

# Myths & Controversies in Assisted Reproductive Techniques – Gynecologists’ Perspective

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## ABSTRACT

**Background and Objective:** Globally infertility affects between 60 million and 168 million all over the world. Regardless of the fact that Pakistan being currently among the most overpopulated nations of the globe and a populace development pace of around 2%, confronts with the higher pace infertility (21.9%); 3.5% primary and 18.4% secondary. The aim of the study was to assess the understanding of gynecologist of Pakistan regarding Assisted Reproductive Techniques (ART).

**Methods:** It was a descriptive study, conducted only for gynecologists who attended the “Asia Pacific Initiative on Reproduction” (ASPIRE) conference held in Lahore, Pakistan, from 29<sup>th</sup> Nov to 1<sup>st</sup> December 2019. Data was collected from the n = 252 gynecologist who were attending the conference.

**Results:** Out of n = 252 doctors, 82.9% participants considered test tube baby a social norm and acceptable option while 55.6% participants were in the opinion of basically a stigma attached to society. According to 77.8% participants, socially and legally involvement of 3<sup>rd</sup> party like donor eggs, sperms and gametes cannot justify.

**Conclusion:** Pakistan, gynecologists are the mainstream dealing with infertility. Apart from general population, there are certain myths and controversies among the gynecologist as well. So that gynecologists’ knowledge and perception is the most important point regarding infertility and ART.

**KEYWORDS:** Infertility, Assisted reproductive technique, In-vitro fertilization, Social stigma.

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## INTRODUCTION

Infertility is a specific and common disease entity affecting general population on a larger scale and also considered as a social disease due to its

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prevalence.<sup>1</sup> It is a global problem affecting 60 million to 168 million people worldwide.<sup>2</sup> Though there is a high fertility rates in Pakistan but infertility is still a major reproductive health problem in Pakistan affecting approximately 21.9% of its population.<sup>3</sup> Centers for Disease Control and Prevention (CDC) reports prevalence of infertility as 8.8% among the married woman aged 15 – 49 years between 2015 and 2017 in the United States.<sup>4</sup> The incidence of infertility is higher in developing countries because of absence of basic knowledge about the reasons of infertility and the possible

required treatment. In our society, infertility is just not only considered as a medical problem, but it is also considered as a failure of that individual on personal, interpersonal, and social grounds. It is the basic requirement that individuals must have adequate knowledge about infertility so that the couples can look for timely care and misconceptions can be rectified.<sup>2</sup> A large bulk of infertile patients are from developing countries. According to WHO-DHS Comparative report, more than 186 million married women in developing countries were infertile (either primary or secondary).<sup>5</sup> Infertility is commonly considered as a social stigma particularly in South Asia like in India, parenthood is thought as a true indicator of a happy married life. Infertility is a taboo topic in India like in other developing countries and associated with social stigma.<sup>6</sup>

Infertility does not affect females only but also causes increased psychological distress and social burden among men and women.<sup>7</sup> People start to gossip about infertile people thus creating social pressure and show pity for them.<sup>8</sup> Family pressure in the form of stigmatization, blaming and taunting of in-laws, multiple medications by the family, certain enquiries by relatives, and property issues starts on infertile couples soon after marriage.<sup>9</sup> Awareness about infertility is insufficient in many parts of the world. A global survey of almost 17,500 women (mostly of childbearing age) from 10 countries showed that awareness about infertility and biology of reproduction was poor.<sup>10</sup>

In Vitro Fertilization (IVF) & Intra Cytoplasmic Sperm Injections (ICSI) are the aids to treat infertility and their success rate is dependent on many factors but the most important parameter is the age of female partner.<sup>11</sup> Assisted reproductive technique is an evolving field of medicine with various recent advancement and progressions. Since the birth of first IVF baby, there have been countless hopes about the success, but still there are many myths and controversies about the safety data both for the mother and baby. Questions and queries exist not only among the general population but also among the gynecologists.<sup>12</sup>

There are many myths and controversies in ART, particularly highlighting the gynecologists' views. The number of embryos to be transferred has been always a controversial point. But recent evidence suggest that single embryo transfer is the

most effective strategy in ART to avoid multiple pregnancy and its associated complications.<sup>13</sup> Another important controversy is gender selection and its indications. In Pakistan, gender selection is only permitted for family balancing on social reasons. Hence, this way regulation of family balancing can be allowed worldwide without skewing the sex ratio of general population.<sup>14</sup> Designer baby is a very recent advancement in ART, which is particularly helpful in certain conditions like inherited genetic disorders. But acceptance of designer baby on social grounds is still a controversial issue.<sup>15</sup>

In developed countries there are regulatory authorities monitoring all the procedures of ART and its impacts. Like in UK, HEFA (Human embryo fertilization and Embryology Authority) ensuring good quality care for infertile couples.<sup>16</sup> But in developing countries the regulatory system is not so active, and their monitoring is not up to the desired level. There should be an active regulatory body regarding ART with a vision to meet the needs of the patients with infertility with good quality care.

