

Investigation and analysis of contraceptive measures towards different reproductive-aged women in Yangzhou

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Summary

Objective: This study aims to retrospectively investigate the contraceptive methods of different reproductive-aged women in two different regions of Yangzhou, China, to understand the changes of the contraceptive methods, and to analyze the targeted improvements of future informed choices of contraception and birth control, and reduce the occurrence of the unintended pregnancies. **Materials and Methods:** This study included 13,407 and 20,876 married reproductive-aged women (MCW) that were chosen from a city downtown and a county-level city, respectively, for the group-organized random sampling questionnaire survey. **Results:** There was a significant urban-rural difference in the choice of contraceptive methods in different MCW. The female choices of contraception were single; the accessibility of contraceptive supplies, and personalized services could improve the implementation rate of long-term contraceptive measures. The cooperation of male contraceptive responsibility was related to the education levels and enhanced male-female communication. **Conclusions:** It was very important for urban and rural women with different ages to choose different contraceptive measures, suggesting that these choices require the development of different educational models towards women of different ages and regions. The accessibility to various aspects of counseling and contraceptive measures should be strengthened, meanwhile male participation should also be promoted to prevent unwanted pregnancies and to reduce the health hazards related to sexual activities.

Key words: Reproductive-aged women; Regional age distribution; Contraceptive measure.

Introduction

From the perspective of maintaining, protecting, and developing civil rights, the concept of offering informed choices regarding contraception has generally been carried out more than ten years. The Nation supplies the reproductive-aged people with free contraceptives drugs and devices from four categories and 31 varieties and specifications [1]. The relative service offered has formed a high-quality procedure in providing contraceptive measures, while helping to the raise the awareness of contraceptive knowledge among reproductive-aged women, while helping them to make independent, voluntary, and responsible decisions based on the full understanding of the situation. However, with the gradual development of the informed choice, the short-acting self-controlled contraceptive measures have been more and more preferred among the contraceptive choices of married reproductive-aged people [2]. The termination option rate and the replacement rate of female contraception increase, while the male participation rate is still low, and as the sexual demands of adolescent increase, the phenomenon of non-contraception also increases, resulting in the incremented unplanned pregnancy rate and related consequences. Contraception is an important measure to reduce unwanted pregnancies [3]. Many studies have demonstrated that the cultural background and ethnic role are the determinative factors of childbirth and contraceptive behavior [4, 5]. Therefore, it

would be necessary to understand the contraceptive-method status of women under the cultural background of Yangzhou region, Jiangsu Province, to compare the variation rules of contraceptive measures according to different ages, and to analyze the targeted measures towards the informed choice of contraceptive methods, while helping women to choose safe, effective, and appropriate contraceptive measures, and to reduce unwanted pregnancies.

Materials and Methods

Subject

During the implementation procedure of Jiangsu Provincial cervical Cancer Screening Project, two counties (city, district) of Yangzhou were set as the project sites. The married reproductive-aged women in the project sites that were investigated were 34,292 and 34,283 questionnaires were valid, among which Guangling district, Yangzhou downtown, had 13,407 questionnaires, with an average age of 45.6 years; Gaoyou, Yangzhou county, had 20,876 questionnaires, with a mean age of 45.3 years. This study was conducted in accordance with the declaration of Helsinki and with approval from the Ethics Committee of Hospital of Maternal and Child Health. Written informed consent was also obtained from all participants.

Survey methodology

The project screening fee was paid by the government. The married reproductive-aged women, living within the target region, were chosen. The group-organized random sampling was performed for the investigations. The investigators were trained professional technical persons responsible for the effective questionnaire-filling. The survey was conducted from January 2009 to

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Table 1. — Ratio of investigated women in the population in the two regions of study.

Age grouping	City downtown			County-level city		
	Regional female population	Female number investigated	Ratio (%)	Regional female population	Women investigated	Ratio(%)
20~	25,550	1,052	4.12	35,648	1,983	5.56
30~	29,119	4,210	14.46	61,763	6,536	10.58
40~	31,779	3,640	11.45	84,760	6,904	8.15
50~65	32,292	4,505	13.95	82,550	5,453	6.58

Table 2. — Contraceptive measures currently used at different ages (%).

