

State of Israel  
Ministry of Health

Health Economic and Insurance Division  
Planning, Surveys and Evaluation Department

## PEOPLE WITH DISABILITY IN THE COMMUNITY

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## PREFACE

Although the connection between physical and mental morbidity and functional disability is well-known from the professional literature, very little has been written on the subject in Israel.

The research reported here presents data from the National Health Survey (carried out by the Israel Ministry of Health and Israel's Central Bureau of Statistics) concerning the frequency of different states of illness among people with disability, the use people with disability make of health care services, the severity of their disability and their socio-economic status.

The survey findings show, inter alia, that people with functional disability appraise their state of health worse than others do. They report emotional distress and sleep disorders much more than other groups. They rate their position on Israel's social ladder as lower than the rest of the population. Although it is not always clear what is cause and what effect, it seems that the very existence of disability leads to behavioral changes, which in themselves exacerbate risk factors, such as obesity, which in turn is associated with, among other things, lack of physical activity and changed eating habits.

Advancing and protecting the interests of people with physical disability requires the collaboration of many government ministries. Bringing more people with functional disability into the workplace and making public buildings, offices and workplaces more accessible will expand their potential employability, improve their economic situation and sense of security and do much to widen their social networks.

The socio-economic characteristics of people with disability described by this study indicate that improving and expanding our interventions with this population can bring significant increases in their health, welfare and wellbeing, improve their social integration and narrow the health-status gap between them and the rest of the population.

It is my hope that these data will stimulate thinking about policy towards people with disability and reinforce interministerial cooperation on their behalf.

Dr. Tuvia Horev  
Deputy Director-General for Health Economics and Health Insurance  
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We thank Prof. Ya'akov Menchel, chairman of the National Geriatrics Council and Dr. Amnon Lahad, chairman of the National Community Health Council, for inviting us to present our findings at sessions of their respective councils. The subsequent discussions and the council members' constructive comments both encouraged us and added interesting aspects to the work.

Our preliminary findings were presented at the 7<sup>th</sup> Annual Conference of the National Institute for Health Policy and the Health Care Services Research in Tel Aviv, 10<sup>th</sup> December, 2008.

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## **OPERATIONAL DEFINITIONS**

The definitions derive from the interviewees' self-report.

### **PERSON WITH A PHYSICAL PROBLEM**

Replied 'Yes' to the question: *'Do you currently have a physical problem because of illness or accident, or which you were born with, and which has lasted 6 months or more?'*

### **PERSON WITH DISABILITY**

Persons with a physical problem who replied 'Yes' to the question: *'Does your problem cause you moderate, great or very great difficulty with daily activities, such as cleaning the house or going shopping?'*

### **PERSON WITH SEVERE DISABILITY**

Persons with a physical problem who replied 'Yes' to the question: *'Does your problem cause you great or very great difficulty with daily activities, such as cleaning the house or going shopping?'*

### **CHRONIC ILLNESS**

Interviewees were asked if they currently had a chronic illness which had ever been diagnosed as such by a doctor. The list of illnesses and conditions included: heart disease, hypertension, CVA, malignant tumor, diabetes, asthma, rheumatism, chronic back or neck pain, frequent severe headache, ulcer, chronic lung disease, thyroid disease, neurological illness, kidney disease/problem, enlarged prostate.

### **SELF-ASSESSED GENERAL STATE OF HEALTH**

Based on the question: *'In general, what is the overall state of your health, physical and mental?'*

### **SLEEP DISORDERS**

The interviewee replied 'Yes' to one or more of three questions referring to three types of sleep disorder: difficulty falling asleep; difficulty falling asleep after waking up during the night; waking very early. The questions were as follows:



- *During the last 12 months was there a period of 2 weeks or more during which you had difficulty falling asleep, that is, almost every night it took you two hours or more to fall asleep ?'*
- *During the last 12 months was there a period of 2 weeks or more during which you had difficulty staying asleep, that is, you woke up almost every night and it took you an hour or more to fall asleep again?'*
- *During the last 12 months was there a period of 2 weeks or more during which you had a problem of waking up too early, that is, almost every morning you woke up at least two hours before you wanted to?'*

The interviewee's number of sleep problems was arrived at by counting the number of 'yes' replies to the above three questions.

### **A BODY MASS INDEX (BMI) OF 30 OR MORE**

Calculated as the interviewee's weight in kilograms divided by the square of his height in metres, on the basis of the interviewee's self-reported height and weight. A BMI of 30 or more is defined as 'obesity'.

### **FAMILY BURDEN**

The interviewee was considered to suffer from 'family burden' if he answered positively to one of the following question: *'Does one of your close family members suffer from cancer, severe heart disease, severe memory problems, intellectual disability, permanent disability, another severe or protracted physical problem, an alcohol or drug problem, deep depression, severe anxiety, schizophrenia or psychosis, manic depression or other severe or protracted mental problem'* and he also stated that his family member's/s' problem had a heavy or moderate impact on his own life — on his time, energy, feelings, expenses or daily activities.

### **EMOTIONAL DISTRESS INDEX — GHQ**

The mental distress index (GHQ) comprises 12 questions indicating the presence of mental distress. The Index score is the mean of all 12 replies and ranges from 12 (no distress) to 48 (maximal distress).

### **PSYCHIATRIC DIAGNOSES**

Diagnosis of psychiatric disorders was made using an instrument (Composite International Diagnosis Interview—CIDI) specifically developed for diagnosing mental disorders in the communities by means of a questionnaire rather than by clinical means. The diagnoses are classified according to ICD-10.

The disorders tested for were:

Emotional disorders: Depression, bi-polar affective disorder, manic episodes and dysthymia.

Anxiety disorders: Panic, agoraphobia, generalized anxiety disorder and post-traumatic stress disorder, suicidal tendencies, addiction to alcohol or drugs.

The psychiatric diagnoses were grouped into one variable, '*Any emotional or anxiety disorder*'.

## **SOCIO-ECONOMIC CLUSTERING OF LOCALITIES**

Israeli localities (areas of residence) were classified by the Israel Central Bureau of Statistics by socio-economic status. The variables taken into account for this clustering operation were: income sources, housing, domestic equipment, car ownership, education and schooling, employment and unemployment characteristics, socio-economic adversity and demographic data. Every locality was assigned to one of ten clusters, '1' being the lowest and '10' the highest.

For the method of calculating the clusters see:

[http://www1.cbs.gov.il/www/publications/local\\_authorities2003/pdf/h\\_mavo.pdf](http://www1.cbs.gov.il/www/publications/local_authorities2003/pdf/h_mavo.pdf)

## **WORK FORCE FEATURES**

**Employed** – worked at least one hour during the pre-survey week at any form of work, in exchange for wage, profit or other reward.

**Unemployed** – did not work for even one hour during the pre-survey week and actively looked for work during the four pre-survey weeks.

**Does not belong to the work force** – everyone who did not work and did not look for work during the determining week, such as volunteers, persons unable to work, and those living on pension benefits or survivor compensation, etc.

## **SPECIAL SIGNS**

Estimates based on few cases are marked in the tables as follows:

.. a sample of up to 10 cases

() a sample of from 11 to 20 cases

# ABSTRACT

## Introduction

This study draws on the data of the National Health Survey conducted by the Israel Ministry of Health in collaboration with the Israel Central Bureau of Statistics (CBS) during the 12 months commencing May, 2003.

