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Family function patterns, and associated socio-economic variables – a survey study of members of rural Egyptian families attending family medicine centers affiliated to Suez Canal University

Abstract

Background: Socioeconomic status (SES) is a key factor that impact the family functioning. Results from previous studies demonstrated that low SES status was associated with less satisfaction in several areas of family functioning.

Objectives: To describe the family function status patterns and associated socioeconomic status variables in a rural sample of Egyptian families.

Subjects and methods: This study was carried out as a cross-sectional survey in a three rural Family Medicine Centres, Ismailia Governorate, Egypt in November 2022. An estimated total sample size of 164 participants was included. Each participant was interviewed to complete an Arabic version of Apgar questionnaire for the family function status assessment and the scale of socioeconomic status for health research in Egypt in sequence.

Results: Eighty-two families representing 48.2% were in middle SES grade, 79 families representing 46.5% were in low SES grade, 9 families representing 5.3% were in very low SES grade, and 0 (0%) were in high SES grade. The family function status categories showed 43.5% of families were in highly functional category,49.4% were in moderately dysfunctional category, and 7.1% were in severely dysfunctional category. Mean score SES for the highly functional families was significantly different from the moderately dysfunctional families; 44.35 ± 11.28 (SD) vs 38.68 ± 11.09 (SD), respectively. Total SES score, education, and culture domain of SES scale showed a statistically significant positive moderate correlation with family function status total score (r 0.215, P< 0.005, r 0.225, P < 0.003).

Conclusions: More than fifty percent of rural Egyptian families in this study lie in low, and very low SES status. Socioeconomic status score of highly functional families was significantly higher than the score of moderately dysfunctional families. SES score, and education, and culture domain showed a significant positive moderate correlation with the family function status score.

Keywords: socioeconomic status, family dynamics, family process

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Ismail Dahshan,[1] Mosleh A Ismail,[1] Hassan Shora,[2] Mohammed Abdelwahed,[1] Seham A Ibrahim[1]

[1]Department of family medicine, Faculty of medicine, Suez Canal University, Ismailai, Egypt
[2]Senior Research Scientist & Senior Consultant of Medicine & Diabetes Center, Ismailia Medical Complex & Port-Said University & Ismailia Medical Complex, Egypt

Correspondence: Hassan A Shora, Senior Research Scientist & Senior Consultant of Medicine & Diabetes Center, Ismailia Medical Complex & Port-Said University & Ismailia Medical Complex, Egypt, Email hassanabdelwahe@sci.psu.edu.eg, hassanshora5@gmail.com

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Introduction

Richardson in 1948 was one of the first to emphasize that doctors must see the patient in the context of their family.[1] The Family Function Index (FFI) was created in 1973 by Pless and Satterwhite as a "simple, easily administered measure to reflect the dynamics of family interaction. FFI consists of 15 questions and may be completed in around 15 minutes.[2,3] Family APGAR, a short screening questionnaire, was created to collect data that will reflect a patient's perception of the functioning state of his or her family. Gabriel Smilkstein developed the five closed-ended questions in the Family APGAR questionnaire as a screening tool to provide a quick assessment of the elements of family function. According to the family Apgar, the family in health may be a caring unit that display the components of adaptability, partnership, growth, affection, and resolve. When discussing a management plan with the patient, the doctor must be aware of the financial status of the family. The doctor's approach is pointless if it is not financially sound. The Family APGAR evaluation of the family's level of functioning and the evaluation of the family's resources are essential aspects in the treatment of a distressed family.[4]

The evidence of whether the Family APGAR is a valid measure of family dysfunction is mixed, the psychometric properties of the instrument focused on evidence about the validity of the instrument has regularly been found to be internally consistent.[5,6] Foulke and coworkers,[7] administered the Family APGAR and the Family Adaptation and Cohesion Evaluation Scales (FACES II)[8] to 140 families and found that the Family APGAR correlated with the FACES Cohesion scale (r=0.70) and with the Adaptability scale (r=0.59). An Arabic version of APGAR questionnaire has been studied in two Arabic countries, and found to be feasible, and practical short family function assessment tool.[9]

The economic situation is one of many factors that might influence how well a family functions, and it is generally acknowledged that economic hardship has a detrimental effect on the family functions and the provision of family support.[10,11] In this context, a key factor that can impact on family functioning is socioeconomic status (SES). The ecological theory states that the family's socioeconomic circumstances affect the individuals' perceptions of family functioning.[12] The perspective of "social causation hypothesis" emphasizes that social conditions influence family integrity and functioning.[13] Additionally,

low SES compromises family functioning by subjecting families to higher levels of stress and internal conflict.[14] The mechanisms underlying the social causation perspective agree with the Family Stress Model (FSM) of economic hardship.[15] According to the FSM, financial difficulty raises family stresses, which in turn heighten tension and conflict and have a detrimental effect on how well families perform. Therefore, the social causation approach and FSM suggest that SES is significant factor in determining how well a family functions.

