Brief report

The fist bump: A more hygienic alternative to the handshake

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The fist bump was significantly increased by prolonging for 3 seconds.
We also assessed if the grip exerted during a handshake affected bacterial transfer by applying differing amounts of gripping pressure. Moderate and strong grips were measured using a Takei TKK5401 dynamometer (Takei Scientific Instruments Co Ltd, Tokyo, Japan), giving mean ± standard deviation readings of 49 ± 4 kg and 25 ± 1 kg, respectively. Strong grips resulted in significantly greater transfer of bacteria per area of contact than moderate-strength handshakes (Fig 1B) (P < .01).

DISCUSSION

This experimental model provides evidence that dap greetings result in reduced transmission of bacteria between participants compared with a handshake. The high transmission level observed for handshakes does not appear to be purely a function of its large contact area, but also depends on duration and strength. Transmission is greater with increased duration and grip, which presumably increases the intimacy of association between hands.

Using a laboratory model meant that we were able to eliminate all variables except those deliberately assessed during the experiment: the type of greeting, greeting longevity, and the force of greeting contact. Outside the laboratory, many other variables will presumably also affect transmission. For instance, the 3 greetings tested involve contact between different parts of the hand, and it is probable that in everyday life different parts of a hand would have differing amounts of bacterial fauna, which would also depend on the participants’ hygiene habits, occupation, and location.

Although we investigated the transfer of a nonpathogenic bacterium, similar results would be expected for other pathogenic microorganisms (including viruses such as influenza), some of which are very costly in both human and economic terms. In the United States alone, community-acquired pneumonia causes > 60,000 deaths annually, with an estimated annual economic cost of > $17 billion.10 It is unlikely that a no-contact greeting could supplant the handshake; however, for the sake of improving public health we encourage further adoption of the fist bump as a simple, free, and more hygienic alternative to the handshake.

Fig 1. Transfer of bacteria in 3 greetings. (A) Area of contact (pale grey), transfer of bacteria during natural greetings (white), and prolonged greetings (dark grey) are all expressed as a percentage of values obtained for the handshake. (B) Transfer per area of contact in the 3 greetings (prolonged and natural duration), and for strong and moderate-strength handshakes (as a percentage relative to the moderate-strength handshake). Error bars denote ±1 standard deviation (n = 5 in all cases).

References