Original Article

Effectiveness of Parental Preparedness Package among Couples Conceived with Artificial Reproductive Techniques

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Abstract

Introduction: The problem of infertility is experienced as a crisis or major life stressor with potentially serious negative effects on the couple's relationship and preparation toward the parenthood. According to Sharlip *et al*., it has been estimated that about 15% of couple would have trouble in conception, and at present, 48.5 million couples experience infertility globally. To decrease the stress among parents to be and to promote healthy parenting for bringing out healthy parent–child relationships, an intervention of Parent Education Program was planned and executed. A study was conducted with the aim to assess the effectiveness of parental preparedness package (PPP) on physical health among couple conceived with artificial reproductive techniques (ART). **Materials and Methods:** The study was conducted to evaluate the effectiveness of PPP in fifty couples conceived with ART at Dayanand Medical College and Hospital, Ludhiana. Quantitative approach was used to collect the data of couples by doing pre- and postinterventional assessment of physical health of couple using the Structured Physical Health Assessment Scale. Analysis was done with the help of descriptive and inferential statistics. **Results:** The study revealed that mean score of physical health of couple (both husband and wife) increased significantly after the intervention which infers the effectiveness of PPP (P = 0.001). **Conclusion:** Our study concludes that PPP should be incorporated in the antenatal care protocol in all couples who conceive using ART.

Keywords: *Artificial reproductive techniques, parental preparedness package, physical health, physical preparedness*

Introduction

Infertility refers to the inability of a couple to achieve a pregnancy after a year of unprotected, unlimited intercourse. Infertility highly impacts both the individuals and the society. According to Sharlip *et al*., it has been estimated that about 15% of couples have trouble in conception,[1] and at present, 48.5 million couples experience infertility globally.[2] Infertility is being ranked as the 5th highest serious global disability creating negative impact on the self-esteem of infertile couple and these negative side effects put higher social burden on women than men.[3] Although infertility is usually linked to a physical problem of one spouse or the other, the stress and loss associated with infertility can have serious implications for both partners on physical, emotional, economic, and social well-being. The problem of infertility is experienced as a crisis or major life stressor with potentially serious negative effects on the couple's relationship. Infertile couples who are provided with support show more satisfaction than those who are not receiving any. Couple conceived after artificial reproductive techniques (ARTs) may have altered needs and concerns toward parental preparedness. Anxiety scores are found to be slightly higher among *in vitro* fertilization (IVF) conceived women as compared to non-IVF pregnant women,[4] which shows that their overall health gets affected. Thus, multidisciplinary team that counsel and care for infertile couples must have broad knowledge which can help the couple to meet their antenatal and postnatal needs following infertility treatment. To decrease the stress among parents to be and to promote healthy parenting for bringing out healthy parent–child relationships, an intervention of Parent Education Program was planned and executed. We aimed to assess the effectiveness of parental preparedness package (PPP) on physical health among couples conceived with ART and to determine the association of physical

How to cite this article: Arora N, Jiwan T, Juneja SK, Tandon P. Effectiveness of parental preparedness package among couples conceived with artificial reproductive techniques. Int J App Basic Med Res 2023;13:40-3.

Submitted: 03-Aug-2022
Revised: 15-Feb-2023
Accepted: 16-Feb-2023
Published: 27-Mar-2023

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Access this article online

Website: www.ijabmr.org

DOI: 10.4103/ijabmr.ijabmr_447_22

Quick Response Code:

health with selected sociodemographic variables of couples conceived with ART.

Materials and Methods

The study was conducted on fifty couples (50 wives and 50 spouses) conceived with ART receiving antenatal care at Dayanand Medical College and Hospital (DMCH), Ludhiana from July 2021 to December 2021. Quantitative research approach was used with pre-experimental one group pretest–posttest research design. Inclusion criteria: fifty couples conceived with ART and within 27–31 weeks of gestation of pregnancy (as in ART conceived pregnancies, there is higher incidence of preterm births, so the study was conducted among couples within 27–31 weeks of gestation) selected through nonprobability purposive sampling technique. ART conceived couples who had cognitive or sensory impaired disorders and not attended the physical preparedness session of PPP were excluded from the study. Reliability of structured physical health assessment scale was calculated using Cronbach's alpha formula ([α =0.86] [wife], α =0.89 [husband]). After taking informed consent and baseline profile, preinterventional assessment was done using structured physical health assessment scale followed by intervention in the form of PPP focused on physical preparedness aspects such as maintenance of physical health, physical and sexual activity, sleep and management of fatigue, pain and birth preparedness, and complication readiness along with care of newborn and then posttest I and II were taken up after gap of 5 and 10 days of intervention, respectively. Outcome of the pregnancy was also assessed within 2 days of delivery from the records. Analysis and interpretation of the data were done in accordance with objectives of the study using descriptive and inferential statistical program for social sciences (SPSS 2019) v 26.0 (IBM Corp., Armonk, NY, USA).

