Factors Affecting Electronic Health Care Records Adoption (EHR) in Developing Fertile Crescent's Middle Eastern Countries; Lebanon, Syria and Jordan.

PhD in Health Informatics
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Abstract

This research furthers **knowledge about factors** affecting individual managers actual individual usage of Electronic Health Care Records; (AIU-EHR), in hospitals i.e. in three developing countries of middle east. EHR is a **generic** term which incorporates several classes of systems. This research defines EHR as a scientific discipline concerned with cognitive information processing, as well as concerned with the communication tasks of health care, health care research, and education, respectively.

This investigation **focuses** on how the **independent variables** affect the dependent variable (AIU-EHR) [2,4,5,6]*:

- **Individual personality characteristics**
- **Attitudes and habits**
- **Characteristics of individuals according to their organizations**
- **EHR usefulness**

*[2- Kroeber, D.W., and Watson, H.J. (1984). Computer-based Information Systems: A Management Approach. New York: Macmillan Publishing Company.
4- Pagliari et al., (2005) Scoping Study. Traditional Review. Draft.
5-Reznikoff, M., C.H. Holland, and C.F. Stroebel. (1977). Attitudes toward computers among employees of a psychiatric hospital. Mental Hygiene 51 May: 419 – 425.
6-Van Bemmel J.H., (1997). Handbook of Medical Informatics: Springer.]

Subdivisions and Classes of EHR

The classes or subdivisions of EHR were defined in 1997.[2,,4,5]*

1. Administrative and Clinical Information Systems

2. Management Information Systems

3. Health Care Organization Information Systems

4. Patient-Centred Administration Systems

5. Medical Knowledge and Decision Support Systems (interactive systems)

6.Transaction Processing Systems

7. The Internet

But in this research EHR is handled as a discipline not as classes.

*[2- Kroeber, D.W., and Watson, H.J. (1984). Computer-based Information Systems: A Management Approach. New York: Macmillan Publishing Company.
4- Pagliari et al., (2005) Scoping Study. Traditional Review. Draft.
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Background

Background: "The lack of access to basic healthcare continues to stifle social and economic advancement in many parts of the developing world."[5]

This applies to developed countries. [6]

Researching EHR factors leading to adoption in The Fertile Crescent developing countries will create a panoramic and practical picture and vision for healthcare executives, healthcare IT professionals, healthcare researchers and officials in the governments responsible for finance and health policy in these developing countries.

This also applies for agencies and other international organizations to take action towards bridging gaps for achieving optimal and affordable health information and communication technologies as EHR.

Data collection & Analysis

- **Data collection** includes a questionnaire. The researcher completed it. The researcher uses on-site interviewing of Healthcare organisations managers from macro to micro levels. The respondents are managers from healthcare departments in the three Middle Eastern countries mentioned.

- **Structural Equation Modeling SEM [1]* & Ideamap [3]*** data analysis techniques will be conducted. The measurement model in this research uses factor analysis to assess the degree that the observed variables load on their latent exogenous and endogenous constructs respectively. SEM literature defines the independent variables as endogenous factors while the dependent variable is an exogenous factor.

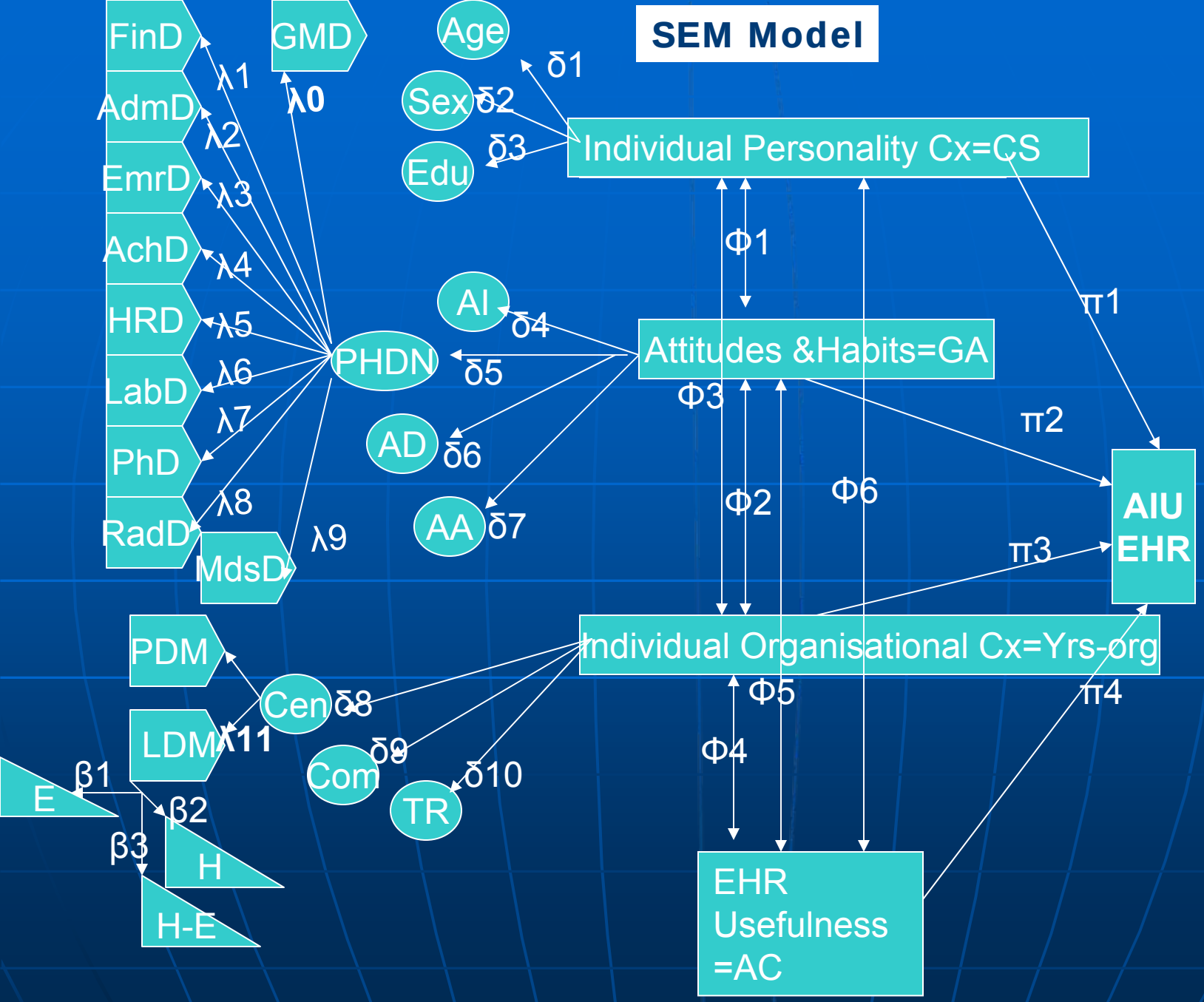
- The research uses in the analysis AMOS which is an add on SPSS application. As well as, Ideamap that also tests a large number of variables horizantally and vertically, in a similar way to AMOS.

