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Attitudes Toward Oral Contraceptive Use Among Women of Reproductive Age
A Systematic Review

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Despite the effectiveness of oral contraceptives (OCs), their popularity differs across populations. Attitudes are a significant factor that influences OC use. This report systematically reviews 28 studies on attitudes toward OC use among women. The Matrix Method was used to review the literature. Affective, cognitive, and behavioral components of attitudes were analyzed, including satisfaction, safety, fear/anxiety, and inconvenience. In general, negative attitudes still prevail across countries. Positive attitudes are more prevalent in Europe. Effective counseling and education are needed for those negatively disposed toward OC use. For favorable users, compliance strategies for longer continuation with OC regimen must be provided. **Key words:** *attitudes*, *beliefs*, *knowledge*, *myths*, *oral contraceptives*, *reproductive women*, *risks and benefits*, *systematic review*, *The Pill*

ORAL CONTRACEPTIVES (OCs) are one of the most popular forms of reversible contraceptive methods used among women of reproductive age in the United States and much of the rest of the world.[1,2] In 2002, 11.6 million women aged 15 to 44 years old used OCs in the United States.[2] Estimates show that approximately 44.5 million women in the United States between 15 and 44 years of age have used them at some point in their lives.[2] OCs also rank first among contraceptive methods used in Europe. Recent studies have shown that approximately 22 million women use them in France, Germany, Italy, Spain, and the United Kingdom, with high levels of satisfaction.[3] In Latin America and the Caribbean, about 14% of married women, nearly 1 in every 7 married women, currently use OCs.[4] These women rank OCs as the second most popular method of contraception after female sterilization.

Despite the high levels of OC use in the United States, Europe, Latin America, and the Caribbean, the popularity of OCs across Asian countries remains relatively low. In 2000, 59% of married women in Asian countries reported that they used some method of contraception, and among this group only 4.5% used OCs.[4] Indices of OC use are particularly low in Japan and Korea. In Japan, for example, less than 0.5% of married women use OCs, and only 1.8% of married women in Korea report using this contraceptive method.[4,5]

A number of studies have investigated different individual,[6] sociocultural,[7] and institutional and political[8] factors that are significant in women's preferences related to OC use. Personal factors such as attitudes of women have captured the attention of healthcare researchers.[9,10] Attitudes are considered a key factor in the choice of OC methods. Thus, they play a significant role in behaviors related to OC use.

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Unfortunately, most research has primarily focused on attitudes toward the use of contraceptives such as condoms targeted for change in HIV-related risk behaviors,[11] rather than OCs for fertility control. Furthermore, most studies have focused on the measurement of attitudes toward contraceptives in general.[12] Only a small number of studies have been designed to determine attitudes toward specific contraceptive methods such as OCs. Measures of attitudes toward specific method are very important because different contraceptive methods may elicit different attitudes, which, in turn, influence their actual use. More important, differences in methods may induce different levels of motivation to use.

This report is designed to systematically review the existing literature on attitudes toward OC use among women of reproductive age. It aims to synthesize the findings from individual studies in terms of the positive and negative attitudes expressed by women regarding OC use. Ultimately, the goal of this review is to provide researchers with baseline information on women's attitudes toward OC use and directions for future research in the areas of contraceptive-related studies.

CONCEPTS OF ATTITUDE

An attitude has been defined in many different ways. However, most researchers agree that an *attitude* represents a person's degree of favorableness or unfavorableness toward a given attribute object.[13–15] An attitude is commonly assumed to reflect the beliefs that a person holds about the object.[13–15] A person's attitude is also viewed as closely related to an intention to perform certain behaviors regarding an object held in his or her mind. Consequently, each intention is related to the corresponding behavior.[15,16]

An attitude has often been described as comprising 3 components—affective, cognitive, and behavioral.[14–17] These 3 components comprising the construct of an attitude provide a convenient language for describing attitudinal phenomena.[14] They form an adequate basis for measuring attitudes, which is quantifiable and easy to communicate. In this report, we extended this perspective to women's attitude toward OC use, and synthesized the results of the studies reviewed around these 3 components.

The affective component of attitudes corresponds to the magnitude and direction of affect toward an attitude object. In this synthesis, women's expressed feelings and emotional reactions toward OC use (eg, fear, anxiety, and satisfaction) were considered as affective responses. The cognitive component of attitudes corresponds to the perceptions, beliefs, and expectations that the individuals hold with regard to the given object. Accordingly, women's reported beliefs, opinions, or perceptions of OC use were considered as cognitive responses. Finally, the behavioral component of attitudes corresponds to the overt action and verbal statement of intended behavior. Consistent with this definition, women's willingness to use and actual practice of OC use were regarded as behavioral responses.

METHODS FOR REVIEW

Search strategy

Articles for the systematic review were obtained from 8 electronic databases: MEDLINE, CINAHL, PsycINFO, Journal STORage, Digital Dissertation Abstracts, Gender Watch, Women's Studies International, and EBSCO's MasterFILE Select. A literature search was also conducted using specific journal sites such as the *Journal of the Korean Academy of Women's Health Nursing*.

Selected terms related to the topic of interest were searched. The key words entered for searching relevant articles were attitude, beliefs, opinions, thoughts, perceptions, acceptability, oral contraceptive(s), pills, birth control pill(s), birth control, contraception, contraceptive(s), and fertility control. These key words were searched either in combination or separately.

