

THE GLYCEMIC CONTROL OF DIABETIC OUTPATIENT IN
FATMAWATI GENERAL AND TEACHING HOSPITAL JAKARTA



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Introduction :

Fatmawati Hospital is The Government.-owned Hospital.

In accordance **to enhance the service quality**, the hospital has Diabetic Clinic coordinating by Internal Disease Polyclinic.

The Diabetic patients data was **last reported in 1995**.

Since 2001, the number of diabetic outpatients has **increased**.

The studys had never been accomplished for the last ten years.

It is necessary to have further studies **to improve the diabetics management**.

The successful of diabetic treatment is shown by **glycemic control** as an **outcome of therapy** which indicated by **glycosylated hemoglobin**

The HbA1c :

The mayor form of non enzymatic condensation of glucose with free amino groups on the globin component of Hb(normal: 4-6% total Hb).

The level is proportional to both the average glucose concentration and the life span of the Hb circulation.

It is **abnormally high in diabetics** with chronic hyperglycemia,

reflects the state of glycemia over the preceding 8-12 weeks.

extremely usefull in monitoring the progress of patients.

It has been **accepted for the clinical management of diabetes.**

Objective

- To determine :
 - The proportion of diabetic type patients
 - The mean and frequency distribution of HbA1c levels
 - The distribution of demografics data by HbA1c levels
 - The distribution the diabetes education, nutrition and drug counseling by hbA1c levels

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Method :

- The **cross sectional descriptive design** in 5 month period
- The data were collected either **retrospectively** from medical record or **prospectively, with questioners** : demographic data (gender, age, education and occupation), type, diabetes education, nutrition and drug counselling, HbA1c.
- HbA1c levels according to Indonesian Endocrinolog Assoc.2003, is separated into 3 intervals: **good** (< 6,5 %), **moderate** (6,5 – 8 %) and **poor** (>8%).
- We take **sample totally** from those who fulfill **inclusion criteria** : **type 2**, whose met **regularly control** and **non pharmacological treatment** namely **appropriate diet planning** and **exercise**.
- The **exclusion criteria** are Diabetic patients with certain condition : hemorrhaghe, hemoglobinopathy, uremia, taking vitamin C & E, and pregnancy.

Operational Definitions:

- **Regularly control** means **six times control per year**.
- The **diet planning** means the calori in take per day is **equal** or less than one **determined by nutricion**.
- The **appropriate exersice** means that, minimum **three times in a week each 30 minutes**, in form of light exersice, (walking),and medium (fast walking, jogging, badminton, tennis & swimming).
- **Diabetes education** is all **education program** about Diabetes treatment, minimum **1 time per year**.
- **Nutricion counselling** is **30 minutes interactive process** between nutricion and diabetician to make understand about their diet program, minimum one time per year.
- **Drug counselling** is minimum **30 minutes interactive** process between apoteker and diabetician to make understand taking drug, (orally or injection) minimum one time per year.

Patients without HbA1c in their medical record :

their **blood sample** were collected through the **finger or ear lobe** with **HbA1c Capillary Collection System**.

Samples for HbA1c were determined in **Eijkman Institute of Molecular Biology, Jakarta**.

Measured by **The VARIANT Hemoglobin A1c Program**, utilizes the principles of **ion exchange high performance liquid chromatography (HPLC)**.

All of the data obtained were **analyzed with the proportion** as the indicator.

Results and Discussions

There were 315 selected patients with regularly control from 412 patients during 5 month period time.

The proportion of diabetic mellitus **type 2 (n=315) were 99,05% (42,8% male, 56,19% female)**, while the rest was **type 1 (0,95% male)**
Further studied we focus on type 2 diabetics, and only 257 patients (80.95%) who met inclusion criteria.

Figure 1. The Proportion of Type 2 DM

Category	Proportion
Met inclusion criteria	80.95%
Not attended interview	11.43%
Unmet non pharmacological treatment	6.67%
Type 1, DM	0.95%

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The mean of HbA1c was 7,23 ($\pm 1,61$) (n=257) is to fall into moderate level, according to Ind. Endocrinolog Association, which mean better than the mean of HbA1c's diabetic patients from **Indonesia Government Hospitals (8,1 \pm 2,1)** whose criteria is poor.

