Research Article

Some Determinants of Contraceptive Use Among Women of Reproductive Age Who Have Children with Thalassemia Major in Sistan and Baluchestan Province, Iran

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Abstract

Background: Iran is among the countries located on the thalassemia gene belt. Approximately one-fourth of new thalassemia cases in Iran live in Sistan and Baluchestan Province. The employment of appropriate family planning methods in couples carrying thalassemia gene is one of the major preventive strategies.

Objectives: The present study aimed at examining the determinants of contraceptive use in women of reproductive age who have children with thalassemia major living in Sistan and Baluchestan Province, Iran.

Methods: The current cross sectional study was conducted on 150 women of reproductive age having children with thalassemia major in Sistan and Baluchestan Province. Data were collected from the thalassemia units of three hospitals in Zahedan, Iranshahr, and Chabahar cities from 2017 to 2018. Data collection tool was a researcher-made questionnaire consisted of three parts: the cover letter, items on the socioeconomic status and demographic characteristics, as well as questions about contraception use. SPSS version 20 was employed to analyze data. Pearson chi-square, two-sample *t*-test, and enter and backward logistic regression were employed to analyze the study data.

Results: Concerning knowledge about contraceptives, 16.4% of respondents were not familiar with any contraception methods. Additionally, 49.3% of the women said that they did not use any contraception methods and about 8% of users did not benefit from safe methods. Results of chi-square/*t*-tests indicated significant differences between users and nonusers of contraceptives in terms of ethnicity, women's age, spousal age difference, couple education level, place of residence, polygamy, the desired number of children, distance from health center, and knowledge about contraceptives. Enter and backward logistic regression results also revealed that spousal age difference (odds ratio (OR) = 0.914, P < 0.001), place of residence (OR = 7.68, P < 0.001), and polygamy (OR = 0.127, P < 0.001) were the main predictors of contraceptive use.

Conclusions: Despite Iran's success in lowering thalassemia births, socioeconomic and cultural factors contribute to the risk of new birth with thalassemia major among couples with minor thalassemia in Sistan and Baluchestan Province.

Keywords: Thalassemia, Thalassemia Major, Contraception, Family Planning, Sistan and Baluchestan Province

1. Background

Although immigration is extended to all thalassemia regions, it is mostly widespread in the region known as "the thalassemia belt" located from North-West Africa and Mediterranean Region to South-East Asia (1). The reports reveal 60000 to 70000 new births of thalassemia cases in the world annually. Many of the mentioned cases are born in countries lacking a suitable healthcare system (2).

The average prevalence of β-thalassemia in Iran, as one of the countries located on the thalassemia gene belt, is 4% (2). The prevalence of β-thalassemia carriers in Iran is ap-

proximately 4%, being considerably greater than the average prevalence of β-thalassemia gene (1.5%) in the world (3). The average prevalence of β-thalassemia in Iran is greater than the neighboring countries such as Saudi Arabia and Turkey with 3.22% and 2.1%, respectively (4, 5). In addition, there is great difference between provinces in terms of the prevalence of minor thalassemia, being double the country average rate in Sistan and Baluchestan, Kerman, Mazandaran, and Hormozgan provinces, while half of the average rate (> 2%) in Tehran, East Azerbaijan, West Azerbaijan, Khorasan, Hamedan, and Yazd (2).

The thalassemia prevention program in Iran is highly

successful in contributing to the downward trend of the new births of thalassemia in Iran (6, 7) in comparison with the neighboring Muslim countries and few European countries such as Greece and Cyprus. In this respect, studies showed the thalassemia prevention program as a successful model to prevent blood-borne diseases in the developing Muslim countries (2, 6-8). Based on report by the Iranian National Thalassemia Committee, a considerable reduction in total annual incidence of more than 70% was observed in new birth cases of thalassemia major; showing effective implementation of prenatal diagnosis (PND) and screening programs in Iran. This number, in many regions, is almost higher than 99% (9, 10). However, a number of researchers argue that the program has many obstacles to reach its goals, and they do not confirm the consistency in the program success rate across all provinces of the country, especially in Sistan and Baluchestan and Kohgiluye-va-Boyerahmad (6-8, 11, 12). According to the recent census in Iran, approximately one-fourth of new thalassemia cases of Iran live in Sistan and Baluchestan Province (8, 9). Sistan and Baluchestan Province in Iran is currently one of the major regions for the incidence of transfusion-dependent thalassemia with approximately 2050 registered patients (1). It should be mentioned that Sistan and Baluchestan Province has special socioeconomic, cultural, and political status due to its geographical location and closeness to Afghanistan and Pakistan (13). In addition, in terms of human development indices, this province has the lowest rank among other provinces in Iran (14).

