys) that are currently available to researchers. However, most have been established by private sector companies and are primarily focused on marketing research (such as: SurveyMonkey Audience-[www.surveymonkey.com/mp/audience](http://www.surveymonkey.com/mp/audience); Leger-[www.leger360.com/canada\\_en/legerwebpanel.asp](http://www.leger360.com/canada_en/legerwebpanel.asp); and Ipsos-[www.ipsos.ca/en/products-tools/ipsos-panels/online-panels/](http://www.ipsos.ca/en/products-tools/ipsos-panels/online-panels/)). As such, they offer limited reliability, transparency and control over the entire research process, and their appropriateness for conducting scientifically sound research remains largely unknown. The second objective of this study was, therefore, to assess the usefulness and validity of online surveys for this type of research.

## Method

We used SurveyMonkey Audience that has a panel of about 3 million people in the US, about 500,000 in Canada, about 350,000 in the UK, and about 200,000 in France and Australia willing to participate in a variety of surveys. We purchased a panel of women aged 18-44 (at least 200 per country) in January 2013. There were no inclusion/exclusion criteria other than sex, age and country. The survey asked demographics (age, education, number of children and number of abortions), attitude to abortion and knowledge about risks of IUDs and abortion vs births. The attitude question was: "Which ONE of the opinions best represents your view about abortion in the first 3 months of pregnancy?" followed by 4 possible responses, "Abortion should never be allowed, Abortion should be allowed ONLY if the life and health of the woman is in danger, Abortion should be allowed if, due to personal reasons, the woman would have difficulty in caring for the child, Abortion should be allowed for ANY reason, because no one should be forced to continue a pregnancy" This question had been used in previous research [6,7]. The knowledge questions were modified from previous studies [6,7]. We piloted these surveys in Canada, US, and Australia and had them reviewed by our colleagues in each country for appropriate wording. Approval was granted from University of British Columbia Research Ethics Board H12-03384

Surveys were conducted via SurveyMonkey Audience. Survey takers are randomly selected by Survey Monkey from their pool of participants based on the demographic features requested. For each survey completed by a Survey participant, a \$0.50 donation to the charity of their choice is made by SurveyMonkey, and the Survey taker is entered into lottery (by SurveyMonkey) for a \$100 gift card. SurveyMonkey provided data in the form of survey responses as an

SPSS (IBM Statistical Package for Social Scientists version 21) file. The data contained no identifying information about participants. The questions were adapted from previous research and customized or translated for each country. The knowledge questions were presented first and were mandatory (i.e., the women did not get credit for their survey if they did not answer these) and the demographic questions were last and were not mandatory. France does not allow ethnicity and immigrant status questions, so these were omitted for the French questionnaires. Data were analyzed using SPSS v 20. Women were asked to answer which statement best reflects their view about abortion. For the purpose of this study, women choosing the response, "Abortion should be allowed for any reason, because no one should be forced to continue a pregnancy" were categorized as "pro-choice" and those choosing one of other responses were categorized as "anti-choice". A similar categorization technique for women's attitudes about abortion was described previously [7]. Correct responses to the knowledge questions were tallied and compared with respect to country and attitude to abortion.

To assess the representativeness of the respondents, socio-demographic profiles of respondents as well as the responses to abortion-specific questions obtained from the SurveyMonkey Audience were compared with country-specific census data and the results of published surveys that used probability-based samples (e.g., using random digit dialing) and asked the same or similar questions.

## Confidentiality

SurveyMonkey is an online survey company located in the USA, subject to the US Patriot Act, which allows authorities access to the records of internet service providers. The company servers record incoming IP addresses of the computer that subjects use to access the survey, but no linkage is made between the data and the computer's IP address. The security and privacy policy for SurveyMonkey can be found at the following link: <http://www.surveymonkey.com/mp/policy/privacy-policy/>.

## Statistics

We chose our sample size on the basis of the question, "Do women categorized as "anti-choice" differ from the women categorized as "pro-choice" in their knowledge about health risks associated with abortion and contraception?" In our two previous studies, the 4 abortion knowledge questions were answered incorrectly by (1) 79% and 68%, (2) 46% and 31%, (3) 25% and 28%, (4) 6% and 9%. There were 34% and 52% who were classified as anti-choice. With a sample size of 200 women per country, we had sufficient statistical power to detect differences in proportion of incorrect answers of 14% or more (using two-tailed alpha of 0.05 and power of 80%). We used descriptive statistics to compare women across 5 countries with respect to knowledge of and attitudes to risks associated with abortion and IUDs. We used SPSS file to do chi-square tests on categorical variables and t-tests on continuous variables.