The National Health Survey was conducted within the framework of the International Mental Health Survey and included for the first time in Israel questions on the two subject areas of (1) Generalized and Specific Impairments and Disabilities and (2) Key Mental Disorders in the Community.

The aims of this study are:

- To set out the socio-demographic characteristics of the population with disability.
- To identify a connection between physical disability and physical and mental morbidity.
- To explore the connection between physical disability and health behaviours.
- To examine the socio-economic gaps between the population with disability and other population groups.

## Methods

The survey population comprised all those aged 21 and over permanently resident in Israel and living in the community. Data were collected by hour-long (on average) face-to-face interviews in the interviewees' home using a lap-top computer, in Hebrew, Arabic or Russian, as required. A stratified random sample was drawn from the National Population Registry and 4,859 adults were interviewed (an overall response rate of 72.6%). The number of interviewees in the sample was weighted by the CBS to provide an estimate for 3,955,499 persons aged 21 and over in the population. Data analysis was carried out by the Ministry of Health using SPSS 17.0 Complex Sample software.

## Key Findings

- **18% of the adult population was defined as having a physical disability which impaired their daily functioning.** Based on the survey interviewees' self-assessment, the number of persons with disability in the whole country was estimated therefore at 721,067, of whom 393,041 (i.e. 10% of the adult population) were severely disabled.
- **Age at onset of problem:** For 70% of people with disability, the physical problem which led to their disability began at ages 22-64 (39% at ages 22-44 and 31% at ages 45-64).
- **The main physical problems:** For 76% of people with disability the problem is in their skeleton or in the limbs they use for movement; 38% have a problem in their sight or hearing and 37% in their cardio-respiratory system. 39% have three or more problems.
- **Socio-demographic characteristics:** More women (20.6%) than men (15.7%) report disability which impairs their daily functioning and this trend obtains across all age groups. Disability is severer as age rises. Disability in daily functioning is more frequent among the Arab population (24%) than among Jews and others (17%). Persons with up to 9 years schooling have a disability rate (40%) more than three times that of persons with 13+ years of schooling (12%). These gaps remain constant even after multivariate analysis.  
  
Persons living in low-socio-economic-level localities have a disability rate (24%) almost double that of those living in high-socio-economic-level localities (13%). The disability rate among the unemployed (16%) is higher than that among the employed (9.5%).
- **Morbidity and states of health:** 14.5% of people with disability and 8% of people with severe disability assessed their state of health as very good or excellent, as compared to 64% of people without disability. 24% of the people with disability and 30% of people with severe disability reported having three or more chronic illnesses, as compared to 4% of people without disability. Persons with disability and severe disability were diagnosed with psychiatric illness twice as frequently as people without disability and, likewise, the GHQ scores for Mental Distress were much higher in people with disability and severe disability than in the people with no disability (25.1, 27.5 and 17.9 respectively). Persons with disability and severe disability also suffer much more frequently from sleep disorders (60.7%) than people without disability (22.9%).
- **Health behaviours:** People with disability displayed high rates of obesity— 24% of people with disability and 26% of those with severe disability as opposed to 13% of people without disability. 22% of people with disability and 16% of people with severe disability engaged in physical activity at least three times a week as opposed to 30% of those without disability. No significant differences were found in rates of smoking.

- **Socio-economic status:** Over 60% of people with disability earn a gross working wage of less than 3,000 NIS per month, even those who live in high-socio-economic-level localities. The corresponding percentage for those without disability living in medium- and high-socio-economic-level localities is 40%. 43% of people with disability paid for prescription drugs compared to 21% of those without disability. For non-prescription drugs, the corresponding percentages were 19% and 11% respectively. People with disability rate themselves as occupying a lower rung on the social ladder than those without disability.
- **Use of health care services:** Many more people with disability (28%) and severe disability (32%) were admitted to hospital (during the 12 months preceding the survey interview) than those without disability (11%). People with disability visit their family doctor on an average of 17 times a year, a specialist or consultant 10 times a year and their dentist 4 times a year. The corresponding annual rates for those with severe disability were 20, 11 and 3 and for those without disability 6.5, 4 and 2.5.

## Conclusions

This study measured for the first time in Israel (a) how many people have functional disability stemming from a physical problem, and located this problem in a particular bodily system, and (b) the relationship between physical disability and psychiatric morbidity.

People with disability are characterized by high rates of physical and mental morbidity and low rates of schooling and income, compared to people without disability. People with disability are less physically active and many of them are obese. A substantial fraction of people with disability were already at a young age suffering from a physical problem, which in later years led to disability.

These findings justify taking intervention measures, such as: identifying physical problems and preventing their deterioration into disability; removing socio-economic obstacles which may impede persons with disability living a healthy lifestyle; improving access to community services; and training health care staff to cope with the complex state of health of a person with disability, who often also suffers from chronic illness, mental disorder and difficulties of social integration.

## 1. INTRODUCTION

Each year Israel's National Insurance Institute (NII) publishes data on the number of people with disability who receive NII benefits, and the characteristics of these recipients. NII data show that in 2004 274,000 were in receipt of some form of disability benefit, 161,000 of them general disability benefit and 113,000 nursing care benefit. This was almost all that was known about people with disability in Israel. Only in 2002 did data on this population begin to be collected in the framework of the Central Bureau of Statistics (CBS) Social Survey.

In 2003-04 the Israel Ministry of Health and the CBS together conducted a National Health Survey for Israel in the framework of the World Health Organization's 27-state World Mental Health Survey Initiative\*.

This survey asked questions for the first time on two subject areas:

1. General and specific impairments and disabilities;
2. The main mental disorders in the community.

The Israeli survey added questions asking which bodily system was the site of the problem and the reason for the specific disability (the International Survey did not ask these questions).

This publication presents the results of an analysis of the Israeli survey, whose four objectives were:

- To present a socio-demographic portrait of the population of people with disability;
- To identify the connection between physical disability and physical and mental morbidity.
- To explore the connection between physical disability and health behaviours.
- To explore the socio-economic gaps between the population with disability and other population groups.

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\* <http://www/hcp.med.harvard.edu/wmh/>

## 2. METHODS

Data collection lasted 12 months, starting May, 2003. The survey population comprised all persons aged 21 and over permanently resident in Israel and living in the community, except for Beduin tribes not living in settlements, new immigrants less than six months in Israel, and the Arab residents of East Jerusalem. Data were collected in the interviewee's home by hour-long (on average) face-to-face interviews using a lap-top computer, the interview conducted in Hebrew, Arabic or Russian, as the interviewee required.

The interviews collected the interviewee's self-assessment of his state of health and functioning. As for mental health, for the first time in Israel this survey diagnosed emotional and anxiety disorders among people living in the community. The emotional disorders diagnosed were depression, bi-polar affective disorder, manic episodes and dysthymia. The anxiety disorders were panic, agoraphobia, generalized anxiety disorder and post-traumatic stress disorder, suicidal tendencies, addiction to alcohol or drugs. The psychiatric diagnoses were grouped into one variable, '*Any emotional or anxiety disorder*'. The diagnosis of psychiatric disorders in the community was made using the instrument deployed by all 27 states which participated in the International Mental Health Survey, *Composite International Diagnosis Interview (CIDI)* (1).