There are different studies carried out worldwide regarding knowledge & awareness in general population regarding infertility. But unfortunately, very limited data is available from Pakistan including general population and health workers despite of very high prevalence of infertility. Controversies do not only metamorphose within the confines of the public, but they also mesh admits Obstetricians and Gynecologists (OBGYN) practitioners globally and at home. This study addresses the most fundamental and intrinsic myths and controversies floating within the bounds of gynecologists and infertility health professionals of Pakistan. This is an unparalleled narrative from the gynecologists' perspective about the current practices of ART in Pakistan.

## METHODS

It was a descriptive study and included those gynecologists who attended international conference named "Asia Pacific Initiative on Reproduction" (ASPIRE) held in Pakistan for the first time, from 29<sup>th</sup> Nov to 1<sup>st</sup> December 2019. ASPIRE is a unique task force of clinicians and

scientists involved within the management of fertility and ART. It aims to create awareness of infertility, ART and to boost infertility-related services within the Asia-Pacific region.<sup>17</sup>

For the first time in Pakistan, this study was carried out to assess the myths and controversies in ART among the gynecologist of Pakistan. Data was collected from 252 gynecologists who attended the conference. Ethical approval of the study was taken from the Lahore Institute of Infertility and Endocrinology (LIFE) vide Letter No. LIFE-05-2019. All the participants had the right to leave the study at their free will without any explanation. Medical students and paramedical staff were excluded from the study. The questionnaire was made anonymous and designed by the researchers ensuring the confidentiality of the participants. It was distributed on daily basis during the conference and later was collected by team members.

### STATISTICAL ANALYSIS

Statistical Package for Social Sciences SPSS 25.0 was used for data analysis. The results were then compiled in terms of frequency and percentages.

### RESULTS

Out of n = 252 participants, 82.9% thought test tube baby a social norm and acceptable option. While 55.6% considered it basically a stigma attached to society. According to 77.8% participants, socially and legally involvement of 3<sup>rd</sup> party like donor eggs, sperms and gametes cannot be justified. Among all participants, mostly were in concordance with the transfer of embryos on social ground and a single embryo transfer was taken as the best option in ART treatment. More than half of the participants were satisfied about gender selection on any social reason. The concept of a designer baby was not acceptable option for 66.7% participants both morally and ethically. According to 69.4% participants, age limit was an issue for ART and 33.3% agreed that no IVF associated health risk for both mother and baby. Most of the participants were in the view of developing regular authority for ART in developing countries (Table-1).

**Table 1:** Responses of the participants regarding myths & controversies in assisted reproductive techniques.

Questions	Response	Frequency	
		n	%
Is the test tube baby a "Social Norm" & "an acceptable Option"?	Yes	209	82.9
	No	43	17.1
Is it a "Stigma" attached to the society"?	Yes	140	55.6
	No	112	44.4
Can we justify legally and socially the involvement of third party in ART like Donor eggs, sperms, and gametes?	Yes	56	22.2
	No	196	77.8
The number of embryos to be transferred in IVF can be justified on social grounds?	Yes	157	62.3
	No	95	37.7
Single Embryo transfer is the best option (SET)?	Yes	163	64.7
	No	89	35.3
Can we justify Social Gender selection on social reasons in ART?	Yes	146	57.9
	No	106	42.1
"Designer baby" is an acceptable option Morally & Ethically?	Yes	84	33.3
	No	168	66.7
There should be an age limit for ART?	Yes	175	69.4
	No	77	30.6
There should be a regularity authority for ART in developing countries?	Yes	238	94.4
	No	14	5.6
Is there any IVF associated health risk for both mother and baby?	Yes	168	66.7
	No	84	33.3

### DISCUSSION

The situation in developing countries, particularly in South Asia, regarding infertility and its treatment especially ART (Assisted Reproductive Technique) is quite different while comparing to developed countries. Particularly, in these areas there are certain social and cultural impacts related to infertility in general population.<sup>18</sup> In Pakistan, gynecologists are the mainstream dealing with infertility. Apart from general population, there are certain controversies/debates among the gynecologist as well. So that gynecologists' knowledge and perception is the most important point regarding infertility and ART.<sup>2</sup>