In this study, the last update of the scale for measuring family socioeconomic status for health research in Egypt was employed. Intra- and inter- observer variability and the internal consistency of the scale were assessed, Cronbach alpha for the scale was 0.66 and the relative importance of each of its seven domains showed strong correlation. The scale was proven to valid and reliable.[16] Regarding this study concept, which can be regarded as to our knowledge is a novel research, no studies of a similar nature could be found in Egypt.

Objectives: To describe the family function status patterns in a rural sample of Egyptian families in Ismailia Governorate and to describe socio-economic status of the study families and the correlations with the family function status patterns.

Subjects and methods

This study was carried as a cross-sectional survey in a three rural Family Medicine Centres (Abu-Khalifa, Al-Mahsma, and Fanarh) affiliated to Suez Canal University, Ismailia Governorate, in November 2022. The total number of sample size surveyed was equally divided between the 3 family medicine centres. The predicted frequency was set at 50%, and the confidence level was set at 80% when calculating sample size and power in a population survey using the StatCalc function of statistical software (Epi-info). A total sample size of 164 was estimated, and 54 participants from each center were enrolled. Participants in the study were attracted from each center over the course of one to two weeks after giving their informed consent. An attending physician at each center reviewed the data collected from each participant to confirm its accuracy and reliability.

Methods

The participant in this study was a husband or wife, son, or daughter 18 years and above, and sharing in the family income, and food. Each study participant was interviewed to complete an Arabic version of family Apgar questionnaire, and the scale of socioeconomic status (SES) for health research in Egypt in sequence with the help of trained nurses in each participating clinic. The Arabic version of Apgar questionnaire consists of five closed ended questions, The family member selects one of the three options, each of which is worth one point: "nearly always" (2 points), "part of the time (one point) ," or "hardly ever" (0). The results of the five questions' scores are then added together. A family is considered to be highly functioning if the score is 7 to 10, moderately functional if the score is 4 to 6, and severely dysfunctional if the score is 0 to 3. According to the estimated quartiles of the total score on this SES scale, which has seven domains and a total score of 84, the socioeconomic status was divided into four levels: extremely low, low, middle, and high. Each participant was questioned regarding his or her educational and cultural background, occupation, family, and cultural background.

Main outcome measures: The Family function status categorized as one of three: highly functional family, moderately dysfunctional family, and severely dysfunctional family. The socio-economic status categorized as one of four: very low, low, middle, and high.

Statistical analysis

Data of the current study was analyzed using the statistical software SPSS version 28 (IBM, Armonk, New York, United States). Categorical data was expressed as frequency and percentage, and numerical data, after normality testing, was expressed as mean, and median with interquartile range (IQR). Scatter plot and Spearman Correlation Coefficient was used to study the correlation between the ordinals data of the outcome measures. Multiple linear regression analysis was used when appropriate and after testing for normality distribution to examine socioeconomic variables that could predict change of the family function status.

Results

Regarding the socio-demographic data of the study subjects, the mean age in year ± SD was 44.56 ± 11.382 (range 24-73), 161 of participants (94.7%) were male and only 9 (5.3%) of participants were females. The majority the participants, 143 subjects (84.1%), live in rural areas, followed by 18 (10.6%) live in urban slum areas, and 9 (5.3%) in urban areas (Table 1). The education level of husbands, and their wives is shown in (Table 2 and Figure 1). Among the husbands, 73 (42.9%) had secondary (general & technical 3 or 5 years) education, 35 (20.6%) were a university graduates, 22 (12.9%) can read and write, 11 (6.5%) were illiterates, 11 (6.5%) had intermediate (2 years) institutes education, 10 (5.9%) had preparatory education, 7 (4.1%) had primary education, and 1 (0.6%) had a postgraduate degree. Among the wives, 63 (37.1%) had secondary (general & technical 3 or 5 years) education, 27 (15.9%) were university graduates, 22 (12.9%) can read and write, 33 (19.4%) were illiterates 16 (9.4%) had intermediate (2 years) institutes education, 6 (3.5%) had preparatory education, 1 (0.6%) only had primary education, and 2 (1.2%) had postgraduate degree.