Selection of the studies

The following criteria were used to select studies for the review: (*a*) types of studies—primary source of study findings; (*b*) types of study participants—women of reproductive age regardless of their marital status, ethnicity; (*c*) types of outcomes—responses that correspond to the 3 components (ie, affective, cognitive, and behavioral) of attitude; and (*d*) types of language—English or Korean. Only studies published after 1985 were included in this review. In the last two decades, OC methods have become more diverse, accessible, affordable, and safer. These factors may have contributed to a change in how people in general view OC use. Thus, articles published within the last two decades are more likely to reflect current women's attitudes toward OC use.

The studies that focused on contraceptives in general and emergency contraceptive pills (ECPs) were excluded from the selection for the review. The main reasons for these selection criteria are as follows. First, different types of contraceptives may, as mentioned earlier, lead to different attitudes, beliefs, or motivation to use them. Therefore, it may not be appropriate or accurate to assess women's perspectives of contraceptives in general without specifying the type of contraceptives. Second, OCs are the least preferable method in some countries, including Japan and Korea.[4,5,18,19] To understand this phenomenon, it is important to review relevant articles that describe underlying factors such as belief systems and attitudes toward OC use. Finally, the studies that focused on ECPs were excluded because the method characteristics of ECPs differ from those of other OCs. Different characteristics may lead to different perceptions. In other words, women's attitudes toward ECPs used to backup the failure of pregnancy protection after intercourse would be different from those of other OCs applied in a consistent manner for pregnancy protection.

Using the key words indicated earlier, the list of citations was retrieved and relevant abstracts were reviewed. The search on Women's Studies International yielded the most comprehensive number of citations (24) that were appropriate for the review, followed by MEDLINE (17), PsycINFO (11), CINAHL (8), EBSCO's MasterFILE Select (8), Journal STORage (7), Gender Watch (2), and Digital Dissertation Abstracts (1). Among them, 28 articles were considered relevant to the topic of attitude toward OCs and retrieved for the systematic review. Bibliographies of relevant studies were also reviewed in order to search for additional studies. To organize selected studies for the review and to synthesize their findings systematically, Garrard's guideline[20] for review of the literature was used.

CRITICAL APPRAISAL OF THE LITERATURE

Among the 28 articles identified for the systematic review, 23 studies were based on quantitative research that used personal or telephone interviews, or self-administered questionnaires. Three studies were based on qualitative research that used focus groups or semistructured interviews.[21–23] Two studies were based on both quantitative and qualitative research that used survey questionnaires, semistructured interviews, discussion, or participant observation.[24,25] Table 1 provides a brief summary of the studies reviewed. This table is organized chronologically.

All the studies reviewed used descriptive, or correlational, nonexperimental designs. Unfortunately, no experimental intervention studies were identified. In addition, most of the studies provided no theoretical frameworks to explain how attitudes were formed and why the concept of attitudes was important for the health researches. That is, most researches failed to incorporate theories into their studies. The majority of the studies applied cross-sectional designs. Two studies used longitudinal designs with more than one time point of data collection.[28,32]

Most of the studies reviewed applied a convenience sample that is rarely representative

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Table 1. Review matrix for literature on attitudes toward oral contraceptive use among women of reproductive age

Author	Year published	Purpose	Attitude components	Subjects		Data		Findings
				Number of subjects	Characteristics	Geographic settings	Design and methods	
DeClerque et al[26]	1986	To explore whether rumors about OCs have a negative impact on their usage	Behavioral and cognitive	3190	Egyptians; male + female; ≤45 y old	Nationwide Egypt	Quantitative survey Cross-sectional design Stratified multistage + systematic sampling	Approximately, three quarters of the women sampled have heard and believed that "the pill causes weakness." The exposure to or belief of this rumor was significantly associated with women's negative attitudes toward the pill.
Grubb[27]	1987	To assess the perceptions of the pill's safety	Affective and cognitive	100–150 in each country (Egypt = 201)	Female; 15–44 y old; mean age = 28.1–31.0	Eight developing countries	Quantitative survey Cluster sampling	There were similarities in perceptions of the pill's health effects among countries. Misconception of the pill's safety appears to be universal.
Adler et al[28]	1990	To test the utility of the Theory of Reasoned Action for understanding and explaining adolescent contraceptive behaviors	Affective, behavioral, and cognitive	325	Male + female; 14–19 y old; mainly whites and blacks	San Francisco	Quantitative survey Longitudinal design Random sampling	Intention to use the pill or other methods was significantly predicted by female adolescents' attitudes and perceptions of social expectations.
Ogawa and Retherford[29]	1991	To assess the prospects for increased pill use	Affective, behavioral, cognitive	2666	Japanese; female; 16–49 y old	Japan	Quantitative survey Cross-sectional design Cluster sampling	The pill use is extremely low among married women who practice contraception (<1%), but about 10% of them intend to use the pill if it comes on the market.