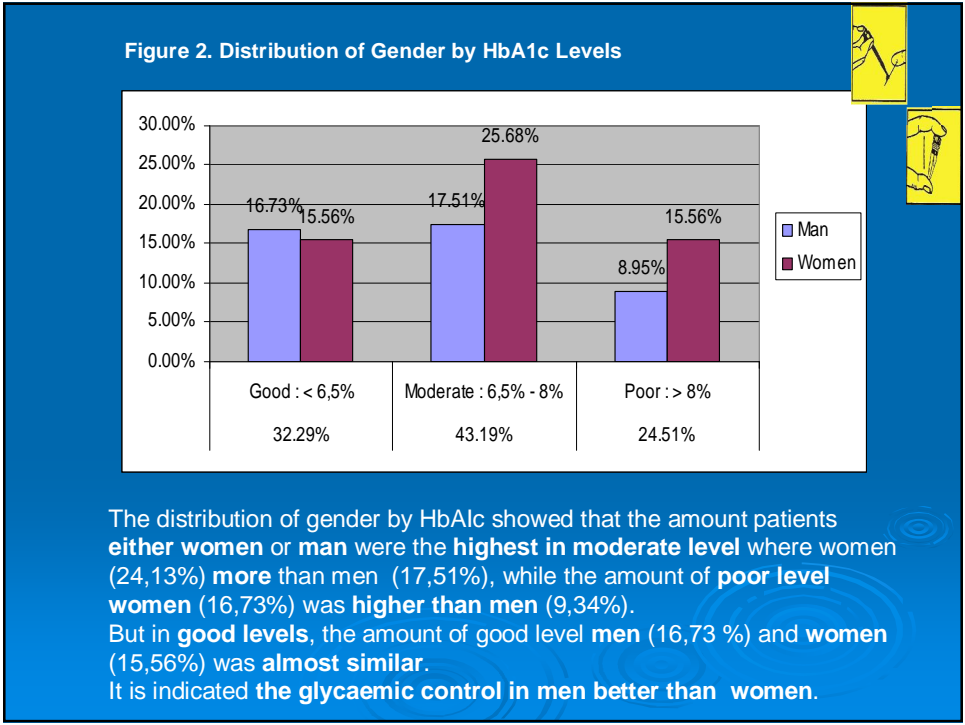
The frequency distribution of HbA1c levels :
(good) 32.29%, (moderate) 43.19% and (poor) 24.51%.

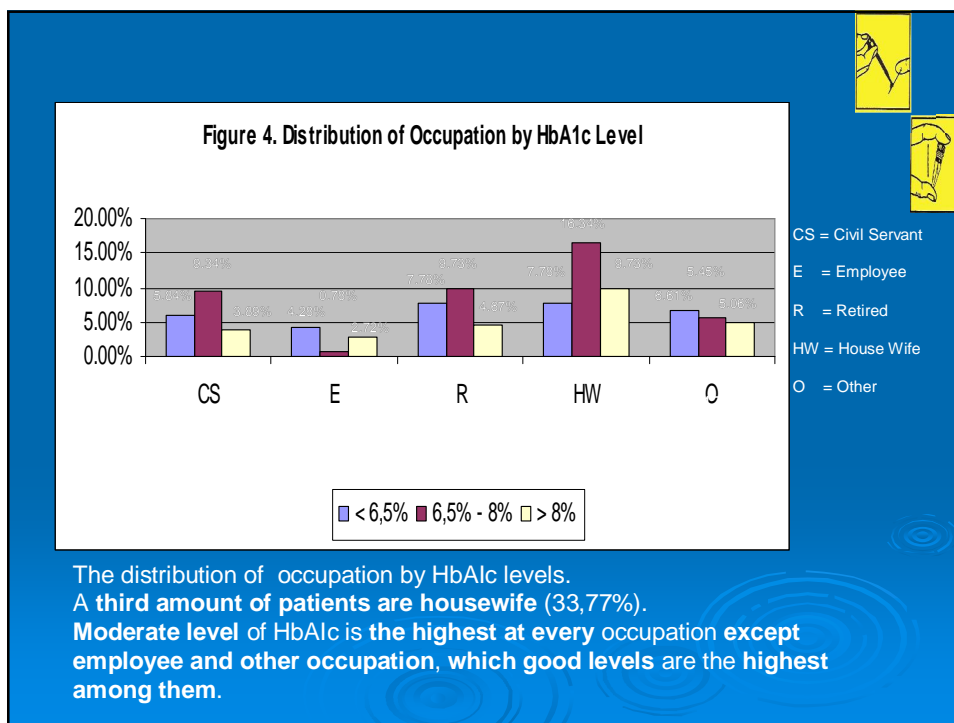
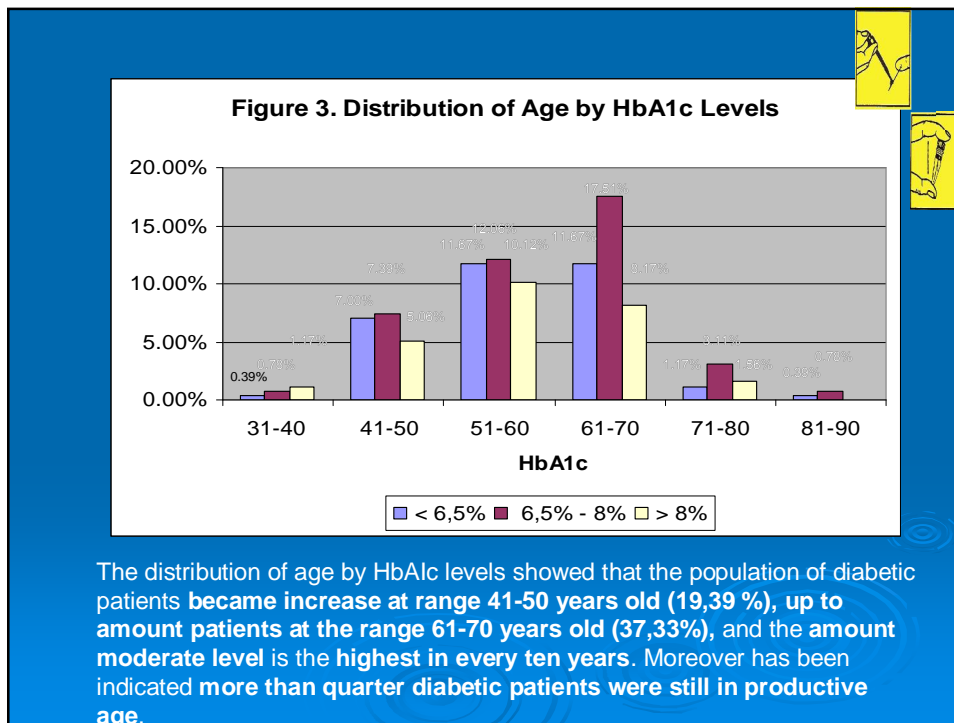
The education levels were consisted of :
Elementary School (14.39%), Junior High School (15.17%), Senior High School (44%), and Undergraduate (26,44%).