Table 1 Socio-demographic data of the study subjects

		Mean + SD	Median	Range	IQR
Age		44.56 ± 11.382	41	25 - 73	36.00 - 54.00
Gender	Male	161		94.70%	
	Female	9		5.30%	
Residence	Urban slum	18		10.60%	
	Rural	143		84.10%	
	Urban	9		5.30%	

Data is expressed as mean and standard deviation, median, range and interquartile range or as percentage and frequency.

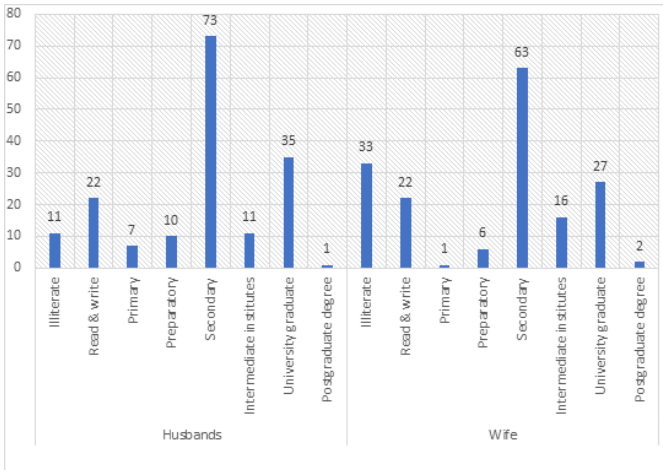

Figure 1 Education level of the study subjects.

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Table 2 Education level of the study subjects

		Frequency	Percentage
Husbands	Illiterate	11	6.50%
	Read & write	22	12.90%
	Primary	7	4.10%
	Preparatory	10	5.90%
	Secondary (general & technical 3 or 5 years)	73	42.90%
	Intermediate (2 years) institutes	11	6.50%
	University graduate	35	20.60%
	Postgraduate degree	1	0.60%
Wives	Illiterate	33	19.40%
	Read & write	22	12.90%
	Primary	1	0.60%
	Preparatory	6	3.50%
	Secondary (general & technical 3 or 5 years)	63	37.10%
	Intermediate (2 years) institutes	16	9.40%
	University graduate	27	15.90%
	Postgraduate degree	2	1.20%

Data is expressed as percentage and frequency.

The occupation of the husbands, and their wives is shown in (Table 3 and Figure 2). Among the husbands 72(42.4%) were semi-professional/clerk, 38 (22.4%) were skilled manual worker/farmer, 42 (24.7%) were unskilled manual worker, 10 (5.9%) were working in trades/business, 5(2.9%) were not working, and 3 (1.8%) were professionals. Among the wives, 121 (71.2%) were non-working/housewife, 43 (25.3%) were semi-professional/clerk, 2 (1.2%) were unskilled manual worker, 2 (1.2%) were working in trades/business, and 2 (1.2%) were professionals. The scores of domains of socio-economic status (SES) of the study subjects expressed as mean, median with interquartile range (IQR), and the range were nearly all in the middle of the range, with a mean ± SD, 14.44 ±7.165 for education and culture domain, 3.77±2.663 for occupation domain, 5.23 ± 1.324 for family domain, 5.38 ±1.323 for family passion domain, 2.08±1.226 for economic domain, 7.09 ± 2.115 for home sanitation domain, and 3.18 ±1.188 for health care domain, respectively. The mean ± SD of total score of SES was 41.15 ± 11.25, the minimum score was 15, and the maximum score was 63 (Table 4, Figure 3). The median (IQR) of total score of SES was 42.00 (32.00, 50.00) (Figure 4).

Table 3 Occupation of the study subjects

		Frequency	Percentage
Husbands	Non-working	5	2.90%
	Unskilled manual worker	42	24.70%
	Skilled manual worker/farmer	38	22.40%
	Trades/business	10	5.90%
	Semi-professional/clerk	72	42.40%
	Professional	3	1.80%
Wives	Non-working/housewife	121	71.20%
	Unskilled manual worker	2	1.20%
	Trades/business	2	1.20%
	Semi-professional/clerk	43	25.30%
	Professional	2	1.20%

Data is expressed as percentage and frequency.