Panitchpakdi et al[30]	1993	To determine the prevalence and knowledge of and attitudes toward contraceptive methods	Behavioral, cognitive	600	Female; 15–49 y old	Zigone, Myanmar	Quantitative survey Cross-sectional design Cluster sampling	Women were highly aware of OCs. Most current contraceptive users used them.
Condon et al[31]	1995	To explore experiences of the effects of OCs on well-being	Cognitive	145	Australian; female; mean age = 26 ± 7.6	South Australia	Quantitative survey Retrospective design Convenience sampling	For most women, the pill had no influence on well-being. However, for women who reported a change in well-being, the change was deemed negative; 73% held fears of the pill.
Knodel et al[25]	1995	To examine the reasons for low rates of OC use and the ways to overcome barriers	Affective, behavioral, cognitive	363 + 175 (women users)	Implementers + actual, potential female users; age = not indicated	Hanoi, Vietnam	Qualitative interviews + quantitative survey Convenience + probability sampling	Women with OC use experience held more positive attitudes than those who had never used them. Most pill users agreed on its convenience. There was a low level of demand on the pill from potential users. Fear of side effects prevails.
Murphy et al[10]	1995	To examine attitudes toward OCs and other forms of birth control	Cognitive	995	Female; ≥18 y old	Nationwide United States	Quantitative survey Cross-sectional design Random sampling	Most women were skeptical of and held misconceptions of health risks and benefits of OCs.
Farsoun et al[22]	1996	To understand attitudes, beliefs, awareness, and practices with respect to family planning	Affective, behavioral, and cognitive	192–240	Jordanian; male + female; 15–49 y old	Jordan: 3 regions	Qualitative interviews 24 focus groups	Numerous rumors and misconceptions prevail. They hinder the use of modern contraceptive methods, such as OCs among Jordanian women.

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Table 1. Review matrix for literature on attitudes toward oral contraceptive use among women of reproductive age (*Continued*)

Author	Year published	Purpose	Attitude components	Subjects		Data		Findings
				Number of subjects	Characteristics	Geographic settings	Design and methods	
Fuchs et al[9]	1996	To determine current trends in contraceptive usage and to examine attitudes toward, preferences, and needs of birth control pills	Affective, behavioral, and cognitive	1201	Female; 16–45 y old	Germany, the United Kingdom, and France	Quantitative survey Cross-sectional design Quota sampling	OCs were the most popular method in the countries surveyed. However, many women felt a need for improvement in treatment regimen. Few were aware of noncontraceptive benefits of the pill.
Moore et al[32]	1996	To determine which specific beliefs about OCs influence adolescents' intention and actual use of the pill	Behavioral and cognitive	345–234	Female; 14–19 y old; mainly whites and blacks	San Francisco	Quantitative survey Longitudinal design Convenience sampling	Female adolescents' intentions and actual use of OCs were predicted by specific contraceptive beliefs (eg, beliefs that using the pill is easy).
Forman et al[33]	1997	To assess beliefs about whether OCs should be available over-the-counter (OTC) without a prescription	Behavioral and cognitive	290	Female; mean age = 20.9 ± 3.3; 80% whites	Urban college, the United States	Quantitative survey Cross-sectional design Convenience sampling	Most respondents (65%) believed that OCs should not be available OTC. The most common reason for this belief was potential side effects.
Tessler and Peipert[34]	1997	To assess perceptions, beliefs, and satisfaction with respect to contraceptives	Affective, behavioral, and cognitive	336	Female; mainly whites; 18–38 y old	Rhode Island	Quantitative survey Cross-sectional design Convenience sampling	Overall, women misunderstood the health risks and benefits related to birth control pills. However, 90% of women correctly estimated the effectiveness of the pill.

Chalmers et al[35]	1998	To explore knowledge, attitude, and contraceptive use	Affective, behavioral, and cognitive	917	Russian; female; age: not indicated	St. Petersburg, Russian Federation	Quantitative survey Cross-sectional design Convenience sampling	OCs were one of the most popular methods among current users (79.4%). Women held high levels of awareness and acceptance of the pill.
Fisher et al[36]	1999	To examine knowledge, attitudes, and behavior with respect to contraception and sexual and reproductive health issues	Affective, behavioral, and cognitive	1599	Canadian; female; 15–44 y old	Nationwide Canada	Quantitative survey Cross-sectional design Random sampling	Sixty-four percent of respondents held more favorable opinions of the pill than other contraceptive methods; 73% of current users were very satisfied. Nevertheless, misperceptions still persist.
Kirkkola et al[37]	1999	To examine the birth control methods that Finish women and men used and favored	Affective and behavioral	788	Finish; male + female; 18–50 y old	Nationwide Finland	Quantitative survey Cross-sectional design Random sampling	OCs were the most favorable and the second most frequently used method among Finish women.
Nayak[38]	1999	To determine the utility of the Theory of Reasoned Action for explaining intention to obtain OCs OTC	Affective, behavioral, and cognitive	294	Female; 18–40 y old; mainly whites	Florida	Quantitative survey Cross-sectional design Random sampling	An intention to acquire OCs OTC was predicted by beliefs about risks and benefits of using them and social expectations.
Kihara et al[39]	2001	To measure knowledge of, attitude toward, and use intentions of the pill	Affective, behavioral, and cognitive	630	Japanese; male + female; 20–49 y old	Nationwide Japan	Quantitative survey Cross-sectional design Systematic + cluster sampling	The most common reason cited by women who held a negative attitude of the pill was concern over the method's side effects (84%). The most frequently selected reason why women held a positive attitude of the pill was its effectiveness.