The occupation levels were consisted of :
Civil Servant (19,07%), Employee (7,78%), Retired (22,18%), House Wife (33,85%), and Other (17,12%).

Patients with diabetic education 66,70%, nutrition counseling 95,34% and drug counseling 26,46%.

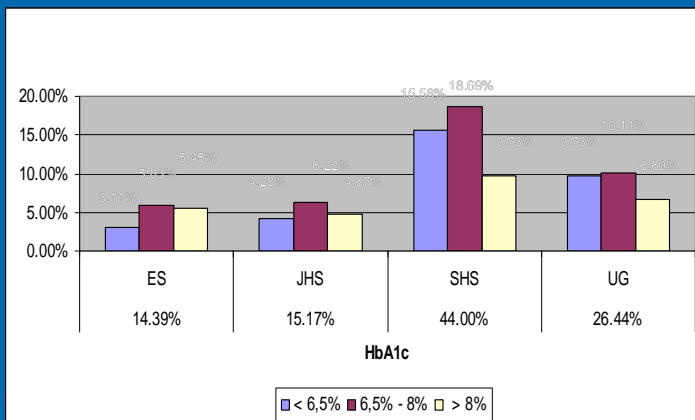
We developed making the **distribution of every demographic data** (gender, age, educational level, occupation), **diabetes education, nutrition and drug counseling, by HbA1c levels.**





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Figure 5. Distribution of The Education Level by HbA1c Level

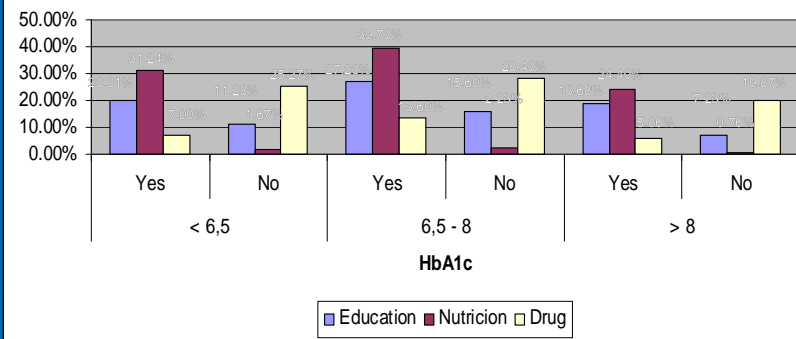


ES = Elementary School
 JHS = Junior High School
 SHS = Senior High School
 UG = Undergraduate

The distribution of education level by HbA1c
 Among subject with **UG degree (27,16 %)** nearly have the same amount either **good level (10,12 %)** or **moderate level (9,73 %)**
 Meanwhile subjects among **ES degree** almost the same amount either **moderate level (5,84 %)** or **poor level (4,67 %)**.
 It is indicated that the **education level important to diabetes treatment.**

Figure 6.

Distribution Diabetes Education, Nutrition and Drug Counselling by HbA1c Level



More than two to third (2/3) patients either with education diabetes or nutrition and drug counselling had good and moderate criteria HbA1c. Especially in drug counselling, in contrast more than two to third patients without drug counselling had good and moderate criteria of HbA1c. We predict the more diabetic patients with drug counselling, the more will become have good criteria of HbA1c.

Conclusions

Most diabetic outpatients of Fatmawati General and Teaching Hospital are type 2 (99,05%).

The mean of HbA1c ($7,2 \pm 1,6$) was classified moderate result, almost quarter of patients (24,51%) still poor level.

Further studies are required to determine the factors influencing the glycemic control for better diabetes mellitus patients management.

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