



Evaluation of Pre-Marriage Counseling Program in Iran: A Narrative Review of Structural, Procedural, and Outcome Dimensions

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ABSTRACT

Background: Pre-marriage counseling program, an educational intervention launched in 1993, makes the married couples familiar to maternal health issues. In order to improve the performance of this program, it is necessary to examine the various dimensions of this program. Therefore, the present study was designed and implemented to evaluate the pre-marriage counseling program.

Methods: In this narrative review study, the use of standard key words, articles indexed in the databases of PubMed, Web of Science, Scopus, SID, BarakatKNS (IranMedex) and Magiran by the end of April 2017 were reviewed. Finally, the full text of 56 articles was examined, and the content of these articles was classified according to the quality assessment framework of Donabedian in three dimensions, including structure, process, and outcome of this program.

Results: After categorizing the results of the articles based on the Donabedian's framework, 21, 8 and 41 articles were related and classified in structure, process and outcome, respectively. Most of the studies conducted between 2001 and 2011 were mostly cross-sectional, and the highest number of articles was in the outcome dimension. Structural dimension was subdivided into four sub-categories including educational content, human resources, facilities, and information resources. Then the process was sub-divided into training and counseling mechanism and eventually the outcome.

Conclusion: In the dimension of the structure, the assessment of the educational materials' contents was poor. In the dimension of the process, the duration of training should be increased. In the outcome dimension, the level of participants' knowledge and attitude about sexual health, reproductive health and sexually transmitted diseases was assessed moderate to weak.

Keywords: Pre-marriage Counseling, Donabedian's Framework, Marriage, Narrative review, Iran

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Introduction

Marriage is a divine tradition and the most accepted social way to form a family (1). The most important function of marriage is the prevention of sexual deviations, the evolution of couples and the survival of the human race, and since the family is the smallest social unit, the consolidation of the foundation of the family also affects social health (2). Family disruption and divorce as a social harm impose psychological and social disadvantages which affect the family and society (3). According to the latest statistics, divorce rates in Iran are rising and therefore the ratio of divorce to marriage has risen from 15.4 in 2010 to 22.6 in 2014 (4, 5). According to statistics, the highest percentage of divorce rates is related to the first year of life (6, 7). This fact indicates the lack of willingness of couples to form a common life or lack of sufficient skill in solving problems. Results of studies conducted in Iran show that there is no official education in school setting about sexual health for adolescent and young people. In addition, it is not possible to teach these topics through the mass media publicly. Therefore, many young people are not formally acquainted with marital and sexual problem, reproductive health and Family planning during adolescent period. In addition, neglecting communication skills training, causes many couples have difficulty in solving marital conflicts (2, 8, 9). This defect can largely be related to the country's educational policies and practices in support of the family.

According to Schneider, the family's health policy is a set of government activities aimed at consolidating the family and promoting the well-being of its members (10). In this regard, rule 10 of Iranian Constitution explicitly emphasizes on the facilitation of the formation of a family, the safeguards of its sanctity and the solidarity of family relationships based on Islamic law and ethics (11). In addition, various high level documents have been devoted to this issue. As one of the most important of them, we can refer to the policies of the Supreme Leader on

facilitating and promoting marriage, supporting young couples and raising parenting and empowerment for parenting (12). Also, strengthening the family has been referred to in the five-year plans of the first to fifth development projects of Islamic Republic of Iran (13). Approaches about Family planning refer to the duty of governments in supporting the growth and prosperity of families (14).

Among the existing policies for family support, two health-based and treatment-based policy approaches are proposed. The treatment-based approach emphasizes the aftermath of the problem, such as the reduction of social issues arising from the divorce, but the health-based approach has several indicators that are all based on prevention and appropriate policy is considered after considering the factors affecting the subject and the needs of the community (14).

Since the health-based approach has a preventive nature, it seems to be the best approach to reduce divorce rates and consolidate the family's foundation in society. In studies, various factors such as physical, emotional and intellectual maturity, economic, cultural, religious, and communication factors have been suggested as factors affecting common life (15, 16). Acquiring skills for marriage should be such that individuals can, in addition to the ability to make informed choices, have the necessary skills to solve marital problems.

In order to increase the youth's awareness and readiness for marriage and the strengthening of marital life, the first country action was formed in 1993 as a pre-marital counseling program and the implementation of this program is still ongoing (17). The purpose of the program was to educate the concepts of sexual maturity, dangers of pregnancy at age of less than 18 years and more than 35 years. It also aimed to educate in the field of child separation, family marriage prevention, genetic counseling, and proper nutrition in pregnancy, lactation and vaccination. Since 2007, planning has started to change the content of the pre-marital counseling program.