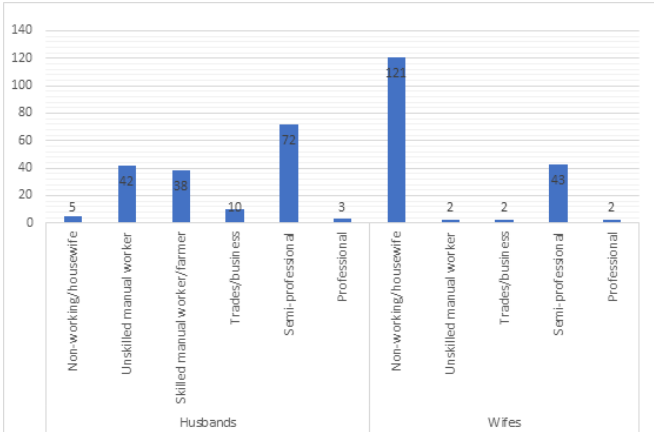

Figure 2 Occupation of the study subjects.

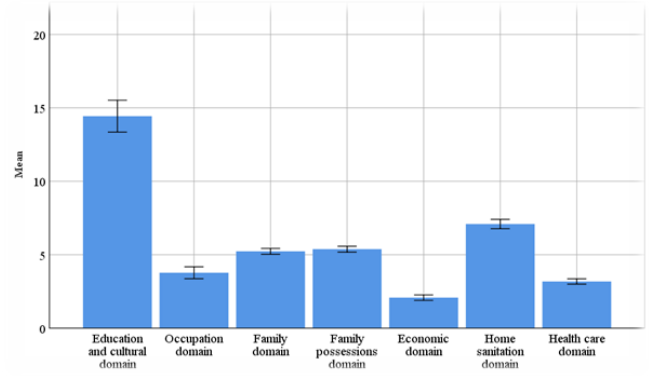

Figure 3 Scores of domains of socioeconomic status of the study subjects.

Figure 4 The median score SES of the study subjects.

Classification of socio-economic status of the study families into one of the four quarters of SES scale showed that 74 families representing 48.2% were in the middle grade, 84 families representing 46.5%, were in the low grade, 12 families representing 5.3%, were in the very low grade, and no families were in the high grade (Table 5). The mean score ± SD of the family function status of the study subjects was 6.45±1.931, the median (IQR) was 6.00 (5.00- 8.00), and the range was 2 to 10. (Table 6, Figure 5). Classification of the study families into one of the three categories of the family function status, showed that 74 (43.5%) were in highly functional family, 84 (49.4%) were in moderately dysfunctional family, and 12 (7.1%) were in severely dysfunctional family (Table 7).

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Table 4 Scores of domains of socioeconomic status of the study subjects

	Mean & SD	Median	Range/ total	IQR
Education and cultural domain	14.44 ± 7.165	16	0 – 27/30	9.00, 20.00
Occupation domain	3.77 ± 2.663	3	0 – 9/10	1.75, 6.00
Family domain	5.23 ± 1.324	5	2 – 8/10	4.00, 6.00
Family possessions domain	5.38 ± 1.323	5	2 – 10/12	4.00, 6.00
Economic domain	2.08 ± 1.226	2	0 – 3/5	1.00, 3.00
Home sanitation domain	7.09 ± 2.115	7	0 – 11/12	6.00, 8.00
Health care domain	3.18 ± 1.188	3	1 – 5/5	2.00, 4.00
Total score	41.15 ± 11.251	42	15 – 63/84	32.00, 50.00

Data is expressed as mean and standard deviation, median, range/total and interquartile range.

Table 5 Grades SES of the study subjects

		Frequency	Percentage
The SES grade	Very low	9	5.30%
	Low	79	46.50%
	Middle	82	48.20%
	High	0	0%

Data is expressed as percentage and frequency.

Table 6 Score of the family function status of the study subjects

	Mean & SD	Median	Range	IQR
Family function score	6.45 ± 1.931	6	2 - 10	5.00 - 8.00

Data is expressed as mean and standard deviation, median, range and (IQR) interquartile range.

