



Level of awareness regarding Thalassemia, Riyadh Saudi Arabia

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General Note



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ABSTRACT

Background: Thalassemia is one of the most common autosomal recessive and familiar hemoglobin disorders. **Objective:** This research aims to assess the level of awareness regarding thalassemia in Riyadh. **Methodology:** Institutional based cross-sectional, conducted in Riyadh PHC centers, including adults, and excluding health care personnel. 260 respondents chosen through systematic random sampling, data collected using a self-administered questionnaire includes information about causes risk factors, clinical picture, management, and prevention developed specifically for the purpose of this study. Statistical Package for Social Science (SPSS) was used to interpret data. Significance was considered if P-Value ≤ 0.05 . **Results:** A significant statistically relation (p-value 0.047) between income and level of awareness regarding the management of thalassemia. (65.8%) of participants had a high level of awareness regarding complications. Risk factors have shown that (47.7%) had moderate awareness. 75% had poor

knowledge regarding the clinical picture. There is a significant relationship between the level of education and prevention (p-value 0.008). *Conclusion:* The level of awareness regarding thalassemia is around moderate, except for the clinical picture which is low. There is a relation between the educational level and the awareness in regards of prevention and risk factor of thalassemia.

Keywords: Thalassemia, Awareness, Riyadh, Hemoglobinopathies, Saudi Arabia

1. INTRODUCTION

To treat a disease we need medication, to treat a genetic disorder we need dedication. So, genetically thalassemia is one of the most common recessive autosomal disorder, and one of the familiar hemoglobin diseases (Qari et al., 2013; Al-Awamy, 2000; Noori-Daloiyet al., 1994; Ul-Ain et al., 2011). Thalassemia as a word is driven from greek origin, divided into two parts "Thalasse= sea, Hamia= blood". It is hereditary disease in which an imbalance occurs in the synthesis of the hemoglobin. It has two main kinds: alpha and beta, it depends according to the gene responsible for the production of the globin chain. Alpha thalassemia phenotype depends on the extent of a-globin chain deficiency relative to beta protein production. Alpha major cause many diseases. The most aggressive is Bart's hemoglobin that causes Hydrops fetalis (Herbert et al., 2009; Modell & Darlison, 2008; Al-Awamy, 2000). The other kind of thalassemia is Beta, if it has two mutant alleles of beta globin it will cause Beta Major, which is classified as severe transfusion- dependent anemia (Noori-Daloiyet al., 1994). Thalassemia is mainly found in the "Thalassemia belt", and that belt is formed by 3 main regions; Asia, Africa, and the Mediterranean region (Herbert et al., 2009; Modell & Darlison, 2008; Al-Awamy, 2000). The most common type distributed globally is beta thalassemia, it is found primarily in the region that are endemic for malaria, such as west Africa, India and wide areas of Asia and south Asia (Noori-Daloiyet al., 1994). According to the WHO, approximately 7% of the world population has hemoglobin disorders. 3% of the whole world has beta thalassemia gene "carriers", and 0.46 per 1000 affected by alpha (Ul-Ain et al., 2011; Al-Awamy, 2000). Thalassemia is most common in Thailand which has 25% thalassemia in all population (Herbert et al., 2009; Modell & Darlison, 2008; Al-Awamy, 2000). The most common type of thalassemia that found in the Arab world is alpha thalassemia (Hamamy & Al-Allawi, 2013; Khaleel et al., 2009). People in the Mediterranean region in the Arab world have higher risk of carrying the gene of thalassemia (Hamamy & Al-Allawi, 2013). Moving on to the Arabian Gulf, the region generally has a high percentage among its countries; for example: Bahrain "18% alpha and 11% beta", Oman "6% alpha, 5.3% beta", Qatar "2.8% alpha, 1.7% beta" (Qari et al., 2013). In "Saudi Arabia", most of the cases are founded in the Eastern region of KSA "Qatif, Dammam, Alkhobar" (Qari et al., 2013). The frequency of thalassemia in KSA is characterized by consanguineous marriage (AlJaouni, 2010; Hebert et al., 2009), and it could be related to the selective advantage of carriers against Malaria and low income or low availability of public health (AlJaouni, 2010; Hebert et al., 2009). Beta-Thalassemia trait with high hemoglobin A2 and microcytic hypochromic anemia has shown distribution in Al-Hassa area with a percentage of 3.4 (Al-Suliman, 2006). People with Beta-Thalassemia trait counts are in Saudi Arabia for 3.22%, along with 0.07% with Beta-Thalassemia disease (Alenazi et al., 2015). Our aim of this research is to assess the level of awareness regarding thalassemia among Saudi Arabia