The change and content development was finalized in 2009 and the training of service providers began in the same year. Marital education was introduced into the Ministry of Health and Medical Education in the form of a program of pre-marriage counseling since the beginning of 2011 (18).

Studies show that after about 25 years of implementing the program of pre-marriage counseling, there has not yet been a comprehensive evaluation of this issue, and previous studies either scattered or paralleled to one dimensions of the process. Thus, the quality of services provided in a systematic framework seems essential to provide a general status to policy makers in this area. The importance of evaluating a process is due to finding possible defects and attempting to eliminate them, hence it is considered as one of the important components for evaluating a program (19).

The quality of health services is evaluated in a variety of ways, and the Donabedian's framework is one of the methods that evaluates the services provided in terms of structure, process, and outcomes. This framework is proposed by Avedis Donabedian and is used to assess the quality of provided services in the health system. The advantage of this approach is that it relates to three dimensions of structure, process, and outcome, and based on this framework, it is expected that the expected outcome takes place with proper infrastructure and standard implementation of the process. Considering the administrative structure of the pre-marriage counseling program, this study was designed and implemented with the aim of evaluating the pre-marriage counseling program based on studies done by Donabedian's framework (20).

Materials and Methods

The present study is a narrative review that examines all articles related to the pre-marriage counseling program in Iran. To access these articles, Google Scholar, PubMed, Science Direct, Web of Science, Scopus and SID,

Barakatks (IranMedex) and Magiran were used to search Persian and English-language databases. Keywords for English search were "Pre-marriage counseling", "Mate Selection Training", "Iran", "Pre-marriage Training", and key words for Persian search were "Consultation", "Marriage", "Family Formation", "Sexual Health" and "Reproductive Health". These words were searched by advanced search, 'And' and 'OR' operators.

The inclusion criteria for choosing the studies were: published articles by the end of April 2017, the language of the article that was Persian or English, articles that were related to the evaluation of the pre-marriage counseling program, and the studies that were conducted only in Iran. The letter to editor, perspective or opinion, correspondence, and commentary articles were considered as exclusion criteria.

In the initial search phase, 1872 articles were reviewed, of which 775 articles were duplicated and excluded. In the review phase of abstracts, 627 papers were omitted due to lack of inclusion criteria. Subsequently, 82 papers were evaluated in the full text and 26 articles were excluded due to lack of relevance to the pre-marriage counseling program assessment and evaluation. Finally, 56 articles remained and were carefully analyzed in terms of study characteristics, methodology and results of the study. Figure 1 shows the steps of identifying the articles from the preliminary search and removing the necessary items until obtaining the final articles.

Furthermore, all ethical issues are based on the Helsinki Declaration.

Data extraction

In general, 56 selected articles were categorized by using the framework of quality assessment of Donabedian's framework. This framework is a systematic framework for assessing the quality of health care that deals with the assessment of services in the three dimension of structure, process, and outcome (20).

Structure means the conditions under which the care is provided (20) and includes the resources that the system uses them in the production and supply



of services and products, including material resources (facilities, equipment, human resources) and organizational resources. Studies that assessed human resources, material resources, information and educational content were placed in the structure (21-24). The process refers to how resources are used to create the result (20). Studies that examined the mechanism, service evaluation, and quality were also discussed in the process part and the articles which measured the participants' knowledge, attitude and performance, and the effectiveness of the training were placed in the outcomes of the study.

Results

Finally, 56 papers were reviewed. The scope of the studies in the selected papers was between - 1999 to April 2017. The characteristics of the reviewed articles are shown in Table 1. As you can see, most studies were done in a cross-section from 2001-11.

The results of the findings were classified according to the Donabedian’s Framework in three dimensions including structural, procedural and

outcome dimensions. Table 2 shows the findings related to the structure dimension. According to this table, the articles were placed under one of the categories of educational content, human resources, material resources and information. Most of the articles in this dimension were related to the sub-category of educational content and the assessment of the educational areas of the counseling program from the participants' point of view.

As it is seen in Table 3, the studies conducted in the process dimension, only focused on the mechanism of the counseling classes, and the minimum number of articles was placed in this dimension. These articles were about evaluation of how the classes were held by the participants.

Table 4 also included articles related to the dimension of the outcome, which included three subscales of knowledge and attitude in cross-sectional studies, assessment of attitude and practice awareness in randomized and quasi-experimental clinical trials and the effectiveness of training.

