



## Questioned Documents - 2017

### J19 Features of Elderly Writing in Arabic

*Bayan Ramadan, BSc\*, Palestinian Authority, Forensic Science Laboratory, Ramallah, PALESTINE; Ayman Ghazawi, BA\*, Palestinian Authority, Forensic Science Laboratory, Ramallah, PALESTINE; and Samiah Ibrahim, BSc, 139 Riverdale Avenue, Ottawa, ON K1S 1R1, CANADA*

After attending this presentation, attendees will better appreciate the features and elements of elderly writing in Arabic script.

This presentation will impact the forensic science community, specifically the Forensic Document Examiners (FDE) community, by providing information regarding features observed in the writing of elderly Arabic script writers.

Handwriting is a complex human activity that entails an intricate blend of cognitive, kinesthetic and perceptual-motor components. Inevitably, the writing of all persons changes over time; but, how the changes are evidenced and in what time span is quite variable.

While there have been many studies and research conducted over the history of forensic document examination of the writings of the elderly, this cannot be said of all parts of the world and with all scripts. Because handwriting comparison/identification is a considerably new field in Palestine there have not been empirical studies conducted specifically of elderly Arabic writers until now.

The goal of this study is to a preliminary baseline for the state of elderly writing in the region. In this paper, the writings of 47 different writers ranging in age between 65 and 89 years were studied. Participants were asked to complete a questionnaire detailing their name, marital status, age, gender, handedness, level of education, and the geographical area they lived in when they were taught to write. Not only was the information from the questionnaire used in the evaluation of the handwriting, but it served to obtain a representative sample of natural writing from each participant. The questionnaire specifically requested the writer to produce numerals, the characters of the Arabic alphabet, and a text passage on white ruled and un-ruled A4 paper using a ballpoint pen.

Once the data had been gathered, the handwriting samples were classified into age groups as follows: 65-69 years of age (20 writers); 70-79 years of age (19 samples); and, 80-89 years of age (8 samples). All the handwritings were analyzed. Among the features considered were diacritics and punctuation, embellishments, legibility, line quality, overall pressure, size, skill, slant or slope, spacing, speed, terminal strokes, and tremor. The final evaluation, in the discussion portion of this paper, was based on the features of pen pressure, punctuation marks, diacritics, size, legibility, tremor, and baseline alignment; although, other features were peripherally assessed. Factors such as gender (8 females and 39 males) and handedness (45 right-handed, 1 left-handed, 1 declared both) were briefly considered for analytical purposes.

The data from each of these features was then further broken down to show trends across the writing of the elderly for the geographic region of interest. It is noted that the sample size of this study is limited and so it is recommended to expand this study with participants from many more locations of the West Bank and include participants of a fourth age group, that of 90-99 years of age, in order to validate the initial trends outlined in this study.

### **Forensic Document Examination, Elderly Writing, Arabic Handwriting**

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