One of the main preventive strategies for the new birth with thalassemia major is to expand family planning programs among couples with minor thalassemia. This issue is more important for Sistan and Baluchestan Province; according to the last census, it has the highest rate of total fertility (3.96%) with the youngest population among provinces, so that 67% of its population is under 30 years old (15). In fact, high fertility rate is an index of low prevalence of contraceptive usage.

Although there are many studies on contraception in Iran, few studies are conducted on contraception use among special groups such as couples with thalassemia in particular in Sistan and Baluchestan Province. Therefore, the present study mainly aimed at investigating the determinants of contraceptive usage in women of reproductive age (15 - 49 years) having a child/children with thalassemia major. The findings of the present research can help health-planners to enhance the rate of contraceptive usage, and reduce the rate of new births with thalassemia major in Iran, particularly in Sistan and Baluchestan Province.

2. Methods

The current cross sectional study was conducted from 2017 to 2018 on 150 women of reproductive age (15 - 49 years) having a child/children with thalassemia major and referring to the thalassemia unit of one of the three hospitals in Zahedan, Iranshahr, and Chabahar cities in Sistan and Baluchestan Province. In terms of exclusion criteria, the married women not living with their spouses at the time of data collection were excluded from the study. Regarding the study sites, three hospitals of the most populous cities in the North, Center, and South of the province were selected. Respondents were selected by purposive sampling.

The data were collected by a researcher-made questionnaire, and written informed consent was obtained from all respondents. The questionnaire consisted of three parts: first, the cover letter (the letter introduces the study objectives); second, items on socioeconomic and demographic characteristics (respondent's age, spouse's education level, place of residence, ethnicity, job, number of children, number of desired children, and distance to health centre); third, questions about contraception use (knowledge about contraceptives and method of contraception). It should be explained that contraceptives are devices or medications designed to prevent pregnancy by either suppressing ovulation or preventing sperm from passing through the cervix (16). Contraception methods can be divided into safe methods (tubal ligation, vasectomy, intrauterine device (IUD), and pill) and unsafe methods (withdrawal/abstinence) (17).

The validity of the questionnaire was examined by applying the content validity. In this respect, the questionnaire was sent to a board of four experts to get their feedbacks. Then, according to their recommendations, the questionnaire was redrafted. In addition, since the items of the instrument were adapted from literature (18, 19), face validation was ascertained. The face validity means that the items in the questionnaire can cover the concept they purports to measure. It should ensure that the measures are suitable and represent the measured concept (20). Furthermore, the reliability of questionnaire was examined through the pilot study. In order to establish the internal consistency of the instrument, a pilot study was conducted a month before conducting the intended study. The pilot study was conducted to learn about the research process. It was also used to check whether the language and substance of questions and statements were appropriate and could be clearly understood. The results of the pilot study showed that the structure and language of the questionnaire were understandable for respondents from dif-

ferent social, cultural, and economic categories. In addition, Cronbach's alpha examined the reliability of the Likert scale related to knowledge about contraception methods. The Cronbach's alpha coefficient was 0.753 that was acceptable. The data analysis was performed with SPSS version 20. Pearson chi-square test for categorical variables and two-sample *t*-test for continuous variables were employed to report the differences in the current use of contraceptives between the two groups. In this regard, the Fisher exact test was performed if the number of observations was less than five in any aspect of the nominal variables. In addition, enter and backward logistic regression was applied to find the main predictors of sexual satisfaction.

