AIM OF THE WORK

The aim of the work was to assess the socioeconomic state among children with Rheumatic fever/Rheumatic Heart Disease (RHD).

SUBJECTS

A cross-sectional study was conducted on 200 child who were diagnosed to have RF and/or RHD and who are attending the cardiology clinic at Alexandria University Children's Hospital, children for assessment, follow up and management.

The subjects of the study were selected by a convenience sample, during the years 2013-2014.

Inclusion criteria:

1. Diagnosis of RF or RHD documented according to the revised Jones criteria who 2003.
2. Duration of the disease at least 1 year since first diagnosis.

Exclusion criteria:

1. Probable RHD based on the revised Jones criteria who 2003.
2. Inaccuracy of the history provider or of the source of medical information.

METHODS

a) A designed interview questionnaire was used. (appendix 1)

b) Translation tool was performed and the Arabic version of the questionnaire was used

c) Only one child and/or adolescent with his/her parents was interviewed by the interviewer using a structured questionnaire to elicit information on the following :

1- Personal information:

- Name.

- Age.

- Sex.

- Religion.

- Residence in detail.

- School in detail.

- Work in detail.

2- Heart disease related data:

- Initial attack of rheumatic fever and year of onset.

- Rheumatic Heart Disease and year of onset.

- Valvular lesions.

- ECHO results "Cardiac function ,Complications, Valve Surgery: Valve Prosthesis, Other Conditions diagnosed ".

- NYHA Functional Classification .

- Activity & Exercise Limitation in Rheumatic Fever.

- Compliance to long acting penicillin injection.

3- Family medical history:

- Consanguinity.

- Number of siblings.

- Order in the family.

- Medical history of the family members.

- Similar conditions of RF or RHD in the family.

- Family Pedigree.

4- Socioeconomic data

- Number of the family members.

- Number of the family members in the same house.

- Type of the family "nuclear / extended".

- Monthly income of the father.

- Monthly income of the family.

- Per capita income / month.

- Assessment whether the income is enough or not.

- Regular social support sources for the family.

- Level of education of the parents.

- Type of work of the parents.

- Score Calculation of the Socioeconomic Level.

- Assessment of the Socioeconomic State according to the score.(appendix)

- Housing conditions.

RESULTS

Table (III): **Distribution of the studied cases according to the provider of information**

	n	%
Provider of information		
Mother	102	51
Father	23	11.5
Patient	59	29.5
Other	16	8
Total	**200**	**100**

The provider of information of the studied cases was either the parents or patient himself as shown in table (III). In most cases it was the mother, and in only 8% of the cases it was a relative or a friend or a neighbor.

Table (IV):   Distribution of the studied cases according to their clinical cardiac status.

	N	%
Cardiac involvement		
No RHD	97	48.5
RHD	103	51.5
Cardiac function		
Normal	164	82
Decreased	24	12
Decompensated	12	6
Complications		
None	168	84
Pulmonary hypertension	15	7.5
Arrhythmia	13	6.5
Endocarditis	4	2
Valve surgery		
No	176	88
Yes	24	12
NYHA functional classification(appendix 2)		
Class I	107	53.5
Class II	91	45.5
Class III	2	1
Class IV	0	0

The most important clinical conditions are shown in table (IV). It is important to note that most of the patients have a mild uncomplicated RHD.

Table (V):   Distribution of the studied cases according to their valvular lesions.

	N	Severe		Moderate		Mild		Subclinical		Improved	
		N	%	n	%	n	%	n	%	n	%
Mitral regurgitation(MR)	**150(75%)**	26	17	45	30	37	25	12	8	30	20
Mitral stenosis	**16 (8%)**	6	37.5	4	25	6	37.5	0	0	0	0
Aortic regurgitation	**109(54%)**	6	5.5	22	20	55	50.5	8	7	18	16.5
Aortic stenosis(AS)	**10(5%)**	4	40	2	20	4	40	0	0	0	0
Tricuspid regurgitation	**26(13%)**	0	0	3	11.5	8	31	9	34.5	6	23
Tricuspid stenosis	**4(2%)**	0	0	0	0	4	100	0	0	0	0

MR is the predominant valve lesion in the studied group, it was found in 75% of the cases. Combined valvular lesion was found in   104 patients (52%) of the cases mostly combined mitral and aortic (98 patients).21% of them have sever valvular lesion(mitral or aortic).

