Journal of Hospital Infection 89 (2015) 210–214

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin

Association between students' personality traits and hand hygiene compliance during objective standardized clinical examinations

K. Schüttpelz-Brauns [a], U. Obertacke [a,b], J. Kaden [a], C.I. Hagl [c,*]

[a] *Department of Undergraduate Education and Educational Development, University Medicine Mannheim, Medical Faculty Mannheim at Heidelberg University, Mannheim, Germany*

[b] *Department of Trauma Surgery, University Medicine Mannheim, Medical Faculty Mannheim at Heidelberg University, Mannheim, Germany*

[c] *Clinic of Paediatric Surgery, Division of Research and Education, University Medicine Mannheim, Medical Faculty Mannheim at Heidelberg University, Mannheim, Germany*

ARTICLE INFO

Article history:
Received 19 June 2014
Accepted 19 November 2014
Available online 26 December 2014

Keywords:
Hand disinfection
Hygiene
Medical education

SUMMARY

Background: Although the need for hand hygiene (HH) is generally accepted, studies continue to document inadequate compliance. Medical students are taught about the importance of HH to prevent nosocomial infections, and receive training in the correct procedures for HH. However, personality traits (social orientation and achievement orientation) may influence HH compliance. People with high social orientation feel socially responsible and act cooperatively, and people with high achievement orientation are ambitious and competitive.

Aim: To evaluate the relationship between HH compliance and personality traits of medical students.

Methods: The HH compliance of 155 students was observed during objective standardized clinical examinations (OSCEs). Social orientation and achievement orientation were measured using the corresponding scales of the Freiburg Personality Inventory - Revised.

Findings: Social orientation did not differ between students with high HH compliance and students with low HH compliance [$F_{(1)} = 3.87$, $P = 0.052$, $\eta^2 = 0.045$]. For achievement orientation, a moderate effect was found between low and high HH compliance [$F_{(1)} = 11.242$, $P = 0.001$, $\eta^2 = 0.119$], and students with high HH compliance were found to be more achievement orientated than students with low HH compliance.

Conclusion: Achievement orientation plays a major role during OSCEs, while social orientation is less emphasized. To the authors' knowledge, this is the first study to show that HH compliance is associated with achievement orientation in achievement situations.

* Corresponding author. Address: Department of Paediatric Surgery, University of Mannheim, Medical Faculty of Heidelberg, Theodor-Kutzer-Ufer 1-3, 68167 Mannheim, Germany. Tel.: +49 (0) 621 383 3772; fax: +49 (0) 621 383 1981.
E-mail address: cornelia.hagl@medma.uni-heidelberg.de (C.I. Hagl).

http://dx.doi.org/10.1016/j.jhin.2014.11.014

Introduction

Since the work of Ignaz Semmelweis, hand hygiene (HH) has been recognized as the most effective method for the prevention of infection. HH diminishes the risk of infection for the patient, reduces the spread of infection and protects healthcare workers.[1] As such, it should be standard practice in all aspects of health care. Sociocultural factors (e.g. social rules, codes of practice) and workplace/structural measures (e.g. accessible sinks, visible dispensers) influence everyday HH performance. Several other factors also influence hand hygiene behaviour, including sex (females are more likely to perform HH), role models (HH levels are higher when senior medical staff practice HH), HH habits acquired during childhood, social facilitation (increased handwashing in the presence of another person in the washbasin area), and emotions such as disgust.[2–5] Surveys of medical staff have shown that HH does not depend on the actual risk of infection but on perception.[6] A key element to increase HH is a user-centred concept such as 'My five moments for hand hygiene' by Sax *et al.*[7] This describes reference points for hand hygiene during healthcare delivery, and facilitates understanding and appropriate performance.[8] Implementation of HH using the 'five moments' concept led to improved HH compliance in all participating settings.[9,10]

Affective emotional components that drive HH could also support practical training during medical school. Ideally, this training would be modified according to personality traits of medical students. Social orientation and achievement orientation seem to influence HH compliance. Social orientation is closely associated with awareness of environmental needs. In general, healthcare professionals have pronounced social orientation, and it is the most commonly mentioned motivation among nurses.[11] In the literature, nursing staff have been shown to have much better compliance with HH.[12] People with high social orientation take more care, reflect on their behaviour more often and may therefore act more appropriately. Achievement orientation is mainly linked to career-promoting attitudes. Reliable HH compliance has no influence on career prospects; indeed, senior staff often conform poorly with HH guidelines.[13] Workload has been reported as a risk factor for non-compliance with HH,[3] and common responses given in surveys to elucidate reasons for poor adherence to hygiene standards include 'too much work' or 'no time to do so'. This study aimed to evaluate the relationship between HH compliance and social and achievement orientation. It was anticipated that people with high social orientation would demonstrate better HH compliance than people with low social orientation. Furthermore, it was hypothesized that people with high achievement orientation would show poorer HH compliance than people with low achievement orientation.

Methods

Sample

The Medical Faculty Mannheim offers an innovative curriculum, 'Mannheim Reformed Curriculum Medicine', approved by the federal state (Baden-Württemberg). The advanced clinical study period in the third year is structured into four six-week teaching units with an objective structured clinical examination (OSCE) following the 'preparatory instruction' unit. OSCEs measure skills and competencies using standardized patients and timed stations to assess the performance of different tasks.[14] During their third year of medical education, the students are divided into cohorts. Skills training courses are held within integrated units, and cohorts pass through the units in differing orders. As such, students have differing knowledge throughout the study year, but should have equal knowledge and skills by the end of the year.

As third-year students enter the clinical stage of their training, the focus of the curriculum is on practical clinical skills. The 'preparatory instruction' unit includes teaching students about physical examination of the cardiovascular system, lungs, abdomen, upper and lower limbs, basic inspection in otolaryngology and paediatrics, taking a blood sample with a cannula (injection and venepuncture part I and II), and medical counselling techniques. Small groups of six students train together to meet the learning objectives. Students have extra time to practice under supervision with a tutor. HH is part of all physical examinations but is not taught explicitly.

Materials

HH was included as an additional item ['HH occurred (yes) or not (no)'] in the checklist at each OSCE station, in accordance with the 'five moments for hand hygiene' concept.[7] Social orientation and achievement orientation were measured using the corresponding scales of the Freiburg Personality Inventory - Revised (FPI-R). The scales of the FPI-R are objective, valid, economical and reliable.[15] A respondent agrees or disagrees with the statements.

Cronbach's alpha showed that the reliability of social orientation and achievement orientation on the FPI-R were moderate (Table I). To compare results with the norm, raw scores were transformed into nine standard scores (ST 1–9). ST 4–6 represents 54% of the norm within the age group, ST 7–9 (23% of the norm) represents a high level, and ST 1–3 reflects a low level. ST 4–6 is normal compared with the German population.

Table I
Example questions in the Freiburg Personality Inventory – Revised showing the German question and its translation for each personality trait

Personality trait	Questions (*N*)	Question in German	English translation	Cronbach's α
Social orientation	12	Ich fühle mich auch über meine Familie hinaus für andere Menschen verantwortlich.	I feel responsible for others, and not only for my family.	0.71
Achievement orientation	12	Ich habe Spaß an schwierigen Aufgaben, die mich herausfordern.	I like difficult tasks that are challenging.	0.77