Region	Age(years)	Non-using	IUD	Oral-contraceptive drugs	Contraceptive injection	Subcutaneous implantation	Condom	Contraceptive diaphragm	Tubal Ligation	Vasoligation	Others
Downtown	20~	8.02	35.69	0.86	0	0.08	54.09	0	0.24	0.15	0.86
	30~	7.28	63.05	1.17	0.02	0.02	24.8	0.19	2.45	0.05	0.95
	40~	21.54*	60.57	0.07	1.35	0	11.82	0.18	3.32	0.09	1.06
	50~65	75.33**	13.11	0.09	0	0	0.91	0	10.14	0.29	0.14
County	20~	7.26	71.51	0.98	0	0.24	19.59	0	0.31	0.12	0
	30~	4.70	75.03	2.18	0.05	0.14	14.65	0.11	2.55	0.43	0.18
	40~	11.61	58.09	2.50	0.09	0.14	10.94	0.30	11.84	4.22	0.28
	50~65	11.32	3.67	0.06	0	0	0.14	0.01	65.89	18.82	0.09

* $p < 0.05$ and ** $p < 0.01$ compared with the county.

December 2009. The patients were divided into two types: contraceptive measures currently used (taking relatively long-lasting and high efficient contraceptive measures during survey) and contraceptive measures used in the past (had used other contraceptive measures before survey). In addition, the constitute situation of the contraceptive methods used by the reproductive-aged women in the above regions in 2009 were statistically analyzed. The regional relative female population data were obtained from the 6th census data according to the Bureau of Statistics in 2010.

Statistical analysis

EpiDate software was used to build the database, and the data were entered into for summary. SPSS15.0 software was used for the statistical analysis, with the chi-square (χ^2) test towards the categorical variables. Statistical significance was considered when $p < 0.05$.

Results

General demographic characteristics

The basic survey was performed towards the ratio of the population of the two study groups in the regional female population, and the results showed that there were less people in the 20 to 29 age group, which was related with the fact that the unmarried persons did not participate in the survey (Table 1).

There were no statistical differences in the points of age composition ($\chi^2 = 2.756$) and marital status ($\chi^2 = 1.895$) in the age subgroup of 20~65 years ($p > 0.05$). As for the educational levels (illiteracy, primary school, secondary school, college, and above), the data in the city downtown were 9.64%, 16.62%, 62.83%, and 10.91%, respectively, and the data in the rural region were 39.30%, 24.19%, 35.48%, and 1.03%, respectively, with statistical significance ($\chi^2 = 5.765$, $p < 0.01$).

Contraceptive measures currently used

The women under 40 years in the two regions concentrated on the use of intrauterine device (IUD) and condom, accounted for nearly 90%; the ratios of women under 30 years who used IUD in downtown were 35.7% and 71.51% in the county; the ratio of condom-usage in downtown was 54.09%, and 19.59% in the county. In the 20~49-year group, the ratio of the use of condoms decreased 50% in downtown, and 20% in the county; when over 50 years of age, the ratios of non-using contraceptive measures were 75.33% in downtown and 11.32% in county ($\chi^2 = 3.804$, $p > 0.05$). In the county, the ratio of male and female sterilization reached 84.71%; when over 50 years of age; the ratios of IUD were 13.11% in downtown and 3.67% in the county (Table 2).

Contraceptive measures used in the past

The ratios of before 30-year-old females who used one contraceptive method (i.e., never-used was subtracted by the currently unused) were 61% and 54.8%, respectively, ($\chi^2 = 0.875$, $p > 0.05$); before 40-years, the ratios were 48.8% and 31.4% ($\chi^2 = 3.804$, $p > 0.05$); before 50-years, the ratios were 23.3% and 21.1%, respectively, ($\chi^2 = 1.2515$, $p > 0.05$), without significant difference (Table 3).