*[1- Bollen, K. A. (1989). Structural Equations with Latent Variables. New York, NY: John Wiley & Sons.
3-Moskowitz H. (2007). Ideamap. New York, NY. www.ideamap.org]

Methods

- **Methods:** Based on a socio-technical approach the research approached nearly most inclusive and representative sample of the region's hospitals in each country.
- The aim of the **sampling methodology** is to arrive at a sample that is representative of individual health care professionals in organisations (size mentioned) in the countries under study. The number of individual health care professionals of health care organisations from any one country is determined on the basis on the **country's proportionate share** of all individual health care professionals in health care organisations in the studied countries.
- Research presents the number of individual health care professionals of the number of their respective hospitals in the region by country.

SEM Model


FinD
GMD
Age
AdmD
Sex
Edu
EmrD
AchD
HRD
LabD
PhD
RadD
MdsD
PHDN
AI
AD
AA
Individual Personality Cx=CS
Attitudes &Habits=GA
AIU
EHR
Individual Organisational Cx=Yrs-org
PDM
Cen
LDM
Com
TR
E
H
H-E
EHR
Usefulness
=AC
λ1
λ0
λ2
λ3
λ4
λ5
λ6
λ7
λ8
λ9
λ11
δ1
δ2
δ3
δ4
δ5
δ6
δ7
δ8
δ9
δ10
Φ1
Φ2
Φ3
Φ4
Φ5
Φ6
π1
π2
π3
π4
β1
β2
β3

Syntax: Paths connecting contexts or variables in the diagram

1- The paths connecting the four independent variables (exogenous); **Individual Personality Characteristics (CS)**, **Attitudes (GA), EHR-Usefulness (AC)** and **Individual Organisational Characteristics (Yrs)** with the dependent (endogenous) variable; **AIU-EHR** as the independent variable are represented by **π (Pi)** coefficients.

- 2- The shared matrix between the four independent variables; **Individual Personality Characteristics**, **Attitudes, EHR-Usefulness** and **Individual Organisational Characteristics** with each other are represented by **Φ (PHI)** coefficients**.**

- 3- The path between an observed variable and its latent independent variable is represented by **δ (Delta)** coefficients.

- 4- The path between the sub-observed variable and its observed variable is represented by **λ (Lambda)** coefficients.

- 5- The path between the late sub-observed variable and its sub-βobserved variable is represented by **β(Beta)** coefficients.

The one dependant variable:

AIU- EHR: The actual individual usage of EHR
It is defined as the average time each EHR function is used per week by the specific personnel in charge if the EHR system is used.

The main four independent variables:

I- Individual Personality Cx:
It is defined as the Cognitive structure of every manager **(CS)**

II- Attitudes:
It is defined as The General Attitudes of each manager **(GA)**

III- Individual Organisational Cx:
It is defined as the years spent by a manager in an organisation **(Yrs)**
No# of years.

IV- Usefulness of EHR
It is defined as attitudes towards contribution. **(AC)**

Results & Discussion

- **Results-**
  - The four **Π** correlational analysis coeficients and AIU-EHR are significant.
  - The six **Φ** Correlational coeficients are significant.
  - Out of the ten δ Correlational coeficients, number 2,4,5,6,8,10 are significant.
  - All the **Λ** Correlational coeficients are significant.
  - Only **β1** Correlational coeficient is significant.

- **Discussion**- This study has made major contributions:
  - **described the type of institutions that use EHR**.
  - **presented EHR usage within the context of the three developing countries of the middle east health care delivery systems and the policies**
  - **paved the way for future research that can focus on the management of EHR, as an outcome.**
  - **presented a tool for measuring individual usage of EHR in hospitals, w**ith a few modifications and refinements. This instrument can be used elsewhere and as a means for comparison across hospitals and/or countries.

- **Limitations**- however, the study is not without limitations, even in what was attempted here. For example, the dependent measure AIU- EHR is an oversimplified measure which should be re-operationalized in future research. Nevertheless, it was considered provisionally adequate given the exploratory nature of this research.

References

1- Bollen, K. A. (1989). Structural Equations with Latent Variables. New York, NY: John Wiley & Sons.

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