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Prenatal Tests and Pregnancy Termination Amongst Moslem Women in Israel

Aliza Amiel[1]*, Pazit Azuri[1], David Ezra[1], Samer Halabi[2]
1.School of Nursing Science, The Academic College of Tel-Aviv-Yaffa, Israel
2.The Department of Psychology, The Academic College of Tel-Aviv-Yaffa, Israel

ABSTRACT

The objective of this study was to explore and compare prenatal behavior and attitudes towards pregnancy termination amongst Moslem and Jewish women in Israel. Israeli Moslem women (n = 330) and Israeli Jewish women (n =84) participated in the study, conducted online, using a survey platform. Moslem women compared to Jewish women were more inclined to undergo mainly non-invasive screening rather than invasive testing (12.6% versus 7.3%), generally rejecting pregnancy termination even in cases of abnormal findings. The Moslem women believed that abortions would generate more negative feelings and more feelings of guilt. Moreover, previous studies have reported that Israeli Jewish women compared to Israeli Moslem women would receive more social support from ones close environment in the event of termination. Israeli Moslem women tend not to terminate a pregnancy even when a malformed fetus is detected, believing that termination would result in negative feelings such as depression and guilt. Most report a preference for screening and less invasive procedures.

Keywords: Jewish women, Moslem women, Pregnancy termination, Prenatal invasive tests, Prenatal noninvasive tests

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INTRODUCTION

Extensive research has explored the role of ethnicity on various healthcare domains showing that members of disadvantaged ethnic groups experience poorer physical health than members of advantaged groups[1]. One potential significant social factor that contributes to these disparities may relate to cultural differences, preventing members of a specific ethnic group from undergoing certain medical procedures. Indeed, studies focusing on Muslim women from western countries have illuminated the possible effects that cultural and religious factors play in the decisions such as whether to undergo prenatal testing. Specifically, invasive prenatal tests widely used in the general population, were found more limited amongst Moslem women[2]. Hence, prenatal testing amongst two different ethnic groups in Israel, Muslim and Jewish women, were examined.

A recent research study investigating the cultural aspects of prenatal testing found that women of Pakistani origins chose not to undergo invasive testing due to the risk of miscarriage and the difficulty in terminating the pregnancy following abnormal test results[3]. Similarly, another study found that Moslem women of Turkish origins were less likely to consider terminating the pregnancy, even if the fetus was diagnosed as abnormal, due to their religious convictions regarding antenatal screening in pregnant women[4]. In 2015, a study carried out in the Netherlands focusing on Moslem Moroccan women, reporting these pregnant women preferred to be accurately informed regarding the antenatal anomaly tests and asked about their individual beliefs as to the value of life. It was felt that counselors must explore the clients' moral values relating to quality of life and its termination, as well as how their religious beliefs affect those values[5].

An Egyptian study of 3000 pregnant Moslem women reported that 33.8% of the women were carrying fetuses diagnosed with thalassemia. All of the women opted to terminate the pregnancy. The change in attitude towards termination of pregnancy was due to in-depth counseling with respect to the woman's religious points of view towards prenatal diagnosis and termination of pregnancy[6]. In a Moroccan study, women who had given birth to a Down Syndrome (DS) infant were surveyed. Most were unaware that prenatal screening could have tested for this syndrome. Most (94%) felt that information relating to DS screening must be provided to all Moroccan women in the early stages of pregnancy and that a public health program for prenatal screening must be established[7]. Yet, the belief that "All is done by Allah" can be mitigated by appropriate medical counseling or health care. Specifically, a study performed in three Moslem nations (Egypt, Kuwait, and Tunisia) supported three different approaches towards the legalization of abortion: conservative, more lenient, and liberal, which led to the conclusion that a more liberal attitude relating to abortion is possible

in Moslem nations if traditional principles are taken into consideration[8]. Furthermore, according to an Australian study performed in a Moslem population, two main conclusions were reached: the women's partners played a crucial role in the acceptance of prenatal testing and the women's perceptions and subjective experience with prenatal testing must be considered when providing prenatal services. Moreover, this research reinforced the need for women to be given a choice rather than being pressured and made to conform to the routinization of prenatal testing. Only then, will one perceive a sympathetic and considerate health care system providing for all women in general and specifically, immigrant Moslem women[9]. It was found that in order to mitigate gaps not found in the literature, doctors, nurses and counselors when communicating with their patients must consider in depth the social, religious, traditional and emotional factors that may affect the woman's decision-making process[10].

