Demographic trends and global assessment functioning of intellectually disabled patients admitted in rehabiltaions centre majmaah

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Abstract.

Background: There is a high prevalence of intellectual disability in Saudi Arabia. Since there is a scarcity of data about the level of functional impairment in people with disability in SA and the association of various demographic variables with the severity of ID, this study was designed to study the various trends in the patients with ID in an inpatient rehabilitative facility in Majmaah, assessing their functionality using GAF and finding any possible association between various variables and severity of ID. *Methods:* Cross-sectional study was conducted, and Hundred and forty-seven patients were included in the study who were admitted in Rehabilitation center Majmmah and were assessed for demographic and GAF by random sampling variables *Results:* Equal number of males and females were found to be in the age range of 11 -44 years. Half of them were bedridden. Seventeen (11.6%) had mild ID, 33 (22.4%) had moderate ID, 56 (38.1 %) had severe ID and 41 (27.9%) had profound ID. The Association of GAF and severity of ID was statistically significant. *Conclusions:* The study reveals that most of the individuals have GAF score consistent with the level of disability with few discrepancies

Key words: Gaf, ID, Rehabilitation

Introduction

"The International Classification of Functioning, Disability, and Health (ICF), defines disability as an umbrella term for impairments, activity limitations, and participation restrictions. Disability refers to the negative aspects of the interaction between individuals with a health condition (such as cerebral palsy, Down syndrome, depression) with personal and environmental factors (such as negative attitudes, inaccessible transportation, public buildings, and limited social supports)." (1)

Almost one billion people suffer from disability worldwide and almost 200 million experience significant difficulties in functioning. (1) However, the prevalence of disability varies between countries ranging from less than 1% to up to 30% in some countries (2). More than half a million Saudi citizens (1 out of every 30 individuals) had some disability during the year 2016(2)

According to American Psychiatric Association, Intellectual Disability(ID) includes remarkable lifelong impairments in both intellectual functioning and two or more areas of adaptive functioning which cover

conceptual, social, and practical domains, (3) Stats reveal that there is a high prevalence of ID in Saudi Arabia. One study cited the prevalence of ID to be 8.9 per 1000 children, with near two-thirds having moderate to severe disability. (4) The region with the highest proportion of handicapped children was Jazan (9.90%) whereas Riyadh had the lowest (4.36%). Motor disability was the commonest kind of handicap (3.0%) of the total sample, followed by ID (1.8%). (5)

Rehabilitation services are considered as health strategies that are used for the management and improvement of the functioning of ID individuals. Rehabilitation includes activities such as medical care, physical, psychological, speech, and occupational therapy and support services. Therefore, the access of services to people with disabilities both for general medical care and ID must be provided by appropriate rehabilitation services (6). There are rehabilitative services in different parts of Saudi Arabia, but they are unable to meet the ever-increasing demand for the service. There is a lack of inpatient facilities and a dearth of well-trained staff. There is a scarcity of data and research about the rehabilitative services available in the private and government sector. (7)

One way of assessing the needs of patients with disabilities is to measure their individual needs using a standard instrument of performance and functionality. Global Assessment of Functioning (GAF) is the most widely used scale for rating the severity of functional impairment associated with learning disability (8) and is used for psychiatric, legal, administrative, and insurance purposes. (9) Though its reliability and validity are limited, its simplicity and the lack of instruments for functional assessment of people with ID render it feasible to be used with this specific population. (10)

To bridge the knowledge gap about the functional impairment and needs of people with disabilities, this study was designed. We aimed to assess the functional impairment in people with disabilities using the GAF scale and the association of various demographic variables with the severity of ID in patients living in a rehabilitation center in Majmaah City. We also aimed to study the various trends prevalent in these patients and finding any possible association between various demographic factors, GAF, and severity of ID.

Objectives

The objectives of the study were

To study the demographic trends of admitted patients in the Majmah Rehabilitation center.

To find out the global assessment of the functioning of these patients and their association with various demographic factors.

Methods

The observational cross-sectional study was conducted on patients admitted with disabilities in Rehabilitation Centre Majmaah. The study participants were both Males and females with intellectual disabilities. The data was collected using a systematic random sampling technique to select the patients from an approximate sampling frame. The interval size of 03 was calculated using the following formula. Based on random value every 2nd patient was selected to reach the sample size of I04. The age of participants was between 10-60 years.

Data Collection Procedure

Rehabilitation Centre was visited by a team of researchers and medical students who were trained in advance to understand disability and GAF scoring to fill the observer-rated questionnaire. The questionnaire comprised demographics details, a patient's diagnosis of the level of severity of intellectual function, physical and mental diseases was checked from the records. Collateral information was taken from attending staff who are allocated to each patient. Level of Functional Assessment was identified by applying the Global assessment of functioning given in DSM V. Participation consent from the family (signed informed consent) in advance through administration was taken. They were briefed about the aim and objective of the study and the advantage to them as well as to the community due to their participation. All information was kept purely confidential and was only used for statistical analysis. The research was approved by the Ethical Review Board of Majmaah University.

