Does contraception prevent abortion? An empirical analysis

articolo

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Introduction

Forty years ago the Pope Paul VI wrote his last encyclical "Humanae Vitae" condemning contraception as an intrinsic evil. Since then many utilitarian philosophers, doctors and politicians have argued that the legalization of abortion is a necessary evil, but preventable by contraception. This theory is an application of the following syllogism: unplanned pregnancies cause abortion, contraception avoids unplanned pregnancies, therefore contraception prevents abortion. The appearance of truth in this assertion made it possible to accuse the Church of favouring abortion and maternal deaths because of a well known denial of contraception (1). In the ideal contraceptive society depicted by the pro-choice movement, no more unwanted, mistimed, unplanned pregnancies should have ever happened; instead, every child would have been a wanted child. After more than forty years of tons of hormones administered to women and latex spread into the environment, what can we say about that apparently incontestable and marvellously simple way of resetting abortion to zero that is contraception? We have dozens of facts to rethink the expectations of those times.

Preliminary Questions – the terminological issue

Currently with regard to the prevention of abortion by increased access to contraception there are some preliminary questions to be answered:
What is contraception? What is abortion? Do at least some of the so-called contraceptive deliveries act in a non-contraceptive way?
Clarification of terms is of utmost importance in order to specify the moral nature of acts; therefore in this case the statement "words are not innocents" is extraordinary appropriate (2).
There is unanimous concordance among physicians that fertilization represents the union of sperm with the oocyte. Less agreement exists upon the term conception, as some consider the terms fertilization and conception as synonymous, whereas others assign to conception the meaning of implantation. As a consequence, contraception is what prevents conception which in turn may be intended as fertilization or implantation. In 1972 the ACOG (American College of Obstetrics and Gynaecologists) defined pregnancy as the process that begins with implantation (3). All main medical and health organizations followed what the ACOG had stated since then. Nobody can doubt that implantation is a crucial moment in the development of a new human being, but it is no more important than fertilization. We have to recognize that artificial fertilization has separated the concepts of pregnancy and fertilization, and that measure of beta-HCG makes diagnosis of pregnancy possible only after implantation,

nevertheless it is undeniable that after fertilization at least one living human being exists, irrespectively of his origin, place, destiny and visibility. His nature is human on the basis of his genetic patrimony and he is living because he is characterized by capacity for metabolism, growth, reaction to stimuli and death: the embryo can indeed be killed. Furthermore, we all know that facts precede our sight. Before hormonal means were available, pregnancy was later recognized only by clinical criteria, but now we know that pregnancy had been initiated much earlier than doctors could say back then. Lack of a marker of pre-implanted embryo vitality does not exclude the presence of a living human being. Using the term "fertilized oocyte" for the pre-implanted embryo hides the intention of denying the status and dignity to the human embryo, reducing the new life to nothing more than a dischargeable biological maternal structure. The term fertilized oocyte is in this context much more prescriptive than descriptive.

Contraceptive means may therefore not necessarily act and be perceived as contraceptives. It is something that both physicians (4) and patients (5;6) have in common. For that reason, abortion may not merely be the termination of pregnancy, but the more serious event of the destruction of an unique, unrepeatable human being.

The promotion of contraception sends the message that having sex without consequences is a fundamental right independently from the strength of bonds and the way to obtain it

For some contraceptive devices, like IUD (7), estroprogestins (8;9;10) or mifepristone emergency contraception (11) and mini-pill (12), it is commonly accepted that the mechanism of action at least in part may consist of a post-fertilization effect. More disputed is the post-fertilization effect of low-dose estroprogestinic hormonal contraception (13;14) and post-coital levonorgestrel.