This international multicultural study focuses on Israeli Jewish and Moslem pregnant women and the differences between the two groups with regard to undergoing or refusing prenatal testing, specifically, screening or invasive[11,12]. When considering pregnancy termination, the extent of social support that the women receive from one's close environment is most critical. Indeed, only recently, it was found that social support plays a protective role in the crucial process of deciding when or whether to terminate a pregnancy[12]. The extent of social support was therefore, investigated in both study groups. In addition, the extent of depression and guilt which a pregnancy termination might generate, was assessed. The hypothesis was that Israeli Moslem women would receive less social support if they chose invasive prenatal testing and/or pregnancy termination and would experience more feelings of guilt and depression.

Prenatal behavior and attitudes towards pregnancy termination amongst Moslem and Jewish women in Israel

The majority of the Arab population (93.2%) in Israel comprises Moslems who reside mostly in towns and villages[13]. A prenatal diagnosis is accessible for many of the prevalent disorders in the Israeli Jewish and Israeli Arab communities and can be performed in most maternity hospitals in Israel. Since, the entire population of Israel are covered by health insurance, the prenatal testing for women at risk is free. Recently, a study conducted in Israel amongst Arab Moslem women whose fetuses had been diagnosed with congenital anomalies, focused on the subjects' decision-making regarding the termination of the pregnancy. Furthermore, research conducted by Jaber et al. (2000), showed that amongst Israeli Moslem women who were at an increased risk of delivering malformed babies due to the high frequency of consanguinity, acceptance of prenatal testing was relatively low, due to their "religious opposition" to terminating the pregnancy pursuant to such guidance by health professionals [14].

It is worth noting that only a limited set of studies on prenatal attitudes and pregnancy termination have been conducted within the Israeli Moslem population, an ethnic minority characterized as more conservative, especially, regarding issues they consider as "intimate and personal". In fact, this research was set to explore whether some Moslem women, consistent with previous research in other multi-ethnic contexts, have less access to health information and undergo less invasive testing than some Israeli Jewish women. Furthermore, it is also noteworthy that the few studies conducted amongst Israeli Moslem women, investigated a small population size, and was therefore, less conclusive [15-18].

Prenatal testing

Definitive diagnostic testing during pregnancy is an invasive procedure, i.e., chorionic villus sampling (CVS) or amniocentesis. CVS is performed between 10 to 13 weeks of gestation; amniocentesis between 16 to 20 weeks. Both procedures carry a small risk of miscarriage. The degree of risk is commonly quoted as 0.5-1%, although recent meta-analyses suggest that the actual procedure-related risk may be much lower. Chromosomal abnormalities can be diagnosed in cells obtained from the invasive procedure by karyotyping or at a higher resolution by microarray analysis. Prenatal screening for fetal chromosomal abnormalities is performed with the aim of identifying women who are at a higher risk of carrying an affected fetus. Moreover, it enables the parents to make informed decisions as to whether to proceed with diagnostic testing. Clinically significant fetal chromosomal abnormalities generally involve losses or gains of genetic material ranging in size from small segments of chromosomes (termed microduplications or microdeletions) to entire chromosomes (i.e., aneuploidy)[19]. The first recognized prenatal screening test was based on a single maternal serum marker of a neural tube defect, the alpha feto protein. Subsequently, various prenatal screening concepts have been introduced, the most successful being the Down syndrome risk estimation using multiple serum and ultrasound markers [19-21]. However, and despite the importance of undergoing invasive procedures in pregnancy, as noted earlier, women from diverse ethnic groups convey different attitudes towards these tests.

The various non-invasive prenatal testing (NIPT) analyze the short DNA fragments released into the plasma from normal cellular turnover and rapidly cleared from circulation. In a pregnant woman, most of the DNA is derived from the turnover of maternal cells. However, a proportion are derived from the outer trophoblast cell layer of the placenta, typically reflecting the fetal genotype. The percentage of this DNA is termed "fetal fraction". There is a wide normal range of fetal fraction. The median value at 10 weeks is ~10% fetal DNA fraction from the maternal DNA[19], yielding the approximated risk for a limited number of syndromes, most specifically, DS [20,21].