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Table 1. Review matrix for literature on attitudes toward oral contraceptive use among women of reproductive age (*Continued*)

Author	Year published	Purpose	Attitude components	Subjects		Data		Findings
				Number of subjects	Characteristics	Geographic settings	Design and methods	
Træen et al[40]	2001	To describe and analyze women's beliefs about OC use	Behavioral and cognitive	1159	Female; 18–49 y old	Oslo, Norway	Quantitative survey Cross-sectional design Random sampling	Young and less-educated women with positive attitudes toward certain aspects of sexuality tend to score high on the beliefs about somatic effects of the pill use. Older and less educated women with less sexual intercourse are more likely to hold misbeliefs (eg, periodic break).
Davids[24]	2002	To describe the effects of ethnophysiological beliefs on contraceptive use	Affective, behavioral, and cognitive	167 (women in survey and interviews)	Ethiopian Jews; female + male (in participant observation)	Jerusalem, Ashkelon, Israel	Quantitative survey + qualitative interviews and participant observation Convenience sampling	Among Jewish women, the pill is believed to cause physical discomfort, weakness, and ill health.
Lim and Cho[18]	2002	To investigate attitude toward and knowledge about birth control pills	Affective, behavioral, and cognitive	337	Korean; male + female; mean age = 21	Korea	Quantitative survey Cross-sectional design Convenience sampling Instruments' reliability (α = .64–.69)	The more knowledgeable women are about the pill, the more positive they are toward the OC use.
Chen et al[41]	2003	To examine the acceptability of combined oral contraceptives (COC)	Affective, behavioral, and cognitive	500 (woman clients)	Gynecologists + female clients; 18–35 y old	Shanghai, China	Quantitative survey Cross-sectional design Convenience sampling	Only 12% of female clients had ever taken COC. Among them, 86.7% had stopped using the pill due to concerns about its risks.

Eisenberg et al[42]	2004	To explore beliefs about the safety, effectiveness, and usability of OCs and condom among teens' parents	Cognitive	1069	Male + female; 39–49 y old; 88% whites	Minnesota, Wisconsin	Quantitative survey Cross-sectional design Convenience sampling	Generally, women underestimated the effectiveness of the pill and its safety. Fifty-five percent of women believed that the pill prevents pregnancy almost all the time; only 42% believed that the pill is safe.
Karavus et al[23]	2004	To determine attitudes toward the use of OCs	Cognitive	140–220	Turkish; male + female; mean age = 32.0 ± 7.2	Istanbul, Turkey	Qualitative interviews 20 focus groups	Among Turkish women, negative attitudes toward the pill were mainly rooted in concerns about side effects. Women held very positive attitudes compared with men.
Kridli and Schott-Baer[43]	2004	To determine factors that influence intention to use OCs	Affective, behavioral, and cognitive	83	Jordanian; female; 20–46 y old	Zerka, Jordan	Quantitative survey Cross-sectional design Convenience sampling Instrument—Intention to Use OC Tool (IUOCT) reliability (α = .62–.96)	Jordanian Muslim women's general attitude toward, and positive beliefs about, OCs were contributing factors to their intention to use them.
Skouby[3]	2004	To explore contraceptive use and behaviors among women in 5 countries	Affective, behavioral, and cognitive	12,138	Female; 15–49 y old	France, the United Kingdom, Germany, Italy, and Spain	Quantitative survey Cross-sectional design Random sampling	OCs were the most widely used method with high levels of satisfaction. However, concerns about side effects were still considered as a major reason for discontinuation.

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Table 1. Review matrix for literature on attitudes toward oral contraceptive use among women of reproductive age (*Continued*)

				Subjects		Data		
Author	**Year published**	**Purpose**	**Attitude components**	**Number of subjects**	**Characteristics**	**Geographic settings**	**Design and methods**	**Findings**
Cheung and Free[21]	2005	To explore factors influencing young women's decision making regarding hormonal contraceptives (eg, pills)	Affective and cognitive	51	Female in the United Kingdom; 16–25 y old	London area, England	Qualitative interviews Purposive sampling	Young women's decision to use OCs is based on the experience of unwanted effects in conjunction with beliefs regarding the nature of hormones in contraceptives.
Kridli and Newton[44]	2005	To examine relationships between intention to use OCs and other relevant variables	Affective, behavioral, and cognitive	245	Jordanian; female; 18–44 y old	Amman, Zerka, Jordan	Quantitative survey Cross-sectional design Convenience sampling Instrument—IUOCT reliability ($\alpha = .70$–$.94$)	Intrauterine device was the method that most women planned to use in the future. The main consideration in choosing a method was side effects. Past OC use was positively related to intention to use them.

of the entire populations. Twelve studies utilized a random sample.[3,10,26–30,36–40] Most of these studies used data collected from governmental or national institutions (eg, national department of family planning, research institutions, and universities). The sample size of the studies reviewed varied from 51 to 12,138 participants. Eight studies applied a large, nationwide sample for data collection that tended to produce more accurate estimates and less sampling errors.[3,9,10,26,29,36,37,39]

Six of the 28 studies restricted sampled participants exclusively to teenagers whose age ranged from 14 to 19 years[28,32] or university students.[18,33,34,38] Therefore, the results of these studies cannot be generalized to other women who differ in terms of age, educational level, and social class.[31] Most of the studies do not provide detailed information about the instruments used. Three studies provided the reliability of instruments used to measure the construct (ie, attitude) under study.[18,43,44] Two studies provided the name of the instruments used.[43,44] The other studies provided only a brief description of the questionnaires used, including the constructs being measured and/or few example items.