Currently in Pakistan, there are very few ART centers (around 15) which are solely working privately. ART is not practiced in any government hospitals of Pakistan. So, it is considered as an expensive treatment and patients must pay out of their pocket. According to current study, the majority of gynecologist considered ART as an acceptable option. In developed countries where ART is considered as a "Social Norm", contrary to that, in Pakistan a major bulk of gynecologist still considered it as a "social stigma" as do the general population.<sup>18</sup>

Involvement of third party in ART is another controversial point, particularly in Islamic

countries. In developed countries, it is permissible by law with certain rules and regulations. But according to Islamic law in Pakistan, the ART procedures are only allowed without involvement of third party. It means donor sperms, donor eggs, gametes donation and surrogacy are not allowed.<sup>19</sup> Similarly, in current study majority of gynecologists were not in favor of third-party involvement.

Another important point to be highlighted was the number of embryos to be transferred in ART. On one hand, increasing the number of embryos to be transferred enhance the success rate of IVF. While on the other hand, complications associated with multiple pregnancies like low birth weight babies, preterm deliveries, and increased perinatal mortality are of major concern.<sup>20</sup> However, recent studies have highlighted the positive impact of a single embryo transfer in ART, and majority of our gynecologists agree with it but it needs further studies.<sup>21</sup>

Gender selection on social grounds is again a big debate all over the world. Gender selection on social grounds is practiced in many countries including Muslim countries like Saudi Arabia, Iran, and Pakistan. This procedure is considered a safer option for both mother and baby.<sup>22</sup> Pakistan women do show preference for male babies and thereby gender selection is only for family balancing.<sup>23</sup> However, among the participating gynecologists few were in favor while some were against it. So, this point needs to be emphasized for future discussion.

With the advancement of ART, there are certain medical conditions that can be prevented by genes editing called as "Designer baby" but was not an acceptable option for majority of gynecologists on moral and ethical grounds and they highlighted the need for the cut off value for the age of female partner in ART as evident by different studies. The aim was to increase the success rate of IVF/ICSI.<sup>24</sup>

In developed countries, there are regulatory bodies for ART to provide effective clinical care without compromising its success rate. Like, HEFA (Human fertilization and Embryology Authority) in UK for ART.<sup>25</sup> Assisted reproductive techniques in Pakistan are developing at a rapid pace but there is no database or regulatory body. But with much recent advancement, there must be check and balance. Almost all gynecologists emphasized the need for the regulatory body regarding ART in

Pakistan. This regulatory body will be responsible to ensure that all fertility clinics and research centers are comply with the laws and regulations of Pakistan, enhancing good quality care without affecting its success rate. Majority of gynecologists in the present study considered as a safe option.

There are also concerns regarding health risks for the mothers as well as for babies of ART. A study conducted in United Kingdom reported a significantly increased risk among mothers conceiving children as a result of IVF.<sup>26</sup> According to another study conducted in February 2020 higher risk for mortality can be seen in children who were conceived by the in vitro fertilization (IVF).<sup>27</sup>

There is need to highlight the safety data both for mother and baby in ART among the gynecologist, so that they can better explain it to their patients. There must be more research particularly at local level so that they can better guide and reassure their patients regarding ART.

## CONCLUSION

The situation regarding infertility and its treatment especially ART (Assisted Reproductive Technique) is quite different in developing countries particularly in South Asian region. In Pakistan, gynecologists are the mainstream dealing with infertility. So apart from general population, there are certain myths and controversies among the gynecologists as well. For these reasons, gynecologists' knowledge and perception regarding infertility and ART are the most important point.

## LIMITATIONS OF THE STUDY

This study also showed some limitations due to the lack of data about ART in Pakistan. In future, there is a need to collect more data on ART treatments and their outcomes, as it would help in improving the knowledge of the individual experiences and effects of ART. Also, it is important to develop national databases to gather quantitative information.

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### CONFLICT OF INTEREST

None to declare.

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None to disclose.

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### ***Author's Contribution***

**RN:** Design of study, Acquisition of data, drafting of manuscript with intellectual input.

**HLK:** Conception and design of study, Acquisition and analysis of data, drafting of manuscript with intellectual input.

**HZ, ZI, SJS:** Acquisition and analysis of data, drafting of manuscript.

**ALL AUTHORS:** Approval of the final version of the manuscript to be published.