2. METHODOLOGY

Institutional based cross-sectional study, conducted in Riyadh: Saudi Arabia, the data was collected between the periods of 30th of September 2017 to 30th of October 2017 in 4 PHC centers (Granada, Olya, Shifa, Roudah) including adults both males and females, and excluding health care personnel (covering the area of Riyadh from the middle to south and from east to the north), 260 participants were chosen through systematic random sampling, data collected using a purposeful self-administered questionnaire that includes information about demographic characteristics of the study population as well as causes, risk factors, clinical picture, management, and prevention, developed specifically for the purpose of this study. Obtained data were submitted on Microsoft Excel to create tables and charts then analyzed using statistical package for social science (SPSS) to detailed frequencies and percentages. P-value ≤ 0.05 considered significant. Ethical Consent was obtained before data collection, emphasizing confidentiality, and the right of the participants to withdraw from the study at any point in time.

3. RESULT

Table 1 shows that 1.9% of the participants are of less than age 14 years and below, 21.9% of the participants are between the age of 15-24 years, 29.6% of the participants are between the age of 25-34 years, The age group between 35-44 years accounts for 26.9% of participants, 10.4% of the participants are between the age of 45-49 years and the remaining participants are of the age 50 and above. Regarding education: 0.4% of the participants were illiterate, 2.3% of the participants are of primary education, 28.1% of

the participants are of secondary education and the rest of the participants are of university education. Regarding the residency of participants, the majority were from the northern side of Riyadh 26.2% while the least was from the east of Riyadh 14.2%. In regards to occupation: 24.6% of the participants have registered that they're unemployed, 9.2% of the participants have registered that they're self-employed and the rest of the participants have registered that they are employed. Participants' marital status has shown that singles accounts for 41.5%, while 54.2% of the participants are married and the rest of the participants are divorced. Regarding participants' gender: 76.9% of the participants were males, while the remaining are females. Regarding the income, 68.1% of the participants are earning a monthly salary as much as 10000 SR or less, while 31.9% earn more than 10000 to 15000 SR.