Most of the studies were conducted in the United States, Canada, and other European countries (eg, Finland, Germany, Italy, Spain, Norway, Russia, and the United Kingdom). Some studies were conducted in the Middle East, including Turkey and Jordan.[22–24,26,43,44] Finally, some studies were carried out in Asia, including China, Japan, Thailand, Vietnam, and Korea.[18,25,29,30,39,41]

Two studies[28,32] that focused on adolescents (14–19 years old) were included in the review because they also reflected the review's major theme: reproductive women's attitude toward OC use. Eleven studies included perspectives from men or other participants (eg, gynecologist and OC implementers).* However, only women's responses were synthesized in the findings of this report. In addition, some studies not only focused on OCs but included attitudes toward other contraceptive methods as well.[3,22,24,28,30,35–37,42] Those attitudes were not included in this report.

The majority of the studies reviewed did not operationalize attitudes based on the 3-component approach proposed in this synthesis. Therefore, it was necessary to analyze which of the components of attitudes were assessed in each study. As different studies focused on different responses toward OC use, we first categorized all these responses into 1 of the 3 components of attitudes (ie, affective, cognitive, and behavioral). For example, beliefs about risks and side effects of OC use were classified as cognitive responses, whereas expressed fear or anxiety toward OC use was classified as affective responses.

SYNTHESIS OF THE STUDY FINDINGS

Attitudes vary in strength along both positive and negative dimensions. In fact, at times people can have both positive and negative reactions to the same attitude object. However, people may differ in the extent to which they tend to react to stimuli in positive or negative terms.[14] Consistent with this view, in this synthesis, we separately examined the positive and negative dimensions of each component of attitudes toward OC use. Among the 28 articles reviewed, 16 studies covered all 3 components of attitudinal responses. Five studies covered cognitive and behavioral components[26,30,32,33,40]; 2 studies, affective and cognitive components[21,27]; and 1 study, affective and behavioral components.[37] Finally, 4 studies covered only the cognitive component[10,23,31,42] (see Table 1).

NEGATIVE ATTITUDES TOWARD ORAL CONTRACEPTIVES

Affective responses

Fear and anxiety

The majority of the studies reviewed indicate that women express a fair amount of

*References 18, 22–26, 28, 37, 39, 41, 42.

fear toward OCs regardless of their ethnicity, age, and residency areas. Several studies showed that this negative feeling toward OCs largely stems from concerns about health risks and side effects.[3,9,10,22,25,41] Women in these studies discontinued using OCs or switched to different brands driven by safety concerns.[3,9,22,31,41] Some women chose methods of contraception other than OCs or did not use any form of birth control.[9]

For example, in a study exploring Chinese women's acceptability of combined oral contraceptives (COC, both estrogen and progestin hormones), researchers reported that only 12% of women had ever chosen to use COC. Among them, a significant number stopped taking it because of safety concerns.[41] Similarly, a study designed to explain why the use of OCs was so low in Vietnam (eg, <5% of contraception use) pointed out that side effects were the most frequently cited reason for not choosing OCs among never users.[25] A study conducted in Japan also reported similar results. In this study, 84% of the women who held negative feeling toward OCs stated side effects as major concerns.[39]

Even though most European women are in favor of using OCs, Fuchs and colleagues[9] reported similar concerns about side effects in a study that explored women's attitudes, needs, and preferences regarding OCs in 3 European countries (ie, Germany, the United Kingdom, and France). The study showed that 42% of current OC users changed their brand of OCs, and 38% of former users stopped using OCs due to actual or potential side effects. In addition, 27% of never users ranked side effects as the main reason for making the decision not to take OCs. A different study conducted by Skouby[3] across 5 European countries (ie, France, Germany, Italy, Spain, and the United Kingdom) found that side effects (24%) were the most common reason for discontinuing the use of OCs among these populations.

The side effects or health risks most frequently expressed by women in the studies mentioned above were cancer, weight gain, headache, nausea and vomiting, menstrual pain and bleeding, mood changes, birth defects, infertility, myocardial infarction, blood clots, high blood pressure, stroke, breast tension, etc.[10,25,31,36,41]

Cognitive responses

Myths and misbeliefs

Studies have demonstrated that misbeliefs and myths about risks and side effects of OCs are still pervasive among women, even though considerable resources have shown their safety.[22,23,34,36,43] Some of these myths or misbeliefs are rooted in rumors or misinformation that are not congruent with scientifically known facts of OCs and are passed on by friends, neighbors, and relatives.[22,26,30] A lack of knowledge or inadequate education about contraceptive methods is also considered responsible for women's incorrect beliefs about OCs.[22,26,34,41] This leads women to misunderstand health risks and side effects of OCs and undermine their confidence to use them effectively.[22]