## Results

Email requests were sent by SurveyMonkey Audience to 20609, 13900, 50000, 10933, 16316 women in Canada, US, UK, France and Australia respectively in January 2013. Within two days, 1117 surveys were completed: 233 in Canada, 223 in the US, 230 in the UK, 221 in France and 210 in Australia. The demographics of our samples differed significantly between countries (Table 1). About half (47.1%) of the participants were classified as pro-choice because they indicated that women should be allowed to have an abortion for any reason in the first 3 months: 38.7% in Canada, 37.1% in USA, 42.0% in UK, 68.7%

	Canada n=233	US n=223	UK n=230	France n=221	Australia n=221	p-value
Finished college or university	44.2%	45.5%	43.2%	40.0%	45.9%	<.001
immigrants	23%	9.9%	16.5%	-*	23.8%	<.001
never attend religious services	46.2%	42.1%	60.1%	62.4%	61.4%	<.001
Married	19%	40.5%	51.1%	41.4%	53.1%	<.001
Mean age	32.4	29.8	35.1	35.2	34.7	<.001
Mean # births	1.1	0.9	1.3	1.4	1.4	.002

\*France does not allow questions about country of origin

**Table 1:** Demographics of women surveyed in five countries.

Which ONE of the opinions best represents your view about abortion in the first 3 months of pregnancy?	Canada n=233	US n=223	UK n=230	France n=221	Australia n=221	p-value
Abortion should never be allowed.	14.8%	17.2%	7.6%	2.3%	8.1%	<.001
Abortion should be allowed ONLY if the life and health of the woman is in danger.	27.8%	30.8%	25.4%	13.4%	21.5%	
Abortion should be allowed if, due to personal reasons, the woman would have difficulty in caring for the child.	18.7%	14.9%	25.0%	15.7%	16.7%	
Abortion should be allowed for ANY reason, because no one should be forced to continue a pregnancy.	38.7%	37.1%	42.0%	68.7%	53.6%	

**Table 2:** Attitude to abortion in women of five countries.

Question	Canada n=233	US n=223	UK n=230	France n=221	Australia n=221	p-value
Which is the most effective birth control method? Condoms Birth control pills <u>IUDs*</u>	23.2%	28.7%	27.4%	32.1%	23.8%	.19
Which has a GREATER health risk for a woman? <u>Giving birth*</u> Using an IUD for 5 years They have the same risk	23.6%	23.3%	27.0%	32.1%	23.8%	.166
Which has a GREATER health risk for a woman? <u>Giving birth*</u> Using <u>birth control pills</u> (or patches or rings) for 5 years They have the same risk	26.2%	31.4%	26.5%	22.2%	33.8%	.057
A woman using an IUD for 5 years is MORE likely to have difficulty getting pregnant in the future, after the IUD is removed. <u>Yes No*</u>	24.0%	30.9%	30.9%	40.7%	17.1%	<.001

\*Correct answer underlined

**Table 3:** Knowledge about risks of contraception (% correct answers).

in France and 53.6% in Australia ( $p < .001$ ; Table 2). There were many women who incorrectly believed abortion and contraception were more risky compared to births (Tables 3 and 4). Women classified as having anti-choice beliefs were more likely to provide incorrect answers to all 10 knowledge questions about abortion and contraception ( $p < .001$ ; Table 5). Specifically, women who believed abortion should be restricted were 12.5% more likely to provide incorrect answers to the question about abortion procedure risks, 14.4% about risks of breast cancer, 21.9% about risk of depression and 23.0% about infertility. When asked about contraception, women who believed abortion should be restricted were 10.8% more likely to provide incorrect answers to the question about risks of intrauterine devices, 11.6% about oral contraceptives and 11.8% about injectable contraceptives. There were few differences between the women of the different countries.