Current situation

Among the entire married reproductive-aged women (15~49 years of age) in the city, the ratio of taking contraceptive measures in county accounted for 90.82%, and 87.64% in downtown; among the current measures, the ratio of using long-term measures accounted for 80.25% in county, and 67.38% in downtown; the current usage of the

Table 3. — Contraceptive measures previously used at different ages (%).

Region	Age(years)	Non-using	IUD	Oral-contraceptive drugs	Contraceptive injection	Subcutaneous implantation	Condom	Contraceptive diaphragm	Tubal Ligation	Vasoligation	Others
Downtown	20~	69.0	4.7	0	0	0	18.4	0.08	0	0	0.16
	30~	56.1*	6.1	0.14	0.1	0	11	0.13	0.3	0	0.45
	40~	44.8*	8.0	0.4	0.4	0	2.2	0.2	0.3	0.1	0.2
	50~65	15.5**	15.2	0.5	0.5	0.03	4.5	0.3	2	0.1	0.5
County	20~	62.1	24.6	1	0	0	14.9	0	0	0	0
	30~	36.1	59.4	5	0.1	0.1	5.4	0.2	0.1	0	0.02
	40~	32.7	62.6	10.2	0.2	0.4	2.5	0.09	0.16	0.18	0
	50~65	44.1	52.1	4	0.04	0.03	0.34	0.04	1.9	1.1	0

* $p < 0.05$ and ** $p < 0.01$ compared with the county.

Table 4. — Current contraceptive methods in the entire city in 2009.

	Population of married females (15~49 years old)	IUD	Oral and injection contraceptive drugs	Subcutaneous implantation	Condom	External application	Tubal Ligation	Vasoligation	Summary	Non-pregnant
Downtown	58244	38546	183	11	11585	34	598	86	51043	7201
	(%)	66.18	0.31	0.02	19.89	0.06	1.03	0.15	87.64	12.36
County	181445	136161	1616	308	17123	438	6925	2212	164783	16662
	(%)	75.04	0.89	0.17	9.44	0.24	3.82	1.22	90.82	9.18

contraceptive drugs in both groups was less than 1%; the current condom usage rates were 19.89% in downtown and 9.44% in the county (Table 4).

Discussion

In this study, there was no significant difference in age or marital status between the two study groups, except in the level of education. As consistent with other city, the implementation rate of long-term contraceptive measures in Yangzhou exhibits a downward trend. The implementation rate of sterilization decreased year by year, and that of IUD remains stable [6]. The attitude of women in Yangzhou to various contraceptive methods can be learned from their ages.

Using IUD is a safe, highly effective, long-lasting means of contraception [7]. Internationally, IUDs are the most widely used reversible method of contraception [8]. On an average, 15% of reproductive-aged women in developing countries and 8% in developed countries use IUDs [8]. Chinese IUD is the basic contraceptive item, with the policy of free supplication and high popularity, and the current using rate of IUD in Yangzhou also reaches 70%. The usage rates of IUD in young-age groups were 71.51% and 75.03% in county, higher than those in downtown (35.69% and 63.05%), the difference gap was 12% to 35%, which trended to be equal (60%) in 40-year-old group and above. The usage rate in over 50-year-old population in Yangzhou is 13.11%, greatly higher than the 3.67% in county. This indicates that there is difference of popularization of contraceptive method informed choice between city and rural region. The self-selection sense of women in downtown was strong, while the actual implementation was poor. They

seldom turned to professional service workers for help. The women in county often communicated mutually, and the service workers often went to their families to implement the contraception. Therefore, the necessary measures should be taken in downtown women, to improve the awareness and implementation rates of contraception.

The use rate of condoms reflects the trend of a younger population. In the survey, the population of using contraceptive film, subcutaneous implantation, and contraceptive injection was small, while the short-acting contraceptive measures were mainly condoms; the rate in 20~ years group reached 54%, which had important relations with independent choice and tendentious guide of obstetrics and gynecology doctors. Almost one-third did not recommend them to unmarried women [9], though the doctors believed that IUD was convenient and effective. Condom use was the only contraceptive measure whose rate was higher than that in the county: 19.89% and 9.44%, respectively. The results of sub-age groups of condom users, both current and former users all showed that before 40 years and after 50 years of age, the rates in the city were higher than that in the county, while in the 40-year group, the rates were similar, indicating that the cooperation of men's responsibility in contraception was related to the educational level and the enhancement of communication between men and women; the educational level in the city was higher than that in the county. Thus, the reduction and contempt of education in men's contraception should be avoided, which might be conducive to the promotion of gender equity and justice, and to build healthy sexual relations in families and communities.

