



# **Accuracy of Digital Panoramic System in Sex Identification using Certain Mandibular Measurements**

A thesis

Submitted to College of Dentistry

Baghdad University

in fulfillment of requirement for the

Degree of M.Sc in

Oral and Maxillofacial Radiology

Submitted by

Sahar Najm Abdullah

B.D.S

Supervised by

Assistant Prof. Dr. Lamia H. Al-Nakib

B.D.S, M.Sc in Oral and Maxillofacial Radiology

Iraq-Baghdad

2011 A.D

1432 A.H

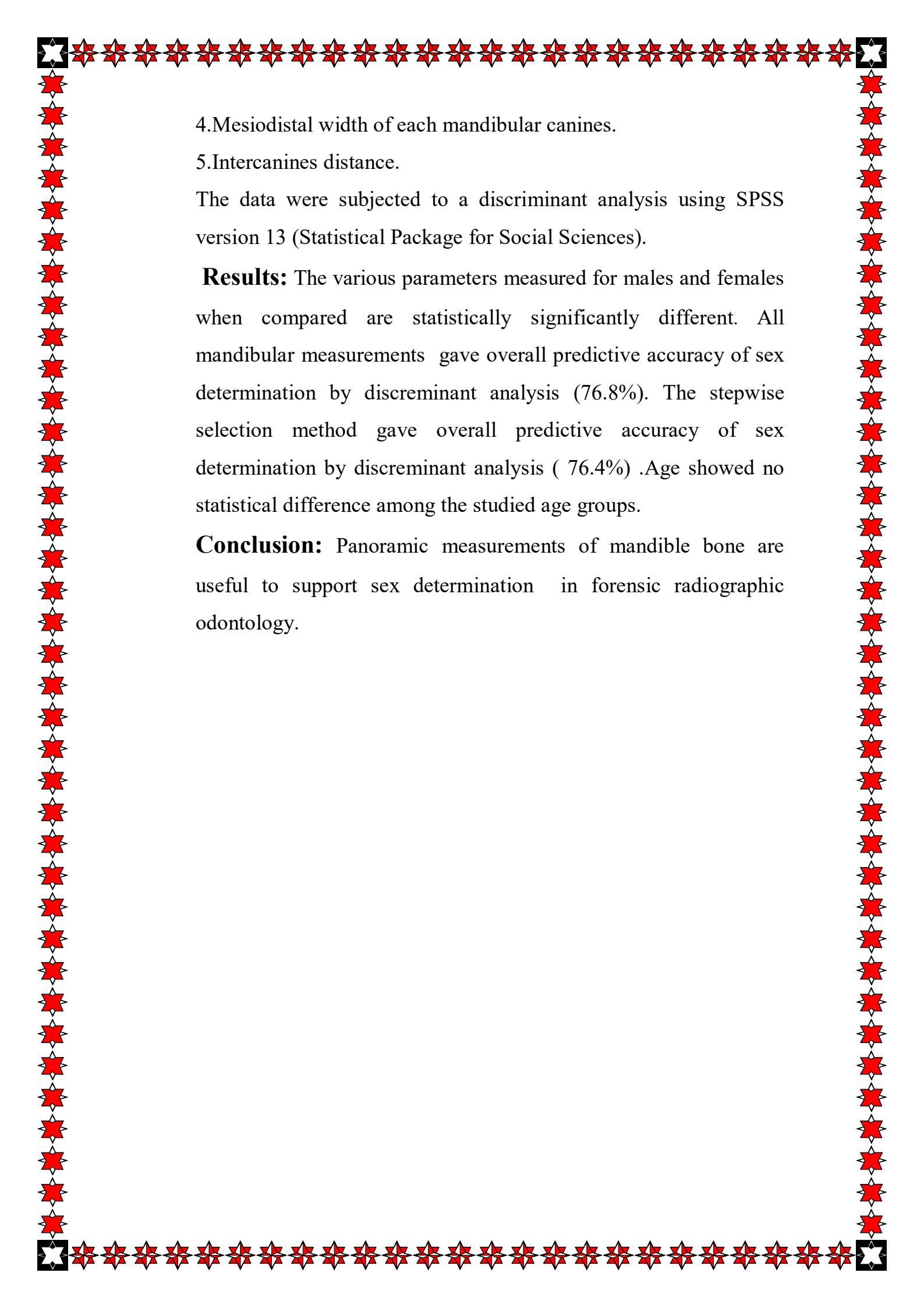
## *ABSTRACT*

**Background:** Identification of the skeletal and decomposing human remains is one of the most difficult skills in forensic medicine. Recent research has also focused on using various skeletal elements to quantify variation related to sexual dimorphism for both cranial and postcranial primarily because the determination of sex in unknown skeletal remains is one of the key biological characteristics ( alongside age, ethnicity and stature) used to facilitate forensic identification. However, in explosions, war fares and other mass disasters like aircraft crash, identification and sex determination are not easy.

**The aims of the study:** This study was undertaken to evaluate the accuracy of digital panoramic system as quick, easy and reproducible supplement tool in sex identification using certain mandibular measurements in predicting sex.

**Material and method:** The sample in the current study consisted of 280 Arabic Iraqi dental patients attending to the Radiological Clinic in Collage of Dentistry/ Baghdad University, for panoramic images from both sexes and with age range from 20-60 years old divided in four groups. All participants were carefully informed about the aim and method of the investigation and they were free to accept or refuse. For each patient panoramic image took and the following measurements have been taken with the aid of computer program “AutoCAD 2010” :

- 1.The distance from mental to mandibular foramina.
2. Intercondylar distance.
- 3.The distance between the mandibular foramina in both sides.



4.Mesiodistal width of each mandibular canines.

5.Intercanines distance.

The data were subjected to a discriminant analysis using SPSS version 13 (Statistical Package for Social Sciences).

**Results:** The various parameters measured for males and females when compared are statistically significantly different. All mandibular measurements gave overall predictive accuracy of sex determination by discriminant analysis (76.8%). The stepwise selection method gave overall predictive accuracy of sex determination by discriminant analysis ( 76.4%) .Age showed no statistical difference among the studied age groups.

**Conclusion:** Panoramic measurements of mandible bone are useful to support sex determination in forensic radiographic odontology.