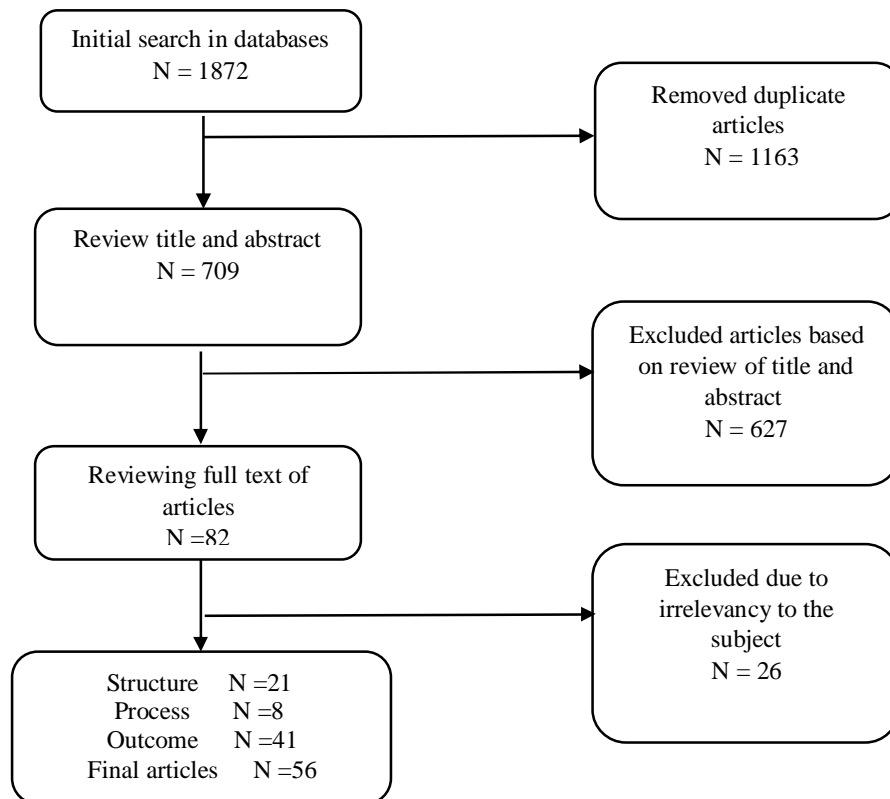




Figure 1. Methodological steps

Table 1. General features of included articles

| Variables | Frequency (%) [*] |
|--|----------------------------|
| Group Gender | |
| Male | 1 (1.8) |
| Female | 14 (25) |
| Male and Female | 41 (73.2) |
| Year of study | |
| Before 2001 | 3 (5.4) |
| 2001-2011 | 34 (60.7) |
| After 2011 | 19 (33.9) |
| Sample size(n) | |
| 300≥ | 18 (32.1) |
| 301-500 | 19 (33.9) |
| 500 < | 19 (33.9) |
| Type of study | |
| Cross-sectional | 34 (60.7) |
| Quasi-experimental | 17 (30.4) |
| Randomized clinical trial | 5 (8.9) |
| Dimensions of the Donabedian's framework | |
| Structure | 21 (30) |
| Process | 8 (11.4) |
| outcome | 41 (58.6) |

* The results of some articles were in several dimensions, so the number of articles in this table was more than 56 articles

Table 2. Structural dimensional factors derived from extracted results among the articles related to the pre-marriage counseling program.

| Category | Sub-category | Year |
|---------------------|---|------|
| Educational content | The educational needs of communication skills were higher in these areas: methods of reinforcing love, stress coping skills and children's impact on common life (2) | 2011 |
| | The need for education was greater in three areas of reproductive health, marital relations and legal rules in men and women (1) | 2010 |
| | Before marriage, it was necessary to teach the health of sexual relations, pregnancy, and sexual dysfunction (25) After marriage, the need for training pregnancy time, high risk pregnancies, genetic and congenital diseases was a priority (25) | 2011 |
| | Educational priorities were marital relations, the importance of premarital tests, contraceptive methods, and proper marital relationship (26) The need for education in the described areas and the sexual health and relationships with the spouse in both sexes were moderate (26) | 2014 |
| | The most needed areas for education were sexual relations, marital relations, and common cancers in women and men (27) | 2015 |
| | Educational priority was to prevent prevalent cancers, genetic diseases, unwanted pregnancy and its consequences (28) | 2013 |
| | 45 %of men and 56% of women knew the need for sexual and reproductive health education is in | 2011 |