The low use rates of contraceptive drugs reflected that the current acceptance of contraceptive drugs by population was relatively poor. The current use rates of contra-

ceptive drugs were less than one percent. Since the introduction of the first combined hormonal contraceptive in 1960, there have been many developments toward the goal of minimizing side effects and improving compliance without compromising efficacy [10]. Recent studies have found that the prevalence of unreliable contraception remains steady, and hormonal contraception, despite its availability, has not been widely adopted by women [11, 12]. The knowledge and belief of clinical service providers towards certain methods, and the confidence on the contraceptive methods and risk would affect the current rate and promotion in population. Only a small minority of obstetrician-gynecologist physicians objected to one or more common contraceptive methods or would refuse to offer a contraceptive method requested by a patient [13]. Therefore, efforts to improve the accuracy of information in the media and expand patient-to-patient communication about satisfaction with long-acting reversible contraceptives (LARCs) may improve positive awareness [14]. Healthcare providers are encouraged to counsel patients regarding available contraceptive options and their associated benefits and risks [15]. Females should be aware that oral contraceptives are the initiative methods, reducing unwanted pregnancies because of no contraceptive measures or frustration caused by men's reluctant to use condoms, protecting reproductive health and increasing quality of life.

The contraceptive choice tends to be simple and reversible. This survey showed that there was an obvious increasing of non-contraceptive measures after the age of 40; the ratios of only using one contraceptive method in the city and county were 55%~61%, 31%~49%, and 21%~23% towards 20~, 30~ and 40~ age groups, respectively; in 20~49-year-old group, the condom-usage rates decreased with the increasing ages, in city; the rate reached 50%, and the rate was 20% in county, showing that the choices of contraceptive needs towards different reproductive-aged women in each age group were simple, long-lasting and continuative. Although young women trust the information they receive from healthcare providers, the majority do not learn about contraception from this source [16]. Peer-to-peer information transfer is clearly important [17-19]. Therefore, except for one-to-one service, the peer education activities were also suitable for women of all ages to improve the awareness of contraception.

This survey was limited to married people. It could not reflect the elevated unintended pregnancy rate in unmarried young women who did not use or persist in contraceptive methods. EC requestors (compared with non-requestors) were more likely to have engaged in unprotected sexual intercourse is consistent with findings that were reported from family planning clinics [20, 21] and urban high school-based clinics (22). Therefore, clinicians should consider intrauterine contraception in appropriate candidates, including women who are nulliparous, adolescent, immediately postpartum or postabortal, and desiring

emergency contraception, and as an alternative to permanent sterilization [23], prompting young people to use contraceptive measures or more readily to use long-acting contraceptive methods.

With the social development, the demand of women's participation in social activities, in conjunction with increased life events with men, also incremented. However, the cultural tradition of male dominance is still deep-rooted in the society; the main burden and responsibility of contraception is still the women's responsibility [24]. The appropriate methods of contraception would be convenient while without adverse consequences to women, and are important in protecting the reproductive health of women. All the single contraceptive methods, no continuance in contraception, incidental psychology to no contraception, and tendentious guide of service workers can affect the contraceptive effect. Therefore, it is necessary to improve the communication skills of service workers in medical institutions. The multiple choices of contraceptive methods in adolescent or low-age nulliparous women, and the long-term contraception in women after childbirth or abortion should be strengthened. For women above 40 years of age, contraception should not be easily discontinued. Women of about 50 years of age and menopausal should be guided to timely terminate contraception. The age and educational level should be combined to provide the personalized contraception guidance and convenient contraceptive methods, for improving their accessibility while incrementing unintended pregnancies prevention, and reducing the security of sexual life.

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