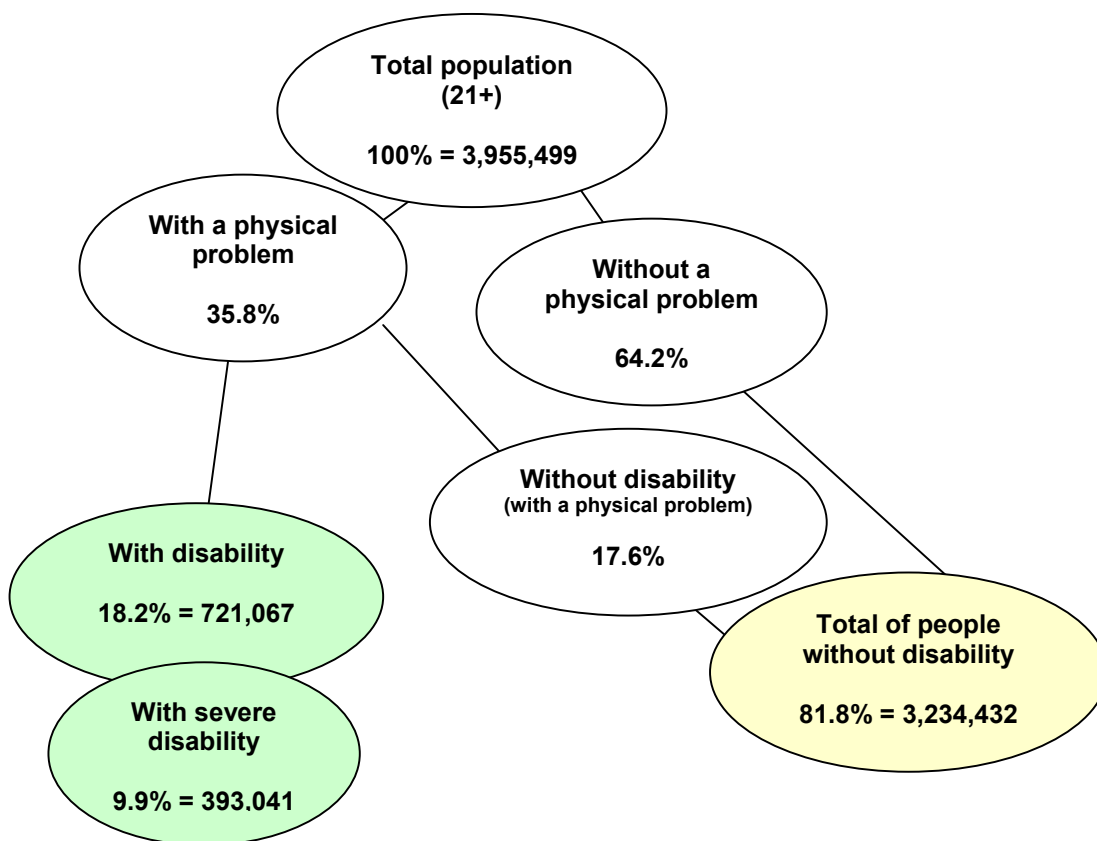
The stratified random sample for the Israeli survey of 7,200 adults aged 21 and over and living in the community was drawn from the National Population Registry. Of this sample, 4,859 were interviewed, an overall response rate of 72.6%. For each survey respondent a weighting was calculated in order to reduce the bias stemming from non-response, under-coverage of certain populations and variance in sample size by characteristics excluded from the sample design. These weightings made it possible to calculate estimates for the number of people with these particular characteristics in the total national population (1). By this method, the number of interviewees in the sample was weighted to give an estimate of 3,955,499 persons aged 21 and over in the total Israeli population. Data analysis was carried out by the Ministry of Health using SPSS 17.0 Complex Sample software, which takes account of sample structure and weightings.

### 3. FINDINGS

The findings presented in this section refer to numbers and rates calculated from the 'weighted population estimate', to give the corresponding numbers and rates for the total population. For instance, the number of persons aged 21 and over in the total population suffering from a physical problem is estimated at 1,416,675, 35.8% of the total population. Of these, 721,067 (18.2%) have disability and 393,041 (9.9%) have severe disability.

The following chart shows the size of the population at each stage of the analysis.

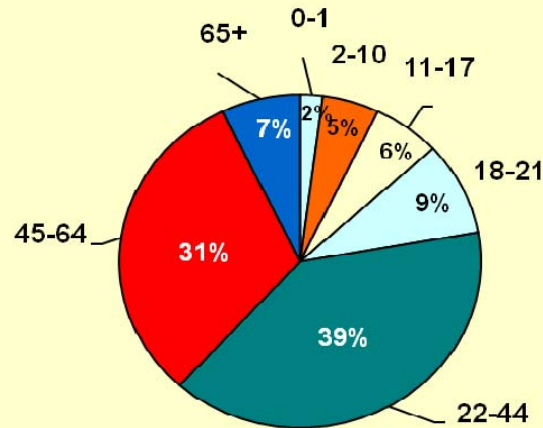
Chart 1: Distribution of persons in the population by physical condition



For 70% of people with disabilities the long-term physical problem which led to their disability began at ages 22-64. For 2% the problem began at birth or in infancy, and for less than 8% it began after age 65 (Chart 2). Among those with severe disability the corresponding proportions are very similar.



**Chart 2. Distribution of people with disability by age at onset of long-term physical problem**



More than 20% of people with disability suffer from two physical problems and 39% from three or more. Among those with severe disability the percentage suffering from three or more problems climbs to 48%. As for the body systems where the problem is located, for 76% the problem is in their skeleton or in the structures used for movement; 38% have a problem with their eyes or ears, 37% in their cardio-respiratory system and 30% in their digestive or hormonal system (Table 1).

**Table 1: Location of the long-term physical problem and number of physical problems among people with disability and severe disability (%)**

Problem's location	Disability	Severe disability
Skeleton or structures of movement	75.8	79.1
Eyes or ears	37.7	45.0
Cardio-respiratory system	36.6	41.5
Gastro-intestinal or hormonal	30.5	33.7
Uro-genital system	22.0	25.5
Nervous system	19.2	23.2
Skin, nails or hair	16.0	17.8
Voice/speech organs	6.1	8.4
Number of problems		
1	38.5	31.3
2	22.6	20.9
3+	38.8	47.8

### 3.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

Table 2a gives the percentage of the population who report a long-term physical problem and the percentage of those with disability and severe disability in each socio-demographic group and subgroup.