Data analysis

The data was entered and analyzed using IBM SPSS 26.0. Quantitative variables are expressed as Mean±SD, whereas qualitative variables are reported as frequencies and percentages. Pearson Chi-square and Fisher Exact test were applied to observe associations between qualitative variables. A p-value of<0.05 was considered statistically significant.

Results

Individuals with id in a residential facility

The number of participants (N) was 147 and data was collected from the medical record and medical staff for all of them and was entered and analyzed using SPSS 20.1.

The mean age of the patients was 24.32+2.19 years. Most of the patients (96.6%- 142) were in the age range of 11-40. The age distribution is shown in Table 1. Females comprised 53.1 % (78) of the sample, the majority (144) were uneducated and single (98.6). Only two patients had encountered one or another type of legal issue.

Nearly half (42.2%- 62) of them were bedridden.

Duration of Residence

More than half (66%- 97) of the patients were residing in the facility for more than 10 years, Although no significant association, p=0.907)) with age.

Distribution of id according to severity

Out of all patients, 17 (11.6%) had mild, 33 (22.4%) had moderate, 56 (38.1 %) had severe and 41 (27.9%) had profound ID.

Gaf of patients with ID

For the sake of analysis, we divided the patients according to the range of GAF they acquired on the assessment of functionality.

The mean GAF score of the patients was 27.22+1.37. The maximum number of patients 55 out of 147 fell in the range of 21-30 overall.

The highest functionality was in the range of 71-80 that was achieved by one patient only. A significant association was observed between GAF and mental retardation (p<0.001).

Table 1. Socio-demographic characteristics of the patients (*n* = 147)

Variables	*n* (%)	Variables	*n* (%)
Gender	78 (53.1)	**Marital Status**	
Male	69 (46.9)	Married	1 (0.7)
Female		Single	145 (98.6)
		Divorced	1 (0.7)
Education Level		**Legal problems**	
Illiterate	144 (98.0)	Yes	2 (1.4)
Primary	3 (2.0)	No	145 (98.6)
Age		**How long residence**	
1-10	3 (2.0)	2-3	10 (6.8)
11-20	46 (31.3)	4-5	12 (8.1)
21-30	61 (41.5)	5-6	19 (12.9)
31-40	35 (23.8)	7-8	11 (7.4)
41-50	1 (0.7)	9-10	7 (4.8)
>50	1 (0.7)	10 and more	97 (66.0)

Table 2. Association between GAF and Mental Retardation

| GAF | Mental Retardation | | | | Total | p-value |
	Mild n (%)	Moderate n (%)	Severe n (%)	Profound n (%)		
1–10	0 (0.0)	1 (3.0)	20 (35.7)	6 (14.6)	27	x^2 = 140.81
11–20	0 (0.0)	0 (0.0)	5 (8.9)	4 (9.8)	9	p < 0.001
21–30	0 (0.0)	6 (18.2)	22 (39.3)	27 (65.9)	55	
31–40	0 (0.0)	7 (21.2)	6 (10.7)	3 (7.3)	16	
41–50	2 (11.8)	9 (27.3)	2 (3.6)	1 (2.4)	14	
51–60	6 (35.3)	7 (21.2)	0 (0.0)	0 (0.0)	13	
61–70	8 (47.1)	3 (9.1)	0 (0.0)	0 (0.0)	11	
71–80	1 (5.9)	0 (0.0)	0 (0.0)	0 (0.0)	1	
91–100	0 (0.0)	0 (0.0)	1 (1.8)	0 (0.0)	1	

Discussion

Individual Trends with Intellectual Disability in Residential facility

We analyzed the individual trends in this inpatient rehabilitation facility. It showed that both genders were present in a near equal ratio ie 53.1:46.9 with a slight increase in the male population. This trend was similar to the prevalence study in Saudi Arabia (SA) among severely disabled people (11) in contrast to other studies where there was a male preponderance to almost double 61%:39% (12). This might be because our study population is in a rehabilitation center with almost equal designated capacity for males and females.

Though our population was comprised predominantly of a younger age group, most of the patients (97.3%) being in an age range of 11 -44, half of them(41.5%) were between 21-30 years of age. In contrast, other studies cited a larger proportion of children and adolescents like an inpatient study where the patients' mean age was 8.4+ 3.6(7). In an outpatient survey, two-third of the patients with ID were between 5 to 15 years (11).

In our study, most of the patients (66%) were admitted to the facility for 10 years or longer. The length of admission was, however, neither significantly associated with the severity of ID, nor the age of the patients with ID was related significantly. The factors influencing the patients' long stay could've been a high rate of physical or neurological comorbidity (58.50%) and their limited mobility (>50%).

