Evaluation of the Effects of an Educational Nursing Intervention for Lebanese type 2 Diabetics on their Therapeutic Adherence

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PROBLEM STATEMENT

EPIDEMIC

1985: **30** Million
2013: **382** Million
2035: **592** Million
      90%DM2

COMPLICATIONS

Neuro-Macro et Micro
RECOMMENDATIONS
- Diet
- Glucose monitoring
- Medication
- Exercice

DIABETES

THERAPEUTIC ADHESION

**Willingness to actively participate
to the treatment**

INDICATOR

HbA1c <7 %

**↓ 1% HbA1C→ ↓ 21%
risk of complications**

(McDowell, Courtney, Edwards, Shortridge-Baggett, 2005 ; Sprague, Shultz, Branen 2006 ; Vermeire et al., 2008; IDF, 203 ; 2014: ADA, 2013 ; WHO.2013: UKPDS,1998 et 2008: Zoungas et al. 2014)

LEBANON

EPIDEMIC

- **13% diabetes**
- **85 % DM2**

FACTORS

- **Lack of structures to support DM2**
- **Nurse Education**
- **Influence of the Lebanese culture**

THERAPEUTIC ADHESION

29,6%

SOLUTION

Implement and evaluate an educational program

DIABETES

(Hirbli, Jambeine, Slim, Barakat, Habis, & Francis, 2005; (Khoury,2001) Azar, Malha, Zantout, Naja, Younes & Sawaya , 2013)

SELF-EFFICACY AND DIABETES MANAGEMENT

Self-efficacy role in the improvement of diabetes self-management have been confirmed in the litterature

(Allen, Fain, Braun & Chipkin, 2008 ; Mohebi, Azadbakht, Feizi, Sharifirad & Karzar, 2014 ; Shi , Ostwald & Wang, 2010; Wu, 2007 ; Zareabn, Niknami & Rakhshami, 2013).

No interventions have been conducted among DM2 in the Middle East and specifically in Lebanon

OBJECTIVE

Evaluate the effects of a nursing educational program for persons with type 2 diabetes on self-efficacy and self-care behaviors, in order to have an optimal therapeutic adherence

HYPOTHESIS

Following the implementation of the nursing educational intervention:

1. **Level of self-efficacy of the participants will be higher in the experimental group than in the control group.**

2. **Participants' in the EG, will adopt self-care behaviors more than the control group.**

3. **HbA1c level will be lower in the experimental group than in the control group.**

METHOD

DESIGN

Experimental before/after with group control

SAMPLE

240 DM2
- **> 18 years**
- *DM2 diagnosed since 1 year*
- **Speak, read and write aArabic**
- **HbA1C> 7%**
- **Clinics HDF**