Table 7 Categories of the family function status of the study subjects

		Frequency	Percentage
Family function status	Highly functional family	74	43.50%
	Moderately dysfunctional family	84	49.40%
	Severely dysfunctional family	12	7.10%

Figure 5 Median score of family function status of the study subjects.

The mean score of SES according to the family function category was 44.35±11.28 (SD) for highly functional families, 38.68±11.09 (SD) for moderately dysfunctional families, and 38.75±7.21 (SD) for severely dysfunctional families (Table 8, Figure 6). The difference of means between the three family function categories was significant in Anova analysis (P<0.04) (Table 9). A significant inter-categories difference was shown between the highly functional family category and the moderately dysfunctional family category (P<0.001), and no significant difference was shown between the highly functional family category and the severely dysfunctional family category, and the moderately dysfunctional family category and the severely dysfunctional family category (Table 10).

Table 8 Mean score SES by category family function

	N	Mean	Std. Deviation
Highly functional family	74	44.35	11.28
Moderately dysfunctional family	84	38.68	11.09
Severely dysfunctional family	12	38.75	7.21
Total	170	41.15	11.25

Table 9 ANOVA test for difference of SES mean score by family function category

	Sum of Squares	df	Mean Squares	F	p	Critical F-Value
Between Groups	1,340.59	2	670.29	5.58	.004	3.05
Within Groups	20,053.44	167	120.08			
Total	21,394.02	169				

Table 10 Fisher's least significant difference test for SES mean score by family function category

Variables	Average difference	t	p
Highly functional family - Moderately dysfunctional family	5.67	3.25	.001
Highly functional family - Severely dysfunctional family	5.6	1.64	.102
Moderately dysfunctional family - Severely dysfunctional family	-0.07	-0.02	.983

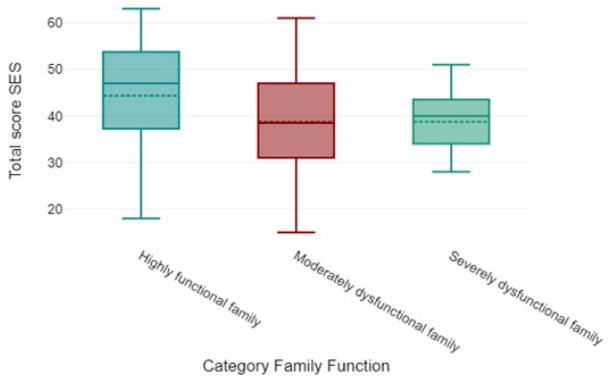

Figure 6 Median score SES by category family function.

The correlation between the various domains of SES, and the total score of SES with the family function status by the total score, and the functional category is shown in (Table 11). Education, and

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culture domain showed a statistically significant positive moderate correlation with the family function status total score (r 0.225, P<0.003), and a statistically significant negative moderate correlation with the rank of the family function status category (from high to low) (r 0.276, P<0.001) . The family possessions domain showed a statistically significant negative weak correlation with the rank of the family function status category (from high to low) (r - 0.157, P<0.040). The total socioeconomic status score showed a highly statistically significant positive moderate correlation with the family function status total score (r 0.215, P<0.005), and a highly statistically significant negative moderate correlation with the rank of the family function status category (from high to low rank) (- 0.258. P<0.001). B coefficient value of 0.04, 95% CI (0.01-0.06) of total SES score was significant (P=0.005), with a dependent Family function score on linear regression analysis (Table 12). In the regression analysis model, the total score of SES explained 5% of the variance of family function score (R^2 0.05) (Table 13).

Table 11 Correlation between domains of the socioeconomic status and the family function of the study subjects

	Family function status - total score		**Family function status – category (High to low)**	
	Pearson Correlation coefficient (r)	P*	Spearman Correlation coefficient (p)	P*
Education and cultural domain	0.225	0.003	-0.276	☐ 0.001
Occupation domain	0.097	0.207	-0.07	0.363
Family domain	0.075	0.328	-0.087	0.257
Family possessions domain	0.073	0.346	-0.157	0.04
Economic domain	0.085	0.268	-0.129	0.093
Home sanitation domain	0.108	0.162	-0.058	0.451
Health care domain	0.02	0.8	0.034	0.66
Total score	0.215	0.005	-0.258	0.001
P significant ☐ 0.05				

Table 12 Linear regression analysis coefficients total score SES and family function score