Out of all patients, 17 (11.6%) had mild, 33 (22.4%) had moderate, 56 (38.1 %) had severe and 41 (27.9%) had profound ID. Similar trends were seen in another Saudi study where 70.9% of the patients had moderate to severe ID (4). Contrary to our findings however we found an international study showing the prevalence of mild to moderate ID 55.6% as compared to ours which is 34% and severe and profound was 15.9% as compared to ours which is 61%. A reason for this contrast could be that these prevalence were from a provincial sample however we conducted research on an inpatient rehabilitative facility.

Global assessment of functioning with intellectual disability in the Rehabilitation center

Global Assessment of Functioning (GAF) scale helps to determine the seriousness of mental or physical illness symptomatology and day to day effects on the psychological, social, and occupational functioning of an individual in daily life. There is a dearth of data and research from the Middle East and Saudi Arabia citing the level of disability or degree of functionality in this population using the GAF score or any other assessment tool.

Rehabilitation is an investment to build functionality in people with multiple health problems. It enables people with limitations in functioning to remain in or return to their home or community, lives

independently, and participate in education, work, and civic life. (1)

Mild ID and GAF (n = 17)

Almost all persons with a measured IQ of ≤50 have moderate impairment in social functioning as well as some degree of adaptive deficits. A large percentage of children with mild ID are highly unlikely to have prominent clinical findings and may not be recognized to have an intellectual disability until later in childhood (13) In the current study, most individuals with mild ID had a GAF score in a range of 51 -70, which coincides with the expected level of functioning in patients with mild intellectual disability. Results are similar to a Brazilian study where 64% percent of patients had some degree of impaired social functioning with substantial impaired work performance and sexual role. (15) This generates a question as to why these patients were placed in an inpatient facility if the level of functioning was only mildly impaired. One possible reason could be the presence of comorbid physical or mental diseases, however, it calls for detailed research into the methods, modes, and reasons for admission in such facilities.

Moderate ID and GAF (n = 33)

The measured IQ of persons with moderate ID falls between 35–55. Persons with a moderate ID function at a mental age of about 6-8 years despite being adults according to their chronological age and need substantial ongoing support to maintain independence in daily living activities and to remain gainfully employed. With ongoing support and teaching, persons with moderate ID may be able to acquire basic daily living and job skills (13)

An individual with moderate ID is expected to have a GAF in the range of 41-50. In this research, however, we found a varied range of functionality in this patient subgroup. About 27.3 % (9) had GAF in accordance with their level of ID. Interestingly, 30% were found to be performing above the level expected of him due to their disability. A possible reason could be the improvement of functionality after being in the rehabilitative inpatient and service utilization for

a long period. The rest 40% of patients with moderate ID however failed to achieve the level of functioning according to their impairment and attained a score below 40 and as low as 21. This was a disturbing finding and the exact reason could not be identified as no significant association could be found between the GAF scores and the degree of mild and moderate ID.(P-value =0.376)

Severe ID and GAF (n = 56)

The measured IQ of persons with severe ID falls between 20–35. In addition to a severe deficit in intellectual functioning, persons with severe ID may also have motor impairments and other associated conditions that further limit intellectual and adaptive functioning. They require intensive support in all activities of daily living including self-care and personal hygiene (13)

This study was found to have a significant association of severe ID with GAF (p-value = 0.00 on the chi-square test.). All of them had a GAF score of less the 50, where n=20 (GAF1-10) and n=22 (GAF 21-30) It seems that almost n=20 (35%) have impaired functioning to the expected level of disability. Another prevalence study in SA has similar results to this study where 70.9% of children suffered from moderate to severe intellectual disability(4). The low GAF scores may be either because of difficulty in data collection as other studies also concluded that it is difficult to accurately report patients capacities because of communication problems(10) or these are the individuals who had the least benefit from rehabilitation services maybe because of or comorbidities and maybe the services are inadequate as conclude by WHO report(1). Tajuddin et al found that specialized services for severe disabilities were underutilized (14).

Profound ID and GAF (n= 41)

Persons with profound ID have IQ less than 20. A person with profound ID may respond to familiar persons or caretakers with gestures and facial emotional cues a person with profound ID needs constant supervision and is total care dependent in all aspects of daily living. (13)

The results of profoundly disabled patients are consistent with level functionality as 27(65.9%) individuals had scores of 21-30, which might be due to no change expected at this level of ID from rehabilitative services as services are rarely used except for caregiver bonding and nurture and protection provided by them. (18)

Conclusion

Another important finding is that GAF scores seem to be somewhat like IQ levels of the expected disability. The prospective studies are required to assess GAF change followed by the use of rehabilitative services.

Study limitations

This study has several limitations.

Firstly, the number of participants with mild ID was very small to analyze these participants.

The results cannot be replicated as the study population was only rehabilitation care admitted people in a facility situated in a small town in Saudi Arabia.

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Supplementary files

Supplementary 1
Supplementary 2 is attached to show the scoring criteria of GAF in detail.

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