| Category | Sub-category | Year |
|--|---|---|
| Human resources | high and very high levels (29) The average need for education in women was higher than men (29) | |
| | 75% of the participants needed more education in terms of reproductive health, marital relations and Islamic law (30) The pre-marriage counseling program did not fit into the needs, and current education was in the final stages of educational needs (30) | 2007 |
| | 45% of men and 56 % of women pointed out that they need a high or very high education for sex (29) | 2011 |
| | Healthy sexual relation was the most important thing that 51 % of men and 62% of women tended to learn (29) | |
| | The minimum educational need for the genitalia was mentioned (29) | |
| | The need for education in the fields of sexual relations, relations with the spouse and Islamic law was high (31) The need for education in women was more than men (31) | 2007 |
| | The need for education on reproductive health in all areas, except for the genital system (in women) and menstrual health (in men), was modest (32) The greatest need for education in both groups was about sexual health (32) | 2010 |
| | 65% of respondents assessed the relevance of the content presented in the counseling class to the education (21) | 2010 |
| | 77%evaluated content and presentation very well in terms of good ethical principles (21) | |
| | 66% evaluated consultation very well in terms of the transferring good content (21) | |
| | 69% agreed with the selection of homosexual advocates (21) | |
| | 51% agreed with solitary counseling (21) | |
| | 72% rated the quality of Family planning content moderately (24) | 2009 |
| | More than half of the people rated the quality of contraceptive methods moderately (24) | |
| | Facility and equipment | 72% rated the quality of Family planning average (33) |
| 38% evaluated genetic material moderate (33) | | |
| 49% evaluated thalassemia related material moderate (33) | | |
| 58% assessed the quality of sexual health education weak or poor (33) | | |
| %53 of respondents assessed the quality of provided information on sexual health poorly (34) | | 2009 |
| More than half of the subjects evaluated the educational content moderate (22) | | 2010 |
| 76% of respondents evaluated the manner of authorities well (24) | | 2009 |
| 76% of women were satisfied with the relationship with health care providers (33) | | 2009 |
| 85% of women considered counseling condition appropriate (33) | | |
| More than half of the teachers rated the teacher's teaching and answering to questions well (22) | | 2010 |
| Information sources | 85% rated the provided services well (24) | 2009 |
| | 38%considered the place of education appropriate (21) | 2010 |
| | 50% of participants considered duration of training (21) | |
| | 55% of couples considered counseling hours appropriate (21) | |
| | 66% rated the teaching aids well (21) | |
| | The most important source of information on AIDS was media (23) | 2010 |
| The most important sources of information from the participants' view were the media, books and relatives, respectively (35) | 2004 | |
| The most important source of knowledge about thalassemia was media (36-38) | 1999, 2012, 2014 | |



| Category | Sub-category | Year |
|----------|---|------|
| | The most important sources of information on sexual health were books, films and satellite (39) | 2003 |

Table 3. The process dimensional factors derived from the extracted results from articles related to the pre-marriage counseling program.

| Category | Sub-category | Year |
|---|---|------------|
| Training and counseling mechanism | of the people were satisfied with holding counseling classes (40) 92% | 2012 |
| | There was a negative gap between the expected service and the service received in the counseling classes (41) | 2010 |
| | The highest quality gap was in the dimension of the guarantee and the lowest one was in the dimension of empathy (41) | |
| | The best practices after being present in classroom were books and Multi Media for women and men, respectively (28) | 2013 |
| | More than 60% of people preferred group training (27) | 2015 |
| | had a tendency to have individual counseling (42) 62% | 2006 |
| | of men and 24% of women chose individual education (31) 30% | 2007 |
| | needed private counseling with a spouse (22) 34% of participants | 2010 |
| | of women and 37% of men rated the quality of counseling classes well (31) 45% | 2007 |
| | 49% of the participants rated the quality of counseling classes as moderate and 46% assessed well (22) | 2010 |
| | More than 80% of the quality counseling classes was evaluated well (27) | 2015 |
| | 56% of the couples in the intervention group (in the case of sexual health) assessed the classes at a very good level and 47% in the control group assessed them at the moderate level (43) | 2005, 2010 |
| | More than half of the subjects considered the classes to be appropriate to the volume of content (22) | |
| | Most participants had selected 3-4 meetings for consultation classes (28) | 2007 |
| | More than 50% of the people considered the number of meetings sufficient (31) | 2015 |
| | Of the participants tended to hold more counseling classes (22) 49% | 2010 |
| 72% were satisfied with order of classes (22) | 2010 | |
| 82% had a tendency for education and counseling before making a decision on marriage (42) | 2006 | |

Table 4. Outcome dimensional factors derived from extracted results from articles related to the pre-marriage counseling program.