Table 2a: Persons reporting a long-term physical problem, disability or severe disability by demographic characteristics (%)\*

Total population	N – 100% = 3,955,499		
	Physical problem	Disability	Severe disability
N	1,416,675	721,067	393,041
Total	35.8	18.2	9.9
<b>Gender</b>			
Male	37.7	15.7	8.0
Female	34.1	20.6	11.7
<b>Age group</b>			
21-39	25.6	8.9	3.7
40-59	38.9	19.8	10.3
60+	52.4	35.6	22.6
<b>Population group</b>			
Jews and others	35.6	17.4	9.2
Arab population	37.3	23.8	15.2
<b>Place of birth (Jews only)</b>			
Israel	29.4	11.3	4.8
Asia-Africa	44.3	30.6	19.5
Europe- America	40.4	19.7	12.2
Former Soviet Union	44.8	25.1	13.6
<b>Marital Status</b>			
Married	35.2	17.9	9.4
Not married	37.1	18.9	11.2

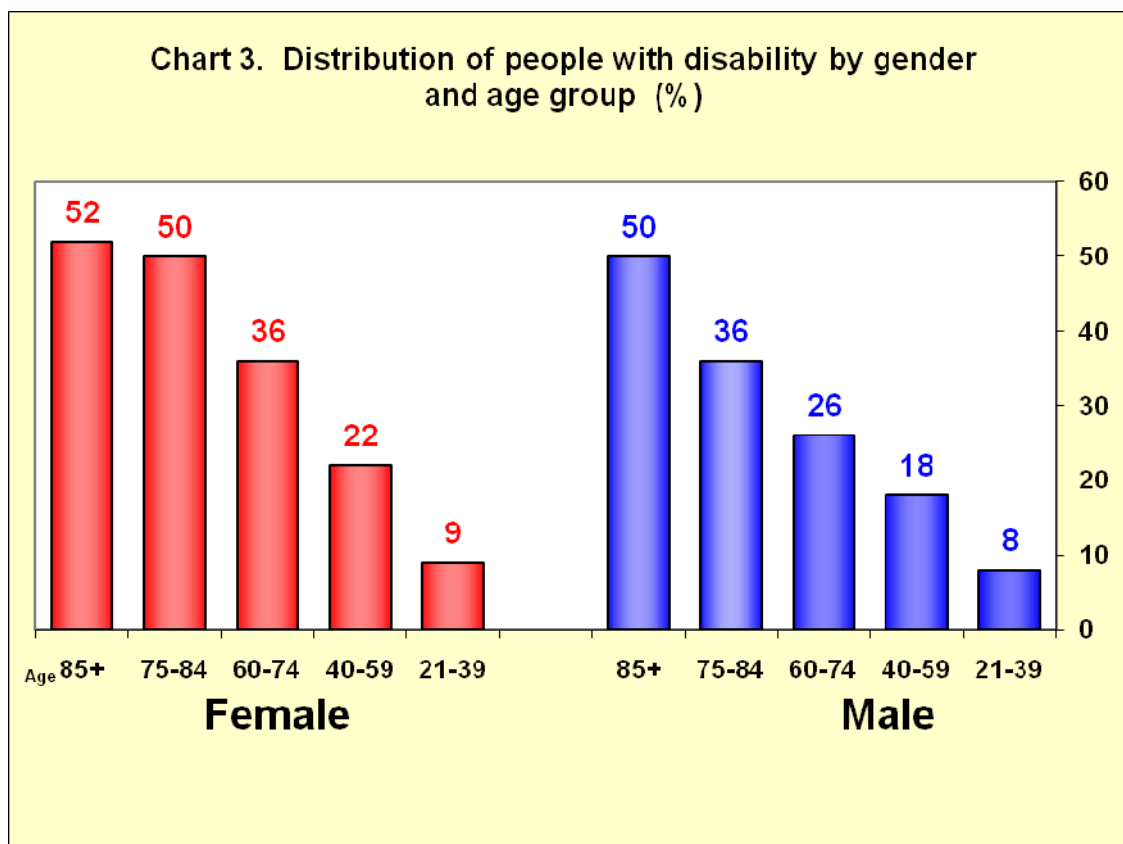
\* The differences between categories of all the variables are statistically significant on a level of at least  $p < 0.05$  except for the variable "family status".

Table 2b: Persons reporting a long-term physical problem, disability or severe disability by socio-economic characteristics (%)\*

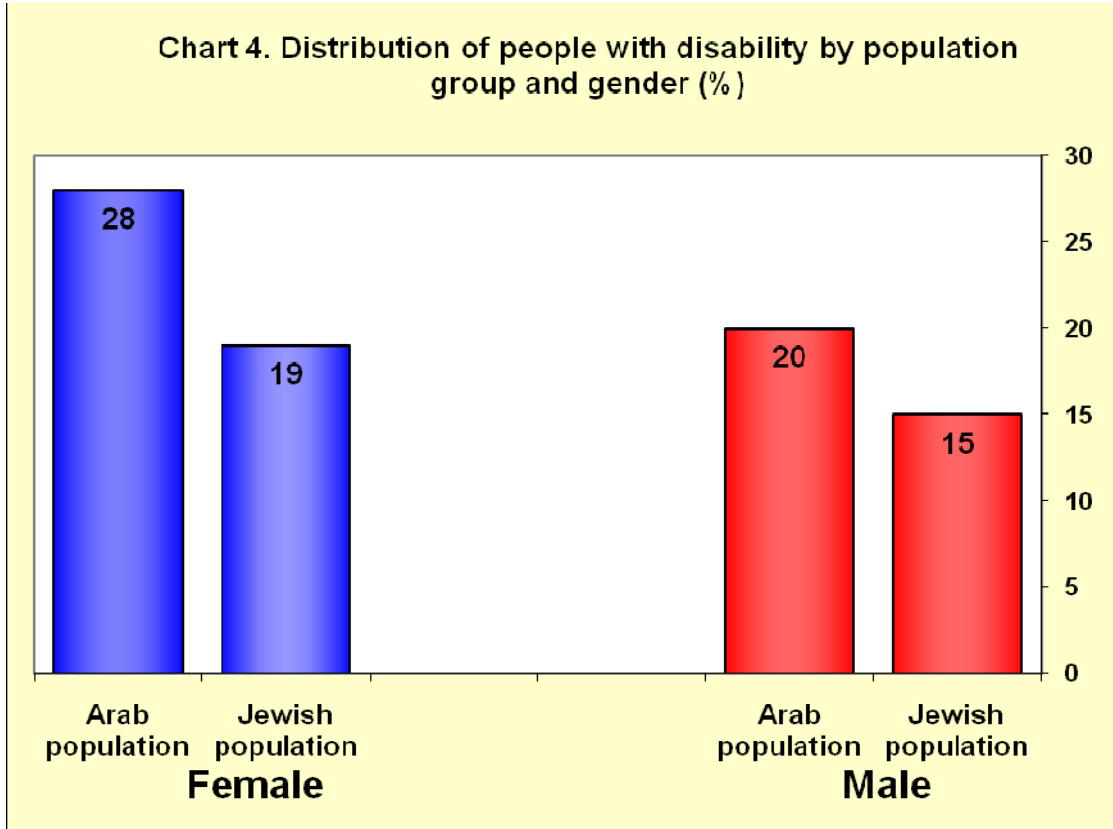
Total population	N – 100% = 3,955,499		
	Physical problem	Disability	Severe disability
N	1,416,675	721,067	393,041
%	35.8	18.2	9.9
<b>Immigrants</b>			
Till '89	43.0	25.4	15.8
'90 and up	42.4	22.8	11.7
<b>Years of schooling</b>			
To 9	52.9	39.5	29.4
10-12	32.5	17.7	9.4
13+	33.2	11.9	4.4
<b>Income</b>			
To 3,000 NIS	41.7	26.0	15.7
3,001-7,000 NIS	26.6	9.5	3.0
7,001-15,000 NIS	29.8	7.9	..
15,000 NIS and more	34.6	(4.9)	..
<b>Socio-economic cluster</b>			
1-3	36.3	23.7	14.7
4-7	36.8	19.7	10.4
8-10	33.1	13.3	7.1
<b>Labor force status</b>			
Employed	28.5	39.5	3.3
Unemployed	38.4	17.7	6.1
Does not belong to the labor force	46.4	11.9	20.5
<b>Military service</b>			
Compulsory service	31.5	11.2	5.2
National service	21.6	..	..
Did not serve	41.0	26.1	15.3

\* The differences between categories of all the variables are statistically significant on a level of at least  $p < 0.05$  except for the variable "immigrants".