A survey study that explored college students' beliefs and perceptions about the effects of OCs revealed that health risks related to OCs were often exaggerated, whereas health benefits tended to be underestimated or neglected.[34] Most women were not aware of noncontraceptive benefits of OCs, such as the reduced risk of benign breast disease.[34,36] Instead, they mistakenly understood that OC use would increase their risk for breast cancer. Likewise, in a study designed to examine women's attitude toward OCs, Murphy et al[10] found that more than half of the women (54%) incorrectly believed that there exist substantial risks with respect to OC use, and 42% thought that there were no health benefits from using OCs. Several other studies have reported that women hold overriding misconceptions of health risks and benefits of OC use.[22,23,41,42]

Research suggests that health risks stemming from OC use are much less in comparison with those posed by the pregnancies that the use of OCs prevents.[45–47] Nevertheless, most women incorrectly believe that the

health risks from OC use are greater than or equal to those from childbearing.[10,27,36,40] In Canada, where 96% of adult women have familiarity with OC use and 84% of current users express highly favorable opinion about OCs, only 15% of women recognized that using OCs is safer than being pregnant.[36]

Another common misbelief or myth shared by many women is the idea that it is necessary to have a periodic "break" from OC use.[25,40] Women have the wrong idea that using OCs for an extended period of time may jeopardize their future fertility.[31,40] Thus, they assume that their bodies need a periodic rest from "The Pill."[24,40] Despite the fact that there is no medical reason to have a periodic break and no scientific evidence that prolonged use of the pill can cause fertility problems,[47] several studies have shown that women are afraid of pill-induced long-term fertility effects and believe that pill breaks are necessary.[22,24,27,31] These misbeliefs and fear keep women from using OCs continuously over lengthy periods of time and undermine confidence in OC use. Ultimately, they place women at risk for unintended pregnancies.

Women also have the misconception that regulating the hormonal rhythm of their bodies with artificial hormones is not natural.[3,21] The concept of "unnaturalness" with respect to artificial regulation of women's normal hormone cycles still prevails across countries. For example, in a qualitative study exploring factors that influence decision making about OC use among British women, several interviewees reported that taking the pill was unsafe or dangerous because it was unnatural. Therefore, they decided to stop using it to allow their bodies to return to a "natural balance."[21] They disliked the idea of exposing their bodies to unnatural, synthetic hormones and prefer to choose other contraceptive methods that interfered less with the natural rhythms of their bodies. Despite an enormous body of scientific evidence supporting the safety of OCs, women commonly have the misunderstanding that OC use is not safe and it may have unexpected consequences. Even if women cannot name potential side effects of OC use, pills are automatically associated with negative side effects.

The misconception that the pill causes "weakness" in women's bodies is also prevalent, especially among Ethiopian Jewish and Egyptian women of reproductive age.[24,26] The idea of pill-induced "weakness" comes from folk beliefs that the pill blocks the normal flow of menstrual blood, which must be released to maintain good health.[24] According to this view, nondischarged blood pollutes and weakens women if it continues to circulate in a women's body.[24] Among similar lines, having a regular period represents for many British women a "natural" and "normal" process that maintains "body balance."[21] In sum, studies show that exposure to mistaken health beliefs is significantly associated with negative attitudes toward and actual use of OCs.[21,24,26]

Cultural taboos also play an important role in negative attitudes toward OC use. Women in Korea, for example, wrongly believe that OC use is only acceptable among married women.[18] The traditional value that prohibits premarital sexual relationships and encourages female virginity is responsible for this false impression. Single women must keep their chastity until marriage. Therefore, there is no reason for them to use OCs unless they are engaging in forbidden premarital sexual relationships. For this reason, single women who seek OCs are stigmatized by society. Thus, they may have extreme difficulty accessing OCs and are more likely to be exposed to unprotected sexual relationships. This ultimately results in unintended pregnancies and unnecessary abortions. In addition, most school curricula have focused on education in sexual morality rather than protective sexual behaviors. Even further, research-related OCs in Korea has been mainly carried out among married women.

Inconvenience

Women generally think that taking OCs is not convenient. For example, nearly 37% of Chinese women who had never used OCs

ranked inconvenience of use as the second most common reason for not taking them.[41] Similarly, a study conducted in Vietnam revealed that 42% of never users indicated that the use of OCs was inconvenient, and 21% of former users believed that they had difficulty remembering to take OCs daily.[25] The daily nature of pill taking is also considered too much troublesome among Jordanian women.[22] The fear of forgetting to take OCs daily, which will consequently result in an unintended pregnancy, reduces the use of OCs significantly among women.[22]

Over-the-counter availability

Three studies discussed the attitude toward the over-the-counter availability of OCs.[10,33,38] All of these studies reported that most women did not want OCs to be available over the counter. Safety concerns were the major reason for this skeptical belief.

Behavioral responses

Intention and overt action

Studies have shown that negative attitudes or beliefs reduce the probability of current or future OC use.[25,26] Especially, women who had never used OCs tend to have more negative attitude toward them[25] and have fewer intentions to use them in the future.[44]

POSITIVE ATTITUDES TOWARD ORAL CONTRACEPTIVES

Affective responses

Satisfaction

Women in some countries express a high degree of satisfaction with the use of OCs. For example, in a study conducted in 5 European countries (ie, France, Germany, Italy, Spain, and the United Kingdom), Skouby[3] reported that more than 90% of women using OCs were very or fairly satisfied. A study designed to examine Canadian women' knowledge, attitudes, and behavior with respect to contraception revealed similar findings. This study reported that 73% of current OC users expressed high satisfaction with the use of that particular contraceptive method.[36] Similarly, levels of satisfaction of OC users were the second highest among Russian women who used some kind of contraceptive method.[35] The findings of high satisfaction among OC users imply that women may experience fewer side effects or are more familiar with them.[36] They may also be aware that OCs have less negative health impacts.