Description of tools

PART I – Structured (a) sociodemographic profile (11 items), (b) maternal profile (18 items), and (c) paternal profile (5 items) PART II – Structured Physical Health Assessment Scale to assess physical health of wives and spouse separately, consisted of nine positive and seven negative statements under seven headings (General physical health [1], physical activity [4], sexual activity [2], sleep [4], physical health problems [2], and fatigue and pain [2]) with maximum score of 80 and minimum score of 16.

Ethical consideration

Written permission has been taken from the Institutional ethical committee and HOD of Obstetrics and Gynecological Department, DMCH, Ludhiana. An informed written consent from the subjects was taken. Subject information sheet was given, and anonymity of subjects and confidentiality of information was maintained during the study.

Results

The mean age of wives was 38.46 ± 5.30 years. The majority of wives (90%) were nonworking/homemakers and 46% were graduate and above. The majority of husbands (62%) were with occupation as technicians or in sales, 50% were graduate and above and had mean age of 41.32 ± 5.12 years, 66% living in urban areas, and 60% belonged to upper middle class II. As per maternal profile, mean height was 5.3 ± 2 (ft. inch) and mean weight was 68.86 ± 8.87 (kg). The majority of wives (58%) were first gravidas, 42% had undergone abortions, and only 30% specified the use of contraceptive methods, and out of them, 53% mentioned the use of condoms by their husbands. Nearly 58% of couple had primary infertility and 50% had female causes of infertility, in which 52% were tubal factors. More than half of couples (56%) had 4–8 years of duration of infertility. Only 22% had undergone ART procedure previously which remained unsuccessful, whereas 78% had their first cycle. The major proportion of wives (74%) had pregnancy-induced complications, and out of them, preeclampsia was found among 56.7%. As per paternal profile, mean height was 5.7 ± 1.7 (feet, inch) and mean weight was found to be 81.38 ± 6.38 (kg). The majority of husbands (46%) had B+ blood group. More than half of husbands (58%) had habit of substance use out of which 65.5% were alcoholics and 34.4% were smokers. Regarding the outcome of pregnancy, the majority of mothers (90%) had delivered single baby with mean gestation time period at the time of delivery as 36.76 ± 0.68 (weeks). All of them had delivered through Lower Segment Caesarean Section and mean amount of blood loss was 1033 ± 66.98 (ml) and mean weight of baby was found to be 2515.38 ± 134.30 (g).

As per level of physical health of wives, their mean score of physical health was found to be 45.50 ± 5.48 (pretest), 54.76 ± 5.30 (posttest I), and 56.36 ± 5.87 (posttest II) which showed a significant increase in mean score after the intervention (P = 0.001), inferred the effectiveness of PPP [Table 1]. Similarly, the level of physical health of husbands, their mean score increased significantly as found 53.66 ± 6.19 (pretest), 61.74 ± 5.34 (posttest I), and 63.60 ± 4.78 (posttest II) which inferred the effectiveness of PPP (P = 0.001) [Table 2].

Regarding the association of physical health with selected variables, age of wives (P = 0.001), educational status of husband (P = 0.024), and occupational status of husband (P = 0.036) were found to be statistically significant.