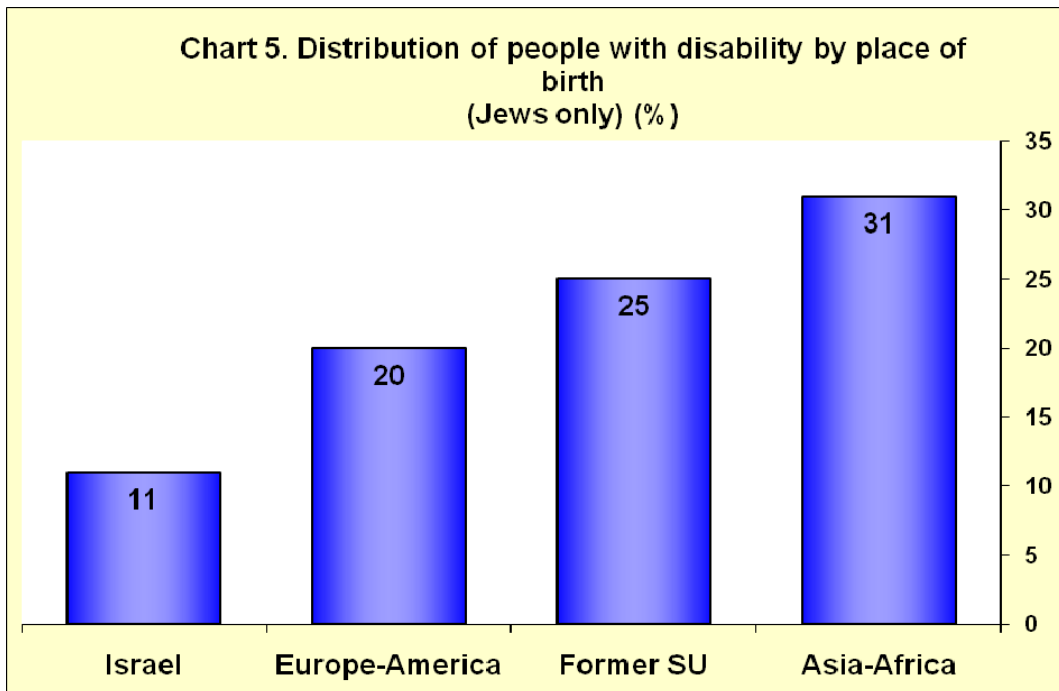
According to Table 2a, slightly fewer women (34.1%) than men (37.7%) report a physical problem but more women (20.6%) than men (15.7%) report a level of disability which impairs their daily functioning and this trend obtains across all age groups. The gap between men and women widens with age and only in the 85+ age group does it all but disappear (Chart 3). Another conclusion to be drawn from Tables 2a and 2b is that a physical problem turns into disability in daily functioning more frequently among the Arab population than among Jews and other ethnic groups. Persons with up to 9 years schooling have a severe disability rate seven times higher than that of persons with 13+ years of schooling. Persons living in low-socio-economic-level localities (1-3) have a severe disability rate double that of those living in high-socio-economic-level localities (8-10). Disability rates show no significant disparities, however, by district of residence.



More Arab men and women have functional disability than Jewish men and women (Chart 4).



Considering Jews only, the highest rates of disability and severe disability are found among those born in Asia and Africa (30.6% and 19.5% respectively) and the lowest rates among those born in Israel (11.3% and 4.8% respectively) (Chart 5, Table 2).



### 3.2 MORBIDITY AND STATES OF HEALTH

Table 3 shows persons with disability report more impaired states of health, both physical and mental, than those without disability: 24% of those with disability and 30% of those with severe disability reported having three or more chronic illnesses, as compared to 4% of those without disability. People with disability also self-assessed their general state of health as inferior to that of those without disability. People with disability and severe disability were diagnosed with psychiatric illness (emotional and anxiety disorders) more than twice as frequently as those without disability and, likewise, the GHQ scores for Mental Distress were much higher among people with disability and severe disability than those without disability (25.1, 27.5 and 17.9 respectively). People with disability and severe disability also suffer much more frequently from disordered sleep (60.7% and 68.3% respectively) (difficulty falling asleep, waking up in the night and very early in the morning) as compared to people without disability (22.9%). It was also found that more people with physical disability suffer from family burden (having a close family member with physical or mental illness or impaired state of health) than other population groups (26.6% v. 17% respectively) (Table 3).

Table 3: Persons with selected states of health by level of disability (%)

	Without disability	Disability	Severe disability
Self-assessed overall state of health (physical and emotional)	N = 3,234,432 100%	N = 721,067 100%	N = 393,041 100%
Excellent	29.2	3.7	1.9
Very good	34.9	10.8	6.1
Good	28.6	38.8	31.6
Not so good	6.1	36.6	44.2
Not good at all	0.3	9.1	15.2
<b>Number of chronic illnesses</b>			
0	64.6	32.7	26.0
1	21.7	24.9	24.9
2	9.4	18.6	19.3
3+	4.3	23.8	29.8
<b>Number of sleep problems</b>			
0	77.1	39.3	31.7
1	9.9	15.5	14.5
2	7.2	20.5	22.7
3	5.9	24.7	31.1
At least one sleep problem	22.9	60.7	68.3
<b>Family burden*</b>			
Yes	17.0	26.6	26.5
No	83.0	73.4	73.5
<b>Any emotional or anxiety disorder</b>			
Yes	8.1	17.2	18.4
No	91.9	82.8	81.6
<b>GHQ- Emotional Distress Index**</b>	<b>17.9</b>	<b>25.1</b>	<b>27.5</b>

\* The interviewee was considered to suffer from 'family burden' if he answered positively to one of the following question: 'Does one of your close family members suffer from cancer, severe heart disease, severe memory problems, intellectual disability, permanent disability, another severe or protracted physical problem, an alcohol or drug problem, deep depression, severe anxiety, schizophrenia or psychosis, manic depression or other severe or protracted mental problem' and he also stated that his family member's/s' problem had a heavy or moderate impact on his own life — on his time, energy, feelings, expenses or daily activities.

\*\* The mental distress index (GHQ) comprises 12 questions indicating the presence of mental distress. The Index score is the mean of all 12 replies and ranges from 12 (no distress) to 48 (maximal distress).