DATA ANALYSIS

- *Descriptive*
- *Inferential*
- *Per protocol/ post hoc*

INTERVENTION

2 sessions of 3h/2 weeks

5-6 DM2 per group

Diabetes Nurse Educator

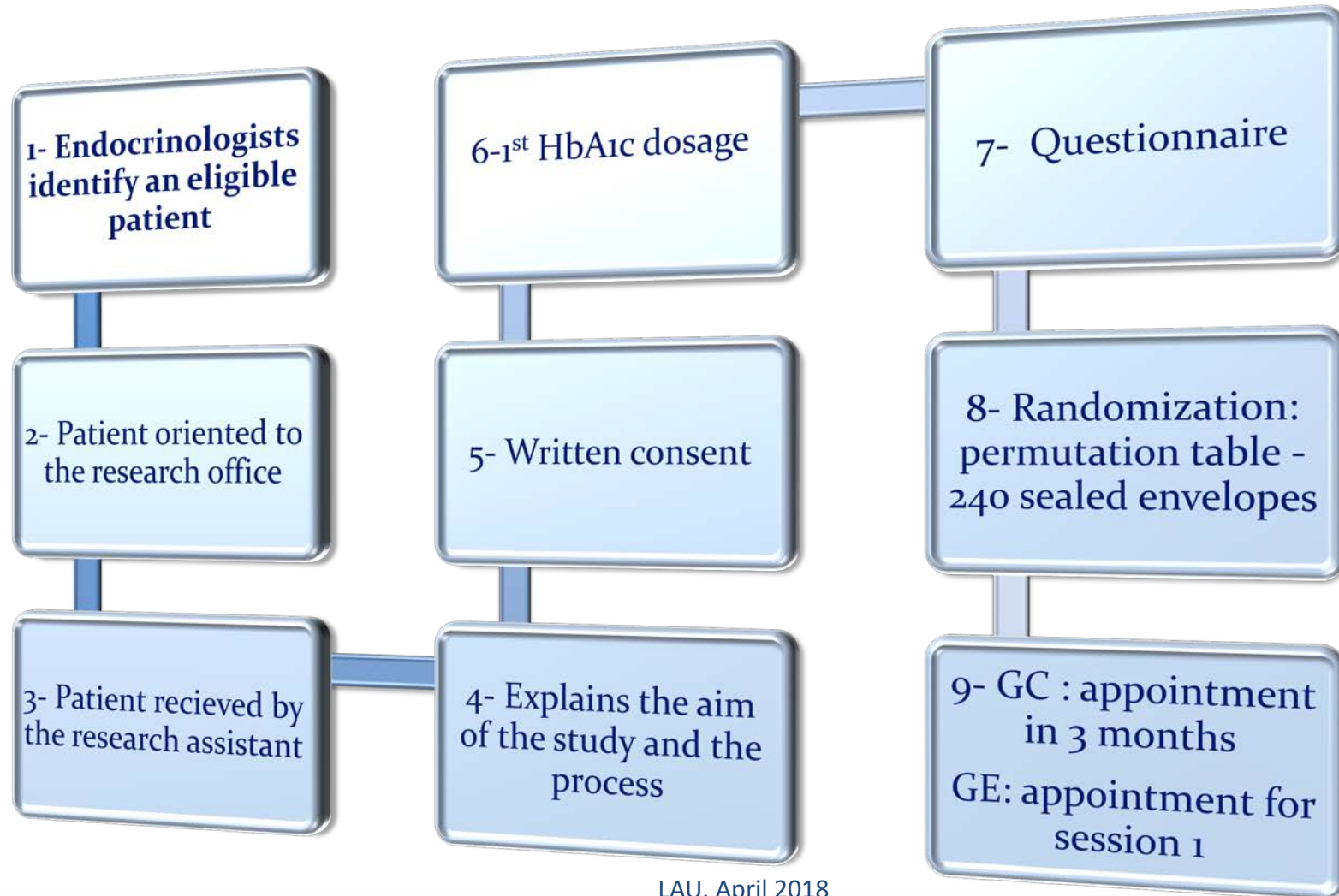**Book- 150 photos of Lebanese plates- Follow up phone calls (5 calls)**

INSTRUMENTS

HbA1c: adhesion
SDSCA: Self-care behaviors
DMSES: Self-efficacy
Socio-demographic caracteristics