Sense of control

Some studies indicated that OC use also provided women with greater control over their fertility such as the timing of pregnancy.[39,43] Because the pill is a female-controlled method, which may not necessarily require a partner's cooperation or input, women feel a greater sense of control over their bodies, and feel free from reproductive obligations. In a study conducted to explore Japanese women's knowledge of and attitudes toward OCs, the researchers reported that 42% of the women favored the use of OCs because of the fact that they were female-controlled methods and viewed as a positive trait.[39] Jordanian Muslim women held similar impressions that OCs help them to take care of themselves, control their family size, and regulate their menstruation.[43]

Cognitive responses

Convenience

As described earlier, some women think that using OCs is inconvenient. However, a significant number of women consider OC use to be quite convenient. The studies reviewed revealed that most women choose to use OCs because they believe it is convenient and easy to use. For example, in a study aimed to determine attitude toward OCs of women who lived in European countries (ie, Germany, the United Kingdom, and France), the authors showed that 32% of current users chose OCs because of convenience of use.[9] In addition, among never users, it was considered as one of the major

motivating factors that would encourage them to take OCs.[9] In Vietnam, 53% of ever users indicated that they chose to use OCs because of their convenience.[25] Similarly, a study carried out in Russia revealed that ease of use was the second common reason identified for the choice of OCs.[35]

Effectiveness and reliability

Women generally believe that OCs are a highly effective method in preventing pregnancy. Although none of the contraceptive methods are completely effective, women tend to estimate OCs more highly effective than other methods.[10] Kihara et al[39] showed that among Japanese women who were positively disposed toward OCs, 47% considered the effectiveness of OCs as the most common selected reason why they favored using them. Thus, Japanese women expressed favorable opinions toward OCs because of their effectiveness in preventing pregnancy and ultimately reducing the need for abortions, a common practice used as a backup to contraceptive failure.[29] Similarly, a study conducted to examine contraceptive knowledge, attitude, and use among Russian women attending health clinics revealed that effectiveness was the primary reason for choosing OCs.[35]

OCs are also considered reliable and safe among women who live in European countries. For example, in Germany, France, and the United Kingdom, half of current users indicated reliability as the most significant reason for using OCs.[9] A study designed to determine preferences of contraceptive methods among Finish men and women demonstrated that the highest proportion of women chose OCs as the most reliable method for deferring their pregnancies.[37]

Behavioral responses

Intention and actual use

Women who intend to use OCs are more likely to hold positive beliefs or attitudes regarding OC use than do nonintenders.[28,32] They tend to believe that using OCs would be easy and would make them responsible for pregnancy prevention.[32] In addition, actual users are less likely to express health risks and side effects related to OCs in comparison to nonusers.[10,34] Importantly, they are more likely to hold correct knowledge about the pill than do nonusers.[25,26,36] The more knowledgeable the women are about the pill, the more positive they are toward the OC use.[18,41] These findings indicate that exposure to OC use leads women to be better informed of their benefits.[9,36] Women using OCs are more positively disposed toward them.[25] This is likely to occur because the experience with the use of OCs leads to greater familiarity with increased use.

LIMITATION OF THE LITERATURE REVIEWED

Lack of intervention studies

All the studies reviewed in this report used nonexperimental designs that simply described women's attitude about OC use. Unfortunately, no intervention studies were identified. There were no studies intended to test, for example, the effectiveness of intervention programs (eg, education) on attitude change toward OC use. Although in many situations it is impractical to conduct intervention studies, this type of research is extremely important for health researchers because of its implications for clinical practice. Research that focuses on developing and testing intervention strategies to maximize OC efficacy must be conducted, providing guidelines for practice.

Lack of longitudinal studies

The majority of the studies reviewed used cross-sectional designs that involved the collection of data at one point in time. Only 2 studies applied a longitudinal approach.[28,32] Attitude tends to change over time and is easily modified by intervening experiences.[14] Therefore, studies must be conducted using a longitudinal design so that change in attitude toward OC use can be detected over time. In

this way, the long-term effects of a particular intervention can be ascertained.

Lack of theoretical frameworks

Although several theories (eg, Theory of Reasoned Action[15]) have been proposed and utilized widely to explain attitudinal-behavioral relations in a variety of populations, most of the studies reviewed failed to incorporate theories into their studies. Moreover, no clear definition of attitude was indicated. Therefore, readers are assumed to share a widely encompassing, common understanding of what attitude means. Theoretical frameworks can provide readers with a greater understanding of the complex relation between the concept of attitude and OC use behaviors. It could help readers to comprehend the way attitudes are formed and the role they play in human beings' daily lives. Importantly, the use of theoretical frameworks may provide the foundations for the implementation and testing of intervention strategies that facilitate the use of OCs. Therefore, it is imperative to build a theoretical framework in health research to capture a complete entity of attitude and behaviors related to OCs.