Table (VI):   Distribution of the studied cases according to their actual physical activity& exercise limitation (fitness).

	n	%
Groups		
A (No restriction)	103	51.5
B (Activity as tolerated, but avoid competitive games)	78	39
C (avoid severe activity and competitive games)	17	8.5
D (Avoid moderate Activity)	2	1
E (Limited activity)	0	0

Table (VI) shows the distribution of the studied cases according to their actual physical activity& exercise limitation as stated by the patient himself or as reported by the provider of information.

In many cases the extent of the activity performed was not matched with the extent of activity allowed by the doctor according to their medical condition.

Table (VII):   Distribution of studied cases according to their personal data

	No.	%
Sex		
Male	110	55
Female	90	45
Age (years)		
Min. – Max.	5.0 – 35.0	
Mean ± SD.	14.5 ± 5.55	
Government		
Alexandria	115	57.5
Beheira	81	40.5
Kafr El Sheikh	4	2
Type of school		
Not government	91	45.5
Government	109	54.5
School Capacity (n=109)		
Primary	39	36
Preparatory	35	32
Secondary	6	5.5
Primary and preparatory	19	17.5
Primary and preparatory and secondary	10	9
Work		
No	134	67
Yes	66	33
Working time (n=66)		
All time	10	15
Part time	56	85
The nature of work (n=66)		
Manual	42	63.5
Technical	18	27
Vocational	6	9

Most of the cases live in Alexandria government, however 42.5% live in other governments and receive medical services in Alexandria university hospital.

A large proportion of cases (54.5%) are from government schools which are known to be more crowded than nongovernmental schools.

Although it is expected that more cases would be found in large capacity schools since they are more crowded, our data shows that most cases (68%) are found in smaller capacity schools.

33% of the patients are working, mostly as part-timer (85%).

Table (VIII): Distribution of studied cases according to their socioeconomic data

	n.	%
Type of family		
Extended	52	26
Nuclear	148	74
Father income(LE.)		
Min. – Max.	275 – 5000	
Mean ± SD.	760 ± 507.13	
Family income(LE.)		
< 500	66	33
500 - < 1000	111	55.5
1000 - < 2000	19	9.5
2000 - < 5000	2	1
≥5000	2	1
Monthly income per capita(LE.)		
Min. – Max.	39.29 – 1000	
Mean ± SD.	132.1 ± 100.72	
Median	125	
Sources of help for the family		
No	161	80.5
Yes	39	19.5
Social class		
Very low	107	53.5
Low	79	39.5
Middle	12	6
High	2	1

Most cases were from nuclear families (74%).The mean income of the father is 750 LE.

The mean of monthly income per capita is 132 LE. Which is much lower than the minimal income by law which is 1200 LE.

Table (IX):   Distribution of studied cases according to parent education & work

	Father		Mather	
	n.	**%**	**n.**	**%**
Education				
Illiterate	92	46	122	61
Reads and writes	73	36.5	52	26
Secondary	25	12.5	14	7
Finished school	8	4	8	4
University	2	1	4	2
Work				
No	8	4	166	83
Unskilled	110	55	20	10
Skilled	78	39	10	5
Clerical	4	2	4	2

46% of the fathers and 61% of the mothers are illiterate, which has a great impact on the awareness, care giving by the parents ,seeking medical advice and compliance.

Table (X): **Distribution of studied cases according to housing & environmental data**

	n.	%
Housing		
Place of residence		
Single Chamber	19	9.5
Home	181	90.5
Home (n=181)		
Private home	121	66.9
Shared home	60	33
Sanitation		
Water supply	184	92
Electricity supply	198	99
Sewage system	121	60.5
Ventilation system	130	65
Crowding index "CI"		
Min. – Max.	1 – 6	
Mean ± SD.	3.04 ± 1.03	
Median	3	
Sleeping index "SI"		
Min. – Max.	1 – 6	
Mean ± SD.	2.39 ± 1.05	
Median	2	
Residence		
Urban	42	21
Suburban	65	32.5
Village	93	46.5

We found that nearly 60% of our cases had sewage system and good ventilation system.

Most of our patients were from urban and suburban areas.