3. Results

Concerning the respondents' socioeconomic and demographic characteristics, as shown in Table 1, the ethnicity of most respondents was Baluch (88.0%), 51% of respondents lived in rural areas, and 76% were housewives. In terms of education, approximately 22% of respondents and their husbands were illiterate; 16.4% of respondents mentioned that their husbands have another wife or wives. Regarding the number of desired children, 45.3% of respondents desire 3 - 4 children, 24.7% desired 5 - 6 children, and 16.4% more than six children. In terms of knowledge about contraceptives, 17.3% of respondents did not know about any contraception methods. Furthermore, 49.3% of women acknowledged that they did not use any contraception methods. According to Figure 1 the most popular method among women was pill, followed by male condom, female sterilization, and withdrawal.
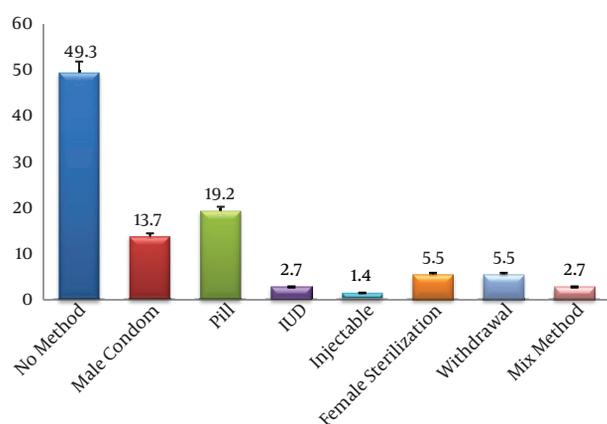

Figure 1. Contraception methods applied by respondents (percentage with 95% CI)

Table 1. Socioeconomic and Cultural Background of Respondents

Variables	No. (%)
Age, y	
15 - 19	4 (2.7)
20 - 24	28 (18.7)
25 - 29	28 (18.7)
30 - 34	31 (20.7)
35 - 39	20 (13.3)
40 - 44	14 (9.3)
45 - 49	25 (16.7)
Ethnicity, %	
Baluch	132 (88.0)
Fars	18 (12.0)
Place of residence	
Rural area	76 (50.7)
Urban area	74 (49.3)
Occupational status	
Housewife	114 (76.0)
Employed	36 (24.0)
Respondents' education level, y	
0	33 (22.0)
1 - 5	25 (16.7)
6 - 9	14 (9.3)
10 - 12	49 (32.7)
> 12	29 (19.3)
Husbands' education level, y	
0	34 (22.7)
1-5	20 (13.3)
6-9	12 (8.0)
10-12	49 (32.7)
$\geq$ 12	35 (23.3)
Polygamy	
Yes	24 (16.0)
No	126 (84.0)
Spousal age difference, y	
< 3	52 (34.7)
3 - 6	35 (23.3)
7 - 10	40 (26.7)
$\geq$ 10	23 (15.3)
Number of children	
1 - 2	66 (44.0)
3 - 4	49 (32.7)
5 - 6	27 (18.0)
$\geq$ 6	8 (5.3)
Desired number of children	
1 - 2	20 (13.3)
3 - 4	68 (45.3)
5 - 6	37 (24.7)
$\geq$ 6	25 (16.7)
Knowledge about contraception methods	
Yes	124 (82.7)
No	26 (17.3)
Distance from health center, min	
< 30	102 (68.0)
30 - 60	18 (12.0)
$\geq$ 60	10 (6.7)
Don't know	20 (13.3)
Contraception usage	
Yes	76 (51.0)
No	74 (49.0)

According to Table 2, there was a significant difference between the number of women using contraceptive methods and the ones did not use. In this respect, significant differences were observed between nonusers and users of contraceptives in terms of ethnicity, respondent's employment status, spousal age difference, couple education level, place of residence, polygamy, desired number of children, current number of children, distance from health center, and knowledge about contraceptives.

Table 3 demonstrates the prediction of contraceptive usage based on the results of enter and backward logistic regression. Furthermore, different tools including goodness-of-fit tests such as the Hosmer-Lemeshow (H-L) test and goodness-of-fit measures (e g, Cox and Snell R2 and Nagelkerke R2) were employed to evaluate the fit of the estimated models. Garson (21) suggests the H-L goodness-of-fit test as the test for the overall fit of a logistic regression model.