We compared the demographics the five countries in (Table 6). For Canada we used the Statistics Canada census data and found that the on-line panel had a higher proportion of women with college degrees and women that reported no religion, were not married and had no children but a similar proportion of immigrants. For the US, our comparison data included US Census bureau and the National Vital Statistics Reports and the on-line panel had a higher proportion of women with college degrees and women who reported no religious affiliation, were not married and had no children but a similar proportion of

immigrants. For the UK, our comparison data included the Office for National Statistics Census as well as the Northern Ireland Statistics and Research Agency data and the on-line panel had a higher proportion of women with college degrees and women who reported no religion and had no children but a similar proportion of immigrants and a higher proportion of married women. For France, our comparison data were from the Institut national de la statistique et des études économiques and the on-line panel had a lower proportion of women with college degrees but higher proportion of women who had no religion and had no children and a similar proportion of married women. For Australia, our comparison data was from the Australian Bureau of Statistics and the on-line panel had a lower proportion of women with college degrees but higher proportion of women who had no religion and had no children and a similar proportion of married women.

We compared attitude data in (Tables 7a-e). For Canada we used an Angus Reid Public Opinion survey from 2013 and a telephone Forum Research survey from 2012 and found that the on-line panel had a lower proportion of women that we categorized as pro-choice about. For the US, our comparison data were a telephone survey by Gallop in 2011 and an on-line survey by Angus Reid in 2010 and the on-line panel had a higher proportion of women that we categorized as pro-choice about abortion. For the UK, our comparison data came from a face-to-face in-home interview study by Ipsos in 2011 and two

Question	Canada n=233	US n=223	UK n=230	France n=221	Australia n=221	p-value
Which has the HIGHEST health risk for a woman? (check one) Having an abortion in the first 3 months of pregnancy <b>*Giving birth to a baby</b> They have the same risk.	21.3%	19.5%	22.3%	12.0%	19.6%	.53
A woman who has an abortion in the first 3 months of an unplanned pregnancy is MORE at risk of a serious mental health problem than if she were to continue the unplanned pregnancy. Yes <b>*No</b>	34.3%	31.8%	34.3%	46.6%	38.6%	.012
A woman who has an abortion in the first 3 months of pregnancy is MORE likely to have breast cancer than if she were to continue the pregnancy. Yes <b>*No</b>	38.7%	41.6%	42.9%	43.8%	42.6%	.86
A woman having an abortion in the first 3 months of pregnancy is MORE likely to have difficulty getting pregnant in the future. Yes <b>*No</b>	35.7%	35.3%	34.4%	32.3%	34.9%	.82

\*Correct answers

**Table 4:** Knowledge about risks of abortion (% correct answers).

Correct responses	Anti-choice	Prochoice*	P-value
Risks of abortion vs birth	13.0%	25.5%	<.001
Risk of breast cancer	35.0%	49.4%	
Risk of depression	27.1%	49.0%	
Risk of infertility	30.8%	53.8%	

\*"pro-choice" defined as agreeing to the statement "Abortion should be allowed for ANY reason in the first 3 months, because no one should be forced to continue a pregnancy".

**Table 5:** Attitude to abortion and knowledge of risks of abortion (% correct answers).

Country	Demographic	On-line sample	Population sample
Canada	Finished college or university	44.2%	26.7% <sup>1</sup> - University certificate, diploma or degree (highest diploma, certificate or degree) (Census 2006, Women, 15-44) ( <i>the proportion jumps to 31.5% if we consider 20-44 only</i> )
	immigrants	23%	20.1% <sup>2</sup> (Census 2006, Women, 15-44)
	religion	None 43% 46.2% never attend religious services	26.9% – no religious affiliation <sup>3</sup> (2011 NHS, Women, 15-44, living in private households)
	married	19%	37.0% <sup>4</sup> (Census 2006, Women, 15-44)
	Mean # births	1.1 No births 46.2%	1.61 <sup>5</sup> (Canadian Vital Statistics 2011 – Preliminary, Women (!), 15-44 <sup>6</sup> )
US	Finished college or university	45.5%	37.9% <sup>7</sup> Educational Attainment, bachelor's degree or higher (2012 American Community Survey 1-Year Estimates, Women, 18-44)
	immigrants	9.9%	15.9% <sup>8</sup> (2012 American Community Survey 1-Year Estimates, Women, 18+)
	religion	None 33.7% 33.3% "not important"	12.8% <sup>9</sup> no religious affiliation (Pew Forum's U.S. Religious Landscape Survey 2007, Women, 18+)
	married	40.5%	37.9% <sup>10</sup> (2012 American Community Survey 1-Year Estimates, Women, 15-44) <i>The proportion jumps to 45.3% if we consider the 20-44 only.</i>
	Mean # births	0.9 55.8% no births	1.9 <sup>11</sup> (National Vital Statistics 2010, Women, 18-44)
UK	Finished college or university	43.2%	N.I. 31% Level 4 qualifications and above <sup>12</sup> (Census 2011, Women, 16-44) E&W 27.2% <sup>13</sup> Level 4 qualifications and above (Census 2011, Men and Women, 16+)
	immigrants	16.5%	E&W 15.0% <sup>14</sup> not born in England or Wales (Census 2011, Men and Women, all usual residents)
	religion	None 52.9%	N.I. 10.7% no religious affiliation <sup>15</sup> (Census 2011, Women, 18-44) E&W 25.1% no religion (Census 2011, Men and Women, all usual residents)
	married	51.1%	N.I. 34.9% <sup>16</sup> (2011 Census, Women, 16-44) E&W 46.6% <sup>17</sup> (2011 Census, Men and women, 16+)
	Mean # births	1.3 38.8% no births	N.I. 2.02 <sup>18</sup> (Registrar General Northern Ireland, 2010-2012, all women)
France	Finished college or university	40.0%	27.9% and 23.8% <sup>19</sup> completed bachelor degree or above (INSEE 2012, Women 25-34 and 35-44 respectively)
	immigrants	-	12.0% <sup>20</sup> (INSEE 2010, Women, 25-54)
	religion	62.4% never attend religious services	45% <sup>21</sup> No religion (Enquête Trajectoires et Origines, INED-INSEE, 2008, Men and Women, 18-50)
	married	41.4%	43.4% (INSEE 2013, Women, 15+)
	Mean # births	1.4 32.1% no births	1.99 <sup>22</sup> (INSEE 2013)