| Sub-category | Year |
|---|------|
| Knowledge about sexual health was moderate (44) | 2012 |
| Perceived sensitivity and severity of consequences of unhealthy sexual behaviors were not at the desired level (44) | |
| The level of perceived benefits and barriers was fairly favorable (44) | |
| Knowledge about the correct sexual relationship and attitude were assessed at a moderate level and high level respectively (45) | 2007 |
| Knowledge and attitude of 50% of couples on sexual health was weak (46) | 2014 |
| Awareness of the risk associated with adverse outcomes in pregnancy was moderate, and only 13.8% of the | 2010 |



| Sub-category | Year |
|--|------|
| individuals had good knowledge (47) The highest awareness was about anemia and diabetes and the lowest awareness was about smoking (47) | |
| The knowledge and attitude score of 45% of people was poor on reproductive health and 45% was moderate (48) Mean score of knowledge and attitude of girls was better than boys (48) | 2009 |
| 67% of people were familiar with one or more contraceptives (49) The highest awareness was about oral pills and the least awareness was about prevention during lactation (49) | 1999 |
| 71% had a negative attitude about induced abortion and 26% had good knowledge about it (50) 71% of those who agreed with induction abortion had 89% poor awareness (50) | 2009 |
| There was a direct correlation between the positive motivation of fertility before marriage and the ideals number of child (51) | 2013 |
| Couples were in the normal range of general psychological disturbance (52) Physicalization, anxiety and aggression in women were more than men (52) | 2010 |
| The awareness of 53% of people about thalassemia was evaluated at a good level (53) Performance was not proportional to awareness and only 20% of married couples abandoned (53) | 1997 |
| Awareness of 43% of people about thalassemia was moderate (37) The attitude of 61% of people about the prevention and necessity of marriage counseling about thalassemia was evaluated moderately (37) | 2012 |
| Awareness of 48% of people about thalassemia was moderate (54) | 2007 |
| More than 80% of the people knew thalassemia and had a positive attitude toward pre-marriage counseling (38) Awareness and attitude of 60% and 51% of people about thalassemia disease was evaluated in good level respectively(55) Only 20% of the people' performance was desirable (55) | 1999 |
| The awareness of 20% of participants about the prevention of thalassemia was evaluated satisfactorily (36) The perceived susceptibility of 20% of people to thalassemia prevention was evaluated satisfactorily (36) Perceived Severity of 40% of Individuals concerned about Thalassemia Prevention was evaluated satisfactorily (36) Perceived benefits of 64% of the people about the prevention of thalassemia were assessed satisfactorily (36) 26%of subjects had satisfactory behavior (36) | 2014 |
| Awareness of 62% of the participants was weak about AIDS (23) Women's awareness was better than men (23) | 2010 |
| The awareness and attitude of 40% and 58% of people about AIDS was excellent (56) The most correct answer in the area of awareness about the cause of the disease was the means of transmission, and transmission through the syringe (56) The most correct answers in the attitude dimensions were 95% who believed in the fight against AIDS (56) | 2008 |
| The awareness level of people about the prevention of breast and uterine cancers was significant after training(42) | 2006 |
| Awareness and attitude of women about reproductive health increased significantly after group intervention in form of group discussion and question and answer (57) | 2010 |



| Sub-category | Year |
|---|------|
| The mean score of awareness and attitude of the intervention group increased significantly after intervention of sexual health education and fertility in the form of lecture, panel and group discussion (17) | 1999 |
| Educational intervention regarding proper nutrition education and complementary supplementation was significantly higher in the awareness of the intervention group (58) The score of internal control index after training in the intervention group was significantly higher (58) | 2010 |
| Awareness and attitude in the areas of reproductive health, family planning, and genetic diseases increased after the pre-marriage counseling program(9) | 2006 |
| Awareness about reproductive health increased after the usual pre-marriage counseling training (40) | 2012 |
| Awareness about genital hygiene, the principles of using pill and condom in prevention of pregnancy increased significantly after counseling classes, but there was no significant relationship with the importance of using Family planning (59) | 2005 |
| After the counseling program before marriage, awareness of disability prevention, prenatal care, birth control, and breastfeeding knowledge of the subjects increased significantly (35) Regular training on maternal nutritional awareness in pregnancy did not have a significant effect on birth control (35) | 2004 |
| After the pre-marriage counseling program, the percentage of reproductive health workers with moderate awareness increased from 12% to 40% (60) After the counseling program before marriage, the mean score of attitude also increased significantly (60) | 2009 |
| The awareness level of people about the prevention of breast and uterine cancers was significant after training (42) | 2006 |
| The awareness of the intervention group about reproductive health and sexual health was significantly higher than the control group with James Browne's educational model (61) 53% of the subjects in the intervention group and 26% of the control group were very satisfied with the classes (61) | 2007 |
| After education intervention, awareness about sexual health increased significantly (39) 95% of parents and 55% of educators had not trained their children about sexual health (39) | 2003 |
| After the educational class, the girls' perspective on the importance of counseling improved (62) 79% of girls reported they refer to the counsel for information after the intervention (62) According to 67% of participants, the best time to get sex information was before marriage (62) | 2009 |
| Awareness, attitude and encouraging abstract norms increased after attending classes, but the average intention to observe health policies did not change (63) | 2011 |
| 21% of women in prenatal centers were not considered as carriers with low MCV, MCH (64) Because of the presence of genetic disease in one of the tribes, 47% of studied couples required genetic counseling, while only 4% of them are referred to genetic counseling (64) | 2008 |
| Four months after training, sexual satisfaction was 91% in the intervention group and 72% in the control group (65) The non-sexual satisfaction rate due to social skills was 69% in the intervention group and 31% in the control group (65) | 2004 |
| The percentage of marriage abandonment in the first year of program has been growing to 2004 and from 2004 to 2013 the trend has been decreasing (7) | 2013 |
| Six months after sexual health education, 96% of the intervention group responded better to 26% of sexual health (43) | 2005 |