This study focuses on Israeli Jewish and Moslem pregnant women and the differences between the two groups with regard to undergoing or refusing prenatal testing, specifically, screening or invasive[10,11]. When considering pregnancy termination, the extent of social support that the women receive from the close environment is most critical. Indeed, only recently, it was found that social support plays a protective role in the crucial process of deciding when or whether to terminate a pregnancy[12], therefore, the extent of social support was investigated in both groups. Furthermore, the women's evaluation as to the extent of their depression and guilt which a pregnancy termination might generate was assessed. The hypothesis was that Israeli Moslem women would receive less social support if they chose invasive prenatal testing and/or pregnancy termination and would experience more feelings of guilt and depression. There are a lack of data as to the social support of the Moslem population, worldwide, from a close environment and deep and guilt feelings after pregnancy termination.

MATERIALS AND METHOD

Participants were recruited through advertisements in various social media, using a convenience sampling method. The final sample size included 330 Israeli Moslem pregnant women, residing mostly in cities and villages (study group) and 84 Israeli Jewish pregnant women, residing mostly in cities (control group). Mean age of the participants was 30.7 years, ranging from 17 to 60 years of age. Israeli Moslem and Israeli Jewish women were invited to participate in an online survey examining different health issues. Specifically, participants were informed that they were participating in a study examining the attitudes of women relating to pregnancy issues. Participants responded to a six-item survey measuring their attitudes towards prenatal testing, pregnancy termination and their potential emotions that such a procedure may generate.

For the first dependent measure, *attitudes towards prenatal testing*, participants were asked to answer yes or no if they were willing to undergo invasive prenatal testing. The second dependent measure, *support for pregnancy termination* was assessed on a 5-point scale: "Would you support undergoing a pregnancy termination procedure?", with higher scores reflecting more support for pregnancy termination. The third dependent measure, *anticipated social support and emotions that a pregnancy termination might generate*, the participants were asked to answer on a 5-point scale "To what extent will you receive support from your close environment following a pregnancy termination decision?", with higher scores reflecting anticipating more support. For the generated emotion measures, the participants were asked to answer on 5-point scale "To what extent would a procedure of pregnancy

termination generate feelings of guilt and depression, with higher scores reflecting a higher probability of experiencing these emotions.

Statistical analysis

Statistical analysis was performed using the SPSS software. The chi square, one-way ANOVA, T-tests, and Pearson correlation tests were also performed. Means and standard deviations were reported for continuous and normally distributed data**.** The chi square, one-way ANOVA and *t* tests compared variables of the Moslem and Jewish respondents. The Pearson correlation tests explored the relationships between the study variables.

RESULTS AND DISCUSSION

The sample comprised 330 Israeli Moslem, and Israeli Jewish women. Most (71%) Israeli Jewish women considered themselves secular, 21% traditional, and 8% religious. Almost half (45%) of the Israeli Moslem women considered themselves religious, 42% traditional, and 13% secular. Importantly and as anticipated, group comparisons showed that 54.7% of the Israeli Moslem women compared to 13.6% of the Israeli Jewish women, even following a suspicion of a genetic malformation of the fetus, reported that they were less willing to undergo invasive prenatal testing , $\chi^2(1, N = 399) = 43.93$, $p < .001$ (Figure 1). Furthermore, when comparing the Israeli Jewish women to the Israeli Moslem women, Israeli Moslem women tended to choose non-invasive screening testing, %12.6 versus %7.3, respectively, $\chi^2(1, N = 403) = 41.43$, $p < .001$, or no prenatal testing at all.