	Unstandardized Coefficients	**Standardized Coefficients**				**95% confidence interval for B**	
Model	B	Beta	Standrd error	t	p	lower bound	upper bound
(Constant)	4.93		0.55	8.9	.001	3.83	6.02
Total score SES	0.04	0.22	0.01	2.8	.005	0.01	0.06

Table 13 Linear regression analysis total score SES and family function score - model summary

R	**R2**	**Adjusted R^2**	**Standard error of the estimate**
0.22	0.05	0.04	1.89

Discussion

The findings this study concluded showed that the socioeconomic status of the sample of rural families participated were divided between the middle grade, and low, very low grades, no single family was in the high grade. The family function score of the participating families as assessed by an Arabic version of family Apagar questionnaire was nearly in the middle of the range at 6.45 ± 1.931, with minimum of 2 and maximum of 10. No similar studies were found at national level examining the relation between the socioeconomic conditions and the family functionality. The scale of the socioeconomic status for health research in Egypt by El-Gilany A et al.[16] in 2012 was a validated and the most reliably used in health research at national level.

Many words, including social class, social stratification, socioeconomic position (SEP), and socioeconomic status (SES), are widely used interchangeably even though they have different theoretical foundations and meanings. Krieger et al.[17] recommended SES as an alternative to SEP.[17] The concept of "socioeconomic position" refers to the social and economic factors that influence the positions that individuals or groups hold within a given social structure.[17,18] In truth, Karl Marx and Max Weber, two social theorists, are the sources of many of the ideas that justify the use of SEP in epidemiological research. Marx believed that a person's "social class" in connection to the "means of production" completely determined his or her SEP. According to Weber's theory, society is hierarchically stratified in a variety of ways, resulting in groupings whose members share "life prospects" as a result of their comparable market positions.[19] Only Erik Olin Wright's classifications and others created in South America are based on Marx's concept of social class and are employed in epidemiologic research.[20] Most socioeconomic status indicators are either area- or person-based measurements. The area-based measures may be considered largely as aggregate determinants of individual measures; they can be employed to evaluate contextual socioeconomic factors concerning all people of a certain region, which in turn have an impact on individual health; they can also be used to investigate health inequities, such as contrasting those with a university degree with those with just a basic education for a certain health result.[21]

The SES scale employed in this study was primarily area-based classification. Education, in contrast to many other SES indicators,

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has a high response rate, is pertinent to people of all ages and work levels, and is reasonably easy to assess in self-administered surveys.[22] The measurement of years of schooling or levels of accomplishment may not include any information regarding the quality of the educational experience, which is a drawback of education-based SES. An adult's current or longest-held employment is used to classify their socioeconomic status (SES); this is a widespread practice that has the benefit of being easily accessible in a range of regular data sources, such as census data and death certificates.[23] It may be difficult to attribute occupational indicators to those who are not employed that lead to exclusion of some of the population, and the socioeconomic differences may be underestimated.[24] The characteristics and amenities of housing are measured using a variety of SES metrics. The most typical factor is housing tenure, which refers to whether a residence is completely owned or rented. Numerous domestic conveniences are used in epidemiological studies, such having a refrigerator and just using restrooms and toilets. They are generally easy to obtain and may provide some information on the factors that link SES to negative health effects, such as crowding. It may be difficult to compare housing indicators across study since they may be specific to the chronological and geographical context in which they were developed.[23] The most precise SES indicator for measuring the component of material resources is income. Like education, income demonstrates a "dose-response" link with health.[25,26] Because personal income is a touchy subject, there is evidence that some people may be hesitant to disclose it.[27] Even though income usually follows a nonlinear trajectory with age, so it may be less accurate to forecast a person's genuine SES when they are young or elderly.[23]

In epidemiological investigations, particularly in the Brazilian context, two paradigms have been used to explain how socioeconomic status is calculated. One theory contends that socioeconomic disparities may be related to fundamental human values like liberty, equality and access to goods and services. The alternative paradigm is defined by the provision of State-funded relocation to the most socioeconomically disadvantaged socioeconomic strata and relates to the classification of social deprivation and negative difference among social strata. These two paradigms are not reducible nor incompatible with one another.[28] Two well-known indices that integrate information on employment and housing with details on social position (vehicle and home ownership) are the Townsend Material Deprivation Score and the Carstairs and Morris Scottish Deprivation Score.[29] The SES scale employed in this study may be thought of as a hybrid instrument that incorporates components from the two paradigms outlined above.