The potential of contraception

The theoretical framework of immediate factors affecting abortion is depicted by Bongaarts and Westoff in their equation: $TAR = p*(Y_R*(1-e*u)-ITFR*I_B) / (p*I_A+(1-p)*I_B)$ (15). Assuming constant sexual activity, the model predicts the number of abortions per woman during the lifetime on the basis of four main factors: sexual life span (sexuality factor), number of planned children (fertility factor), efficacy and continuation of use of contraception (contraceptive factor) and probability of abortion after unplanned pregnancy (life factor). The model shows that contraception is only one of the determinant factors of abortion, but fails to analyze the interplay between the same factors, which in turn is a crucial point in every risk factor analysis (16). Theoretically, the availability of contraception could well affect all the other elements. For example, wider access of emergency contraception has been proved to stimulate demand (17) in the same manner as increased supply of food had driven to children obesity (18). Furthermore, contraception intrinsically aims eliminate any consequences to sexual intercourse and this may have been the case. Referring to contraception, Elisabeth Anscombe theorized that *«What can't be otherwise we accept. But possibility destroys mere acceptance»* (19). Nobel Prize winner George Akerlof has shown the correctness of such a statement in his social quantitative analysis calling the spread of contraception *«reproductive technology shock»* (20) and showing that promoting contraception sends the core message of the reproductive rights ideology, namely, that having sex without consequences is a fundamental right independently from the strength of bonds and the way to obtain. In other words, contraception reduces sex, partner and children to commodities and succeeds in building up a new *weltanschauung* by undermining the virtue of temperance.

What numbers say

There are few studies aimed to explore the connection between contraception and abortion at a population level in medical literature. Starting from the conviction that contraception and abortion act in series in reducing fertility, Marston and Cleland.

argue that at a constant level of fertility (1.7-2.2 in the article); if contraception increases necessarily abortion must go down (21). Irrespective of the theoretical reduction of human being to the level of a hairless experimental animal, unfortunately in their work the authors fail to prove the point. In figures 2 and 3 of their paper they incorrectly make a regression analysis both mixing longitudinal and cross-sectional data and selection of countries. Their work apparently reflects a lack of understanding of the research process. Differential exclusion, whatever direction the resulting bias may take, violates basic tenets of scientific research and establishes creative science. Since no large prospective randomized controlled trials exist, we have to separately turn to longitudinal and cross-sectional observational analysis to evaluate the effect of contraception on abortion rates.

Longitudinal data can be provided by some selected countries with good quality surveys of contraception and abortion trends in the time span. US data is reported in table I. Perfect use contraception coverage and Typical use contraception coverage are calculated adding for each method the combination of prevalence of use in the female fertile population and efficacy for the perfect and typical use reported by Trussell (22).

The corresponding figures for pregnancy and abortion rates and for abortion ratio are reported in table II.

With respect to 1982 the 2002, overall use of contraception has increased 11.1% and the perfect and typical contraception coverage have risen 10.6%, in line with the 7.4% reduction of pregnancies, but this cannot justify the much greater reduction of abortion rate (-28.8%) and abortion ratio (-26.2%) without admitting an increased anti-abortion sensitivity and attitude among American women confirmed by data from US teenagers (23). The Pro-life attitude mainly derives from a rediscovery of life values and the defence of life shared among religious movements prevailing against pro-choice activism.

In Japan during the period 1970-2000 the number of abortion has passed from roughly 700.000 to less than 350.000 (319.831 in 2003) with a corresponding level of current contraceptive users among married women slightly increased (about a 4% increase) and a typology of patterns of contraceptive use all in all unchanged (24).

The French nation is the paradigm of the contraceptive fallacy. During the period

Year	Total contraception use (%)	Surgical sterilization (%)	Pill users (%)	IUD users (%)	Diaphragm users (%)	Condom users (%)	Perfect use contraception coverage (%)	Typical use contraception coverage (%)
1982	55.7	12.9	15.6	4.0	4.5	6.7	43.2	40.6
1990	59.3	17.5	16.9	0.8	1.7	10.5	46.9	44.1
1995	64.2	17.8	17.3	0.5	1.2	13.1	49.4	46.3
2002	61.9	16.7	18.9	1.3	0.2	11.1	47.8	44.9

Table I. Contraceptive habits among US women

Year	Pragnancy rate (n/1000)	Abortion rate (n/1000)	Abortion ratio (n/1000)	Pregnancy difference vs 1982 (%)	Abortion rate difference vs 1982 (%)	Abortion ratio difference vs 1982 (%)	Total Fertility rate (n/woman)
1982	110.1	28.8	427.6	0.0	0.0	0,000	2.0155
1990	115.8	27.4	387.0	5.2	-4.9	-9.5	2.0025
1995	103.5	22.5	348.5	-6.0	-21.9	-18.5	1.7995
2002	101.9	20.5	315.5	-7.4	-28.8	-26.2	1.8195