Country	Demographic	On-line sample	Population sample
Australia	Finished college or university	45.9%	49.4% <sup>23</sup> University certificate, diploma or degree (Census 2011, Women 15-44) <i>The proportion is 25% for women 15-44 with bachelor degree or above</i>
	immigrants	23.8%	30.8% <sup>24</sup> (Census 2011, Women, 15-44)
	religion	52.1% "no religion"	25.3% <sup>25</sup> no religion (Census 2011, Women, 15-44)
	married	53.1%	38.3% <sup>26</sup> (2011 Census, Women, 15-44)
	Mean # births	34.7	
Canada	Finished college or university	44.2%	26.7% <sup>1</sup> - University certificate, diploma or degree (highest diploma, certificate or degree) (Census 2006, Women, 15-44) (the proportion jumps to 31.5% if we consider 20-44 only)
	immigrants	23%	20.1% <sup>1</sup> (Census 2006, Women, 15-44)
	religion	None 43% 46.2% never attend religious services	26.9% – no religious affiliation <sup>27</sup> (2011 NHS, Women, 15-44, living in private households)
	married	19%	37.0% <sup>2</sup> (Census 2006, Women, 15-44)
	Mean # births	1.1 No births 46.2%	1.61 <sup>2</sup> (Canadian Vital Statistics 2011 – Preliminary, Women (!), 15-44 )
US	Finished college or university	45.5%	37.9% <sup>2</sup> Educational Attainment, bachelor's degree or higher (2012 American Community Survey 1-Year Estimates, Women, 18-44)
	immigrants	9.9%	15.9% <sup>2</sup> (2012 American Community Survey 1-Year Estimates, Women, 18+)
	religion	None 33.7% 33.3% "not important"	12.8% <sup>2</sup> no religious affiliation (Pew Forum's U.S. Religious Landscape Survey 2007, Women, 18+)
	married	40.5%	37.9% <sup>2</sup> (2012 American Community Survey 1-Year Estimates, Women, 15-44) <i>The proportion jumps to 45.3% if we consider the 20-44 only.</i>
	Mean # births	0.9 55.8% no births	1.9 <sup>2</sup> (National Vital Statistics 2010, Women, 18-44)
UK	Finished college or university	43.2%	N.I. 31% Level 4 qualifications and above <sup>2</sup> (Census 2011, Women, 16-44) E&W 27.2% <sup>3</sup> Level 4 qualifications and above (Census 2011, Men and Women, 16+)
	immigrants	16.5%	E&W 15.0% <sup>2</sup> not born in England or Wales (Census 2011, Men and Women, all usual residents)
	religion	None 52.9%	N.I. 10.7% no religious affiliation <sup>2</sup> (Census 2011, Women, 18-44) E&W 25.1% no religion (Census 2011, Men and Women, all usual residents)
	married	51.1%	N.I. 34.9% <sup>2</sup> (2011 Census, Women, 16-44) E&W 46.6% <sup>3</sup> (2011 Census, Men and women, 16+)
	Mean # births	1.3 38.8% no births	N.I. 2.02 <sup>2</sup> (Registrar General Northern Ireland, 2010-2012, all women)
France	Finished college or university	40.0%	27.9% and 23.8% <sup>2</sup> completed bachelor degree or above (INSEE 2012, Women 25-34 and 35-44 respectively)
	immigrants	-	12.0% <sup>2</sup> (INSEE 2010, Women, 25-54)
	religion	62.4% never attend religious services	45% <sup>2</sup> No religion (Enquête Trajectoires et Origines, INED-INSEE, 2008, Men and Women, 18-50)
	married	41.4%	43.4% (INSEE 2013, Women, 15+)
	Mean # births	1.4 32.1% no births	1.99 <sup>28</sup> (INSEE 2013)
Australia	Finished college or university	45.9%	49.4% <sup>3</sup> University certificate, diploma or degree (Census 2011, Women 15-44) <i>The proportion is 25% for women 15-44 with bachelor degree or above</i>
	immigrants	23.8%	30.8% <sup>3</sup> (Census 2011, Women, 15-44)
	religion	52.1% "no religion"	25.3% <sup>3</sup> no religion (Census 2011, Women, 15-44)
	married	53.1%	38.3% <sup>29</sup> (2011 Census, Women, 15-44)
	Mean # births	34.7	