In epidemiological investigations, a number of techniques for measuring family function were created and examined. It can be difficult to determine how much emphasis should be put on evaluating the characteristics of specific family members, their varied relationships, or the family system as a whole.[30] The family assessment measure (FAM) was published by Harvey et al. in 1983.[31] It is a self-report technique that provides quantitative measurements of a family's strengths and shortcomings. A General Scale, a Dyadic Connections Scale, and a Self-Rating Scale are the three components that make up FAM. As a clinical diagnostic tool, a gauge of therapeutic success, or a tool for basic research on family processes, FAM has a variety of uses. The core of FAM is a the model of family process that emphasizes the importance of roles performance, communication, affective expression, involvement, control, values, and norms in addition to the core family task of accomplishment.

The Family Adaptability and Cohesion Evaluation Measure, or FACES, is another a self-report scale[8] that assessed these aspects, was created by Olson and his associates in 1982. - Family adaptability was described as the capacity of the family to adjust its power structure, role connections, and regulations in response to situational or developmental demands. Cohesion was defined as the emotional ties that exist among family members. This technique, which has been applied to several projects and clinical evaluations, swiftly rose to the status of one of the industry standard family assessment tools. Many additional FACES scale packages were created up to FACES IV. In 66 families, Clover and colleagues tested the FACES II scale with the Family APGAR questionnaire utilized in the current study but found no correlation between the two measures.[32] In a large sample of more than 22,000 children between the ages of 4 and 15 who were seen at baseline and follow-up visits as part of a study by William Gardner et al.[33] to test the reliability of the APGAR questionnaire, the relationship between family dysfunction and health problems presented by children was examined. While waiting for appointments, parents completed the APGAR questionnaire and the Paediatric Symptoms Checklist, and clinicians completed a survey to describe the family psychosocial dysfunction. At the second follow-up visit, the stability of the APGAR score was only 30%, and significant differences were found between the parents' and clinicians' methods for identifying family dysfunction, ranging from 73% to 83%.[33]

Epstein N, et al.[34] created the McMaster model of family function in 1979.[34] Over the course of thirty years, the McMaster Model of Family Functioning has undergone changes. Systems theory forms the foundation of the McMaster Model. The following are the fundamental tenets of systems theory that form the basis of the model: Since all aspects of the family are interconnected, it is impossible to completely comprehend how any member or subgroup functions alone. The structure of a family is crucial, and the family system's transactional patterns significantly influence how its members behave. The Family Assessment Device, the McMaster Clinical Rating Scale, and the McMaster Structured Interview of Family Functioning are the three assessment tools used in the MacMaster Model.[35] The Family Assessment Device (FAD) has seven subscales and 60 self-reported items total. The FAD is the only family function assessment tool that includes a subscale that assesses overall family function and has a 12-item short form that is self-reported: Short variant of the General Functioning 12-item subscale (FAD- GF12-SF). The FAD has been extensively used in a variety of research contexts. A total of 148 studies were included in a review and in most of them, it was able to discriminate between clinical populations and controls and among groups of patients and showed good test–retest and concurrent reliability, and modest sensitivity to change after treatment.[36]

In a research conducted in Malaysia, FAD was validated as a single index measure to evaluate family functioning in two adult populations totaling 417 and 358. The study's results were unmistakable and its internal consistency was good.[37] Even using only the six positively worded items from the General functioning 12-items subscale (GF6+) based on data from two Western Australian studies, the Raine Study (RS) and the Western Australian Child Health Survey (WACHS),[38] the GF6+ subscale was able to identify nearly all of the same families who had healthy or unhealthy levels of functioning.[39] It was suggested that the psychomotor features of an authorized Spanish version of the FAD should be evaluated with caution in cultures other than that of the model's origins because they showed high discriminatory power between two groups of families, despite certain limitations in the Roles subscale. No studies were carried to validate an Arabic version of the many family function assessment measures except the study done by Mosleh A Ismail in 2008 to investigate the feasibility of use of an Arabic version of family Apgar questionnaire.[9]