Table 4: Multivariate Analysis: Persons with disability by gender, age, population group, years of schooling, socio-economic cluster, number of chronic conditions and psychiatric disorders

Variable	Reference category	Categories	Odds ratio	95% CI
Gender	<i>Male</i>	Female	1.2	1.0 - 1.4
Age group	<i>21-39</i>	60+	3.0	2.3 - 3.8
		40-59	2.2	1.7 - 2.7
Population group	<i>Jews and others</i>	Arab population	1.3	1.0 - 1.8
Years of schooling	<i>13+</i>	0-9	2.9	2.3 - 3.7
		10-12	1.7	1.4 - 2.0
Socio-economic cluster	<i>6-10</i>	1-5	1.2	1.0 - 1.4
Number of chronic illnesses	<i>0-1</i>	2 or more	3.1	2.5 - 3.7
At least one emotional or anxiety disorder	<i>None</i>	Yes	2.4	1.8 - 3.1

The findings of a logistic regression multivariate analysis are shown in Table 4. The analysis singles out the ‘independent contribution’ of socio-demographic and health variables to disability. Holding all the analysis variables constant, the strongest groups of risk factors for disability were: being over age 60 (3.0); having limited schooling (2.9); and suffering from two or more chronic illnesses (3.1). After standardizing for age and the other socio-demographic and health variables, women had a 20% higher likelihood of having a disability than men.

### 3.3 HEALTH BEHAVIOURS

Table 5 displays the rates for 3 health behaviours — physical activity, obesity (measured by the Body Mass Index -BMI) and smoking — among people with and without disability. It can be seen that on two of these indicators — physical activity and obesity — people with disability scored significantly worse than people without disability.



**Table 5: Persons who engage in physical activity, smoke or have a BMI of 30 or over\*, by level of disability (%)**

	<b>Disability</b>	<b>Severe disability</b>	<b>Without disability</b>
Total population estimate = 100%	271,067	393,041	3,234,432
Engage in physical activity at least 3 times/week	22	16	30
Have BMI >= 30	24	26	13
Smokers	26	23	28

\* Calculated as the interviewee's weight in kilograms divided by the square of his height in metres. A BMI of 30 or more is defined as 'obesity' according to the World Health Organization (WHO).

### 3.3.1 Physical Activity

In all, 29% of the total sample of people 21-years old and over reported that they had engaged in physical activity for at least 20 consecutive minutes at last three times a week during the thirty days preceding the survey interview. The percentage of people with severe disability doing so was 16.1% as opposed to 30.1% of people without disability (Table 5).

In short, people with disability did less physical activity than the rest of the population and this was true for all age groups (Table 6).

### 3.3.2 Obesity

A BMI of 30 or over (based on self-reported height and weight) was designated 'obese'. People with disability displayed relatively high rates of obesity— 24% of people with disability and 26% of people with severe disability, as opposed to 13% of people without disability (Table 5). Table 6 presents the data for obesity by age group and shows that it is in the 40-59 age group that the disparities on this variable between those with and without disability are widest.

### 3.3.3 Smoking

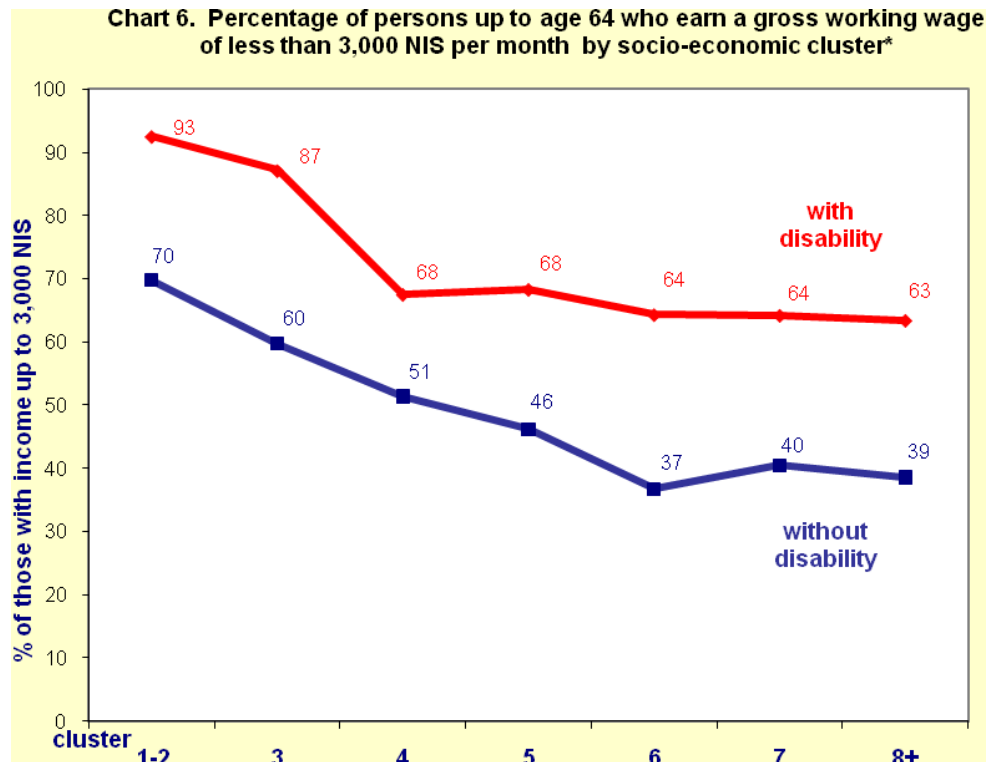
No statistically significant differences on rates of smoking were found between people with disability, severe disability and without disability (Table 5). However, in the 40-59 age group there is some indication that people with disability and severe disability smoke more than those without disability (Table 6).

**Table 6: Persons who engage in physical activity, have a BMI of 30 or over or smoke among people with disability, severe disability, or without disability, by age (%)**

Age group	Total	Active at least 3 times a week %	Have a BMI of 30 or over %	Smokers %
	N			
<b>21-39</b>				
Disability	154,279	15	12	40
Severe disability	64,623	10	10	33
Without disability	1,677,135	24	8	33
<b>40-59</b>				
Disability	277,274	20	30	33
Severe disability	144,274	16	36	34
Without disability	1,256,250	31	18	29
<b>60+</b>				
Disability	289,514	27	25	11
Severe disability	183,889	18	24	10
Without disability	629,075	49	18	13

### 3.4 SOCIO-ECONOMIC STATUS

Chart 6 shows the percentage of the sample up to age 64 who earns a gross working wage of less than 3,000 NIS per month, by the socio-economic status of the locality they live in. The chart shows the gap in economic status between people with and without disability.



\* Israeli localities (areas of residence) were classified by the Israel Central Bureau of Statistics by socio-economic status. The variables taken into account for this clustering operation were: income sources, housing, domestic equipment, car ownership, education and schooling, employment and unemployment characteristics, socio-economic adversity and demographic data. Every locality was assigned to one of ten clusters, '1' being the lowest and '10' the highest. For the method of calculating the clusters see: [http://www1.cbs.gov.il/www/publications/local\\_authorities2003/pdf/h\\_mavo.pdf](http://www1.cbs.gov.il/www/publications/local_authorities2003/pdf/h_mavo.pdf)

Chart 6 shows that in socio-economic clusters 4 and above, (that is, excluding the poorest localities and including localities belonging to the highest socio-economic clusters) more than 60% of people with disability have a relatively low income from work. On the variable of income from work, there is a constant gap of some 20 percentage points in favour of those without disability.