| Sub-category | Year |
|--|--------------|
| The mean score of the communication skills of the experimental group was higher in the three subscales of excitement management and perception of others and assertiveness than the control group (66) The scores of the intervention group in the post-training phase were reduced in the subscales of problem solving, helplessness, avoidance and inhibition (negative dimensions) (66) The intervention group grades in the post-training phase were increased in the subscales of creativity and trust (positive dimensions) (66) | 2014 |
| Educational intervention on communication skills was effective in improving the dimensions of marital expectations and marital attitudes (67) The educational intervention of pre-marital communication skills was effective on self-knowledge, empathy, problem-solving, stress management, anger and child-rearing (68) | 2013 2008 |
| Participation in communication skills classes was influenced by the development of emotional maturity and dimensions of emotional stability, emotional return and social adjustment, and the collapse of personality (69) | 2011 |
| The effectiveness of the pre-marriage counseling program with a new educational approach (using a poster, educational video on emotional and marital affairs, along with an educational help book) had no advantage over the usual way to increase marital satisfaction and sexual satisfaction in one year after the marriage of couples (70) | 2014 |

Discussion

The articles were categorized in three dimensions: structure, process, and outcome. In total, 56 articles were presented in these three dimensions. In the dimension of structure, the couple's needs assessment showed that the issues of the pre-marriage counseling program were the least important ones. In addition, the quality of most of the medium-to-poor material was evaluated. In most studies, the human resources and staff in class were satisfied. In the process dimension, most studies also evaluated the quality of the study program well, and in the outcome dimension in non-interventional studies, participants' awareness were evaluated moderate to poor sexual health, moderate reproductive health, moderate thalassemia, and poor AIDS.

In most of the interventional studies, the knowledge and attitude of the participants in the intervention group were better than the control group (70). In all educational interventions, with the exception of one study, the effectiveness of training on sexual satisfaction in the intervention group was better than the control, which, in general, seems to be related to the Pre-marriage counseling program that needs to be reviewed and

updated. Further, articles of each dimension are discussed separately.

The structure dimension

The structure is made up of several subcategory sub-categories that include material and human resource studies. The articles related to the needs assessment and the assessment of the contents quality of the training were placed under the code of educational content. The evaluation of these studies showed that most of the participants did not know that the presented content was in accordance with educational needs, and the current curriculum was their last training priority. The needs of participants were about sexual health, fertility and communication skills (1, 2, 20, 26, 27). Sexual health is one of the important dimensions of marital life, as in studies on divorce; sexual dissatisfaction is one of the main causes of divorce (15, 71).

Because of the importance of this issue in Iran, due to the shame of raising sexual issues, the lack of credible sources for the general public information and the lack of formal education from an early age, cause many young people who reach the age of marriage to have very little information in this regard (72).As the results of a study



showed, about 95 percent of parents did not educate their children about sexual health, and young people were reluctant to raise these issues (39). According to studies, in other countries, these trainings begin at a young age and in schools (73, 74).

In five assessment studies, quality about ethics and reproductive health, thalassemia, genetics, and AIDS were assessed moderately, but in the area of sexual health, as expected, the quality of content was poorly reported (21, 22, 24, 34).

Mental health was also considered as a participatory educational priority (26, 27, 30, 31) despite the importance of communicative skills in marital life, especially in the first years of life which has the highest percentage of divorce (6, 7), this topic in the pre-marriage counseling curriculum were not specified. Considering the importance of this subject, serious planning should be undertaken to train communication skills from an early age.

Under the human resource code, the participants were satisfied with how the authorities were treated, and the teacher's response to the questions was well assessed (22, 24, 33), which is one of the strengths of the counseling program. There was not much study on the facility side, and only in one study educational aid kit and a suitable training place were evaluated (21). In this regard, in addition to the educational environment, the satisfaction and productivity of complementary educational facilities should be evaluated. Educational complementary facilities include books, Multi Media and brochures that are given to couples at the end of the classroom and are in some way complementary educational materials. Despite the high cost of providing these devices, unfortunately, so far, no studies have been done on the effectiveness and satisfaction of couples. Moreover, it is not clear if the couples don't read complementary books, how much the effectiveness of the pre-marriage counseling program can be reduced.