Measurement issues

Studies should provide information on the quality and adequacy of the instruments used to measure the construct (ie, attitude) under study. It is important to provide evidence of the reliability and validity of the measures used in studies. Such information could help readers to have more confidence in study findings.[48] Unfortunately, most studies in this systemic review provided no information regarding data quality. Only 3 studies indicated the reliability (Cronbach's $\alpha = .62$–$.96$) of the instruments used in their studies.[18,43,44] Two of these studies also reported the construct validity of the instruments used.[43,44]

DISCUSSION

Most of the studies reviewed indicate that misconception or myths regarding health effects of OCs still prevail among women across countries. Women largely exaggerate the health risks or underestimate documented health benefits related to OCs. Incorrect beliefs come from lack of knowledge, misinformation, or rumors that have not been demonstrated scientifically. Mistaken beliefs ultimately cause fear of using OCs. They lead women to use methods of contraception other than OCs or not to use any form of contraceptive methods at all. To dispel fear, misconception, and myths, it is crucial to provide education or counseling regarding OCs such as their effectiveness, risks, and benefits. Especially, education and counseling strategies tailored to women's specific needs (eg, easy-to-understand communication, recognition of individual uniqueness) must be established so that they can have realistic expectations about the risks and benefits of OCs. Women should be clearly informed regarding possible consequences of OCs. Thus, strategies to disseminate correct knowledge should be developed. For instance, the development of dissemination networks (eg, media campaigns, peer clubs, workshops, Internet café) is essential to circulate accurate knowledge and enhance its acquisition of OC use among women. Possession of correct pill knowledge may contribute to reduce some of women's misconceptions or anxiety, and increase the possibility of OC use.[1,18,26]

However, education or counseling itself would not be sufficient. Social support is required because misbeliefs or rumors have a net negative impact on the pill use.[26] In other words, women tend to believe the rumors that are prevalent in their communities.[26] Studies have shown that a large proportion of women obtain information on OCs from friends, neighbors, or relatives whose knowledge is incomplete.[22,26,30] Thus, interpersonal relationships could be a major channel for transmitting the rumors or incorrect beliefs related to the pill use.[26] Communication dynamics should be extensively assessed. Social network strategies (eg, media) that facilitate the pill usage and lessen pill-linked misbeliefs must be developed. Greater trust and

effective communication between women and health professionals are also needed under the circumstances in which folk health beliefs overweigh that of scientific medical knowledge.

In contrast with widespread negative perspectives, women in some countries favor using OCs. For instance, women in European countries reported that OCs were the most preferable and commonly used methods of contraception.[3,9] For those users with affirmative viewpoints, it is extremely important to provide practical strategies for better compliance and longer continuation with the pill regimen. Pill taking must be established as a daily habit (such as brushing one's teeth) so they would not forget to take it. Helping them to identify cues to pill taking from daily activities (eg, eating breakfast or taking daily vitamins) is crucial to improve compliance. Consistent follow-up and reinforcement are also necessary to effectively assist them in taking OCs daily as directed.

Improvement in OC treatment regimen is also required for better compliance. For example, OC compliance would be undoubtedly improved if user-friendly products (eg, "One Pill a Month") could be made available. As technology advances, OC regimens that more closely reflect women's desires and concerns should be devised. Attractive "reminder" materials (eg, use of celebrity characters) must be developed and distributed to help women's daily pill taking. Easy-to-understand guidelines about missed pills and backup methods need to be provided, along with OC packages. User satisfaction with providers is an important factor that increases compliance.[48] Therefore, cultivation of better patient-provider relationships is crucial to motivate women to continue using OCs. The development and use of a compliance-screening tool is also essential. It would help providers to identify potential noncompliers and establish compliance strategies that are individualized and best fit into each woman's needs.[49]

Critics may note that the heterogeneity of the studies reviewed appears to be an important limitation of this synthesis. More specifically, 6 of the studies reviewed restricted sampled participants exclusively to teenagers or college students, whereas others included women with a wider age range. Although it is possible that adolescent's general attitudes toward OCs may differ from those of older women, the findings of these studies did not reflect this difference. Indeed, the findings of the studies that included only teenagers or college students were consistent with the general findings of this synthesis (eg, safety concerns, inconvenience). That is, adolescents' overall views toward OC use were similar to those of older women. However, differences in the degree or intensity of their views may have differed.

This systematic review reveals some important issues that research has yet to address with respect to OC use. For example, none of the studies reviewed assessed changes in attitudes over time. Longitudinal studies on OC use are necessary to help understand and determine patterns of change with regard to OC use. This research could guide researchers in the development of better intervention strategies that facilitate positive changes in women's attitudes toward OC use. In addition, longitudinal studies could determine whether current intervention strategies (eg, education) geared toward the promotion of OC use really work.

Future research should also determine whether attitudes toward OC use are based more on beliefs about OC (ie, cognitively based attitudes) or whether they are based more on emotions or values (ie, affectively based attitudes). This knowledge could help design better interventions promoting attitude change. If attitudes toward OC use were more cognitively based, then interventions that try to change women's attitudes with rational arguments would be more appropriate. However, if attitudes toward OC were more affectively based, then interventions that use emotional appeals would be more successful.[50]

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