### 3.4.1 Payment for Health Care Services

The 2003-04 National Health Survey asked about expenditure on health care services. Table 7 shows the proportion of interviewees paying for two selected services – visiting a doctor and obtaining medicines – from a list of 14 services appended to the following survey question: “*In the last two weeks have you paid to obtain health care services for yourself to one of the professionals or services on the attached list?*”

Table 7: Persons paying for selected health services, by disability/non-disability (%)

	With disability	Without disability
Prescription medication	42.6	20.9
Over-the-counter medication	18.9	11.2
Medical specialist	4.9	2.9
Dentist	3.3	3.7

The data show that more than twice as many people with disability (42.6%) paid for prescription medication than those without disability (20.9%); for non-prescription medication the corresponding percentages were 18.9% and 11.2% respectively, and a similar ratio obtained for specialist visits (4.9% of people with disability v.2.9% of those without disability). No statistically significant differences were found for payment to dentists.

### 3.4.2 Social Status

Social status was determined according to the interviewee's response when asked to indicate his position on the social ladder by the following two questions:

#### The National Ladder

*"Here is a scale or ladder showing the social ranking of Israelis. It ranges from 0 to 10. At the top of the social ladder are the richest, the most educated and the holders of the best jobs in the country. At the other end of the social ladder are the poorest and the holders of the least respected jobs. On which rung of the ladder do you think you belong at present, relative to other Israelis?"*

#### The Acquaintanceship Ladder

*"Here is a scale or ladder showing the social ranking of people you know, that is people you know socially or meet fairly regularly— at the workplace, around the neighbourhood, in the army, in your studies, and so on . It ranges from a low of 0 to a high of 10. On which rung of the ladder do you think you belong at present, relative to the other people you are acquainted with?"*

Table 8 shows that people with disability and severe disability rate themselves as occupying a slightly lower rung on the social ladder than people without disability.

**Table 8: Median, mean (standard deviation) of the National Ladder and the Acquaintanceship Ladder by level of disability**

	Disability	Severe disability	Without disability
<b>National Ladder</b>			
Median	5.0	5.0	6.0
Mean (standard deviation)	4.7 (2.29)	4.3 (2.29)	6.0 (1.96)
<b>Acquaintanceship Ladder</b>			
Median	6.0	5.0	7.0
Mean (standard deviation)	5.9 (2.36)	5.6 (2.45)	6.9 (1.90)

### 3.5 HEALTH INSURANCE AND THE USE OF HEALTH CARE SERVICES

#### 3.5.1 Insurees by Health Maintenance Organization

The Clalit HMO's members include the largest proportion of people with disability of all Israel's HMOs, 21% v. 14-16% in the other HMOs (Table 9). In all the HMOs the majority of people with disability are in the 40-64 age group (Table 10), but among the members in Clalit with disability there is an exceptionally high proportion of persons aged 65+ and 75+, as compared to the other HMOs (Table 10).

**Table 9: Percentage of HMO members by level of disability**

HMO	Total insured (N)	With Disability	Without disability
Total	3,884,751*	18.2	9.8
Clalit	2,147,092	20.9	12.7
Macabbi	947,074	14.2	6.1
Meuhedet	449,776	14.7	5.3
Leumit	340,809	16.3	8.4

\*For 70,748 persons the insurer is unknown.

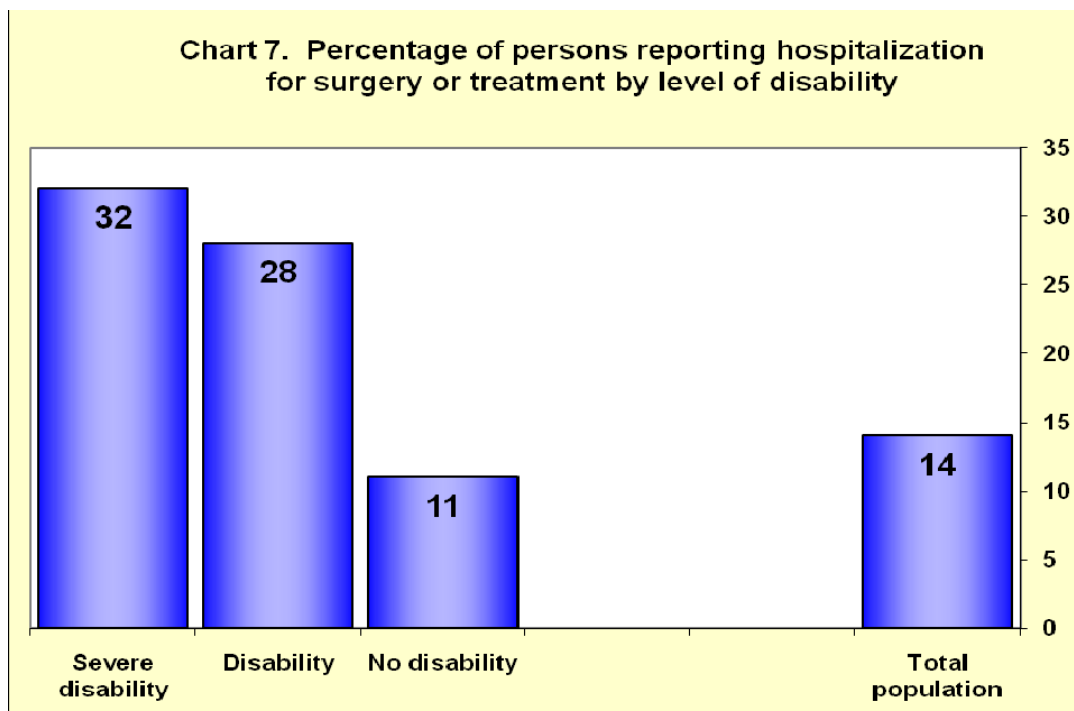
Table 10: Distribution of persons with disability by HMO and age group

Age group	Total of persons with disability = 100%	21-39	40-64	65+	75+
HMO		Percentages			
Clalit	449,009	19.5	44.1	36.4	16.4
Macabbi	134,637	19.2	55.9	24.9	9.9
Meuhedet	66,216	28.3	47.0	24.7	(12.7)*
Leumit	55,625	33.1	38.4	28.6	(16.5)*

\* Numbers in parentheses are based upon a small number of cases in the sample (11-20).

### 3.5.2 Use of Health Care Services

Many more persons with disability (28%) and severe disability (32%) were admitted to hospital for surgery or treatment (during the 12 months preceding the survey interview) than those without disability (11%) (Chart 7). ('Admitted to hospital' includes inpatient and day care, but excludes visits to emergency rooms, hospitalization for delivery of a baby and hospitalization in a hospital for chronic illnesses).



Visits to a primary care doctor (family doctor or general practitioner) or a specialist reflect the extent of use of community health care services included in the basket of health care services instituted by the National Health Insurance Act, 1995. Visits to a dentist, orthodontist or gum specialist (hereafter – dentist) are not included in this basket and the extent of their use is influenced by a person’s economic resources and/or special programs for people with disabilities.

**Table 11: Number of doctor visits per person in the past year**

	Family doctor / general	Specialist	Dentist
With disability	17	10	4
Severe disability	20	11	3
Without disability	6.5	4	2.6

Table 11 shows that people with disability visit their family doctor on an average of 17 times a year, a specialist 10 times a year and their dentist 4 times a year. The corresponding annual rates for people with severe disability are 20, 11 and 3 and for those without disability 6.5, 4 and 2.6.