The sub code of the sources of information specifically refers to how information was obtained about the relevant fields before participating in the

pre-marriage counseling program. In the area of thalassemia and AIDS, media was the most important source of information (23, 38, 43). This indicates the weakness or repetition of the provided content in the counseling classes. In addition, in one study, the most important sources of sexual information were books, films and satellite (39). This can be due to the lack of proper training and, on the other hand, receiving some obscure and sometimes misleading information from the Internet and social networks. As a result of the little or even incorrect knowledge of the participants, the effectiveness of the pre-marriage counseling program on sexual health seems inadequate, and as noted above, this topic is considered by the participants as the main learning priority.

Process dimension

Articles that looked at the mechanism and method of education were placed into this group. Since the process dimension is the bridge between structure and outcome, it is so important that in a system, despite the proper structure, when the working method is inefficient, we will not find a suitable outcome. In five studies that assessed the quality of counseling classes, the quality was evaluated from good to moderate and participants were satisfied with the classes (22, 25, 31, 40, 65), and in one study there was a gap between the expected service and the received service in these classes (41).

The criteria for quality assessment in these studies were the quality of teaching aids, the physical environment, teaching and content (22, 25, 31, 43). About how to conduct the counseling classes, participants tended to have individual counseling (22, 31, 42). This needs to be further investigated so that individual counseling can also be provided for individuals in this program, if necessary. There were few studies on the number of studies sessions, and out of the three studies, the number of appropriate sessions was evaluated only in one study (27) and in other studies it was suggested that the training time can be increased (22, 31). But the number of training sessions



required more investigation, because, as previously explained, married couples have inadequate information on sexual and reproductive health, and it's not possible to train a large amount of content in a few hours, as in a study, 82% of people tend to hold these classes before they decide to marry (42). The examination of the syllabus shows that the total training time is between 120 to 90 minutes (75). Therefore, many of the content are not properly or completely taught.

Outcome dimension

The outcome dimension was a knowledge of attitude performance or studies that examined the effectiveness of a particular variable. In the knowledge of attitude performance, some of the studies were evaluated by these indicators only conducting cross-sectional and interventional designs. In non-interventional studies, the level of knowledge and attitude of the participants, about sexual health was assessed at a moderate to weak level (44-46). In the field of reproductive health, the knowledge and attitude of the individual were reported poor to medium (47, 48). In addition, in a study, individuals' awareness of the risks of unfavorable pregnancy was moderate. In the case of induction abortion, 70% of the subjects had a negative attitude and average awareness. In addition, those who agreed with the induction abortion had poor knowledge about the subject (50). In the field of family planning, awareness was also relatively good; about 67% of people were familiar with at least one way to prevent pregnancy (49), but only one study was done. In one study, there was a direct correlation between the positive motivation for fertility before marriage and the childbearing desire and the numbers of ideal children (51). The poor and average awareness of the participants about these topics could be attributed to poor quality of instruction or teaching material.

Mental health was also one of the subjects that was evaluated in various studies. In a psychosocial study, married couples were evaluated, and the participants were in the normal range for the overall index of psychological disorder (52).

Individuals had the moderate to good knowledge about Thalassemia (36, 37, 53, 55), and their attitude was evaluated at a moderate level (36, 37, 55), but the performance of individuals was not proportional to their knowledge, so that among those who were both carriers of thalassemia, only 20 percentage of them give up (36, 53). In the case of AIDS, there were also two studies that evaluated the individual awareness, and it was poor in one of the studies (23) and good in another one (36). The topics of sexually transmitted diseases and thalassemia were among the topics which were not mentioned in the educational curriculum. Therefore, considering the high prevalence of these diseases, this issue requires essential attention (76, 77).

Interventional studies were divided into two-way, quasi-experimental and clinical trials, and in all clinical trials, the intervention group was compared with the control group that underwent a routine pre-marriage counseling program. A review of studies on reproductive health showed that knowledge about prevention of breast and uterine cancers was significant after educational intervention (42). Educational intervention regarding proper nutrition education and complementary supplementation was significantly higher in knowledge of intervention group than control group. The results of clinical trials can indicate the need to update educational topics (58).

In four studies after the usual training, awareness and attitude of the participants increased significantly in the areas of reproductive health, genital health, disability prevention, prenatal care, birth control, breastfeeding, and family planning, principles of use of pills and condoms and genetic diseases (9, 35, 40, 60). However, awareness of the importance of using family planning, maternal diet in pregnancy and the appropriate interval between births did not have a significant effect, which could indicate the weakness of these topics in the curriculum of the pre-marriage counseling program (35).