Discussion

Infertility can be categorized as primary, where there has never been a pregnancy or secondary, where a pregnancy has achieved before, irrespective of the condition whether it reached to the full term or not. The causes of impaired

Table 1: Comparative pretest, posttest I, and posttest II mean physical health score among couple (wife) conceived with Artificial Reproductive Technique (*n*=50)

Physical health	Mean±SD	Mean (%)	MD	*t*	df	*P*
Pretest	45.50±5.48	56.87	9.26	10.229	49	0.001**
Posttest-I	54.76±5.30	68.45				
Pretest	45.50±5.48	56.87	10.86	11.29	49	0.001**
Posttest-II	56.36±5.87	70.45				
Posttest-I	54.76±5.30	68.45	1.6	5.745	49	0.001**
Posttest-II	56.36±5.87	70.45				

**Highly significant (*P*<0.000). Maximum score=80, Minimum score=16. SD: Standard deviation; MD: Mean Deviation

Table 2: Comparative pretest, posttest I and posttest II mean physical health score among couple (husband) conceived with Artificial Reproductive Technique (*n*=50)

Physical health	Mean±SD	Mean (%)	MD	*t*	df	*P*
Pretest	53.66±6.19	67.07	8.08	6.565	49	0.001**
Posttest-I	61.74±5.34	77.17				
Pretest	53.66±6.19	67.07	9.94	7.66	49	0.001**
Posttest-II	63.60±4.78	79.50				
Posttest- I	61.74±5.34	77.17	1.86	5.754	49	0.001**
Posttest-II	63.60±4.78	79.50				

**Highly significant (*P*<0.000). Maximum score=80, Minimum score=16. SD: Standard deviation; MD: Mean Deviation

fertility are sometimes difficult to assign to either the male or female. About 9% of men and 10% of women aged within 15–44 reported infertility problems in the United States. Of all infertility cases, approximately 40%–50% is due to "male factor" infertility and 2% of them have suboptimal sperm parameters such as low sperm concentration, poor or decreased sperm motility, or abnormal morphology[5] and women factors account for about 88.6% including menstrual disorders, diseases (such as obesity, thyroid diseases, and diabetes), ovulation dysfunction, uterine, tubal and cervical factors,[6] and many causes are still unexplained. The advancement of modern technology and research is going on in the field of infertility treatment from the past few decades such as IVF/embryo transfer, intrauterine insemination, intracytoplasmic sperm injection gamete intrafallopian transfer, and zygote intrafallopian transfer which gives hope and fruitful results to the infertile couples. The number of IVF conceived pregnancies is rising every year, with over 63,000 live births from IVF in year 2013, which was about 1.6% of all births in the United States. The couples who conceived after successful ART are usually expected to be more involved in parenting, leading to the imposition of high parental standards which sometimes under valuate their parenting difficulties and provision of insufficient support which in turn has negative impact on parental functioning. In spite of many studies across the world,[7-11] there is a very limited number of studies in Indian scenario focusing on the evaluation of childbirth preparedness and its impact on women's physical and psychological health, women's satisfaction, and childbirth outcomes.

In the present study, it was found that, after intervention of parental preparedness program, the mean score of posttest I and II of physical health assessment (including components physical health, physical and sexual activity, sleep, fatigue, pain, and physical problems) improved significantly (P = 0.001). Hassanzadeh *et al*. explored and compared women's childbirth experiences including childbirth fear, anxiety, and satisfaction among women with regular, irregular, and no participation of women in childbirth preparation classes.[8]

Mehdizadeh *et al*. evaluated the Impact of Birth Preparation Courses on the Health of the Mother and the Newborn and concluded that antenatal preparation should be introduced to all women during pregnancy as a National Health Policy, to ensure health for all. Patients in the trial group had significantly less often back and pelvic pain and headache than patients in control group (two-tailed P (2) <0.05).[9] Therefore, the full PPP must be taken into consideration focusing on all the antenatal and postnatal physical needs and concerns of couples regarding diet, feeding, clothing, rest, travel, birth preparedness, and complication readiness for promoting maternal and child health. Hence, being an important part of health team, a nurse must aim at giving comprehensive nursing care to couple, in which their physical, psychological, and social aspects are to be taken into consideration. Hence, these couples need to be more prepared for the birth and parenthood for better maternal and child health outcomes.

CONCLUSION

Parental preparedness package (PPP) should be incorporated in the antenatal care protocol in all couples who conceive using ART for promoting maternal and child health.

Ethical statement

The study was approved by DMCH, Institutional Ethics Committee via circular No. DMCH/R&D2018/826 dated 14/12/2018.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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