Table II. Reproductive outcomes in US

In France, despite the enormous spread of contraception the abortion rate has remained substantially unchanged. The reduction of unplanned pregnancies was counterbalanced by an increase in the proportion of terminated unplanned pregnancies

1978-2000 the percentage of women using a contraceptive pill or IUD among those seeking to avoid a pregnancy passed from 40% to 60% and from 12% to 23% respectively, and there is a further 10% of condom users to add (25). What happened in the meantime on the abortion front? Despite the enormous spread of contraception, the figures show that abortion rate has remained substantially unchanged during the period 1975-2000, with a reduction in unplanned pregnancy (from 46% to 33%) counterbalanced by an increase in the proportion of terminated unplanned pregnancies (from 41% to 62%) (26).

In the United Kingdom historical series of the last ten years show a significant increase in abortion rates and ratios in spite of a substantial stability of contraception (Table III and IV) (27;28;29;30; 31).

The relative 2.7% increase of contraception use and coverage registered in the ten year period from 1997-2006 was associated with a 4.5% relative increase in pregnancy rate and a 12.3% in abortion rate.

A separate analysis of Scottish data shows a 7.3% increase in abortion rate during the same period. Because of the deep secular-

Year	Total contraception use (%)	Surgical sterilization (%)	Partner sterilisation (%)	Pill users (%)	IUD users (%)	Diaphragm users (%)	Condom users (%)	Injectable/ Implant users (%)	Perfect use contraception coverage (%)	Typical use contraception coverage (%)
1997/98	74	11	10	26	4	2	21	2	75.3	70.3
1998/99	75	12	12	26	4	1	21	2	77.3	72.5
1999/00	76	12	11	26	4	1	23	3	79.3	74.2
2000/01	73	11	11	25	5	1	21	3	76.3	71.5
2001/02	75	10	12	28	3	1	21	3	77.3	72.3
2002/03	74	11	12	25	5	1	20	3	76.4	71.7
2003/04	75	11	12	25	4	1	23	3	78.3	73.2
2004/05	75	10	12	25	4	1	22	4	77.3	72.4
2005/06	74	10	11	24	5	1	21	4	75.3	70.6
2006/07	76	9	11	27	4	1	22	4	77.3	72.2

Table III. Contraception practices among UK women during 1997-2006

Year	Pregnancy rate (n/1000)	Abortion rate (n/1000)	Abortion ratio (%)	Total Fertility rate (n/woman)
1997	74.6	16.3	21.3	1.73
1998	74.2	17.2	22.3	1,72
1999	71.9	16.8	22.6	1.70
2000	70.9	17.0	22.7	1.65
2001	70.3	17.1	23.2	1.63
2002	72.2	17.0	22.5	1.65
2003	73.7	17.5	22.5	1.73
2004	75.2	17.8	22.4	1.78
2005	76.0	17.8	22.2	1.79
2006	78.0	18.3	22.3	1.86

Table IV. Pregnancy, abortion and fertility in England and Wales during 1997-2006

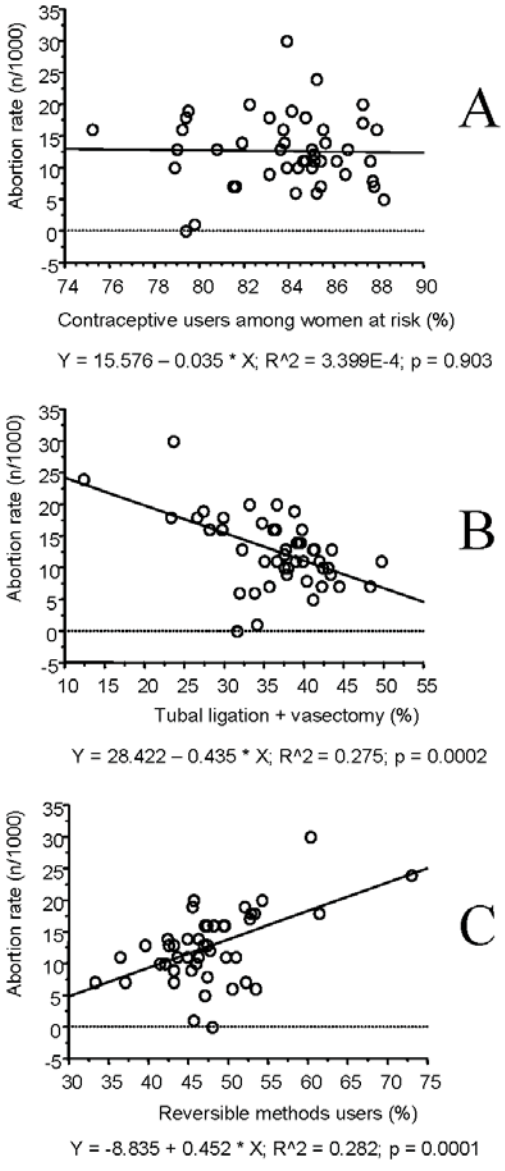
ization of French and British societies contraception and abortion are both perceived as first and second line interventions on the reproductive menu because institutions giving the message of sanctity of life have been heavily oppressed or destroyed from the inside.