As the test showed, there was no evidence suggesting a significant difference between the predicted and observed model and values; since the P value for the H-L test was greater than 0.05, indicating its non-significance. The results of H-L goodness-of-fit tests for both enter and backward methods were greater than 0.05 in the study models, demonstrating that the models were well-fitted. In addition, there was no significance between the predictions and the observed values. To estimate the percentage of explained systematic variance for the study models, other goodness-of-fit measures were also conducted. Furthermore, there was an explained systematic variance from 42.2% to 57.2% in the saturated multivariate model and 26.8% to 35.7% in the final multivariate model.

In terms of saturated multivariate model, findings showed that spousal age difference was the first predictor of contraceptive use (odds ratio (OR) = 0.806, 95% confidence interval (CI) = 0.896 - 0.996, P < 0.001). For better explanation, the chance of contraceptive use increased with decline in spousal age difference. The next predictor was the place of residence (OR = 7.20, 95%CI = 2.46 - 20.99, P < 0.001). In other words, the probability of contraceptive use was higher among urban women compared with rural ones. Polygamy was the next predictor of contraceptive usage (OR= 0.136, 95%CI = 0.023 - 0.823, P < 0.001). It means that the probability of contraceptive use among women that their husbands had another wife was lower.

5. Discussion

The present study findings indicated that 49.2% of respondents did not use any contraception methods at the time of study, and approximately 8% of users did not use safe contraception methods. The findings showed that the rate of contraceptive use among couples in Sistan and Baluchestan was very low compared with other parts of Iran. For instance, a study conducted from 2009 to 2010 in the South of Iran showed that 96.0% of couples with thalassemia major practiced contraception (22). Another study in Mazandaran province showed that 64% used safe contraception methods of family planning (4). The findings also revealed that ethnicity was significantly associated with contraception use. In general, each ethnic group holds a set of cultural values and attitudes that can affect their behaviors. Thus, the current study results were in agreement with those of other studies (23). A study by Grady et al., (24) stated a momentous difference in contraception use with regard to race/ethnicity. However, findings of a study in Shiraz county, Iran (19) showed that ethnicity was not significantly related to contraception usage. Education level of couples was another factor significantly associated with contraception use. Clearly, couples with lower level of education have lower knowledge about contraceptives, as a result, the contraception use among them is lower and method failure is higher. Additionally, educated couples are more likely to talk about the timing and number of children and using various contraception methods (25). Results of the current study also showed that the desired number of children and the current number of children had a significant relationship with contraception usage. In other words, if women are interested in having fewer children, their desire to use contraception is at a higher level. Furthermore, in cases where couples obtained their desired number of children, they were more inclined to use contraceptives. Distance from health center as one of the indices of accessibility factors was also significantly associated with contraception use among respondents in the current study. According to the literature, access to and distance from health care services affected the utilization of contraceptives (26, 27).

Place of residence was considered as one of the major predictors of contraception usage. According to the obtained results, the rate of contraceptive use in urban women was higher than the rural ones. In this regard, women in urban areas had more access to contraception information and services compared to women living in rural areas (28). Moreover, compared to rural women, urban women had a higher education level, and their desired number of children was lower; as a result, they were more interested in using contraception methods. Knowledge about contraception methods was another influencing factor on contraceptive use. Certainly, knowledge of family planning methods is regarded as one of the key variables in contraception use. It is well established that cou-

