



Physical Anthropology Section – 2010

H97 Recollected Versus Actual Stature: How Does the Height Reported by Next of Kin Measure Up?

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After attending this presentation, attendees will learn of the inaccuracy and bias of the estimated heights of individuals obtained from their next of kin, how they compare to self-reported statures, what factors may influence accuracy and how useful these estimated heights can be in aiding in the identification of missing persons in post-conflict settings. This study proposes that recollected statures (RSTATs) obtained from next of kin can be useful in identification, as they are representative of actual height within defined limits.

This research will impact the forensic science community by providing information on the reliability and validity of antemortem height information obtained from family. The usefulness of stature estimations in human identification at an international level has been questioned. A reason for this is that RSTATs are believed to be inaccurate and unreliable. Inaccuracy and bias are known to occur in heights that are self-reported, but those of recollected stature had not been extensively studied.

In human rights investigations, an integral role of forensic anthropologists is identifying the victims of mass graves. In order to do this, the creation of a biological profile (in which stature is a key component) is important so that it may be compared to antemortem (AM) information. In post-conflict areas, AM records are not always available and if they are, their reliability is often doubtful. In such circumstances, AM information of a missing person's physical features, including their height, is obtained from interviewing their closest relatives and/or friends. Metric values may not be understood, or families may not be able to state the height of the missing person in metres. Because of this, the interviewer will ask the family member to indicate how tall the individual is compared to him/her.

Volunteers were obtained from the City of Greater Sudbury, Ontario, Canada. A total of 367 RSTATs were collected (210 females, 157 males, ages 18-85). Families were interviewed and each member was asked to fill out questionnaires about themselves (e.g. their age, sex, how tall they think they are, etc...) and the kin whose height they were estimating (e.g., their relation, how long they have known them, etc...). RSTATs were obtained following the guidelines of the Physician's for Human Rights AM Data Collection protocol for Kosovo (1999). Participants were asked to indicate, using their hand, how tall they thought their kin were compared to the interviewer. A tape measure was used to take the measurement of the RSTAT from the floor up to the inferiorly facing palmar surface of the participant's fingers, with their arm extended in front of them. The height of each participant was then measured using an anthropometer.

The inaccuracy and bias of the self-reported heights and RSTATs were assessed in relation to the measured height of the individuals and then compared to each other. Accuracy is the average deviation of height estimation from actual height; bias is the direction of that deviation (i.e., over- or underestimation). Similar to other studies of reported stature, self-reported heights and RSTATs showed a correlation with measured height ($r=0.97$ and 0.87 , respectively) but were significantly different and inaccurate ($p<0.01$). Self-reported heights show an average positive bias of 1.8cm (i.e., overestimation of actual height), while RSTATs show a negative of 1.1cm (i.e., underestimation of actual height). Self-reported heights had a mean accuracy of 2.3cm , while that of RSTATs was 4.5cm . A one-way ANOVA found these to be significantly different from each other ($p<0.01$). Other factors that may influence the accuracy and bias of the RSTATs were explored (e.g., relatedness, age, sex, height of the person being estimated, etc...). A correction factor was obtained with 95% confidence intervals so that measured height could be calculated from an RSTAT.

The underestimation of measured height by the next of kin differs from the observations made in the investigations of the Former Yugoslavia, which indicated that stature was over-estimated by family. It appears that the self-perception of one's own height is more accurate than the perception of their height by others. RSTATs can be of use in identification, provided one is aware of their limitations. Understanding the inaccuracy and bias of RSTATs can allow for a better interpretation of height information provided by families.

Stature, Human Identification, Height Estimation