Table (XI):   Relation between Severity with Family income

	Severity						χ^2	^{MC}p
	Mild (n = 40)		Moderate (n = 62)		Severe (n = 34)			
	n.	%	n.	%	n.	%		
Family income(LE.)								
< 500	10	25	22	35.5	18	53		
500 - < 1000	25	62.5	30	48.5	12	35		
1000 - < 2000	4	10	7	11	4	12	9.130	0.237
2000 - < 5000	1	2.5	1	1.5	0	0		
≥5000	0	0	2	3	0	0		
$r_s(p)$	-0.169* (0.049)							

χ^2: Value for chi square

MC: Monte Carlo test

r_s: Spearman coefficient

*: Statistically significant at $p \leq 0.05$

Table (XI) shows that there is a statistical significant relationship between low family income and severity of rheumatic fever.

Table (XII):   Relation between Severity with Social class

	Severity						χ^2	^{MC}p
	Mild (n = 40)		Moderate (n = 62)		Severe (n = 34)			
	n.	%	n.	%	n.	%		
Social class								
Very low	22	55	27	43.5	25	73.5		
Low	14	35	31	50	9	26.5	11.921[*]	0.027[*]
Middle	4	10.0	2	3	0	0		
High	0	0	2	3	0	0		
$r_s(p)$	-0.143 (0.096)							

χ^2: Value for chi square
MC: Monte Carlo test
r_s: Spearman coefficient
*: Statistically significant at $p \leq 0.05$

Table (XII) shows that there is a statistical significant relationship between low social class and severity of rheumatic fever.

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Table (XIII): Relation between Severity with father and mother education

	Severity						χ^2	^{MC}p
	Mild (n = 40)		Moderate (n = 62)		Severe (n = 34)			
	n.	%	n.	%	n.	%		
Father education								
Illiterate	19	47.5	24	38.5	23	67.5		
Reads and writes	12	30	26	42	11	32.5		
Secondary	7	17.5	8	13	0	0	14.072*	0.037*
Finished school	2	5	2	3	0	0		
University	0	0	2	3	0	0		
$r_s(p)$	-0.183* (0.033)							
Mother education								
Illiterate	20	50	30	48.4	28	82.5		
Reads and writes	11	27.5	21	43	6	17.5		
Secondary	5	12.5	5	8	0	0	14.066*	0.045*
Finished school	2	5	4	6.5	0	0		
University	2	5	2	3	0	0		
$r_s(p)$	-0.253* (0.003)							

χ^2: Value for chi square
MC: Monte Carlo test
r_s: Spearman coefficient
*: Statistically significant at $p \leq 0.05$

Table (XIII) shows that most of the mothers (61%) and a large proportion of the fathers (46%) of our patients were illiterate.

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Table (XIV): Relation between regularity of the patient's treatment with The visit cost

	Regularity of the patient's treatment			Z	p
	Regular (n = 150)	Regular & sometimes uninterrupted (n = 46)	Stop taking medication for time (n = 4)		
The visit cost (LE)					
Min. – Max.	3.0 – 75.0	2.0 – 30.0	15.0 – 25.0		
Mean ± SD.	18.87 ± 13.26	10.70 ± 7.22	20.0 ± 5.77	17.916*	<0.001*
Median	15.0	10.0	20.0		
r_s(p)	-0.250* (<0.001)				

Z: Z for Mann Whitney test
r_s: Spearman coefficient
*: Statistically significant at $p \leq 0.05$

      Table (XIV) shows that there is a statistically significant negative relationship visit cost and regularity of treatment.

Table (XV): Relation between regularity of the patient's treatment with Social class

	Regularity of the patient's treatment						χ^2	^{MC}p
	Regular (n = 150)		Regular & sometimes uninterrupted (n = 46)		Stop taking medication for time (n = 4)			
	n.	%	n.	%	n.	%		
Social class								
Very low	87	58.0	18	39.1	2	50.0		
Low	55	36.7	22	47.8	2	50.0	10.097	0.114
Middle	6	4.0	6	13.0	0	0.0		
High	2	1.3	0	0.0	0	0.0		
r_s(p)	0.163* (0.021*)							

χ^2: Value for Chi square

MC: Monte Carlo test

r_s: Spearman coefficient

*: Statistically significant at $p \leq 0.05$

Table (XV) shows that there is a statistically significant correlation between Regularity of the patient's treatment and social class.