METHOD :
CONDUCTION OF THE STUDY

1- Endocrinologists identify an eligible patient

2- Patient oriented to the research office

3- Patient recieved by the research assistant

6- 1st HbA1c dosage

5- Written consent

4- Explains the aim of the study and the process

7- Questionnaire

8- Randomization: permutation table - 240 sealed envelopes

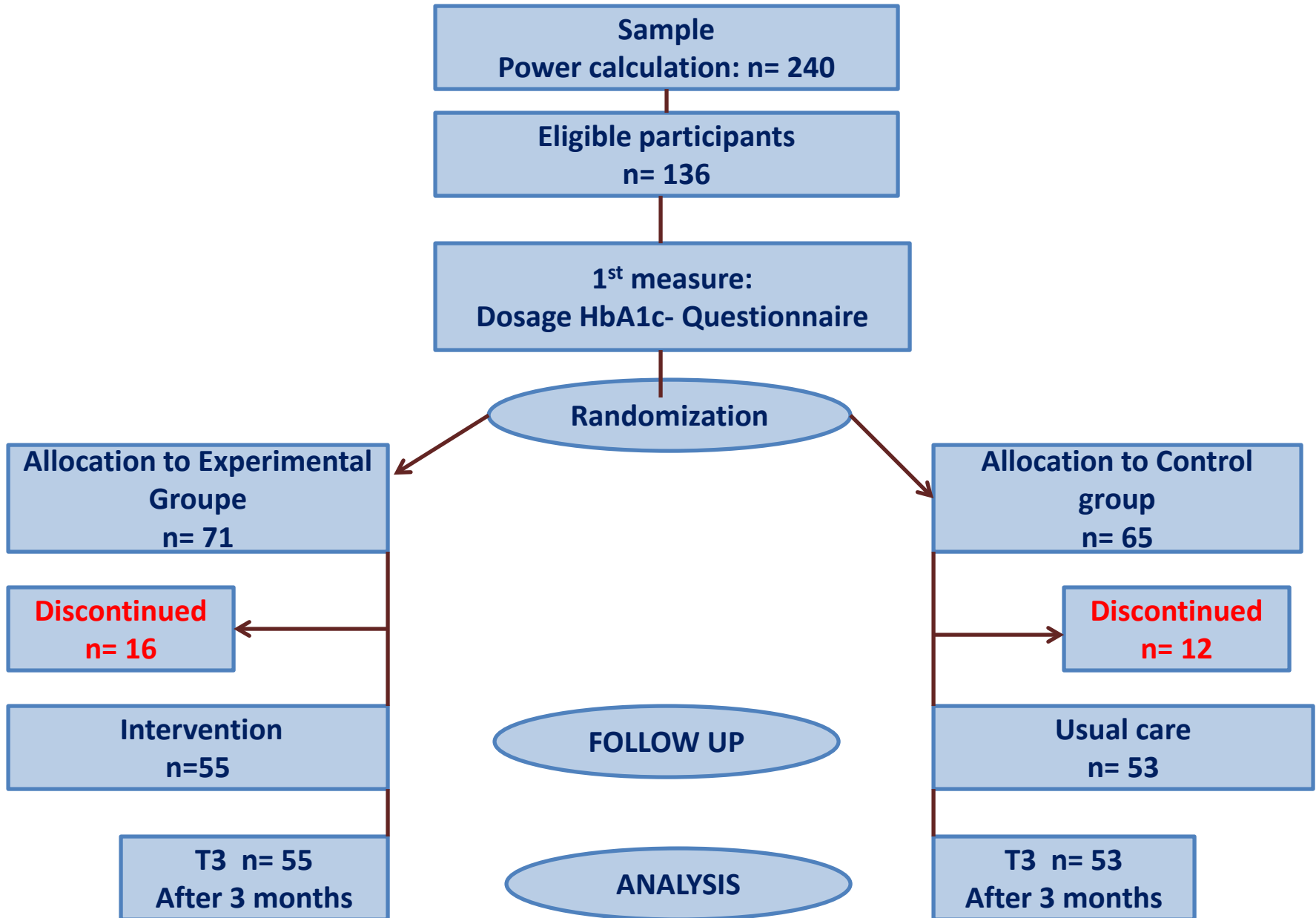**9- GC : appointment in 3 months**

GE: appointment for session 1

ETHICAL CONSIDERATIONS

- Research Council USJ et UDM

- Clinicaltrials.gov : NCT0177887

- Consent

- Autorisation : Endocrinologists- Authors-Roche (Accu-check Assist program)

RECRUITMENT FLOWCHART

Sample
Power calculation: n= 240

Eligible participants
n= 136

1st measure:
Dosage HbA1c- Questionnaire

Randomization

Allocation to Experimental Groupe
n= 71

Allocation to Control group
n= 65

Discontinued
n= 16

Discontinued
n= 12

Intervention
n=55

FOLLOW UP

Usual care
n= 53

T3 n= 55
After 3 months

ANALYSIS

T3 n= 53
After 3 months

LAU, April 2018

RESULTS
H1 = SELF_EFFICACY

Self-efficacy score 0 to 200	EG (n=55)	CG(n=53)	F	p
Pre Mean, (SD)	93.98 (33.28)	81.79 (36.47)	[a]F (1,105) = 136.49 [b]F (1,105) = 1.29	0.0001* 0.2583
Post Mean, (SD)	145.70 (25.91)	77.53 (33.73)	[c]F (1,105) = 241.27 [d]F (1,105) = 37.58	0.0001* 0.0001*

[a]*F* : Interaction group X time.
[b]*F* : Difference between pre and post for CG.
[c]*F* : Difference between pre and post for EG
[d]*F*: Difference between 2 groups post intervention - * $p < .05$

DISCUSSION
H1 = LEVEL OF SELF-EFFICACY OF THE PARTICIPANTS WILL BE HIGHER IN THE EXPERIMENTAL GROUP THAN IN THE CONTROL GROUP

➢ **The nursing educational intervention has improved the level of self-efficacy in Lebanese DM2 patients.**

➢ **Effectiveness of the education based on the four sources of self-efficacy (Bandura 2003), during the education sessions and during the telephone follow-up.**

➢ **Concordance with the litterature** (Mohebi et al., 2014; Shi et al., 2010; Wu, 2007; Zareban et al., 2013).

RESULTS H2 = SELF-CARE BEHAVIORS

Variables		EG(n=55)	CG(n=53)	F and t	p
General Diet	**Pre** Mean (SD)	2.33 (2.43)	2.03 (2.37)	[a]$F (1,105) = 67.53$ [b]$F (1,105) = 1.02$	0.0001* 0.3146
	Post Mean (SD)	5.29 (1.27)	1.75 (2.20)	[c]$F (1,105) = 114.61$ [d]$F (1,105) = 50.42$	0.0001* 0.0001*
Specific Diet	**Pre** Mean (SD)	3.75 (1.91)	3.58 (1.89)	[a]$F (1,105) = 66.18$ [b]$F (1,105) = 24.99$	0.0001* 0.0001*
	Post Mean (SD)	5.65 (1.22)	2.10 (1.41)	[c]$F (1,105) = 42.52$ [d]$F (1,105) = 81.70$	0.0001* 0.0001*
Physical Activity	**Pre** Mean (SD)	1.14 (1.40)	1.06 (1.34)	[a]$F(1,106)= 17.24$ [b]$t (106) = -0.74$	0.0001* 0.4582
	Post Mean (SD)	2.04 (1.30)	0.92 (1.08)	[c]$t (106) = 5.17$ [d]$t (106) = -4.49$	0.0001* 0.0001*