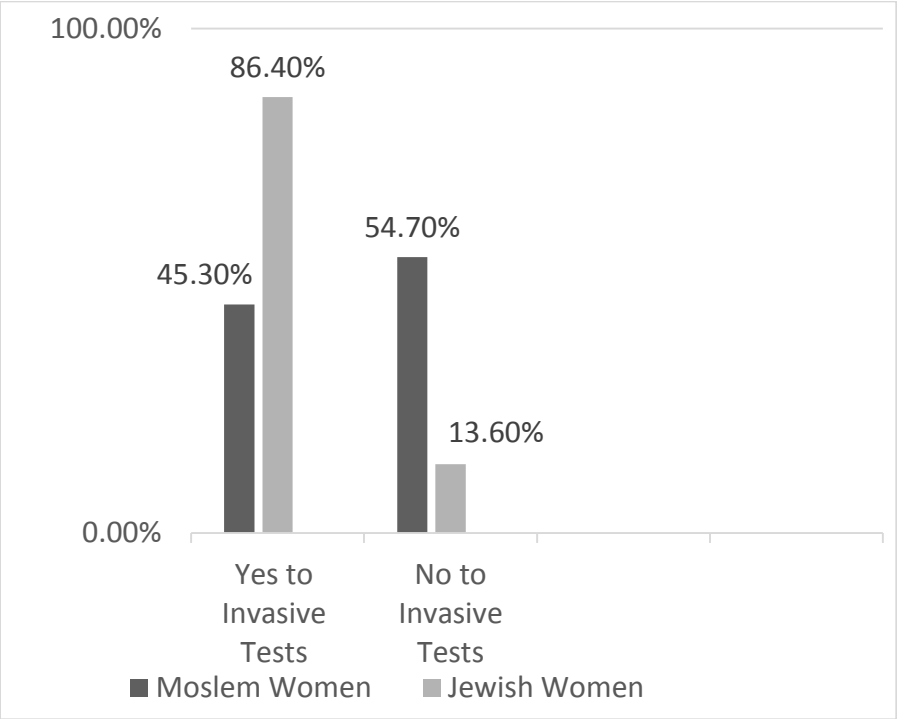

Figure 1: Percentage of Israeli Moslem and Israeli Jewish women's willingness to undergo invasive prenatal tests.

Table 1. Means (Standard Deviations) of Support for Pregnancy Termination, Feelings of Guilt, Depression and Social Support as a Function of Participants' Ethnicity

	Israeli Moslem Women	Israeli Jewish Women
Support for pregnancy termination	1.71 (1.02)	3.57 (1.29)
Guilt	2.19 (1.09)	1.65 (1.01)
Depression	2.09 (1.16)	1.73 (1.07)
Social support	2.52 (1.32)	4.23 (1.77)

With respect to pregnancy termination, group comparisons showed that Israeli Jewish women reported more support for this procedure compared to the Israeli Moslem women, *M*s: 3.57 (*SD* = 1.29) and 1.72 (*SD* = 1.02), respectively, $F(1,359) = 177.53$, $p < .001$, $d = 1.59$. Moreover, as hypothesized and consistent with previous research [11,12], religious Moslem women, compared to their non-religious counterparts tended to agree less with a termination of pregnancy in general, *M*s: 1.55 (*SD* = .996) and *M* = 2.01 (*SD* = 1.17), respectively, $F(1,154) = 5.53$, $p < .020$, $d = .42$. This investigation also revealed that Israeli Moslem women tended to significantly assume that they would receive less social support following an abortion, and would generate more negative feelings. Specifically, findings indicated that Israeli Jewish women tended to anticipate significantly more social support than Israeli Moslem women, and that following a decision to terminate a pregnancy, they would receive more support from the social environment, *M*s: 4.23 (*SD* = 1.77) and 2.52 (*SD* = 1.32), respectively, $t(359) = 10.65$, $p < .001$, $d = 1.095$. Furthermore, compared to Israeli Jewish women, Israeli Moslem women predicted that an abortion would generate more feelings of guilt, *M*s: 2.19 (*SD* = 1.09) and 1.65 (*SD* = 1.01), respectively, $t(351) = 4.11$, $p < .001$, $d = .51$, and more feelings of depression, *M*s: 2.09 (*SD* = 1.16) and 1.73 (*SD* = 1.07), respectively, $t(351) = 2.69$, $p < .001$, $d = .32$ (Table 1).

Based on findings of previous studies [8,12,13] conducted in Israel and other countries within the Moslem population examining the role of ethnicity in multiple healthcare domains [7,8], the present research compared attitudes and perceptions of Israeli Moslem and Israeli Jewish women regarding prenatal testing and pregnancy termination. It was reasoned that Israeli Moslem women compared to Israeli Jewish women would report less support for pregnancy termination procedures. It was anticipated and demonstrated that the more religious the Moslem women, the less they would support such a procedure.