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The association of socioeconomic status and multiple familial outcomes was established for long time. The quality of parent-child relationships, as well as a variety of developmental outcomes for adults and children, are all correlated with social class, or socioeconomic status (SES), according to research findings. These relationships also hold true for the satisfaction and stability of romantic relationships. Incorporating assumptions from both the social causality and social selection perspectives, these findings provided evidence in favor of an interactionist model of the association between SES and family life.[40] In 2012, Ferdi Botha, Frikkie Booysen, and Edwin Wouters conducted a nationally representative sample survey of persons over the age of 16 that included 2547 respondents to study family functioning and socioeconomic position. The Family Attachment and Changeability Index was used to assess family functioning, and multiple correspondence analysis was utilized to create indices of individual, household, and subjective SES. The results multivariate regression analysis suggested that household- and subjective SES are associated with the perceived flexibility in the family, and no association was found between SES and family members' attachment to each other, findings that supported the social causation hypothesis.[41] A community sample of 125 families from various ethnic backgrounds, including Black or African American, Latino, Asian, and White, was used to study how income status affected family functioning, social support, and quality of life. The study used the self-report measure "the Family Assessment Device" to gauge how well families were perceived to be functioning (FAD). The findings showed that having a family member with a mental disease affected family functioning differently depending on financial status, and that low-income status was linked to decreased satisfaction with numerous aspects of family functioning. Additionally, low-income families scored much worse on social support and quality of life than higher-income households.[42] The considerably higher SES score in the highly functioning families' as compared to the moderately dysfunctional families in the present study provide additional evidence for the outcomes of the previous research.

Additionally growing evidence from research have demonstrated that the socioeconomic variance is related to biological variations between class members. The surface area of the brains of a cohort of 1099 individuals between the ages of 3 and 20 was examined in an intriguing study that investigated the relationships between socioeconomic gaps and differences in cognitive development and whether these differences may be reflected in differences in brain morphology. Children from lower-income homes showed comparatively significant variances in brain surface area that were correlated with small income inequalities. According to the study, income showed the largest link with brain structure and related neurocognitive ability among children from the most deprived homes.[43] A 2006 research that looked at the relationship between socioeconomic class and baseline levels of stress hormones revealed another biological correlation. Lower SES was related with greater levels of cortisol, epinephrine, and, to a lesser extent, norepinephrine; however, this connection between SES and these stress hormones was mitigated by social and behavioral characteristics. Gradually increasing baseline cortisol and catecholamine levels were linked to lower SES. Regardless of race, these relationships were present.[44]

Conclusion

More than fifty percent of rural Egyptian families in this study lie in low, and very low socioeconomic status and were classified in moderately and severely dysfunctional family categories based on the Arabic version of family Apgar questionnaire. Socioeconomic status score of highly functional families was significantly higher than the score moderately dysfunctional families. The socioeconomic status total score, and education, and culture domain of SES scale showed a significant positive moderate correlation with the family function status total score (r 0.215, P< 0.005, r 0.225, P < 0.003), respectively. A linear regression analysis showed that the total score of SES explaine only 5% of the variance of the score of family function of the sample of rural families included in this study.

Limitations of the study

The design, techniques, and potential numerous biases included in survey and cross-sectional research all contribute to the study's limitations. Different response biases, such as the way the question was phrased, the interviewer's demeanor, the propensity to average, social desirability, and figuring, among others, may have affected the validity of correspondents' responses. Another important consideration is the scales' limits. Separate validation studies on scales like the McMaster Family Assessment Device (FAD) and its short form are required for the validation of Arabic versions of other measures to evaluate family function (The General Functioning 12-item subscale-short form - FAD- GF12-SF). It is necessary to conduct qualitative, in-depth interview studies as well as large-scale research projects with larger sample sizes and demographic comparisons.

Declarations

Ethical approval and consent to participate

Ethics and Research Committee of faculty of medicine, Suez Canal University, approved the research protocol for conducting this research in accordance with relevant guidelines and regulations according to Declaration of Helsinki. Informed consent was obtained from all subjects/ and or their legal guardian(s) in case of illiterate participants who participated in the study.

Availability of data and materials

All Raw data generated or analyzed during this study are available on request from the corresponding author.

Consent to publish

All authors of this study were consenting for scientific publication of the research.

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Author contribution

I. Dr Mosleh A Ismail: given the research question, review and finalized the research protocol.

II. Mohamed M Awad: done review of literature , and listing of references.

III. Dr Ismail Dahshan: completed the results and share in discussion and conclusions.

IV. Dr Seham A Ibrahim: share in discussion and reviewing the references.

V. Dr Hassan Shora: reviewed and wrote the final version preparation and editing of the of the manuscript.

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