In the case of sexual health, one person's awareness increased after an educational intervention. In addition, the girls' perspective was



improved on the importance of counseling, as the girls believe referring to the counselor was the best way to solve sexual problems. Sixty seven percent of participants thought that the best time to get sex information is before marriage (62). Study of educational method was one of the important issues that was considered in some interventional studies (57, 61). The important thing about the premarital program is the shame of talking about sexual issues and reproductive health. And with regard to the fact that the prevailing method of instruction in these classes is lecturing and the attendance of the participants is high, practically many participants prefer not to ask, as a result many points may remain vague for them. For this reason, as noted above, participants were more likely to hold individual counseling courses. Therefore, this method does not seem appropriate for couples. Studies showed that focus group method is more suitable for teaching these topics (78).

In this way, a small number of participants will be trained in a question and answer session on the topic, and there is a possibility for questions and answers. In two studies with the issue of reproductive health in terms of group discussion and question and answer, knowledge and attitude of participants after education intervention increased significantly (17, 57). In another study, the awareness of the intervention group on reproductive and sexual health with James Brown's educational Framework was significantly higher than that of the control group (61). James Brown's model was a systematic model based on the formulation of educational goals, educational resources, determination of the conditions, and evaluation of the efficiency of the curriculum (61). And in fact this way of a precise evaluation of the educational system before any intervention shows that the results of this study indicates the absence of a regular pattern in the teaching methods in this program. Of course, the choice of educational method needs to be further explored, as in a study, the effectiveness of a pre-marriage counseling program with a new educational method was compared (using a molasses, poster, educational

video on emotional and marital affairs, along with an educational help book). Marital satisfaction and sexual satisfaction in one year after marriage were evaluated, but the results showed that the new method has no advantage over the usual way to increase the satisfaction of couples (70).

Under the code of effectiveness, studies were conducted on sexual satisfaction and assessment of education in communication skills. In the four studies conducted in the field of educational intervention, training aimed at improving the dimensions of marital expectations and attitudes, self-knowledge, empathy, problem solving, stress management and anger, parenting, emotional maturity, emotional stability dimensions, emotional return and social adjustment, and personality disintegration were all effective (68, 69, 79). In addition, in a post-intervention study, the mean scores of intervention communication skills in all three subscales of emotion management and perception of others and assertiveness from the control group were higher (66). All of these studies indicated the need to add mental health topics and communication skills in the educational curriculum.

The limitations of the present study were the sensitivity of the subject matter, the social constraints in the community and the lack of access to the full text of some articles.

Conclusion

Pre-marriage counseling is one of the most important factors that can prevent phenomena such as divorce, marital failures, unwanted pregnancies, and sexual and psychological disorders of couples. Pre-marriage counseling is one of the primary health care programs that aims to improve marital relationships and healthy reproductive and parenting, which can lead to a decision to change and improve this policy in order to achieve the goals as much as possible. In this study, the assessment of the pre-marriage counseling program was investigated based on a Donabedian's framework including structure, process and outcome. The results of this study showed that in the structure dimension, the



quality of educational content, in particular regarding sexual health, mental health and reproductive health is inadequate and educational topics need to be revised and updated in line with the new needs of marital relations and couples' communication.

Another point is that, due to the emergence of new social challenges such as virtual social networks and sexual intercourse before marriage, and the increase prevalence of sexually transmitted disease (STDs), it is suggested that educational materials about these challenges must be included in the curriculum. In the dimension of the process, due to the high volume of teaching materials, the training time is not enough and there is not enough time to solve couples' issues. Therefore, the correct planning on the timing and duration of an appropriate training program to review supportive programs such as specialized tests, private counseling and follow-up in this regard is essential. Considering that in Iran formal education related to marriage is summarized only for a short period of pre-marriage counseling, it is suggested that the teaching of these concepts can be carried out in a

comprehensive multi-month period, and supported by programs such as sexual counseling clinics and psychic even after marriage. In addition, new technologies can be used to continue training.

The Donabedian's framework is a comprehensive framework for system assessment of the programs in three dimensions: structure, process, and outcomes. The use of this tool can be a comprehensive assessment of health programs and identifying its challenges in each dimension for decision making and reviewing for the improvement of health and therapy programs.

Conflict of interests

The authors declare that they have no competing interests.

Authors' contributions

MH Mehrolohasani and V Yazdi-Feyzabadi designed and supervised the study. A Rajizadeh conducted research. MH Mehrolohasani, V Yazdi-Feyzabadi and A Rajizadeh wrote the manuscript. A Rajizadeh had primary responsibility for final content. In the end, All authors read and approved the final manuscript.

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