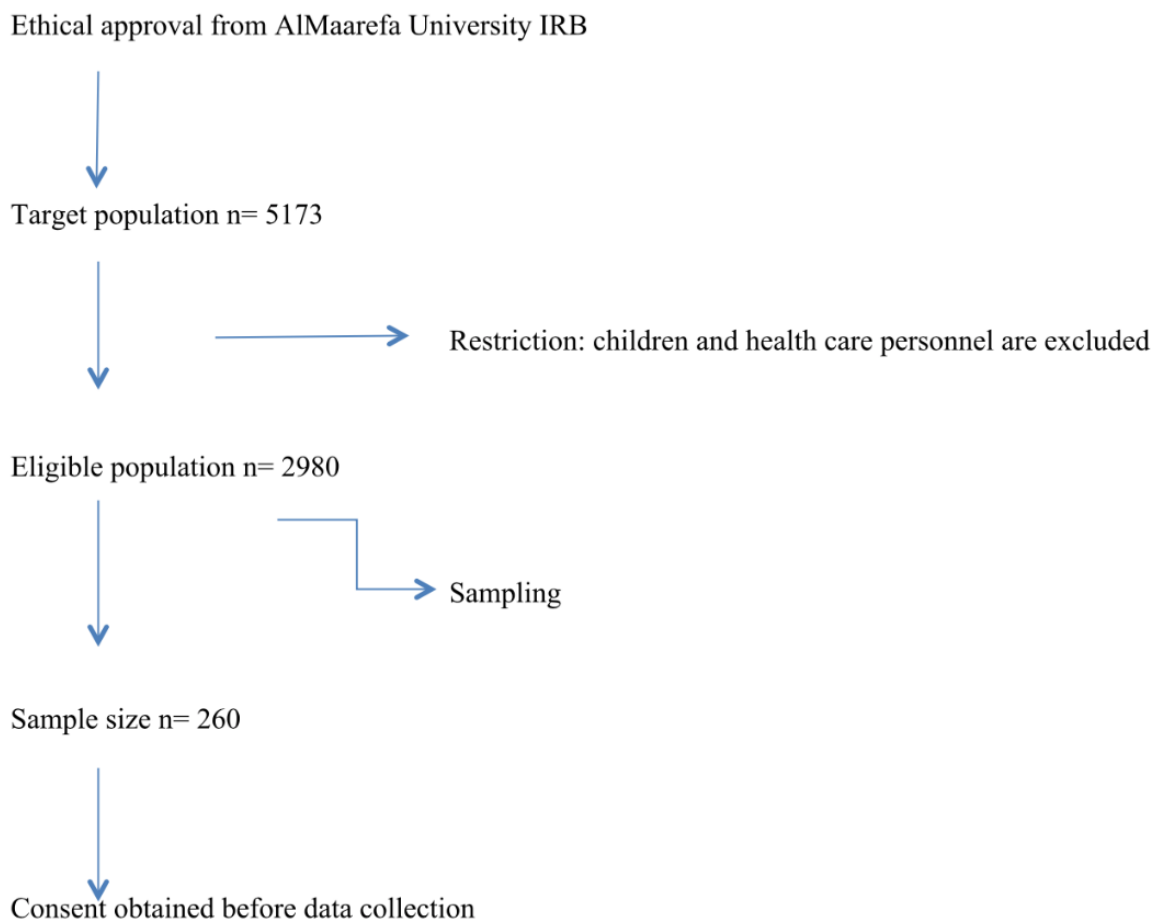


Figure 1: flow chart of methodology

Table 1: Demographic Table

Demographic Data	Variables	Frequency	Percent
Age	< 14	5	1.9%
	15-24	57	21.9%
	25-34	77	29.6%
	35-44	70	26.9%
	45-49	27	10.4%
	> 50	24	9.2%
Education	illiterate	1	0.4%
	primary	6	2.3%
	secondary	73	28.1%

	university	180	69.2%
Residency	west	43	16.5%
	east	37	14.2%
	downtown	58	22.3%
	south	54	20.8%
	north	68	26.2%
Occupation	un-employed	64	24.6%
	self-employed	24	9.2%
	employed	172	66.2%
Marital	single	108	41.5%
	married	141	54.2%
	divorced	11	4.2%
Gender	male	200	76.9%
	female	60	23.1%
Income	<6000	101	38.8%
	6000-10000	76	29.2%
	10000-15000	47	18.1%
	>15000	36	13.8%

Table 2 illustrates that there is 23.1% of the participants had poor knowledge regarding complications of thalassemia, 65.8% of the participants have moderate knowledge regarding complications of thalassemia, and 11.2% of the participants have a good knowledge regarding complications of thalassemia.

Table 2: level of awareness regarding thalassemia complications (n=260):

	Frequency	Percent
poor	60	23.1%
moderate	171	65.8%
good	29	11.2%
Total	260	100.0%

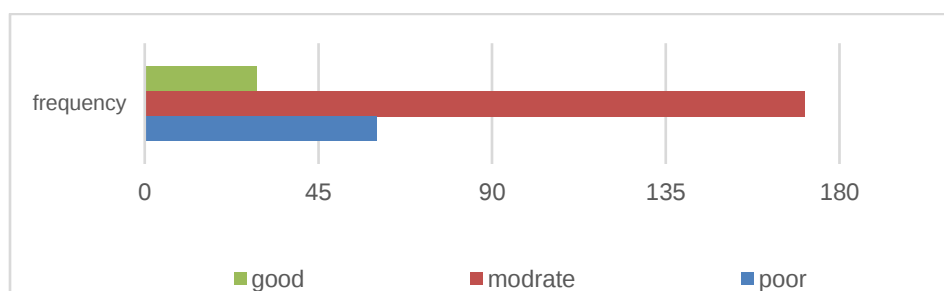


Figure 2: level of awareness regarding thalassemia complication (n=260)

Table 3: level of awareness regarding risk factors of thalassemia (n=260):

	Frequency	Percent
Poor	39	15%
Moderate	124	47.7%
Good	97	37.3%
Total	260	100.0%

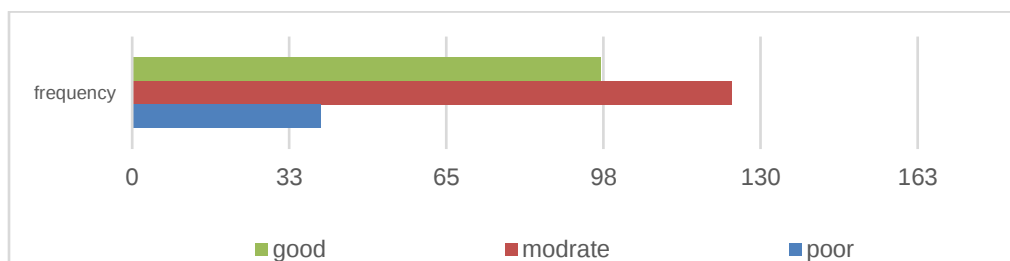


Figure 3: level of awareness regarding risk factors of thalassemia (n=260)