Simple regression analysis of abortion and contraception data from 46 US states provided by CDC (32;33) indicates that in US states with higher contraception use there are not less abortions (Fig1A); rather while sterilisation is inversely associated to abortion (Fig1B), reversible methods as a whole are positively associated with abortion (Fig1C). Total fertility rate in US territories examined is 1.59-2.68, but exclusion of states with total fertility rate below 1.7 and above 2.2 (the range chosen by Marston and Cleland just to maximize the dimension of their sample) does not make a difference. Data from 51 US states for abortion rates provided by the Guttmacher Institute (34) confirms and statistically strengthens the results. In the same issue Guttmacher Institute *«assessed the states on their efforts to help women avoid unintended pregnancy, using three indicators that can have a measurable impact on women's ability to obtain contraceptive services and supplies, and to use them consistently and correctly over time»*. The indicators were *«service availability»*, *«laws and policies»*, *«public funding»* and the state's three scores aggregated overall composite score, which was used to rank the states (35). Contrary to what asserted in the title of the issue (*Contraception counts*), data provided by Guttmacher Institute fail to prove that contraception counts, but succeed in demonstrating that states' contraceptive efforts are useless in reducing both pregnancies and abortions. In accord with other observations indicating that the wider the access to abortion services is, the higher the abortion rate (36), stepwise regression analysis shows that the only variable entering the model for the state-specific abortion rate is the indicator named *«laws and policies»*, with a positive rather than negative association (F = 5.86), albeit no variable was statistically significant in a multiple regression analysis. Furthermore, stepwise regression analysis demonstrates no association between pregnancy rate and the four indicators of contraceptive support as well as the level of contraception funds spent per woman.

Data fail to prove that contraception counts, but succeed in demonstrating that states' contraceptive efforts are useless in reducing both pregnancies and abortions

Fig. 1. Abortion rate and contraceptive users among women at risk of pregnancy (A), female and male sterilization (B), and reversible methods calculated as overall contraceptive users minus female and male sterilization (C).

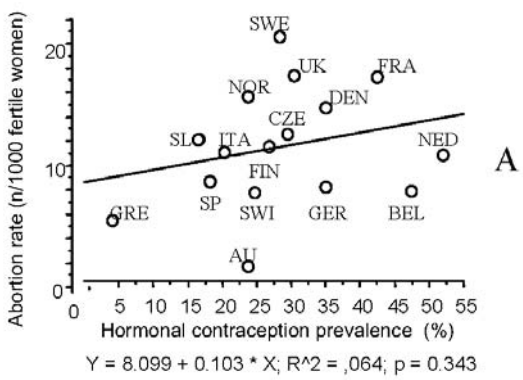
Among sixteen European countries having a Total Fertility Rate between 1,17 and 1,86 in 2002 abortion rates are not associated to the levels of hormonal contraception in the

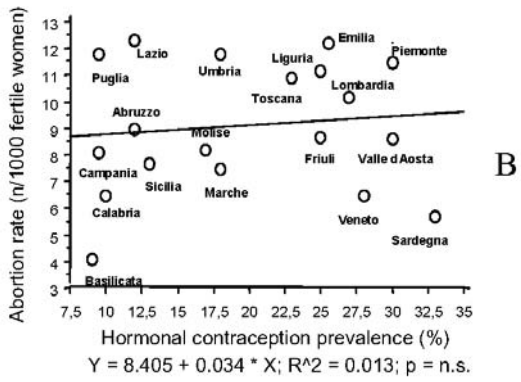


female population (Fig. 2A). (37;38;39) Taking different fertility levels and per capita Gross Domestic Product (GDP) volume indices (40) into account makes no difference in a multiple regression analysis (p = 0.69). No statistical correlation has also been found in regression analysis between levels of hormonal contraception (38) and abortion rates (41) in Italian territories (Fig 2B).