As hypothesized, the findings in this study revealed that compared to Israeli Jewish women, Israeli Moslem women reported less support for pregnancy termination, even following a suspicion of a genetic malformation of the fetus, and less preference for invasive prenatal testing. Furthermore, it was observed that following the decision to terminate a pregnancy, Israeli Moslem women believed that they would receive less support from the close environment, would feel more guilty and experience more feelings of depression.

Furthermore, religious Israeli Moslem women received less support for pregnancy termination and prenatal invasive testing. More Moslem women chose screening testing compared to invasive testing, 12.6% versus 7.3%, respectively, as expected [11]. There is a likelihood that in this study, the Moslem women were more religious, however, it is difficult to prove. Accordingly, there has been a decrease in the number of Moslem women who chose not to undergo two kinds of prenatal testing during the last ten years. In order to generate more prenatal testing amongst this population, the public health system, Moslem physicians and genetic authorities in Israel must further embrace this issue.

Indeed, previous studies [4,5,22] have shown that the more religious the woman is, the less she will agree to an artificial abortion or pregnancy termination, concurring with this study's conclusions. The "will of Allah or God" is a dominant factor amongst the very religious populations of both religions. A Dutch study published in 2014 showed that religious conviction played a role in antenatal screening decisions amongst pregnant Moslem women of Turkish origins who would not consider a termination of the pregnancy even when the fetus was found to be affected[4].

Recently, several studies examined the effects of ethnic differences on the numerous prenatal tests chosen by pregnant women [3,12,23]. For example, in England, Pakistani women chose not to undergo invasive testing following abnormal test results due to both the risk of miscarriage, and the difficulties involved in terminating the pregnancy[3]. In Israel, a study focusing on the Moslem woman's decision-making process regarding termination of pregnancy in cases of diagnosed congenital anomalies, examined the effect of the doctor-patient interaction on the woman's decision, while considering social and religious pressures not to terminate the pregnancy under any circumstance. The authors reported that in order to mitigate the gaps, doctors must take the social and religious pressures into account when interacting with their patients[12]. It is important for doctors to understand the emotional elements in risk communication, both in creating an emotional interaction between themselves and the women and respecting the women's emotions[7]. Amongst Israeli Jewish women with respect to prenatal testing, it was reported that 94% of the secular women underwent an invasive procedure[24]. It is also believed that in the future, when a whole human genome study is concluded and with the current advances in pre implantation genetic diagnosis and screening, it may be possible to mitigate some of the adverse reproductive outcomes associated with consanguinity and help diagnose the specific genetic diseases before performing in vitro fertilization[25].

An Egyptian study investigating the changes in attitude towards termination of pregnancy found that in-depth counseling and a declaration from the High Islamic Council Fatwa stating that a prenatal diagnosis followed by abortion is permissible if performed up to 120 days of

fetal life, if the fetus is diagnosed with a severe condition, i.e a fetus diagnosed with thalassemia major[6]. A Saudi Arabian study reported on the permissibility of a prenatal diagnosis and abortion of a fetus diagnosed with genetic disorder type1 spinal muscular atrophy (1 SMA). The authors claimed that the technique might detect the severe form of the disease enabling the clinicians practicing in predominantly Moslem countries, to counsel their patients in harmony with their religious beliefs[26]. A study performed in Great Britain researching Pakistani Moslem parents of babies with fatal malformations, showed how parents navigated between the doctor's knowledge, religious experts and senior family members in response to the ethical dilemmas faced. There was limited awareness or open discussions as to whether Islam permits the termination of pregnancy when a serious or fatal abnormality is diagnosed within the first 120 days of fetal life[6,23]. There must be more clarification and counselling from religious leaders and physicians within the Moslem communities, explaining what is religiously permitted and assisting in the decision-making process regarding pregnancy termination[23].