**Table 6:** Comparison of demographics in online sample and population samples.

on-line surveys by YouGov and Angus Reid in 2010 and 2011 and the on-line panel had both higher and lower proportions of women we categorized as pro-choice about abortion. For France, our comparison data were on-line surveys from the French Institute of Public Opinion (IFOP) in 2010 and 2014. The on-line panel had a lower proportion of women we categorized as pro-choice about abortion. For Australia, our comparison data were a telephone survey by Newspoll in 2013 and an online survey by Crespigny in 2008. The on-line panel had a lower proportion of women we categorized as pro-choice about abortion

## Discussion

Women who favored restrictions to abortion access also selected more incorrect answers and believed more exaggerated risks about

abortion. This is consistent with the findings of two other surveys of women presenting for abortion in Canada and the US [5,7]. The lack of knowledge about the comparative risks of birth and contraception or abortion was pervasive through this sample and also is consistent with the finding from other studies [1-4]. These findings indicate that we need to improve education about the comparative risks of birth, abortion and contraception for all women. The women who believe abortion should be restricted may be more resistant to changing their beliefs about the risks of abortion and contraception and therefore education may not be as effective.

The advantages of using the survey panel are important; we were able to collect survey data from over 1000 reproductive aged women in five countries within a few days for less than US \$9,000. All surveys

Questions	Answers	Target Population	Data collection method	Where / When	Source
<b>Which ONE of the opinions best represents your view about abortion in the first 3 months of pregnancy?</b>	"Abortion should never be allowed"(15%) "abortion should be allowed ONLY if the life and health of the woman is in danger "(28%) "Abortion should be allowed if, due to personal reasons, the woman would have difficulty in caring for the child"(19%) "Abortion should be allowed for ANY reason, because no one should be forced to continue a pregnancy"(39%)	233 females, aged 18-44	online panel	Canada, January 2013	Survey Monkey Audience
<b>What is your personal feeling about abortion?</b>	Abortion should be permitted in all cases (44%, women only: 42%); Abortion should be permitted, but subject to greater restrictions than now (23%, women only: 24%); Abortion should be permitted only in cases such as rape, incest and to save the woman's life (18%, women only: 19%); Abortion should only be permitted to save the woman's life (4%, women only: 3%); Abortion should never be permitted (5%, women only: 4%); Not sure (6%, women only: 5%).	1,009 adults.  The results have been statistically weighted according to the most current education, age, gender and region Census data to ensure a sample representative of the entire adult population of Canada.	Online survey  The margin of error is +/- 3.1%, 19 times out of 20.	Canada / Jan 11-12, 2013	Angus Reid <sup>1</sup>
<b>Should abortion be legal in all circumstances, should it be legal in some circumstances or should it be illegal in all circumstances?'</b>	Legal In All Circumstances (51%, women only: 53%); Legal In Some Circumstances (37%, women only: 37%); Illegal In All Circumstances (10%, women only: 9%); Don't Know (2%, women only: 1%);	1,210 adults.	Interactive voice response telephone survey Results based on the total sample are considered accurate +/- 2.8%, 19 times out of 20.	Canada / Feb 6, 2012	Forum Research Inc. <sup>2</sup>

In red is what the research team considers pro-choice.