[a]F : Interaction group X time. [b]F : Difference between pre and post for CG. [c]F : Difference between pre and post for EG
[d]F: Difference between 2 groups post intervention - * $p< .05$

RESULTS H2 = SELF-CARE BEHAVIORS

Variables		EG(n=55)	CG(n=53)	F and t	p
Blood Glucose control	**Pre** Mean (SD)	1.68 (2.340	2.25 (2.62)	[a]F (1,105) = 41.90	0.0001*
				[b]F (1,105) = 1.96	0.1646
	Post Mean (SD)	4.48 (1.99)	2.69 (2.87)	[c]F (1,105) = 113.94	0.0001*
				[d]F (1,105) = 10.67	0.0001*
Foot Care	**Pre** Mean (SD)	0.63 (1.40)	0.92 (1.65)	[a]F (1,105) = 21.56	0.0001*
				[b]F (1,105) = 63.36	0.0001*
	Post Mean (SD)	5.09 (2.01)	3.38 (1.27)	[c]F (1,105) = 217.25	0.0001*
				[d]F (1,105) = 25.99	0.0001*
Medication	**Pre** Mean (SD)	6.60 (1.44)	6.34 (1.74)	[a]F(1,105) = 0.84	0.3603
				[b]t (105) = 30.39	0.0001*
	Post Mean (SD)	6.87 (0.94)	6.38 (1.69)	[c]t (105) = 32.29	0.0001*
				[d]t (105) = 33.62	0.0001*

[a]F : Interaction group X time. [b]F : Difference between pre and post for CG. [c]F : Difference between pre and post for EG
[d]F: Difference between 2 groups post intervention - * p< .05

LAU, April 2018

DISCUSSION H2 : PARTICIPANTS' SELF-CARE BEHAVIORS WILL BE <u>HIGHER</u> IN THE EXPERIMENTAL GROUP THAN IN THE CONTROL GROUP

- **Engagement of the EG participants for 3 months in self-care behaviors**(Hunt, 2013; Klein et al; 2013; Timm et al; 2013)

- **Improvement in <u>FOOT CARE</u> in the CG: Social desirability**

- **No difference between both groups in pre and post intervention for <u>MEDICATION</u> :**

  ➢ *Mean was high at baseline in both groups*

  ➢ *Patients pay for their medications.*

RESULTS
H3 : GLYCEMIC CONTROL- HBA1C

HbA1c	Experimental Group (n=55)	Control Group (n=53)	F	P
Mean (SD)			[a]$F_{(1,105)} = 21.34$	<0.0001*
Pre	8.03 (1.23)	8.46 (1.53)	[b]$F_{(1,105)} = 0.00$	0.9873
Post	7.26 (1.28)	8.47 (1.62)	[c]$F_{(1,105)} = 43.27$	<0.0001*
			[d]$F_{(1,105)} = 19.38$	<0.0001*

[a]*F* : Interaction group X time. [b]*F* : Difference between pre and post for CG. [c]*F* : Difference between pre and post for EG
[d]*F*: Difference between 2 groups post intervention - * p< .05

The nursing intervention had a <u>positive impact:</u>

- **Increase level of self-efficacy among participants**

- **Adoption of self-care behaviors according to therapeutic recommendations**

- **Better glycemic control (HbA1c) through education** (Cheng, 2011; Timm et al., 2013; Walker et al., 2013; Worswick et al., 2013).

LIMITS

- **Ramadan Fasting**
- **Sample size : 136 instead of 240 DM2**
- **Diabetes type 2 only**
- **Short measuring time (3 months)**
- **Social desirability bias**

IMPLICATIONS

PRACTICE
- **Diabetes Education Center**
- **Nurse Counseling**

EDUCATION
- **Nurse Educator specialized in therapeutic education**
- **Teach the therapeutic adherence concept**
- **Develop the SCT**
- **Focus on the experimental design/RCT**

RESEARCH
- **Pilot study**
- **Diabetes type 1**
- **Qualitative study**
- **Future study with longer measurement duration**

MANAGEMENT
- **National Preventive Policy**
- **Interprofessional collaboration**
- **Platform for therapeutic education mateparadigme**

CONCLUSION

- **First study of this kind among Lebanese DM2 patients**

- **Demonstrates that nursing education promotes adherence in DM2 patients in Lebanon**

- **The collaboration of physicians with the author confirms their interest in improving the quality of life of their patients and has shown their belief in the effectiveness of therapeutic education in improving diabetes management**

- **Encourages the Lebanese government to set up national platforms for therapeutic education for chronic diseases**