In the present study, it was observed that even when a suspicious genetic malformation was found in the fetus, most of the Israeli Jewish women (86.4%) expressed more of a willingness to undergo invasive tests compared to the Israeli Moslem women (45.3%). This finding particularly highlights the importance of promoting genetic counselling amongst members of socially disadvantaged racial and ethnic groups[2,12,14,25]. It is noteworthy that the prenatal health care in Israel is very advanced and progressive compared to the surrounding countries, with a high number of nurses and genetic counselors caring for its entire population. Yet, and as found in the current study, it appears that religion and ethnic differences influence prenatal and pregnancy decisions even more than the established professional knowledge. In this respect, examining a very large sample of a relatively under-researched group such as Israeli Moslem women, highlights the importance of increasing prenatal education through lectures and dialogues, and by simultaneously, emphasizing the benefits of attentive genetic counselling and prenatal health care for mothers, infants and the entire family [1,2,9,12,25,27].

Social support was found to be an important factor for women during their pregnancy and in pregnancy termination decisions. Whereas, the Israeli Jewish women reported that they would receive more social support from the social environment, Israeli Moslem women reported significantly less social support and experiencing more feelings of guilt and depression. This finding is crucial when trying to understand the Israeli Moslem women's decisions and interactions with doctors relating to pregnancy procedures, especially, when reflecting on the differences between the Jewish and Moslem societies in Israel in terms of religion and tradition.

Nurses, genetic counselors and physicians of all religions and cultures can apply this study's conclusions that more involvement and understanding of traditions, emotional feelings, social pressures and the Moslem family's commitments, are needed. It is necessary to adapt different approaches and solutions for the various ethnic and religious communities according to their need. Counselors worldwide must explore the client's moral values as to quality of life and termination of pregnancy and its relationship with religious beliefs. They must be acquainted with Islamic rulings as related to antenatal anomaly screening and invasive testing.

While this study details important information regarding the potential differences between Israeli Moslem and Israeli Jewish women with respect to prenatal testing and pregnancy termination, it was observed that the ratio of the Jewish women in the sample was significantly smaller than the ratio of the Moslem women. Nonetheless, the relatively limited sample of Israeli Jewish women appears to accurately represent the Jewish women's population in Israel with respect to religiosity, and place of residence. Although, it is essential to recruit more Jewish women participants for future studies, the significant levels obtained herein, denote the validity of the findings. Furthermore, it will be very thought-provoking to explore the attitudes of women regarding the new and more accurate screening tests, such as NIPT, which has been performed in Israel since 2014 and has been found to be very reliable in detecting DS in a fetus [20,21]. However, it is still not widespread and many women are unaware of this new test. Physicians, nurses, and genetic counselors must provide further information. This test is also very expensive and is not covered by any of the insurance programs in Israel. Pakistani patients generally support the implementation of NIPT, but have concerns about its social implications. A national policy is needed to regulate NIPT implementation, pretest information and post-test genetic counselling in order to mitigate social pressure and support parents in making informed decisions [28].

Clinical Recommendations

Increased awareness by healthcare providers, in-depth counseling and discussing diverse points of view, both within and between faiths, and their effect on healthcare is crucial for clinical medicine providers, doctors, genetic counselors, nurses, public health programs, and healthcare policy [6,23,29]. More research must be performed in Moslem countries relating to prenatal diagnosis and pregnancy termination when diagnosed with specific genetic diseases that characterize each country and population and specific Moslem populations residing in Europe and the US in their attitudes towards pregnancy termination and pregnancy termination.

Limitations

The Jewish population in this study was 25% smaller than the Moslem population. The statistics were significant, however, it would have been more appropriate, if the populations were more comparable in size. Further additional deep questions relating to the emotional feelings of the women after pregnancy termination must be asked of the Moslem women regarding emotional feelings of guilt of losing a baby during invasive testing, while simultaneously, counseling them about the much more serious implications of giving birth to a malformed or ill baby and the consequences on the family unit.

CONCLUSION

It was found that Israeli Jewish women compared to Israeli Moslem women agree significantly more often to undergo prenatal invasive testing and to terminate a pregnancy confirming an abnormal fetus. In future studies, it is crucial to add and compare the Jewish and Moslem women's populations with other ethnic groups in Israel (e.g., the Druze population). Furthermore, it will be very interesting to explore the attitudes of women from different ethnic groups as to the implantation of new and more accurate screening tests, such as non-invasive prenatal testing which has been performed in Israel since 2014 and has been found to be very reliable in detecting DS in a fetus[19,21].

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