**Table 7a:** Comparison of attitudes to abortion in surveys in five CANADA.

Questions	Answers	Target Population	Data collection method	Where / When	Source
<b>Which ONE of the opinions best represents your view about abortion in the first 3 months of pregnancy?</b>	"Abortion should never be allowed"(17%) "abortion should be allowed ONLY if the life and health of the woman is in danger "(31%) "Abortion should be allowed if, due to personal reasons, the woman would have difficulty in caring for the child"(15%) "Abortion should be allowed for ANY reason, because no one should be forced to continue a pregnancy"(37%)	223 females, aged 18-44	online panel	USA, January 2013	Survey Monkey Audience
<b>Do you think abortion should be legal under any circumstance, legal only under certain circumstances, or illegal in all circumstances?</b>	Legal under any circumstance (men only 24%; women only: 29%); Legal in most circumstances (men only 12%; women only: 8%); Legal in only a few circumstances (men only 42%; women only: 36%); Illegal in all circumstances (men only 19%; women only: 24%).	1,018 adults.  Samples were weighted by gender, age, race, Hispanic ethnicity, education, region, adults in the household, and phone status (cell phone-only/landline only/both, cell phone mostly, and having an unlisted landline number)	telephone interviews  For results based on the total sample of national adults, one can say with 95% confidence that the maximum margin of sampling error is ±4 percentage points.	US / May 5-8, 2011	Gallup Poll <sup>1</sup>
<b>What is your personal feeling about abortion?</b>	Abortion should be permitted in all cases (19%, women only: 24%); Abortion should be permitted, but subject to greater restrictions than now (9%, women only: 8%); Abortion should be permitted only in cases such as rape, incest and to save the woman's life (30%, women only: 28%); Abortion should only be permitted to save the woman's life (13%, women only: 13%); Abortion should be permitted, but with the same restrictions that are currently in place (16%, women only: 13%);	1,002 American adults who are Springboard America panellists  The results have been statistically weighted according to the most current education, age, gender and region Census data to ensure a sample representative of the entire adult population of the United States.	Online Survey  The margin of error—which measures sampling variability—is comparable to +/- 3.1%.	US / January 8 to 10, 2010	Angus Reid Public Opinion <sup>2</sup>

In red is what the research team considers pro-choice.

**Table 7b:** Comparison of attitudes to abortion in surveys in USA.

Questions	Answers	Target Population	Data collection method	Where / When	Source
<b>Which ONE of the opinions best represents your view about abortion in the first 3 months of pregnancy?</b>	"Abortion should never be allowed"(8%) "abortion should be allowed ONLY if the life and health of the woman is in danger "(25%) "Abortion should be allowed if, due to personal reasons, the woman would have difficulty in caring for the child"(25%) "Abortion should be allowed for ANY reason, because no one should be forced to continue a pregnancy"(42%)	230 females, aged 18-44	online panel	UK, January 2013	Survey Monkey Audience
<b>Do you think abortion should be...</b>	Legal in all cases (33%, women only: 33%); Legal in most cases (43%, women only: 44%); Illegal in most cases (11%, women only: 10%); Illegal in all cases (2%, women only: 2%); Not sure (11%, women only: 11%).	1,702 adults. Results weighted.	Online Survey	UK / 4-5 September 2011	YouGov <sup>1</sup>
<b>Agree or disagree with the following statement: "If a woman wants an abortion, she should not have to continue with her pregnancy"</b>	53% - "agree" 17% - "disagree"	953 adults. Data was weighted to match the profile of the population.	Face-to-face in-home interviews, at 156 sampling points across Great Britain.	UK / Aug 5-11, 2011	Ipsos MORI Social Research Institute <sup>2</sup>
<b>What is your personal feeling about abortion? (only women's responses displayed here)</b>	Abortion should be permitted in all cases (women only: 16%); Abortion should be permitted, but with the same restrictions that are currently in place (39%); Abortion should be permitted, but subject to greater restrictions than now (20%); Abortion should be permitted only in cases such as rape, incest and to save the woman's life (15%); Abortion should only be permitted to save the woman's life (5%)	2,010 adults who are Springboard UK panellists  The results have been statistically weighted according to the most current education, age, gender and region data to ensure samples representative of the entire adult population of Great Britain.	Online Survey  The margin of error—which measures sampling variability—is comparable to +/- 2.2%.	UK / January 8 to 10, 2010	Angus Reid Public Opinion <sup>3</sup>