Table 3 illustrates that there is 15% of the participants have poor knowledge regarding risk factors of thalassemia, 47.7% of the participants have moderate knowledge regarding risk factors of thalassemia, and 37.3% of the participants have a good knowledge regarding risk factors of thalassemia. Table 4 illustrates that there is 75.4% of the participants have poor knowledge regarding the clinical picture of thalassemia, and 24.6% of the participants have a good knowledge regarding the clinical picture of thalassemia.

Table 4: level of awareness regarding the clinical picture of thalassemia (n=260):

	Frequency	Percent
Poor	196	75.4%
Good	64	24.6%
Total	260	100.0%

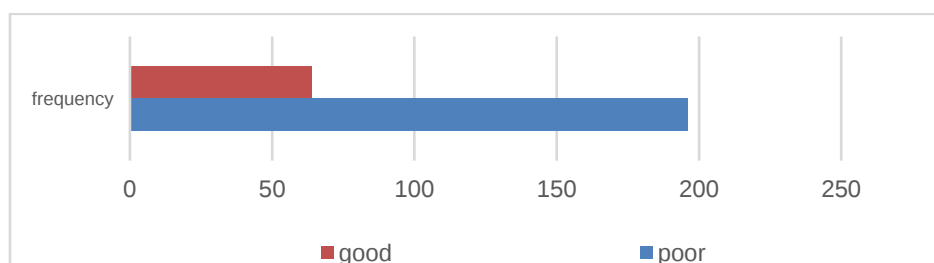


Figure 4 : level of awareness regarding the clinical picture of thalassemia (n=260)

In table 5, 16.7% of university-educated participants have good knowledge about the prevention of thalassemia, and 10% of secondary educated participants have poor knowledge about the prevention of thalassemia. So, there is a statistical relation between the level of education and level of awareness regarding prevention of thalassemia

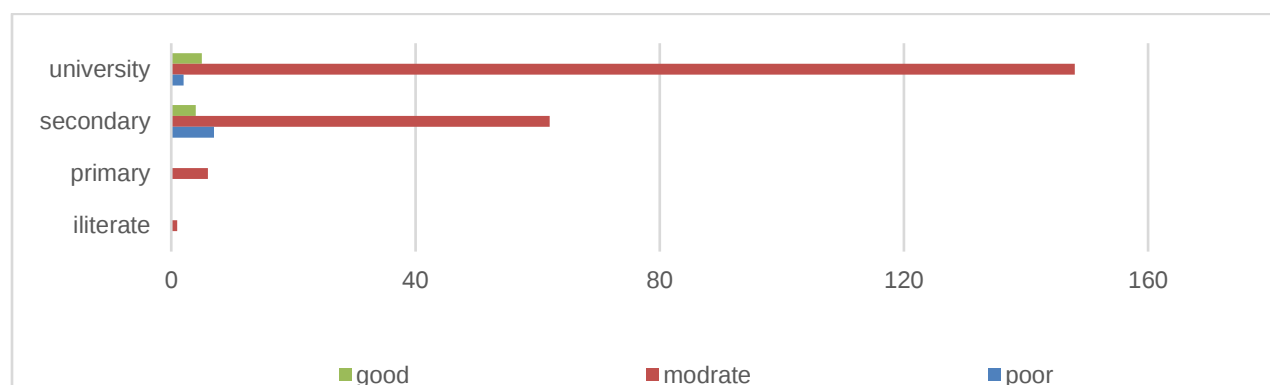


Figure 5: The relation between the level of education and level of awareness regarding prevention (n=260)

Table 5: the relation between the level of education and level of awareness regarding prevention (n=260)

	Poor	Moderate	Good	Total
illiterate	0(0%)	1(100%)	0(0%)	1
primary	0(0%)	6(100%)	0(0%)	6
secondary	7(10%)	62(85%)	4(5%)	73

university	2(1.1%)	148(82.2%)	30(16.7%)	180
Total	9	217	34	260

P value = 0.008

In table 6, 35.9% of the persons who earn >15000 have a good awareness about management and 36.1% of them have poor awareness. So, there is a statistical relationship between income and level of awareness regarding thalassemia.