Table 2. Comparison Between Contraceptives Users and Non-users

Variable	The Current Status of Contraceptive Usage		Mean Difference	95% CI	P Value
	Non-user	User			
Desired number of children	5.38 ± 2.33	3.97 ± 1.82	1.41	0.731 - 2.08	< 0.001
Distance from health center, min	688.7 ± 401.9	429.2 ± 429.1	259.4	124.3 - 394.5	< 0.001
Age, y	33.9 ± 9.35	31.8 ± 8.64	2.11	0.799 - 5.02	0.154
Spousal age difference, y	7.01 ± 5.49	5.35 ± 3.46	1.66	0.176 - 3.15	0.029
Respondents' education level, y	7.09 ± 5.76	10.1 ± 5.55	-3.04	-4.87 - 1.22	< 0.001
Husbands' education level, y	7.35 ± 5.37	10.5 ± 6.07	-3.18	-5.03 - 1.33	< 0.001
Number of children	3.53 ± 1.95	2.84 ± 1.83	0.688	0.107 - 1.26	< 0.001
Ethnicity			-	-	< 0.001
Baluch	72 (54.5)	60 (45.5)			
Fars	4 (22.2)	14 (77.8)			
Place of residence			-	-	< 0.001
Rural area	54 (71.1)	22 (28.9)			
Urban area	22 (29.7)	52 (70.3)			
Polygamy			-	-	< 0.001
Yes	20 (83.3)	4 (16.7)			
No	56 (44.4)	70 (55.6)			
Knowledge about contraceptives			-	-	< 0.001
Yes	50 (40.3)	74 (50.7)			
No	26 (100)	0 (0.0)			
Occupational status			-	-	< 0.001
Housewife	64 (56.1)	50 (43.9)			
Employed	12 (33.3)	24 (66.7)			

[a] Values are expressed as mean ± SD or No. (%).

ples may be inclined to use non-reliable methods such as natural methods owing to the lack of knowledge about modern contraception methods ([29], [30]). Spousal age difference as a demographic factor was another predictor of contraception use. The rate of contraceptive use reduced with the increase in the spousal age difference, which was consistent with the results of the study by Asadi in Shiraz ([19]). Spousal communication about family planning was mostly observed among couples with lower spousal age difference. Polygamy was the next predictor of contraceptive use. This conformed to another study finding that the rate of contraceptive use was lower among women in polygamous marriages than in the ones in monogamous families ([31]).

It seems that policymakers should consider educational programs to improve family planning practices among couples at the risk of having another child with thalassemia major, especially couples with low socioeconomic status, living in rural areas, and polygamy families. Furthermore, owing to cultural factors in Sistan and Baluchestan Province, many of these at-risk couples try to reach the desired number of children. Additionally, since

the desired number of children and the number of actual births in Sistan and Baluchestan Province is higher compared to many parts of Iran, implementing a well-organized prenatal diagnostic system seems indispensable. Moreover, it is required that the preventive programs strongly regard socioeconomic, cultural, and religious beliefs in each community, since these factors can influence the success rate of the preventive strategies ([22]).

5.1. Conclusions

Although the thalassemia prevention program plays a crucial role in lowering thalassemia births in Iran, due to special status of Sistan and Baluchestan Province in terms of socioeconomic and cultural factors, the rate of contraceptive usage is low and the desired number of children is relatively high. Thus, a considerable percentage of couples with thalassemia minor are at the risk of new births with thalassemia major.

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Table 3. Prediction of Contraceptive Usage

Predictors	Saturated Multivariate Model			Final Multivariate Model		
	OR	95% CI	P Value	OR	95% CI	P Value
Spousal age difference	0.806	0.896 - 0.996	< 0.001	0.914	0.836 - 0.99	< 0.001
Place of residence						
Rural area	1.00			1.00		
Urban area	7.20	2.46 - 20.99	< 0.001	7.68	3.51 - 16.79	< 0.001
Polygamy						
Yes	1.00			1.00		
No	0.136	0.023 - 0.823	< 0.001	0.127	0.036 - 0.445	< 0.001
Age	0.959	0.886 - 1.04	0.299	-	-	-
Occupational status				-	-	-
Housewife	1.00					
Employed	0.682	0.179 - 2.59	0.574			
Respondents' education level	0.926	0.810 - 1.05	0.258	-	-	-
Husbands' education level	1.03	0.900 - 1.17	0.672	-	-	-
Knowledge about contraception	1.74	0.842 - 1.25	0.988	-	-	-
Desired number of children	0.768	0.545 - 1.08	0.133	-	-	-
Number of childbirths	1.17	0.738 - 1.88	0.507	-		
Distance from health center	1.00	0.998 - 1.21	0.694	-		
Ethnicity				-	-	-
Baluch	1.00					
Fars	0.524	0.115 - 2.38	0.403			

well as all participants in the study.

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