**Table 7c:** Comparison of attitudes to abortion in surveys in UK.

Questions	Answers	Target Population	Data collection method	Where / When	Source
<b>Which ONE of the opinions best represents your view about abortion in the first 3 months of pregnancy?</b>	"Abortion should never be allowed"(2%) "abortion should be allowed ONLY if the life and health of the woman is in danger "(13%) "Abortion should be allowed if, due to personal reasons, the woman would have difficulty in caring for the child"(16%) "Abortion should be allowed for ANY reason, because no one should be forced to continue a pregnancy"(69%)	221 females, aged 18-44	online panel	France, January 2013	Survey Monkey Audience
<b>Between these different situations, which one is best suited to our times?</b>	Allow abortion performed by a doctor when requested by a woman because she believes her material or moral conditions do not enable her to have a child (75%, women only: 77%); Allow abortion only under certain limited conditions (19%, women only: 18%); Allow abortion only under one condition, when the women's life is in danger (6%, women only: 5%).	1,016 adults. The survey data was weighted by sex, age and occupational category, and stratified by region and size of town.	Online survey (CAWI - Computer Assisted Web Interviewing)	France / 5-7 Feb 2014	lfop <sup>1</sup>
<b>Personally, are you in favour or opposed to abortion?</b>	In Favour (85%); Opposed (7%); No answer (8%).	1,006 adult women The survey data was weighted by age and occupational category, and stratified by region and size of town.	Online survey (CAWI - Computer Assisted Web Interviewing)	France / 19-23 Feb 2010	lfop <sup>2</sup>

In red is what the research team considers pro-choice.

**Table 7d:** Comparison of attitudes to abortion in surveys in FRANCE.

have errors and bias in sampling and the issue here is whether the errors and bias in survey panels would invalidate our findings on knowledge and attitude about contraception and abortion. Although there were many differences in the demographics between our samples and the comparison samples, most of these differences were similar in size and quality to the differences between other surveys or samples in the same country. Each survey asked the knowledge and attitude questions

differently and the national census asked marital status, immigration status and education level questions differently, making it difficult to make direct comparisons. These are problems that occur commonly when assessing the accuracy of survey data.

The first limitation of survey panels is the small percentage of the total population in these panels (between 0.5 and 1.5% in the five

Questions	Answers	Target Population	Data collection method	Where / When	Source
<b>Which ONE of the opinions best represents your view about abortion in the first 3 months of pregnancy?</b>	"Abortion should never be allowed"(8%) "abortion should be allowed ONLY if the life and health of the woman is in danger "(22%) "Abortion should be allowed if, due to personal reasons, the woman would have difficulty in caring for the child"(17%) "Abortion should be allowed for ANY reason, because no one should be forced to continue a pregnancy"(54%)	221 females, aged 18-44	online panel	Australia, January 2013	Survey Monkey Audience
<b>Attitudes regarding whether abortion should be lawful during each trimester of pregnancy</b>	FIRST TRIMESTER: "Lawful" (61%); "Unlawful" (12%); "Depends on the circumstance" (26%); "Can't say or don't know" (1%).	798 adults.  The survey data was weighted by sex, age and location in accordance with the most recently available data from the Australian Bureau of Statistics.	Online survey	Australia / 28-31 July 2008	Crespigny et al. (2010) <sup>1</sup>
<b>Do you support or oppose women having a right provided by law to choose whether or not they have an abortion?</b>	Support (85%); Oppose (9%); Don't know / refused (7%).	600 adults.  The data have been weighted to reflect the population distribution. The maximum expected margin of sampling error on the total is plus or minus 4 %.	Telephone survey (Omnibus poll)	Victoria / 6-8 & 13-15 Dec. 2013	Newspoll <sup>2</sup>

In red is what the research team

**Table 7e:** Comparison of attitudes to abortion in surveys in AUSTRALIA.

countries). These women had chosen to be on the panel to answer surveys, have access to computers and internet and may be different in numerous ways. We dealt with this problem by comparing our sample to other data from each country with respect to the factors we expected to be important for knowledge and attitude, for example, religiosity, marital status and education. The next limitation is the bias of who answered the questions within the panel. Since our survey was completed within days, only those panel members who answered the email request quickly were captured.

In more traditional surveying methods, there is also a bias towards people willing to answer surveys. In random digit dialing, there is a bias towards those who have land-based phone lines. It is impossible to have no bias in population based surveys.