Table 6: The relation between the salary (income) and the level of awareness regarding management (n=260)

	Poor	Moderate	Good	Total
<6000	36(35.6%)	45(44.6%)	20(19.8%)	101
6000-10000	22(28.9%)	35(46.1%)	18(23.7%)	76
10000-15000	13(27.7%)	26(55.3%)	8(17%)	47
> 15000	13(36.1%)	9(25%)	14(35.9%)	36
Total	85	115	60	260

P value = 0.047

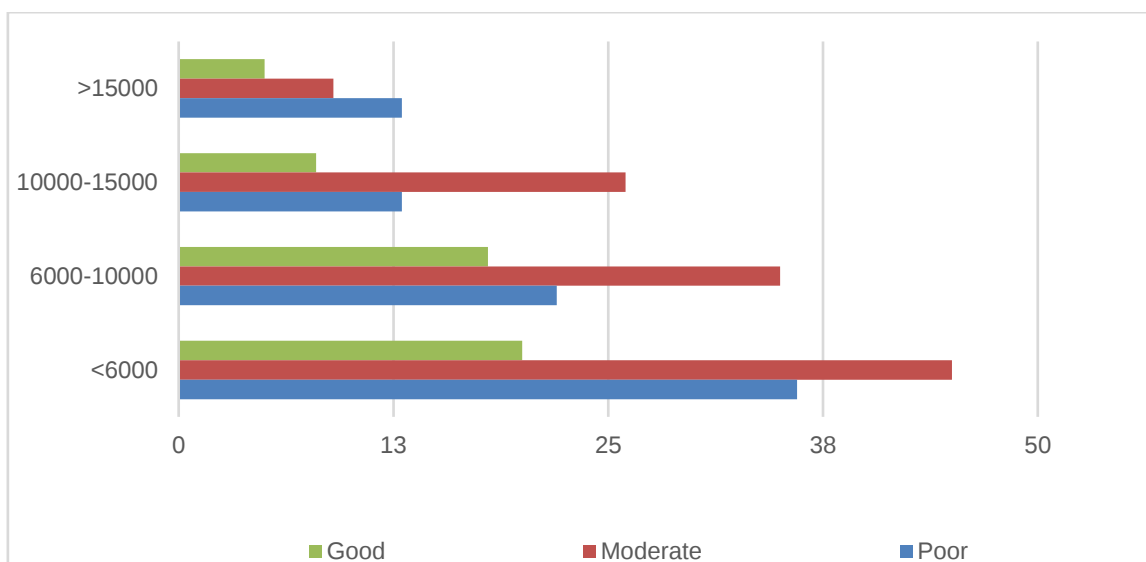


Figure 6: the relation between the salary (income) and the level of awareness regarding management (n=260)

4. DISCUSSION

People with Beta-Thalassemia trait counts are in Saudi Arabia for 3.22%, along with 0.07% with Beta-Thalassemia disease. This study indicated that the majority had poor level of awareness regarding complication. This goes in contrary to a study by Safila Naveed, in Pakistan (Naveed et al., 2014), their study shows that majority have high level of awareness regarding complication. This could be attributed to difference in the study population. It indicates that the Ministry Of Health needs to establish a more efficient educational health programs.

This study shows that the majority had moderate Knowledge regarding risk factors of Thalassemia. This goes in contrary to a study by Sudipta Kumar Behera, in Bangladesh, (Behera et al., 2016) their study shows that the majority have poor level of awareness regarding risk factors, due to the difference of the level of education between Bangladesh and Saudi Arabia. It implies that researcher should explore attitude towards thalassemia. This study shows that majority of people had poor knowledge regarding clinical picture of thalassemia. This goes in line with a study by Zeinab Ghazanfari, in Iran, (Ghazanfari et al., 2010). It implies that MoH should implement a more effective health education program. This study shows that there is no statistical relation between level of education and level of awareness regarding risk factor. This goes in contrary with a study made by Tahmineh Karimzaei, in Iran (Karimzaei et al., 2015) that shows that there is a statistical relation between level of education and level of awareness regarding

risk factor. This could be attributed to difference in the study population. It implies that researcher should explore attitude towards thalassemia.

5. CONCLUSION

The study indicated that level of awareness regarding different aspects of thalassemia is around moderate knowledge except for the clinical picture which appears to be low among the general population of Riyadh. There is a relation between the level of education and level of awareness regarding the prevention and risk factor of thalassemia.

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Conflict of interest: Authors have no conflicts of interest to disclose.

Informed consent: Informed consent was obtained from all individual participants included in the study.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards (ethical approval number 192/4).

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