General Linear Model multivariate analysis (see Table 12) sets out the independent contributions made by states of health and functioning (number of chronic illnesses, functional physical disability, psychiatric disorders) to the number of visits to a family doctor, specialist or dentist. In each category of a given variable the estimate (in Table 12) gives the number of visits to be added to (or subtracted from) the number of visits at the cut-off point, with respect to the feature represented by that category of variable. For example, according to the model represented by Table 12, a Jewish woman aged 65+ with more than one chronic illness and with a psychiatric disorder may be expected to make 18 visits per year to her family doctor. Whereas for another woman possessing the same characteristics, but also has a physical disability, the number of annual visits will climb to 24.

Social factors too, such as few years of schooling and being from the Arab population, also make an independent contribution to raising the frequency of family doctor visits but the same factors do not affect the frequency of visits to specialists. Disability makes an independent contribution to the frequency of visits to a dentist – it increases the frequency 1.4 times.

Table 12: Multivariate analysis: Number of doctor visits per person this past year, by gender, age, years of schooling, population group, number of chronic conditions, psychiatric conditions and disability

Variable (reference category)		Family doctor/ general	Specialist	Dentist
	Categories	Estimate	Estimate	Estimate
Cut-off point		7.3	5.3	2.2
Gender ( <i>female</i> )				
	Male	-0.4	-1.7*	-0.5
Age Group ( <i>65+</i> )				
	22-44	-3.5*	-1.0	0.7
	45-64	-3.4*	-0.8	1.2***
Population group ( <i>Jews and others</i> )				
	Arab population	3.3*	-0.8	0.2
Years of schooling ( <i>13+</i> )				
	0-9	3.7*	-0.8	-1.5*
	10-12	0.7	-0.5	-0.03
Number of chronic illnesses ( <i>0-1</i> )				
	2+	6.9*	3.2*	-0.3
Emotional disturbance/ anxiety ( <i>none</i> )				
	Yes	3.7*	2.6**	-0.4
Disability ( <i>none</i> )				
	Yes	6.0*	4.7*	1.4***

\* $p \leq 0.001$ ; \*\*  $p \leq 0.002$ ; \*\*\*  $p \leq 0.05$



#### 4. SUMMARY AND DISCUSSION

The 2003-04 National Health Survey was the first in Israel to ask about impairments to bodily systems which lead to physical disability, and the first to seek and find a connection between physical functional disability and psychiatric diagnoses.

Interviewees were defined as being 'people with disability' if according to their own self-report they had had a physical problem for at least six months which caused them difficulties in performing daily activities, such as shopping and cleaning the house. This choice of definition probably biased the estimate of the scope of the problem since examples of functional disability cited in the interview question are more characteristic of population groups whose daily functioning is mainly related to housework, such as housewives and men-people living alone. It must also be taken into account that the perception of disability and the style of response to interview questions differs from individual to individual and between populations of different cultural backgrounds. A further complicating factor is that a subjective feeling of impaired daily functioning results in limitations to physical and economic independence. Given these qualifying factors, we can only point out the complexities and dimensions of the phenomenon of disability and then discuss them.

The World Health Organization's 27-state World Mental Health Survey demonstrated that people with disability also suffer more from chronic illness, sleep problems and mental illness than those without disability. The Israeli study reported here also reveals a negative correlation between disability and health behaviours: people with functional physical disability have higher rates of obesity and lower rates of physical activity than those without disability. The age group in which the physical problem which eventually led to disability first started was the 22-44 age group. If we could identify the problem at this early age and perceive its implications for later physical development which would lead to disability 20-30 years later, a great deal of morbidity and impaired functioning could be prevented or lessened. The increased use of health care services by people with disability relative to those without raises the question of how compatible current medical care and current recommendations for a healthy lifestyle are to the health care needs, physical and mental state, social environment and living conditions of people with disabilities

The picture this study paints of the population of people with disability is independent of their dependency on monetary benefits or compensation. Comparing the data of the National Health Survey with data from the National Insurance Institute (NII) about benefit recipients highlights the gap between the survey population and the NII benefit-recipient population and exposes the dimensions of disability without financial benefit. If we compare the survey's estimate of the number of people with severe disability with the NII's data on the number of persons in receipt of physical disability benefit from the NII and the Ministry of Defense there is a gap of 140,000 persons who are getting no benefit at all. This number includes all those who do not meet the criteria for benefit receipt, too high an income level for example, and those who have made no benefit application to the NII.

Similar questions about disability are asked by other surveys in Israel and overseas for the purpose of measuring subjective functioning level in the activities of daily life. These repeated measurements help trace the trends in disability over time but to follow these trends accurately the surveys must use the same methodology and the same research population.

Disability in the activities of daily life (ADL) has been examined by the CBS annual Social Survey since 2002. The 2004 CBS Social Survey estimated the number of people with disability using slightly different questions to the 2004 National Health Survey but despite these differences it can

be seen that both surveys produced similar findings. The Social Survey found that the main risk groups for disability were Arabs, new immigrants, residents of the periphery and people with low schooling and income. It is true that cross-sectional surveys which give a snapshot of a situation at one point in time cannot of themselves tell cause from effect, but it is a reasonable hypothesis that it is the socio-economic factors that contribute to the level of disability and not vice versa. Both surveys also agree that most disabilities are acquired in the course of life (the rate of congenital disability is only 2%). The rate of severe disability in both surveys is also very similar: 9.6% in the Social Survey (2) and 9.9% in our survey. Nor has the CBS Social Survey found significant differences year on year in the proportion of people with disability in the total population (3).

The 2004 National Health Survey demonstrated a significant economic gap between people with and without disability. It is interesting that although the recipients of NII disability benefit are exempt from health care service fees and out-of-pocket expenses for visits to specialist doctors, more people with disability pay for these services than those without.

The multi-year survey, *People with Disability in Israel, 2007*, presents a comparative international picture of disability (3). It finds that, while on most variables the situation of the disabled in Israel is comparable to that of people with disability in western countries, the economic gap between people with disability and without in Israel is wider than in almost every other country surveyed.

The differential distribution of people with disability among Israel's four main HMOs, plus the fact that people with disability use health care services more than those without, raises questions about how the National Health Insurance Act, 1995, distributes earmarked health care revenues among the HMOs (the capitation formula). The increased morbidity of people with disability and the consequent high costs of their medical care also demonstrate the necessity of taking other measures to reduce the extent of disability, such as giving special training to doctors and social workers in the community, making services more accessible, removing or reducing financial obstacles, all of which will help identify and treat disability at its early stages of development. Expanding current measures to encourage persons with disability to engage in physical activity and instituting new such measures and facilities will go some way to attacking the problem of obesity in this population group.

The Equality of Rights for Persons with Disability Act, 1998, was enacted to make buildings and services accessible in all areas of life and to integrate persons with disability better into society's social structures and networks. The Act's implementation is an important step towards improving daily life and the sense of wellbeing among people with disability. Another means to closing the social, economic and health care gaps between populations with and without disability is disseminating information and awareness of the special needs of persons with disability. Finding suitable solutions to these special needs requires the collaboration of all relevant service sectors and all caring professions.

For more than 75% of persons with disability, the site of their disability is their skeleton and the limbs used for movement, but those whose disability is located in other body systems, such as sight and hearing, are also a substantial population. This sub-population is older and has a wider-different range of needs than those whose disability is in their skeleton and movement. The demographic disparities between sub-groups of people with disability and the disparities between them in state of health and functioning will be the subject of a future study.

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