## Conclusions

Women from these 5 countries were similar in terms of their knowledge about the risks of abortion and contraception. The majority of women gave incorrect answers to the knowledge questions. Women who favored abortion restrictions to abortion access, in all five countries, were more likely to incorrectly overestimate the risks of both abortion and contraception. It is important that clinicians and educators are aware of this and work together to inform women. We found that on-line panels can be a useful method of assessing attitude and knowledge.

## Acknowledgments

We thank our colleagues Sharon Cameron (UK), Elizabeth Aubeny (France) and David Grundman (Australia) for their advice.

## References

- Mosher WD, Jones J (2010) Use of contraception in the United States: 1982-2008. *Vital Health Stat* 23: 1-44.
- Jones RK, Kavanaugh ML (2011) Changes in abortion rates between 2000 and 2008 and lifetime incidence of abortion. *Obstet Gynecol* 117: 1358-1366.
- Frost JJ, Lindberg LD, Finer LB (2012) Young adults' contraceptive knowledge,

norms and attitudes: associations with risk of unintended pregnancy. *Perspect Sex Reprod Health* 44: 107-116.

- Hladky KJ, Allsworth JE, Madden T, Secura GM, Peipert JF (2011) Women's knowledge about intrauterine contraception. *Obstet Gynecol* 117: 48-54.
- Nelson AL, Rezvan A (2012) A pilot study of women's knowledge of pregnancy health risks: implications for contraception. *Contraception* 85: 78-82.
- Venkat P, Masch R, Ng E, Cremer M, Richman S, et al. (2008) Knowledge and beliefs about contraception in urban Latina women. *J Community Health* 33: 357-362.
- Tessler SL, Peipert JF (1997) Perceptions of contraceptive effectiveness and health effects of oral contraception. *Womens Health Issues* 7: 400-406.
- Littman LL, Jacobs A, Negron R, Shochet T, Gold M, et al. (2014) Beliefs about abortion risks in women returning to the clinic after their abortions: a pilot study. *Contraception* 90: 19-22.
- Wiebe ER, Littman L, Kaczorowski J, Moshier EL (2014) Misperceptions about the risks of abortion in women presenting for abortion. *J Obstet Gynaecol Can* 36: 223-230.
- Kavanaugh ML, Bessett D, Littman LL, Norris A (2013) Connecting Knowledge about Abortion and Sexual and Reproductive Health to Belief about Abortion Restrictions: Findings from an Online Survey. *Women's Health Issues* 23: e239-e247.
- Grimes DA (2006) Estimation of pregnancy-related mortality risk by pregnancy outcome, United States, 1991 to 1999. *Am J Obstet Gynecol* 194: 92-94.
- Danel I, Berg C, Johnson CH, Atrash H (2003) Magnitude of maternal morbidity during labor and delivery: United States, 1993-1997. *Am J Public Health* 93: 631-634.
- Hakim-Elahi E, Tovell HM, Burnhill MS (1990) Complications of first-trimester abortion: a report of 170,000 cases. *Obstet Gynecol* 76: 129-135.
- Committee on Gynecologic Practice (2009) ACOG Committee Opinion No. 434: induced abortion and breast cancer risk. *Obstet Gynecol* 113: 1417-1418.
- Hogue CJ (1986) Impact of abortion on subsequent fecundity. *Clin Obstet Gynaecol* 13: 95-103.
- Charles VE, Polis CB, Sridhara SK, Blum RW (2008) Abortion and long-term mental health outcomes: a systematic review of the evidence. *Contraception* 78: 436-450.

- 
17. Wiebe ER, Trouton KJ, Fielding SL, Grant H, Henderson A (2004) Anxieties and attitudes towards abortion in women presenting for medical and surgical abortions. *J Obstet Gynaecol Can* 26: 881-885.
  18. Edwards PJ, Roberts I, Clarke MJ, Diguseppi C, Wentz R, et al. (2009) Methods to increase response to postal and electronic questionnaires. *Cochrane Database Syst Rev* 3: MR000008.
  19. Nakash RA, Hutton JL, Jørstad-Stein EC, Gates S, Lamb SE (2006) Maximising response to postal questionnaires--a systematic review of randomised trials in health research. *BMC Med Res Methodol* 6: 5.
  20. Cook JV, Dickinson HO, Eccles MP (2009) Response rates in postal surveys of healthcare professionals between 1996 and 2005: an observational study. *BMC Health Serv Res* 9: 160.