Fig. 2. Abortion rate and hormonal contraception levels in selected European countries (A) and in Italian territories (B)

We have also information about effectiveness of interventions for the promotion of contraception. In his review of literature Kirby could find only eleven studies eligible

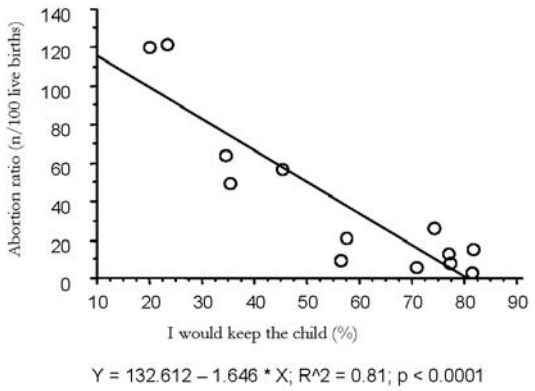




for analysis. For all the studies examined intervention determined a transient modification of the surrogate end-point (increased use of contraception), but failed to influence the hard end point represented by pregnancies (42). On the basis of data we can observe that the *«more contraception less abortions»* argument is nothing more than an attractive slogan and the contraceptive family planning represents a bottomless well for financial and human resources. One of the main problem with hormonal contraception is the high discontinuation rate of the methods. It is not the aim of this work to deal in depth about the issue but it is worthwhile to notice that contraceptive pill discontinuation rate is 30% and 50% at one and two years respectively (43), a level similar to those of statins (44;45), antihypertensives (46) and oral antidiabetics (47). In retrospective studies of contraceptive use in the month of conception, among women who abort we find that more than sixty per cent have used some form of contraception (48;49;50), with the pill accounting for a significant part of the cases (51). If it is true that people chose the contraceptive method on the basis of their sexual behaviour, we must also remember that the contraceptive habit shapes sexual behaviour (52). In this perspective we can argue that many abortions attributed to intercourses without contraception actually result from sexual acts following the preceding contraceptive-induced sexual habits which in turn are not immediately changeable (53;54). Data show at best the weak potential of policies based on contraception for reducing abortion, if not some reasons to take into account the apparently paradoxical potentiality of contraception to increase abortion. Abortion and sexuality are much too complex matters to be solved by swallowing a pill. The legal (55;56;57), sociological (58;59) and spiritual aspects (60;61) appear very relevant. According to Icek Aizen's planned behaviour theory (62), women's attitude towards abortion may represent a relevant decision-making element in case of unplanned pregnancy and we know that attitudes can be shaped by hundreds of factors in both directions. In their academic essay Tazi-Preve and Roloff pointed out the importance of external context in the recourse to abortion (63). The authors showed data from the Family

and Fertility Survey in which women, among other things, were requested what they would have done in the event of an unintentional pregnancy. If we plot a regression line between percentage of women answering they would keep the child and national abortion ratios provided in the issue (63) we obtain figure three, where the impressively strict concordance between country-specific answers and abortion ratio is well evident and indicates the high level of coherence with preceding convictions in the women's deciding on abortion.

Fig. 3. Percentage of women intended to keep the child in case of an unintentional pregnancy in selected European countries and national abortion ratios.



Conclusions

Although the attractive theorem of contraception to prevent abortion has conquered the minds of the great majority of researchers and filled the pockets of a mass of people opening enormous market shares, notwithstanding facts are slowly prevailing. The contraception-abortion debate is a good application of the Wundt's lesson of heterogenesis of ends where oversimplification of human being to his biological components may explain the contraceptive fallacy. Contraception does not reduce abortion because what takes away with one hand gives back with the other.

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